

Final

# DWR PEARBLOSSOM SOLAR PROJECT

Initial Study / Mitigated Negative Declaration

Prepared for  
California Department  
of Water Resources

July 2013



Final

# DWR PEARBLOSSOM SOLAR PROJECT

## Initial Study / Mitigated Negative Declaration

Prepared for  
California Department  
of Water Resources

July 2013



626 Wilshire Boulevard  
Suite 1100  
Los Angeles, CA 90017  
213.599.4300  
[www.esassoc.com](http://www.esassoc.com)

Oakland

Orlando

Palm Springs

Petaluma

Portland

Sacramento

San Diego

San Francisco

Santa Cruz

Seattle

Tampa

Woodland Hills

206008.12

# TABLE OF CONTENTS

---

## DWR Pearblossom Solar Project Final Initial Study / Mitigated Negative Declaration

Page

### **Draft Initial Study / Mitigated Negative Declaration (included as Appendix A of this document and provided on attached CD)**

1. Project Description
2. Environmental Checklist Form

### **Final Initial Study / Mitigated Negative Declaration**

3. Comment Letters .....3-1
4. Response to Comments .....4-1
5. Mitigation Monitoring and Reporting Program .....5-1

Appendix A: Draft Initial Study / Negative Declaration

# CHAPTER 3

---

## Comment Letters

This Initial Study/Mitigated Negative Declaration for the DWR Pearblossom was circulated for public review for 30 days (March 29, 2013 and April 29, 2013). The DWR received six comment letters during the public review period. The letters have been bracketed and numbered and are presented in the order listed in the table below.

### COMMENT LETTERS RECEIVED

---

<b>Comment No.</b>	<b>Commenting Agency</b>	<b>Date of Comment</b>
1	County of Los Angeles Sheriff's Department	April 11, 2013
2	Antelope Valley Air Quality Management District	April 24, 2013
3	Lahontan Regional Water Quality Control Board	April 25, 2013
4	California Department of Fish and Wildlife	April 26, 2013
5	California Department of Transportation	April 29, 2013
6	County of Los Angeles Department of Regional Planning	April 29, 2013

---



*County of Los Angeles*  
**Sheriff's Department Headquarters**

*4700 Ramona Boulevard  
Monterey Park, California 91754-2169*



*Leroy D. Baca, Sheriff*

April 11, 2013

Tom Barnes  
California Department of Water Resources  
Pearblossom Solar Project  
626 Wilshire Boulevard, Suite 1100  
Los Angeles, California 90017

Dear Mr. Barnes:

I have reviewed the proposal to adopt an initial study for the California Department of Water Resources Pearblossom Solar Project. Palmdale Sheriff's Station currently provides law enforcement services to the unincorporated communities nearby the City of Palmdale, including the area in question. We anticipate no net changes in law enforcement resources required to provide service to the area. However, we recommend 24 hour security at the location once the project commences in order to mitigate and/or eliminate the occurrence of vandalism and/or theft. Based on our review of the location and the notice to adopt an initial study, the Sheriff's Department has no objection to the project.

1-1

1-2

We would request notification of any road closures during construction to mitigate any impact on emergent responses by our units in the area.

Sincerely,

LERROY D. BACA, SHERIFF

Don P. Ford, Captain  
Palmdale Station



Antelope Valley Air Quality Management District  
43301 Division St., Suite 206  
Lancaster, CA 93535-4649

661.723.8070  
Fax 661.723.3450

Eldon Heaston, Executive Director

In reply, please refer to AV0413/025

April 24, 2013

Tom Barnes, ESA  
Department of Water Resources  
Pearblossom Solar Project  
626 Wilshire Blvd  
Los Angeles, CA 90017

**RE: Notice of Intent to Adopt an Initial Study/ Mitigated Declaration for the California Department of Water Resources Pearblossom Solar Project**

Mr. Barnes:

The Antelope Valley Air Quality Management District (District) has received a Notice of Intent to Adopt an Initial Study/ Mitigated Declaration for the California Department of Water Resources Pearblossom Solar Project and reviewed the Initial Study for the proposed 70 acre photovoltaic solar panel array facility located at the Southern Field Division Headquarters, Pearblossom Pumping Plant (PBPP). The PBPP is located at 34534 166<sup>th</sup> Street East, Pearblossom, CA.

The District would like clarity on the application of ¾" crushed rock covering the ground surface of the array foundation in section **1.4.2 Project Construction**. It is unclear if the array foundation encompasses the entire area under the array or a portion of the array area. Crushed rock covering would serve as a stabilized surface.

2-1

No planned phasing of the project is stated in section **1.4.2 Project Construction**. With six separate array areas within the project, phased construction would reduce the amount of Disturbed Surface Area at any one time and address the requirements for Pre-activity in AVAQMD Rule 403(C)(4)(a)(i)b.

2-2

Palliative application is the method of dust control for project roads and in between PV panels under item **1.4.3 Project Operation**. Chemical Stabilizers are defined as any non-toxic chemical Dust Suppressant, which must not be used if prohibited for use by the Regional Water Quality Control Boards AVAQMD Rule 403-*Fugitive Dust* (B)(6). AVAQMD does not provide approval for the type of palliatives used.

2-3

Construction Emissions are determined to be less than Significant. Daily PM<sub>10</sub> thresholds may be exceeded in just one hour in winds of 30 mile per hour with 70 acres of unstabilized Disturbed Surface. Phasing construction limits the Disturbed Surface Area requiring mitigation measures in High Wind Conditions (instantaneous wind speeds (gusts) which exceed 25 miles per hour). High Wind Conditions are a regular, almost daily, occurrence in the Antelope Valley.

2-4

The District requires the submittal and approval of a Dust Control Plan prior to construction activities on a site that includes five acres or more of a Disturbed Surface Area for non-residential developments. When water is used as fugitive dust control, watering is required three times a day and increased to a minimum of four times a day if there is evidence of visible Wind-Driven Fugitive Dust AVAQMD Rule 403-Fugitive Dust (11)(d). The Dust Control Plan shall demonstrate adequate water application equipment to mitigate all Disturbed Areas.

Based on the information provided in the Initial Study, the District recommends Los Angeles County to require the incorporation of phased construction as a fugitive dust control measure. In accordance with AVAQMD Rule 403, the submittal of a Dust Control Plan, prior to grading, will be required. Signage must be posted at the Project site (Rule 403 Appendix A). Compliance with the provisions of District Rule 403 must be implemented in the grading and construction phases of the project, and all unpaved roads and array areas must meet definition of stabilized surface upon completion of project.

2-5

Thank you for the opportunity to review this planning document. If you have any questions regarding this letter, please contact Vickie Rausch at (661) 723-8070 x4.

Sincerely,

*Vickie Rausch*

**Bret Banks**  
Operations Manager



Lahontan Regional Water Quality Control Board

April 25, 2013

File: Environmental Doc Review  
Los Angeles County

George Baldini  
California Department of Water Resources  
1416 9<sup>th</sup> Street  
Sacramento, CA 95814

**COMMENTS ON THE INITIAL STUDY AND PROPOSED MITIGATED NEGATIVE DECLARATION FOR THE DEPARTMENT OF WATER RESOURCES PEARBLOSSOM SOLAR PROJECT, LOS ANGELES COUNTY, STATE CLEARINGHOUSE NUMBER 2013031079**

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff received the Initial Study and Proposed Mitigated Negative Declaration (IS/MND) for the above-referenced project (Project) on April 2, 2013. The IS/MND was prepared by the Department of Water Resources (DWR) and submitted in compliance with provisions of the California Environmental Quality Act (CEQA). Water Board staff, acting as a responsible agency, is providing these comments to specify the scope and content of the environmental information germane to our statutory responsibilities pursuant to CEQA Guidelines, California Code of Regulations, title 14, section 15096. Based on our review of the IS/MND, we have determined that post-construction stormwater management must be considered a component of the Project. While we concur that preparation of an MND appears to be the most appropriate level of environmental review for this Project, best management practices (BMPs) that effectively treat post-construction stormwater runoff should be included as part of the Project. We recommend that DWR consider our comments and value our mission to protect waters of the State and maintain water quality in the Lahontan Region.

3-1

**Project Description**

The proposed Project is to develop and operate a 10 megawatt (MW) photovoltaic (PV) solar generating facility on approximately 70 acres of the existing DWR Southern Field Division Headquarters in Pearblossom, an unincorporated area of Los Angeles County. Project components include the installation of multiple PV solar panel arrays and the construction of associated infrastructure including an interconnection facility substation, a generator tie-in line, transformers, electrical switchgear, and graded access roads. The Project is contained entirely within the existing footprint of the DWR facility.

**Specific Comments**

Our specific comments on the Project are presented below.

- 1. The IS/MND did not include an adequate review of the Project's post-construction conditions with respect to hydrology. Project implementation will result in a net increase in the amount of post-construction stormwater runoff. We encourage maintaining natural drainage paths and landscape features to slow and filter runoff and utilizing vegetated areas for stormwater management and onsite infiltration. Without adequate design, the consequences of discharging concentrated stormwater flows to natural drainage systems could lead to scour and erosion and degradation of surface water resources. The IS/MND should evaluate the potential post-construction impacts, particularly potential post-construction hydrologic impacts, and describe specific BMPs that, when implemented, will reduce those potential impacts to a less than significant level.
- 2. We request that construction staging areas be sited in upland areas outside stream channels and other surface waters on or around the Project site. Buffer areas should be identified and exclusion fencing used to protect the water resource and prevent unauthorized vehicles or equipment from entering or otherwise disturbing stream channels. Construction equipment should use existing roadways to the extent feasible.
- 3. All temporary impacts should be restored (recontoured and revegetated) to match pre-Project conditions.
- 4. Obtaining a permit and conducting monitoring does not constitute adequate mitigation. Development and implementation of acceptable mitigation is required. The environmental document must specifically describe the BMPs and other measures used to mitigate Project impacts.

3-2

3-3

3-4

3-5

**Permitting Requirements**

A number of activities associated with the proposed Project appear to have the potential to impact waters of the State and, therefore, may require permits issued by either the State Water Resources Control Board (State Water Board) or Lahontan Water Board. The required permits may include:

- Land disturbances of more than 1 acre may require a Clean Water Act (CWA), section 402 (p) stormwater permit, including a National Pollution Discharge Elimination System (NPDES) General Construction Stormwater permit obtained from the Lahontan Water Board;
- Water diversion and/or dewatering activities may be subject to discharge and monitoring requirements under the NPDES General Permit, Limited Threat Discharges to Surface Waters, Board Order R6T-2008-0023; and

3-6



- Streambed alteration and or discharge of fill material to a surface water may require a CWA, section 401 water quality certification for impacts to federal waters (waters of the U.S.), or dredge and fill waste discharge requirements for impacts to non-federal waters, both issued by the Lahontan Water Board.

↑  
3-6

Please be advised that these permits may be required for the proposed Project, as outlined above. Should Project implementation result in activities that will trigger these permitting actions, the Project proponent is urged to consult with Water Board staff prior to Project implementation. Information regarding these permits, including application forms, can be downloaded from our web site at <https://waterboards.ca.gov/lahontan/>.

3-7

Thank you for the opportunity to comment. If you have any questions regarding this letter, please contact me at (760) 241-7376 ([jjzimmerman@waterboards.ca.gov](mailto:jjzimmerman@waterboards.ca.gov)) or Patrice Copeland at (760) 241-7404 ([pcopeland@waterboards.ca.gov](mailto:pcopeland@waterboards.ca.gov)).



Jan M. Zimmerman, PG  
Engineering Geologist

cc: State Clearinghouse (SCH 2013031079)  
(via email, [state.clearinghouse@opr.ca.gov](mailto:state.clearinghouse@opr.ca.gov))  
Tom Barnes, ESA Associates  
(via email, [tbarnes@esassoc.com](mailto:tbarnes@esassoc.com))



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
South Coast Region  
3883 Ruffin Road  
San Diego, CA 92123  
(858) 467-4201  
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor  
CHARLTON H. BONHAM, Director



April 26, 2013

Mr. George Baldini  
California Department of Water Resources  
1416 Ninth Street  
Sacramento, CA 95814

**Subject: Comments on the Initial Study/Mitigated Negative Declaration for California Department of Water Resources, Pearblossom Solar Project, Unincorporated County of Los Angeles (SCH# 2013031079)**

Dear Mr. Baldini:

The California Department of Fish and Wildlife (Department) has reviewed the Initial Study (IS) and Mitigated Negative Declaration (MND) prepared by the California Department of Water Resources (Lead Agency) and the associated appendices prepared by Environmental Science Associates (March, 2013) for the proposed construction of Pear Blossom Solar (Project) by the California Department of Water Resources.

The Project is located at 34534 116th Street East near the community of Pearblossom, in unincorporated Los Angeles County. The community of Pearblossom is approximately 25 miles south of the City of Lancaster and 12 miles southeast of the City of Palmdale. The Project is located within the current boundaries of the Pearblossom Pumping Plant (PBPP) and is bounded by East Avenue V to the north, 121st Street East to the west, Pearblossom Highway (SR-138) to the south, and 116th Street East to the east. Surrounding land uses include non-urban uses zoned as: heavy agriculture, light agriculture, and residential agriculture. The Project would construct and operate a solar energy generation facility located at the PBPP in the California Department of Water Resources Southern Field Division. The Project site would occupy approximately 70 acres located in portions of Section 15, Township 5 North, Range 10 West and Section 22, Township 5 North, Range 10 West, San Bernardino Base Meridian, United States

(U.S.) Geologic Survey Littlerock Quadrangle. The Project would create 10 megawatts of solar electric capacity using photovoltaic solar panel technology.

**Department Jurisdiction:** The following statements and comments have been prepared pursuant to Department's authority as Trustee Agency with jurisdiction over natural resources potentially affected by the project (California Environmental Quality Act [CEQA] Guidelines section 15386) and as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (CESA – Chapter 1.5 of the Fish and Game Code) and/or require a Lake and Streambed Alteration Agreement (Fish and Game Code section 2050 *et seq.*).

4-1

Mr. George Baldini  
California Department of Water Resources  
April 26, 2013  
Page 2 of 3

**Avian Nesting Season:** Collectively Fish and Game Code sections 3503, 3503.5 and 3513 prohibit the needless destruction of nests or eggs; take of Falconiformes, Strigiformes, their nests; and take of fully protected species unless otherwise provided for in Fish and Game Code, respectively. BIO-9 in the IS/MND requires a 30-day and 24-hour preconstruction survey to avoid impacts to nesting birds. In general, avian species common to the desert construct nests and begin laying eggs all within the span of a few days. Surveying days instead of weeks in advance of construction will enhance the likelihood of nest detection while allowing the applicant adequate time to implement nest avoidance measures that could prevent potentially significant nest impacts caused by Project construction activities. The Department recommends the first avian surveys, as described in BIO-9 of the IS/MND, be reduced from 30 days to 5 days prior to construction with a second survey no more than 24 hours prior to construction to better facilitate compliance with CEQA and Fish and Game Code sections 3503, 3503.5 and 3513.

4-2

**Trenches and Excavations:** As identified in BIO-6 of the IS/MND, open trenches and excavations pose mortality risks to wildlife species. The Department recommends adding additional detail to BIO-6 requiring morning and evening inspections of covered or fenced excavations. Covered excavations should be opened during each inspection to ensure the efficacy of the exclusion efforts and minimize wildlife entrapment. Once clear of wildlife, covered excavations should be re-covered or filled in the presence of a qualified biologist.

4-3

For those excavations which cannot be effectively covered, minimum fencing requirements or designs should be specified in BIO-6. The Department recommends a combination of silt fencing (with the bottom edge buried 6 inches) and wire mesh exclusion fencing. The Department recommends using wire mesh fencing with a 1-inch by 2-inch grid, to avoid entrapping reptiles, amphibians, and small mammals. The Department is available for further consultation regarding proposed designs.

**Mohave ground squirrel surveys:** Mohave ground squirrel (*Xerospermophilus mohavensis*; MGS) trapping efforts for the Pearblossom Solar Project were conducted in accordance with the Department's *Mohave Ground Squirrel Guidelines*, resulting in no captures of MGS through the end of the trapping efforts on July 10, 2012 (*Biological Resources Report for the Pearblossom Solar Energy Project, ESA*).

4-4

Please note that the Department acknowledges negative findings for protocol-level trapping efforts for one calendar year from the final date of the last trapping effort. Should construction of the Pearblossom Solar Project become delayed beyond July 10, 2013, the Department recommends additional surveys to ensure compliance with CESA.

**Desert Tortoise Surveys:** Modifications to the United States Fish and Wildlife Service (USFWS) *Pre-Project Field Survey Protocol for Potential Desert Tortoise Habitat* for the Project were coordinated with the USFWS (ESA, March 2013). As a state listed threatened species, modifications to desert tortoise (*Gopherus agassizi*) survey coverage should be coordinated and approved by both the USFWS and the Department in advance of performing the surveys. The Department is available to discuss modifications of survey protocols, as appropriate, for endangered, threatened or other sensitive species.

4-5

Mr. George Baldini  
California Department of Water Resources  
April 26, 2013  
Page 3 of 3

Thank you for this opportunity to comment on the IS/MND. Questions regarding this letter and further coordination regarding these issues should be directed to Eric Weiss, Staff Environmental Scientist, at (858) 467-4289 or [Eric.Weiss@wildlife.ca.gov](mailto:Eric.Weiss@wildlife.ca.gov)

Sincerely,



Edmund Pert  
Regional Manager  
South Coast Region

References:

ESA, March 2013. DWR Pearblossom Solar Project. Initial Study/Mitigated Negative Declaration.

California Department of Fish and Game, California Wildlife Habitat Relationships website: (<http://www.dfg.ca.gov/biogeodata>)

California Natural Diversity Database, website: <http://www.dfg.ca.gov/biogeodata>  
Renewable Energy Action Team, Best Management Practices and Guidance Manual, desert renewable energy projects: <http://www.energy.ca.gov/2010publications/REAT-1000-2010-009/REAT-1000-2010-009.PDF>

ec: CA Dept of Fish and Wildlife  
William Condon, [William.Condon@wildlife.ca.gov](mailto:William.Condon@wildlife.ca.gov)  
Erinn Wilson, [Erinn.Wilson@wildlife.ca.gov](mailto:Erinn.Wilson@wildlife.ca.gov)  
Eric Weiss, [Eric.Weiss@wildlife.ca.gov](mailto:Eric.Weiss@wildlife.ca.gov)

Tom Barnes, ESA, [tbarnes@esaassoc.com](mailto:tbarnes@esaassoc.com)

DEPARTMENT OF TRANSPORTATION  
DISTRICT 7, REGIONAL PLANNING  
IGR/CEQA BRANCH  
100 MAIN STREET, MS # 16  
LOS ANGELES, CA 90012-3606  
PHONE: (213) 897-9140  
FAX: (213) 897-1337



*Flex your power!  
Be energy efficient!*

April 29, 2013

Mr. George Baldini  
California Department of Water Resources  
1416 9<sup>th</sup> Street  
Sacramento, CA 95814

IGR/CEQA No. 130408AL-MND  
Pearblossom Solar Project  
Vic. LA-138 / PM 58.67  
SCH #: 2013031079

Dear Mr. Baldini:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. The proposed project consists of the construction and operation of a photovoltaic (PV) solar energy farm. It is anticipated that approximately 10 megawatt (MW) of energy would be generated by the proposed project.

Storm water run-off is a sensitive issue for Los Angeles and Ventura counties. Please be mindful that projects should be designed to discharge clean run-off water. Additionally, discharge of storm water run-off is not permitted onto State highway facilities without any storm water management plan.

5-1

Transportation of heavy construction equipment and/or materials, which requires the use of oversized-transport vehicles on State highways, will require a transportation permit from Caltrans. It is recommended that large size truck trips be limited to off-peak commute periods.

5-2

If you have any questions, please feel free to contact Alan Lin the project coordinator at (213) 897-8391 and refer to IGR/CEQA No. 130408AL.

Sincerely,

DIANNA WATSON  
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

April 29, 2013

Mr. Tom Barnes  
ESA  
626 Wilshire Blvd., Suite 1100  
Los Angeles, California 90017

Dear Mr. Barnes

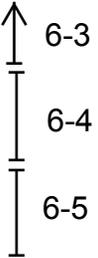
**PROPOSED CALIFORNIA DEPARTMENT OF WATER RESOURCES PEARBLOSSOM SOLAR PROJECT**

Thank you, George Baldini and Lori Bark for meeting with myself and Norm Hickling of Supervisor Michael D. Antonovich’s office on site at the Department of Water Resources Pearblossom Pumping Plant Tuesday, April 23, 2013. Also, this is to confirm that we are in receipt of written confirmation of the meeting dated April 25, 2013, prepared by George Baldini, which accurately described the content of the meeting.

We wish to take this opportunity to submit a formal request that certain conditions be incorporated into the Mitigated Negative Declaration as discussed during our site visit. We strongly urge that the Mitigated Negative Declaration include a Mitigation Measure which will require that the facility be developed in compliance with all of the requirements of the Los Angeles County Fire Department, including the installation of hydrants if they are required. We request that the document include a Mitigation Measure that will require the installation of landscaping of the perimeter areas of the property proposed to be developed with photovoltaic panels (approximately 70 acres) to provide a visual barrier for residences located southerly of the subject property at higher elevations within the Juniper Hills community. We urge that visual impacts be further mitigated through the inclusion of a Mitigation Measure restricting photovoltaic solar

6-1  
6-2  
6-3  
↓

panel technology to the non-glare design which will have a maximum height of nine feet above ground level and that night-time lighting fixtures be fully shielded and directed downward to prevent light trespass from the site. We strongly urge that an air quality Mitigation Measure include a requirement that all construction be halted during high wind events and that all of the requirements of the Antelope Valley Air Quality Management District be strictly adhered to, including the covering of all graded surfaces with ¾ inch crushed rock to minimize fugitive dust. Finally, we request that a Mitigation Measure be included which will limit installation of the photovoltaic panels to previously disturbed areas of the subject property within the existing fenced boundary of the site.



We thank you for this opportunity to comment. If you have any questions, please feel free to contact myself at (213) 974-6461 or by e-mail at [pmccarthy@planning.lacounty.gov](mailto:pmccarthy@planning.lacounty.gov) our office hours are Monday through Thursday, 7:30 a.m. to 5:30 p.m. We are closed on Fridays.

Paul D. McCarthy  
Supervising Regional Planner  
Impact Analysis Section  
Department of Regional Planning  
320 West Temple Street  
Los Angeles, California 90012  
(213) 974-6461

# CHAPTER 4

---

## Response to Comments

This Initial Study/Mitigated Negative Declaration for the DWR Pearblossom was circulated for public review for 30 days (March 29, 2013 to April 29, 2013). The DWR received six comment letters during the public review period from the County of Los Angeles Sheriff's Department, the Antelope Valley Air Quality Management District, the Lahontan Regional Water Quality Control Board, the California Department of Fish and Wildlife, the California Department of Transportation and the County of Los Angeles Department of Regional Planning. The letters have been bracketed and comments numbered and are presented in the order listed in the table below. The bracketed letters are included in Chapter 3.

### COMMENT LETTERS RECEIVED

---

Comment No.	Commenting Agency	Date of Comment
1	County of Los Angeles Sheriff's Department	April 11, 2013
2	Antelope Valley Air Quality Management District	April 24, 2013
3	Lahontan Regional Water Quality Control Board	April 25, 2013
4	California Department of Fish and Wildlife	April 26, 2013
5	California Department of Transportation	April 29, 2013
6	County of Los Angeles Department of Regional Planning	April 29, 2013

---

The responses to these comment letters are provided below.

## Letter 1: County of Los Angeles Sheriff's Department

### Comment 1-1

The commenter states the Palmdale Sheriff's Station provides law enforcement services to the project area and the Sheriff's Department does not anticipate net changes in law enforcement resources to the project service area.

### Response 1-1

The comment is noted.

### Comment 1-2

The commenter recommends 24-hour security lighting at the project location once the project is operational in order to mitigate vandalism or theft.

### Response 1-2

The commenter is referred to page 2-4 of the Initial Study/Mitigated Negative Declaration which describes the project site as having low-level lighting that would be installed throughout the project site for safety and security purposes, as well as operation and maintenance.

## Letter 2: Antelope Valley Air Pollution Control District

### Comment 2-1

The commenter requests clarification regarding the application of crushed rock covering the ground surface of the array foundation, specifically, whether the covering encompasses the entire area under the array or a portion of the array area. The commenter states crushed rock covering would serve as a stabilized surface.

### Response 2-1

The following changes are made to page 1-7, second paragraph:

Minimal grading with minor amounts of exported soils is anticipated. No paving is anticipated; however, with the exception of project access roadways, the surface of ~~each array foundation~~ the disturbed areas would consist of ¾-inch crushed rock covering the ground surface.

### Comment 2-2

The comment recommends that with the six separate array areas within the project, phased construction would reduce the amount of Disturbed Surface Area at any one time and address the requirements for Pre-activity in AVAQMD Rule 403(C)(4)(a)(i)b.

### Response 2-2

The proposed project site is approximately 70 acres and is therefore required to comply with AVAQMD Rule 403(C)(4)(a)(i)b, which requires that a Disturbed Surface Area of five or more

acres utilize at least one of the measures listed for each of the earth moving operation stages specified in subparagraphs (C)(4)(a)(i) through (C)(4)(a)(iv). During the pre-activity phase, Rule 403(C)(4)(a)(i) identifies the following measures:

- (a) Pre-water site sufficient to limit VDE to 20 percent opacity; and
- (b) Phase work to reduce the amount of Disturbed Surface Area at any one time.

The proposed revisions are made to the Initial Study/Mitigated Negative Declaration at page 2-9, fourth paragraph:

“As shown in Table 2, the estimated emissions of VOC, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from proposed project construction would not exceed their respective AVAQMD significance thresholds. Furthermore, the proposed project would be subject to AVAQMD Rule 403 that requires the implementation of dust control measures during project construction activities that would further reduce the project’s fugitive PM<sub>10</sub> emissions. DWR will submit a fugitive dust control plan addressing the project-specific application of AVAQMD Rule 403 requirements to address potential fugitive dust impacts. The fugitive dust control plan addresses fugitive dust control requirements for pre-activity, active operations, and temporary stabilization during periods of inactivity. Therefore, air quality impacts associated with construction of the proposed project would be less than significant.”

### **Comment 2-3**

The commenter states that chemical stabilizers are defined as any non-toxic chemical dust suppressant, which must not be used if prohibited for use by the Regional Water Quality Control Boards. AVAQMD Rule 403-Fugitive Dust (B)(6) does not have approval authority over types of palliatives used.

### **Response 2-3**

The comment is noted. The following revisions are made to the Initial Study/Mitigated Negative Declaration, page 1-8:

“The palliatives would be used on project roads and in between PV panels. The types of palliatives that would be used onsite would be based on the soil characteristics at the site (as recommended by the ~~Antelope Valley Air Quality Management District~~ Lahontan Regional Water Quality Control Board.)

### **Comment 2-4**

The commenter states that daily PM<sub>10</sub> thresholds may be exceeded in just one hour in winds of 30 mile per hour with 70 acres of unstabilized disturbed surface. The commenter states that phasing construction limits the disturbed surface area requiring mitigation measures in high wind conditions (instantaneous wind speeds (gusts) which exceed 25 miles per hour). High wind

conditions are a regular, almost daily, occurrence in the Antelope Valley. Further, the commenter states that the District requires the submittal and approval of a Dust Control Plan prior to construction activities on a site that includes five acres or more of a disturbed surface area for nonresidential developments and when water is used to control fugitive dust.

#### **Response 2-4**

The commenter is referred to page 2-11, impact analysis (d) of the Initial Study/Mitigated Negative Declaration. The impact analysis states the implementation of best management practices (BMPs) and compliance with Rule 403 during construction would minimize emissions of localized particulate matter from the project site. DWR compliance with Rule 403 would include the creation and implementation of a Dust Control Plan.

#### **Comment 2-5**

The commenter requests the incorporation of a phased construction plan as a fugitive dust control measure. A Dust Control Plan must be submitted to the AVAQMD, and the site must include signage to be posted at the project site. The commenter states that compliance with the provisions of District Rule 403 must be implemented in the grading and construction phases of the project, and all unpaved roads and array areas must meet definition of stabilized surface upon completion of project.

#### **Response 2-5**

The following revisions are made to the Initial Study/Mitigated Negative Declaration at page 2-11:

“In addition, implementation of best management practices (BMPs) and compliance with AVAQMD Rule 403 during project construction would further minimize emissions of localized particulate matter generated at the project site. In accordance with AVAQMD Rule 403, prior to proposed project construction initiation, DWR will install and maintain project signage with project contact information.”

### **Letter 3: Lahontan Regional Water Quality Control Board**

#### **Comment 3-1**

The commenter states that the Water Board staff has reviewed the MND for the project and determined that post-construction stormwater management must be considered a component of the project and that best management practices (BMPs) that effectively treats post-construction stormwater runoff should be included as part of the project.

#### **Response 3-1**

The comment is noted. The commenter is referred to page 2-40 of the Initial Study/Mitigated Negative Declaration, Mitigation Measure GEO-1, which requires the preparation of Storm Water Pollution Prevention Plan (SWPPP) which will incorporate BMPs into the project construction area.

**Comment 3-2**

The commenter states the Initial Study/Mitigated Negative Declaration did not include an adequate review of the project's post-construction conditions with respect to hydrology and states that project implementation will result in a net increase in the amount of post-construction stormwater runoff. The commenter requests the Initial Study/Mitigated Negative Declaration evaluate the potential post-construction impacts, particularly potential post-construction hydrologic impacts, and describe specific BMPs that, when implemented, will reduce those potential impacts to a less than significant level.

**Response 3-2**

The commenter is referred to page 2-49 of the Initial Study/Mitigated Negative Declaration which describes Mitigation Measure HYDRO-1. Mitigation Measure HYDRO-1 provides that prior to the initiation of any grading activities, the DWR will prepare a drainage plan. Additionally, the following revisions are made to Mitigation Measure HYDRO-1:

**HYDRO-1:** Prior to the initiation of any grading activities, DWR will prepare a drainage plan. The drainage plan shall include components for the accommodation of storm water flows, flood drainage and water quality control, including location of key discharge points for retention basins (if necessary). The drainage plan shall ensure that stormwater flows dissipate adequately enough over the proposed project site, so as to prevent scour and erosion on-site and off-site.

**Comment 3-3**

The commenter requests that construction staging areas be sited in upland areas outside stream channels and other surface waters and buffer areas should be identified and exclusion fencing used to protect the water resource and prevent unauthorized vehicles or equipment from entering or otherwise disturbing stream channels. The commenter states that construction equipment should use existing roadways to the extent feasible.

**Response 3-3**

The comment is noted. The proposed project site does not contain stream channels or other surface waters. Additionally, as described in the project description on page 1-7 of the Initial Study/Mitigated Negative Declaration, site access will be from existing adjacent private roadways. The following textual additions are made to the first paragraph at page 1-7:

“Site access would be from Pearblossom Highway and existing adjacent private roadways. Construction activities will use existing roadways to the extent feasible.”

**Comment 3-4**

The commenter states that all temporary impacts should be restored (recontoured and revegetated) to match pre-project conditions.

**Response 3-4**

The comment is noted. The commenter is referred to page 2-26 of the Initial Study/Mitigated Negative Declaration which provides the entire 70-acre site would be cleared and graded and approximately 8-acres of previously developed areas have already been impacted. The commenter is referred to Response 2-1 above which provides the disturbed areas on the project site with the exception of project access roadways, will be covered with ¾ inch crushed rock. Additionally, the Initial Study/Mitigate Negative Declaration includes Mitigation Measure HYDRO-1, which requires the proposed project to create a site specific drainage plan to ensure surface runoff from the project would not significantly alter drainage patterns and downstream flows.

**Comment 3-5**

The commenter states that obtaining a permit and conducting monitoring does not constitute adequate mitigation and that the development and implementation of acceptable mitigation is required. The environmental document must specifically describe the BMPs and other measures used to mitigate project impacts.

**Response 3-5**

The commenter is referred to page 2-49 of the Initial Study/Mitigated Negative Declaration, which describes Mitigation Measure GEO-1 on page 2-40. Mitigation Measure GEO-1 requires the DWR to prepare a SWPPP and includes a list of potential BMPs to be utilized at the project site to reduce pollutants from entering storm water flows and reduces erosion at the project site.

**Comment 3-6**

The commenter states that a number of activities associated with the proposed project appear to have the potential to impact waters of the State and, therefore, may require permits issued by either the State Water Resources Control Board (State Water Board) or Lahontan Water Board. The required permits may include a 402 (p) stormwater permit, a 401 permit or discharge and monitoring under NPDES General Permit, Limited Threat Discharges to Surface Waters, Board Order R6T-2008-0023.

**Response 3-6**

The comment is noted. The commenter is referred to page 1-8, which lists the permits the project is anticipated to require. No further response is required.

**Comment 3-7**

The commenter states that should the project implementation result in activities that will trigger these permitting actions, the project proponent is urged to consult with Water Board staff prior to implementation.

**Response 3-7**

The comment is noted. Should the project require any of the permits described by the commenter, the DWR will coordinate with Regional Water Quality Control Board staff prior to project implementation.

**Letter 4: California Department of Fish and Wildlife****Comment 4-1:**

The commenter states the comments have been prepared pursuant to commenter's authority as a Trustee Agency with jurisdiction over natural resources potentially affected by the project and as a Responsible Agency over those aspects of the proposed project that come under the purview of the California Endangered Species Act and/or require a Lake and Streambed Alteration Agreement.

**Response 4-1**

The comment is noted. No response is required.

**Comment 4-2**

The commenter states that surveying days instead of weeks in advance of construction will enhance the likelihood of nest detection while allowing the applicant adequate time to implement nest avoidance measures that could prevent potentially significant nest impacts caused by project construction activities. The commenter recommends the first avian surveys, as described at page 2-30 of the Initial Study/Mitigated Negative Declaration, be reduced from 30 days to 5 days prior to construction with a second survey no more than 24 hours prior to construction to better facilitate compliance with CEQA and Fish and Game Code sections 3503, 3503.5 and 3513.

**Response 4-2**

The following changes are made to page 2-30, Mitigation Measure BIO-9:

**BIO-9:** If construction is scheduled to occur during the breeding bird season (February 1–August 31), a qualified wildlife biologist shall conduct preconstruction surveys of all potential nesting habitats (including burrowing owl) within 500 feet of construction activities for presence of breeding or nesting birds. Surveys shall be conducted no more than ~~30~~ 5 days prior to construction activities with a second survey conducted no more than 24 hours prior to the onset of construction.

**Comment 4-3**

The commenter recommends adding additional detail requiring morning and evening inspections of covered or fenced excavations. The commenter further recommends that covered excavations should be opened during each inspection to ensure the efficacy of the exclusion efforts and

minimize wildlife entrapment and once clear of wildlife, covered excavations should be re-covered or filled in the presence of a qualified biologist.

### **Response 4-3**

The following changes are made to pages 2-2, 2-9, 2-30, and Mitigation Measure BIO-6:

**BIO-6:** All steep-walled trenches or excavation pits used during construction shall be covered at all times except when being actively utilized. Covers shall be strong enough to prevent wildlife from falling through and shall be designed to exclude small animals, including coast horned lizard. If the trenches or excavations cannot be covered, exclusion fencing constructed of materials that would exclude both large and small wildlife species shall be installed around the trench or excavation area to prevent entrapment of wildlife. Open trenches or other excavations could entrap and endanger wildlife. During trenching activities, a biological monitor shall be present at the start and end of each construction day to inspect trenches for trapped animals. The biologist shall inspect covered excavations to ensure the efficacy of the exclusion efforts and minimize wildlife entrapment, and once clear of wildlife, these excavations should be re-covered or filled in the presence of a qualified biologist.

For those excavations which cannot be effectively covered a combination of silt fencing (with the bottom edge buried 6 inches) and wire mesh exclusion fencing shall be installed. The wire mesh fencing shall be installed with a 1-inch by 2-inch grid, to avoid entrapping reptiles, amphibians, and small mammals.

If any animals are observed, a biologist with a handling permit shall be notified within 24 hours to move the animals to a safe location. Construction shall not occur until the animal has left the trench or been removed by a qualified biological monitor.

### **Comment 4-4**

The commenter states that should construction of the project become delayed beyond July 10, 2013, additional surveys to ensure compliance with the California Endangered Species Act are recommended.

### **Response 4-4**

The following changes are made to page 2-30, Mitigation Measure BIO-7:

**BIO-7:** Preconstruction surveys for wildlife within the proposed construction limits shall occur immediately prior to all initial ground disturbing activities. The monitoring biologist shall have possession of a memorandum of Understanding (MOU) from CDFW for relocating (non-listed) special-status animals (e.g., coast horned lizard) to adjacent habitats that are outside of the construction limits.

DWR in coordination with CDFW shall conduct surveys for the Mohave ground squirrel within one year prior to the start of construction. Survey results will be submitted to

CDFW. If Mohave ground squirrels are present within the impact area, DWR shall consult with CDFW to either avoid impacts or compensate for impacts following the Section 2081 Incidental Take Permit process.

#### **Comment 4-5**

The commenter states that as a state listed threatened species, modifications to desert tortoise (*Gopherus agassiz*;) survey coverage should be coordinated and approved by both the USFWS and the commenter in advance of performing the surveys.

#### **Response 4-5**

No desert tortoises were observed within the project impact area. The area has been previously disturbed and is on the fringes of desert tortoise habitat. Conversations with CDFW staff in the fall of 2012 concurred with this conclusion. Therefore, the IS/MND concludes that the potential for encountering tortoises is very low. However, since construction may not occur for more than a year from the previous surveys, and in response to the comment, DWR will implement the following mitigation measure to ensure that desert tortoises would not be significantly affected and to ensure compliance with the state a federal Endangered Species Acts.

**BIO-12:** Within one year prior to the start of construction, unless a period longer than a year is determined to be acceptable by USFWS and CDFW, DWR shall survey the project site to determine the presence or absence of desert tortoise. The desert tortoise survey methodology shall be communicated to the USFWS and CDFW and the survey shall be conducted by a qualified biologist. Upon completion, the survey results will be submitted to USFWS and CDFW. If desert tortoise are present within the impact area or could be adversely affected by construction activities as determined by the surveys, DWR shall consult with USFWS and CDFW and take appropriate actions to comply with the state and federal Endangered Species Act.

## **Letter 5: California Department of Transportation**

#### **Comment 5-1**

The commenter states that projects should be designed to discharge clean run-off water. Additionally, discharge of storm water run-off is not permitted onto State highway facilities without any storm water management plan.

#### **Response 5-1**

The comment is noted. The commenter is referred to page 2-40 of the Initial Study/Mitigated Negative Declaration, Mitigation Measure GEO-1, which requires the preparation of SWPPP which will incorporate BMPs into the project construction area. Additionally, the project would be required to comply with Mitigation Measure HYDRO-1, which requires the DWR to prepare a drainage plan for the project site prior to the initiation of any grading activities. The incorporation of the SWPPP and a drainage plan into the project is expected to reduce the discharge of unclean

water from the project site to off-site areas. It is not anticipated that the project would discharge stormwater off-site onto a State highway facility.

**Comment 5-2**

The commenter states that transportation of heavy construction equipment and/or materials, which will require the use of oversized-transport vehicles on State highways, will require a transportation permit from Caltrans. The commenter also states that large size truck trips should be limited to off-peak commute periods.

**Response 5-2**

The following changes are made to page 2-63, second paragraph:

Construction-generated traffic would be temporary and therefore would not result in any long-term degradation in operating conditions or conflict with the Circulation Element of the Antelope Valley Area Plan, or the SCAG's Regional Transportation plan. Construction activities would require approximately two to five construction truck trips staggered throughout the day and one truck trip per day for the materials delivery. Given the conservative estimate, a total of approximately six daily roundtrip construction trips are proposed during the six month period of construction. Project construction would also require a maximum of 25 workers at any given time, in which approximately 25 percent of the workforce is expected to carpool with a minimum of two persons per vehicle. Any construction material deliveries utilizing oversize vehicles will be required to coordinate with Caltrans in advance.

**Letter 6: County of Los Angeles**

**Comment 6-1**

The commenter states that the Initial Study/Mitigated Negative Declaration should be developed in compliance with all of the requirements of the Los Angeles County Fire Department.

**Response 6-1**

The comment is noted. DWR will coordinate with the State Fire Marshall. The State Fire Marshall will review all of the local fire code requirements and recommend project design features. DWR would implement design features recommended by the State Fire Marshall.

**Comment 6-2**

The commenter requests the Initial Study/Mitigated Negative Declaration include a mitigation measure which requires the installation of landscaping of the perimeter areas of the property to provide a visual barrier for residences located south of the project site at higher elevations in the Juniper Hills community.

## Response 6-2

DWR will implement new mitigation measure AE-2 that will require the installation of one of three design feature options to be installed at the perimeter of Parcel 5 (refer to revised Figure 3). Specifically, the new design feature will be installed to prevent street level views of the project from State Route 138 (Pearblossom Highway). Design features proposed in new mitigation measure AE-2 would not obstruct views of the project site from the community of Juniper Hills, which is located at higher elevations approximately 4.5 miles southwest of the project site. Existing views of the project site are partially obstructed by varying topography, buildings and landscaping. Further, as discussed on page 2-4 of the Draft MND, the proposed project will be located adjacent to existing industrial development which includes a pumping plant, operations buildings, a substation, switch yard relay protection and metering system, and electrical transformers at the southern end of the project site. The proposed project would not significantly alter long range views of the proposed project.

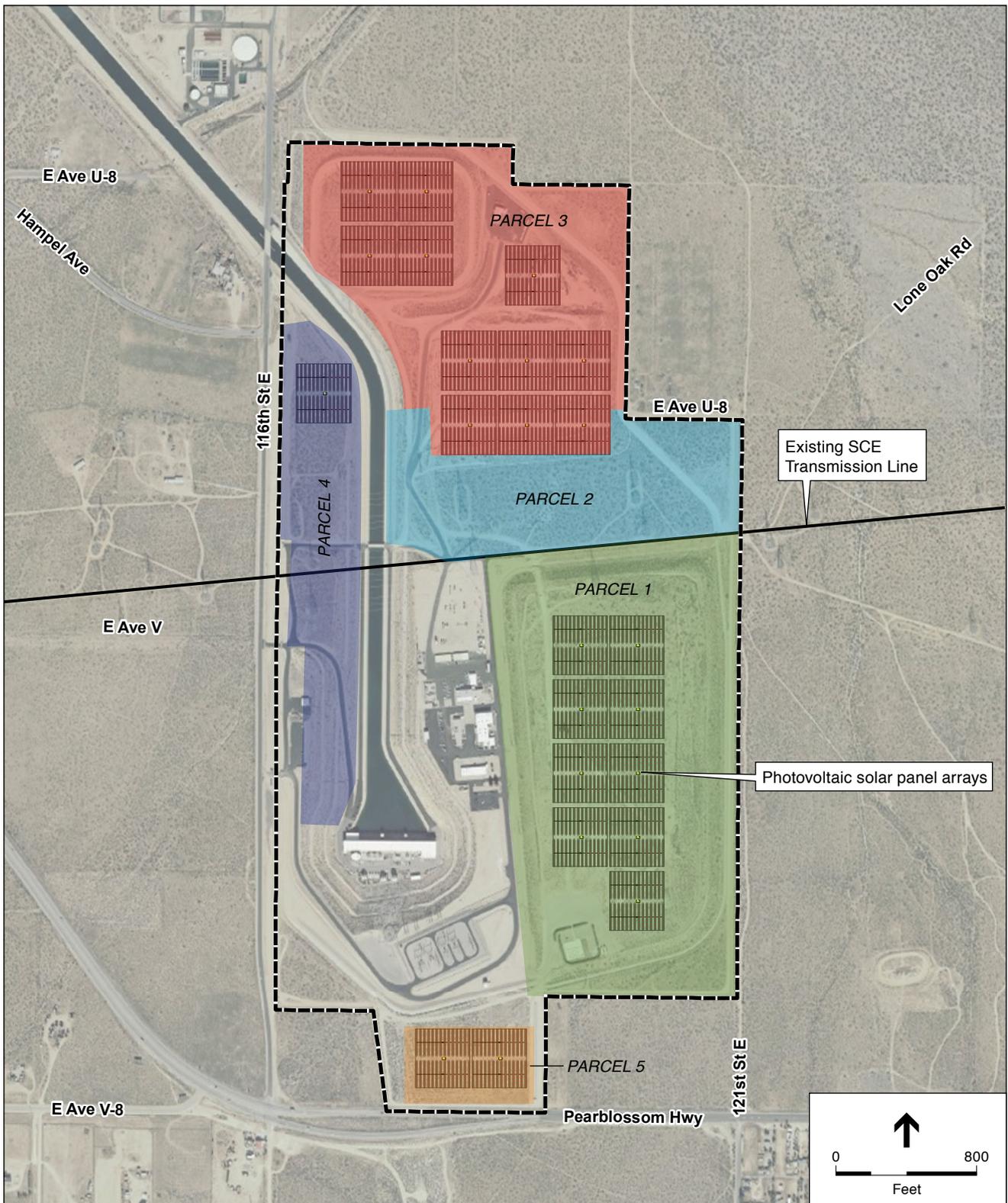
The following Mitigation Measure is added to the Initial Study/Mitigated Negative Declaration at page 2-5:

**AE-2: In order to protect public views south of the project site, DWR shall implement one of the following design features at the portion of the project site where the arrays are immediately adjacent to Pearblossom Freeway:**

- A landscape screen south of the project site using drought resistant plants and shrubs. The landscape screen should visually integrate with the nearby plant communities.
- A six-foot berm along the perimeter of the visible area where panels are located . The berm shall be hydroseeded with drought resistant plants and shrubs to provide soil stability and prevent erosion.
- Diamond mesh fencing that may include vinyl privacy slats that match the color of the surrounding landscape. The fencing shall be along the southern edge of the site.

## Comment 6-3

The commenter requests that a mitigation measure be added that restricts photovoltaic (PV) solar panel technology to the non-glare design which will have a maximum height of nine feet above ground level. The commenter also requests that night-time lighting fixtures be fully shielded and directed downward to prevent light trespass from the site.



SOURCE: Zglobal Engineering & Energy Solutions; ESRI; ESA, 2013.

DWR Pearblossom . 206008.12

**Figure 3**  
Proposed Site Plan

**Response 6-3**

The commenter is referred to page 1-4, which provides that each PV module would reach a maximum height of approximately nine feet above ground, at both sunrise and sunset, if the HSAT tracking system is employed, when the HSAT is rotated so the face of the panels tilts towards the rising or setting sun. Additionally, the commenter is referred to page 2-5 of the Initial Study/Mitigated Negative declaration, Mitigation Measure AE-1, which requires the DWR to prepare a lighting plan which restricts lighting spillover off-site.

**Comment 6-4**

The commenter states that an air quality Mitigation Measure include a requirement that all construction be halted during high wind events and that all of the requirements of the Antelope Valley Air Quality Management District be strictly adhered to, including the covering of all graded surfaces with ¾ inch crushed rock to minimize fugitive dust.

**Response 6-4**

The proposed project will comply with the requirements of Rule 403 of the AVAQMD, which states “ [A]ll person performing Earth-Moving Activities during High Wind Conditions shall; (a) cease all active operations; (b) or apply water to soil not more than 15 minutes prior to moving such soil to limit VDE to 20 percent opacity.”

Additionally, the following changes are made to page 1-7, second paragraph:

Minimal grading with minor amounts of exported soils is anticipated. No paving is anticipated; however, with the exception of project access roadways, the surface of ~~each array foundation~~ the project site would consist of ¾-inch crushed rock covering the ground surface.

**Comment 6-5**

The commenter requests a Mitigation Measure be included which will limit installation of the photovoltaic panels to previously disturbed areas of the subject property within the existing fenced boundary of the site.

**Response 6-5**

DWR will implement new mitigation measure AE-2 that will require the installation of one of the three design feature options to be installed at the southern perimeter of the site boundary where the arrays are located immediately adjacent to Pearblossom Highway. On revised Figure 3, the southern perimeter immediately adjacent to Parcel 5 meets this criterion.

# CHAPTER 5

## Mitigation Monitoring and Reporting Program

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
<b>Aesthetics</b>					
<p><b>AE-1:</b> The DWR shall prepare and implement a lighting plan. Proposed exterior lighting shall be shielded and directed downward, and shall be full cutoff shielded fixtures that cast low-angle illumination to minimize incidental spillover of light onto adjacent properties and open space. Fixtures that project light upward or horizontally shall not be used, and luminaries shall be directed away from properties adjacent to the project site.</p>	<ul style="list-style-type: none"> <li>DWR shall prepare and implement a lighting plan.</li> <li>Include mitigation measure in construction contractor specifications.</li> <li>Perform site inspections to verify contractor compliance. Retain inspection records in the project file.</li> </ul>	DWR	X	X	
<p><b>AE-2:</b> In order to protect public views south of the project site, DWR shall implement one of the following design features:</p> <ul style="list-style-type: none"> <li>A landscape screen south of the project site using drought resistant plants and shrubs. The landscape screen should visually integrate with the nearby plant communities and provide for permanent protection from soil erosion.</li> <li>A six-foot berm along the perimeter of the visible area, which is approximately 1,800 linear feet. The berm shall be hydroseeded with drought resistant plants and shrubs to provide soil stability and prevent erosion.</li> <li>iDiamond mesh fencing that may include vinyl privacy slats that match the color of the surrounding landscape. The fencing shall be along the southern edge of the site, which is approximately 1,800 linear feet.</li> </ul>	<ul style="list-style-type: none"> <li>DWR shall incorporate one of the options in mitigation measure AE-2 to protect public views to the south.</li> <li>Include mitigation measure in construction contractor specifications.</li> <li>Perform site inspections to verify contractor compliance. Retain inspection records in the project file.</li> </ul>	DWR			X

**PEARBLOSSOM SOLAR PROJECT MITIGATION MONITORING AND REPORTING PROGRAM (continued)**

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
<b>Biological Resources</b>					
<b>BIO-1:</b> Site access shall be limited to designated access roads so as to avoid direct impacts to terrestrial wildlife species, including desert tortoise and coast horned lizard, on unmonitored roads.	<ul style="list-style-type: none"> <li>• Include mitigation measure in construction contractor specifications.</li> <li>• Perform site inspections to verify contractor compliance. Retain inspection records in the project file.</li> </ul>	DWR and construction contractor	X	X	
<b>BIO-2:</b> All vehicles at the project site shall not exceed 15 mile per hour (MPH).	<ul style="list-style-type: none"> <li>• Include mitigation measure in construction contractor specifications.</li> <li>• Perform site inspections to verify contractor compliance. Retain inspection records in the project file.</li> </ul>	DWR and construction contractor	X	X	X
<b>BIO-3:</b> Initial clearance surveys shall be conducted before construction of any roads or facilities at 15-foot intervals prior to declaring the site clear of special-status species (e.g., coast horned lizard).	<ul style="list-style-type: none"> <li>• Include mitigation measure in construction contractor specifications.</li> <li>• Perform site inspections to verify contractor compliance. Retain inspection records in the project file.</li> </ul>	DWR	X		
<b>BIO-4:</b> The project proponent shall provide environmental training to all personnel working on the site during proposed project construction and operation. The training should include a review of special-status species known to occur near the project site to promote their awareness, and shall provide avoidance measures if a species is encountered, and legal consequences associated with take of the species.	<ul style="list-style-type: none"> <li>• DWR shall appoint a qualified biologist to conduct biological resource training.</li> <li>• Retain training records in the project file.</li> </ul>	DWR		X	X
<b>BIO-5:</b> If a special-status animal is encountered during construction, the project proponent shall stop work and a no work buffer zone shall be determined by the monitoring biologist and remain in place until the animal moves out of harm's way or until the animal is relocated to suitable habitat by a qualified biologist with possession of a CDFW Scientific Collection Permit. The monitoring biologist shall notify the DWR biologist and shall contact the appropriate resource agency (e.g., USFWS or CDFW) before construction is allowed to proceed within the buffer area.	<ul style="list-style-type: none"> <li>• Include mitigation measure in construction contractor specifications.</li> <li>• If a special status species is encountered, work shall be stopped.</li> <li>• DWR shall retain a qualified biologist to clearly delineate a no work buffer which shall remain in place until the animal is relocated or leaves the area.</li> <li>• A qualified biologist with possession of a CDFW Scientific Collection Permit shall relocate the animal if needed.</li> </ul>	DWR and construction contractor		X	

## PEARBLOSSOM SOLAR PROJECT MITIGATION MONITORING AND REPORTING PROGRAM (continued)

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
	<ul style="list-style-type: none"> <li>DWR shall notify CDFW and USFWS before construction is allowed to proceed.</li> <li>Retain records in the project file.</li> </ul>				
<p><b>BIO-6:</b> All steep-walled trenches or excavation pits used during construction shall be covered at all times except when being actively utilized. Covers shall be strong enough to prevent wildlife from falling through and shall be designed to exclude small animals, including coast horned lizard. If the trenches or excavations cannot be covered, exclusion fencing constructed of materials that would exclude both large and small wildlife species shall be installed around the trench or excavation area to prevent entrapment of wildlife. Open trenches or other excavations could entrap and endanger wildlife. During trenching activities, a biological monitor shall be present at the start <u>and end</u> of each construction day to inspect trenches for trapped animals. <u>The biologist shall inspect covered excavations to ensure the efficacy of the exclusion efforts and minimize wildlife entrapment and once clear of wildlife, covered excavations should be re-covered or filled in the presence of a qualified biologist.</u></p> <p><u>For those excavations which cannot be effectively covered a combination of silt fencing (with the bottom edge buried 6 inches) and wire mesh exclusion fencing shall be installed. The wire mesh fencing shall be installed with a 1-inch by 2-inch grid, to avoid entrapping reptiles, amphibians, and small mammals.</u></p> <p>If any animals are observed, a biologist with a handling permit shall be notified within 24 hours to move the animals to a safe location. Construction shall not occur until the animal has left the trench or been removed by a qualified biological monitor.</p> <p>Employees and contractors shall look under vehicles and equipment for the presence of wildlife before movement. If wildlife is observed, no vehicles or equipment shall be moved until the animal has left voluntarily or is removed by the biological monitor. No listed species shall be handled.</p>	<ul style="list-style-type: none"> <li>Include mitigation measure in construction contractor specifications.</li> <li>All steep-walled trenches or excavation pits shall be covered at all times when not in use.</li> <li>If unable to be covered, exclusion fencing that could exclude both large and small animals shall be installed around trench.</li> <li>A biological monitor shall be present at the start and end of each construction day to inspect trenches for trapped animals.</li> <li>If animals are found, a biologist with a handling permit shall be notified within 24 hours to move the animals to a safe location.</li> <li>Construction shall not begin until the animal has left or been removed from the trench by a qualified biologist.</li> <li>All persons onsite shall look under vehicles and equipment for the presence of animals before movement.</li> <li>If wildlife is found, no movement shall occur until animal has left or been removed by a qualified biologist.</li> <li>No listed species will be touched or moved.</li> <li>Perform site inspections to verify contractor compliance. Retain inspection records in the project file.</li> </ul>	DWR and construction contractor		X	

**PEARBLOSSOM SOLAR PROJECT MITIGATION MONITORING AND REPORTING PROGRAM (continued)**

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
<p><b>BIO-7:</b> Preconstruction surveys for wildlife within the proposed construction limits shall occur immediately prior to all initial ground disturbing activities. The monitoring biologist shall have possession of a Memorandum of Understanding (MOU) from CDFW for relocating (non-listed) special-status animals (e.g., coast horned lizard) to adjacent habitats that are outside of the construction limits.</p> <p><u>DWR in coordination with CDFW shall conduct protocol-level trapping for the Mohave ground squirrel within one year prior to the start of construction. Survey results will be submitted to CDFW. If Mohave ground squirrels are present within the impact area, DWR shall consult with CDFW to either avoid impacts or compensate for impacts following the Section 2081 Incidental Take Permit process.</u></p>	<ul style="list-style-type: none"> <li>• Include mitigation measure in construction contractor specifications.</li> <li>• DWR shall have a qualified biologist with a MOU from CDFW for relocating (non-listed) special-status animals conduct pre-construction surveys.</li> <li>• Retain survey records in the project file.</li> <li>• DWR shall submit survey results to CDFW and USFWS.</li> </ul>	DWR	X	X	
<p><b>BIO-8:</b> If small rodent burrows are observed within areas proposed for grading, live rodent traps shall be set for one night near the borrow site. Traps shall be set at dusk and checked at dawn by a qualified biologist. If southern grasshopper mice are trapped, they shall be relocated to a nearby location containing suitable habitat.</p>	<ul style="list-style-type: none"> <li>• Include mitigation measure in construction contractor specifications.</li> <li>• Areas proposed for grading shall be checked for rodent burrows.</li> <li>• If burrows are found, traps shall be set at night and checked by a qualified biologist the next morning.</li> <li>• If southern grasshopper mice are trapped, they shall be relocated to a nearby location with suitable habitat.</li> <li>• Retain inspection records in the project files.</li> </ul>	DWR and construction contractor	X	X	
<p><b>BIO-9:</b> If construction is scheduled to occur during the breeding bird season (February 1–August 31), a qualified wildlife biologist shall conduct preconstruction surveys of all potential nesting habitats (including burrowing owl) within 500 feet of construction activities for presence of breeding or nesting birds. Surveys shall be conducted no more than <del>30</del> 5 days prior to construction activities with a second survey conducted no more than 24 hours prior to the onset of construction.</p> <p>If active nests are found, no-disturbance buffers shall be implemented around each nest as follows: a 500-foot</p>	<ul style="list-style-type: none"> <li>• DWR shall have a qualified biologist do pre-construction nesting bird surveys.</li> <li>• DWR shall submit survey results to CDFW and USFWS.</li> <li>• If nests are found, buffers shall be implemented around each nest specific to the type of species.</li> <li>• Buffers shall be in effect until a qualified biologist determines the young have left (or until directed by CDFW).</li> </ul>	DWR and construction contractor	X	X	

## PEARBLOSSOM SOLAR PROJECT MITIGATION MONITORING AND REPORTING PROGRAM (continued)

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
buffer shall be created around any confirmed active raptor nest (including burrowing owl); a 300-foot buffer shall be created around active nests of non-raptor special-status bird species; and a buffer appropriate to ensure no take of the species based on observations of the birds behavior shall be created around any other bird species' nests protected by the MBTA or CDFW Code. The buffers should be implemented until it is determined by a qualified biologist that young have fledged or otherwise authorized by CDFW. If a nest is found in an area where ground disturbance is scheduled to occur, the project proponent shall avoid the area either by delaying ground disturbance in the area until a qualified wildlife biologist has determined that the young have fledged or by re-siting the proposed project component(s) to avoid the area.	<ul style="list-style-type: none"> <li>No construction shall occur in areas where nests are found until a qualified wildlife biologist has determined the young have fledged or the construction area is re-sited.</li> <li>Perform site inspections to verify contractor compliance. Retain inspection records in the project file.</li> </ul>				
<b>BIO-10:</b> Priority should be given to avoid individual Joshua trees whenever feasible. All Joshua tree seedlings that are located within proposed construction areas shall be translocated to suitable habitats within the PBPP.	<ul style="list-style-type: none"> <li>Include mitigation measure in construction contractor specifications.</li> <li>DWR shall translocate any Joshua tree seedlings located within the proposed construction area.</li> <li>Perform site inspections to verify contractor compliance. Retain inspection records in the project file.</li> </ul>	DWR	X	X	
<b>BIO-11:</b> A Joshua tree relocation plan shall be prepared and shall include at a minimum the following: removal and translocation methods, identification of suitable planting site(s), post-planting care, performance measures, monitoring procedures, and adaptive management strategies.	<ul style="list-style-type: none"> <li>Include mitigation measure in construction contractor specifications.</li> <li>DWR shall prepare a Joshua tree relocation plan.</li> <li>Perform site inspections to verify contractor compliance with the plan. Retain inspection records in the project file.</li> </ul>	DWR	X	X	
<b>BIO-12:</b> <u>DWR shall consult with USFWS and CDFW to determine a survey protocol sufficient to determine the absence of desert tortoise within the construction area. The survey protocol shall be approved by USFWS and CDFW staff and conducted within one year prior to the start of construction. Survey results shall be submitted to USFWS and CDFW. If desert tortoise are present within the impact area or could be adversely affected by</u>	<ul style="list-style-type: none"> <li>Include mitigation measure in construction contractor specifications.</li> <li>DWR shall submit survey results to CDFG and USFWS.</li> </ul>	DWR	X		

**PEARBLOSSOM SOLAR PROJECT MITIGATION MONITORING AND REPORTING PROGRAM (continued)**

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
<u>construction activities as determined by the surveys. DWR shall consult with USFWS and CDFW to either avoid impacts or compensate for impacts in compliance with the state and federal Endangered Species Acts.</u>					
<b>Cultural Resources</b>					
<b>CUL-1:</b> Prior to start of any ground-disturbing activities, a qualified archaeologist who meets the Secretary of the Interior’s Professional Qualification Standards for archaeology shall be retained to conduct archaeological resources sensitivity training for all construction personnel. Construction personnel shall also be informed of the proper procedures to be enacted in the event of an inadvertent archaeological discovery (Mitigation Measure <b>CUL-2</b> ).	<ul style="list-style-type: none"> <li>DWR shall appoint a qualified archaeologist to conduct archaeological resources sensitivity training.</li> <li>Retain records of BMP implementation in the project files.</li> </ul>	DWR	X		
<b>CUL-2:</b> Any accidental discovery of archaeological resources during construction shall be evaluated by a qualified archaeologist who meets the Secretary of the Interior’s Professional Qualification Standards for archaeology. If the find is determined to be potentially significant, the archaeologist, in consultation with the lead agency and appropriate Native American group(s) (in the event prehistoric resources are discovered), shall develop a treatment plan. All work in the immediate vicinity of the unanticipated discovery shall cease until the qualified archaeologist has evaluated the discovery, or until the treatment plan has been implemented, if appropriate.	<ul style="list-style-type: none"> <li>DWR shall retain a qualified professional archaeologist in the event that any cultural resources are discovered.</li> <li>All significant cultural material will be analyzed and a treatment plan shall be prepared.</li> <li>All work shall halt in the immediate vicinity of the resource until the qualified archeologist has evaluated the discovery.</li> <li>DWR shall notify contractors of this requirement during contract negotiations. The construction foreman shall have available, at all times, contact information for a qualified archaeologist in the event of unexpected discovery.</li> </ul>	DWR and construction contractor		X	
<b>CUL -3:</b> During the grading operation if paleontological resources are identified, work shall be halted or redirected until a qualified paleontologist can evaluate the significance of the discovery. If the project paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigation may be required to mitigate adverse impacts from project implementation.	<ul style="list-style-type: none"> <li>If significant paleontological resources are found, work shall be halted until a qualified paleontological can evaluate the discovery.</li> <li>If the discovery constitutes a significant paleontological resource, additional investigation may occur.</li> <li>Retain copy of the resource in the project file.</li> </ul>	DWR and construction contractor		X	

**PEARBLOSSOM SOLAR PROJECT MITIGATION MONITORING AND REPORTING PROGRAM (continued)**

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
<p><b>CUL-4:</b> In the event that previously unknown human remains are uncovered during project excavation, those remains shall be treated in accordance with State Health and Safety Code Section 7050.5 and PRC Section 5097.98, as required by California state law. State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission. The NAHC shall then identify the person(s) thought to be the Most Likely Descendant (MLD) of the individual(s), who will then help determine the future disposition of the remains. Per PRC Section 5097.98, the landowner shall ensure that the immediate vicinity (defined according to generally accepted cultural or archaeological standards or practices) around where the human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the MLD(s) regarding their recommendations, taking into account the possibility of multiple human remains.</p>	<ul style="list-style-type: none"> <li>• Include mitigation measure in construction contractor specifications.</li> <li>• DWR shall notify contractors of this requirement during contract negotiations. The construction foreman shall have available, at all times, contact information for the County Coroner in the event of unexpected discovery.</li> <li>• Retain records of all inadvertent discovery evaluations in the project file.</li> </ul>	DWR and construction contractor		X	
<b>Geology, Soils, and Seismicity</b>					
<p><b>GEO-1:</b> To control water and wind erosion during construction of the project, DWR shall prepare a Stormwater Pollution Prevention Plan (SWPPP) prior to the start of construction. The objectives of a SWPPP is to identify pollutant sources (such as sediment) that may affect the quality of stormwater discharge and to implement best management practices (BMPs) to reduce pollutants in stormwater. The SWPPP shall prescribe temporary BMPs to control wind and water erosion during and shortly after construction of the project and permanent BMPs to control erosion and sedimentation once construction is complete.</p> <p>Erosion control BMPs would be used to prevent the degradation of water quality in the construction area. Other BMPs that could be used to enhance erosion</p>	<ul style="list-style-type: none"> <li>• DWR shall prepare a SWPPP.</li> <li>• Erosion control BMPs shall be established and adhered to in the construction area.</li> <li>• Perform site inspections to verify contractor compliance with the plan. Retain inspection records in the project file.</li> </ul>	DWR	X	X	

**PEARBLOSSOM SOLAR PROJECT MITIGATION MONITORING AND REPORTING PROGRAM (continued)**

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
control include scheduling to avoid wet weather events; preservation of existing vegetation where feasible; using soil binders; straw mulching; using geotextiles, plastic covers, and erosion control blankets/mats. Example of erosion control BMPs are installing a silt fence; creating a sediment/desilting basin; installing sediment traps; installing check dams; using fiber rolls; creating gravel bag berms; street sweeping and vacuuming; creating a sandbag barrier; creating a straw bale barrier; and storm drain inlet protection. BMPs would also include practices for proper handling of chemicals such as avoiding fueling at the construction site and overtopping during fueling and installing containment pans.					
<b>Hydrology and Water Quality</b>					
<b>HYDRO-1:</b> Prior to the initiation of any grading activities, DWR will prepare a drainage plan. The drainage plan shall include components for the accommodation of storm water flows, flood drainage and water quality control, including location of key discharge points for retention basins (if necessary). <u>The drainage plan shall ensure that stormwater flows dissipate adequately enough over the proposed project sit, so as to prevent scour and erosion on-site and off-site.</u>	<ul style="list-style-type: none"> <li>DWR shall prepare a drainage plan.</li> <li>Perform site inspections to verify contractor compliance with the plan. Retain inspection records in the project file.</li> </ul>	DWR	X	X	
<b>GEO-1:</b> To control water and wind erosion during construction of the project, DWR shall prepare a Stormwater Pollution Prevention Plan (SWPPP) prior to the start of construction. The objectives of a SWPPP is to identify pollutant sources (such as sediment) that may affect the quality of stormwater discharge and to implement best management practices (BMPs) to reduce pollutants in stormwater. The SWPPP shall prescribe temporary BMPs to control wind and water erosion during and shortly after construction of the project and permanent BMPs to control erosion and sedimentation once construction is complete.  Erosion control BMPs would be used to prevent the degradation of water quality in the construction area. Other BMPs that could be used to enhance erosion control include scheduling to avoid wet weather events; preservation of existing vegetation where feasible; using	<ul style="list-style-type: none"> <li>DWR shall prepare a SWPPP.</li> <li>Erosion control BMPs shall be established and adhered to in the construction area. Retain records of BMP implementation in the project files.</li> </ul>	DWR	X	X	

**PEARBLOSSOM SOLAR PROJECT MITIGATION MONITORING AND REPORTING PROGRAM (continued)**

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule		
			Before Construction	During Construction	After Construction
soil binders; straw mulching; using geotextiles, plastic covers, and erosion control blankets/mats. Example of erosion control BMPs are installing a silt fence; creating a sediment/desilting basin; installing sediment traps; installing check dams; using fiber rolls; creating gravel bag berms; street sweeping and vacuuming; creating a sandbag barrier; creating a straw bale barrier; and storm drain inlet protection. BMPs would also include practices for proper handling of chemicals such as avoiding fueling at the construction site and overtopping during fueling and installing containment pans.					

# Appendix A

## Draft Initial Study / Mitigated Negative Declaration

(provided on attached CD)



# DWR PEARBLOSSOM SOLAR PROJECT

## Initial Study / Mitigated Negative Declaration

Prepared for  
California Department  
of Water Resources

March 2013



# DWR PEARBLOSSOM SOLAR PROJECT

## Initial Study / Mitigated Negative Declaration

Prepared for  
California Department  
of Water Resources

March 2013



626 Wilshire Boulevard  
Suite 1100  
Los Angeles, CA 90017  
213.599.4300  
[www.esassoc.com](http://www.esassoc.com)

Oakland

Orlando

Palm Springs

Petaluma

Portland

Sacramento

San Diego

San Francisco

Santa Cruz

Seattle

Tampa

Woodland Hills

206008.12

# TABLE OF CONTENTS

---

## DWR Pearblossom Solar Project Initial Study / Mitigated Negative Declaration

	<u>Page</u>
1. Project Description .....	1-1
1.1 Introduction.....	1-1
1.2 Project Location .....	1-1
1.3 Project Background.....	1-1
1.4 Project Description .....	1-4
1.5 Project Review and Approvals.....	1-8
2. Environmental Checklist Form .....	2-1
Environmental Factors Potentially Affected .....	2-2
Environmental Impacts.....	2-3
Aesthetics .....	2-3
Agricultural and Forest Resources.....	2-6
Air Quality .....	2-8
Biological Resources.....	2-12
Cultural Resources.....	2-33
Geology, Soils, and Seismicity.....	2-38
Greenhouse Gas Emissions .....	2-42
Hazards and Hazardous Materials.....	2-44
Hydrology and Water Quality .....	2-47
Land Use and Land Use Planning .....	2-52
Mineral Resources .....	2-53
Noise .....	2-54
Population and Housing .....	2-60
Public Services.....	2-61
Recreation .....	2-62
Transportation and Traffic.....	2-63
Utilities and Service Systems.....	2-66
Mandatory Findings of Significance .....	2-69

	<u>Page</u>
 <b>Figures</b>	
Figure 1 Regional Location .....	1-2
Figure 2 Project Vicinity.....	1-3
Figure 3 Site Plan .....	1-5
Figure 4 HSAT System Layout.....	1-6
Figure 5 Plant Communities on the Project Site .....	2-15
 <b>Tables</b>	
Table 1 Discretionary Permits Potentially Required .....	1-8
Table 2 Estimated daily Unmitigated Construction Emissions .....	2-10
Table 3 Special-Status Wildlife Species Recorded in the Region of the Proposed Project.....	2-17
Table 4 Rare Plants Recorded in the Region of the Proposed Project .....	2-22
Table 5 Typical Outdoor Construction Noise Levels .....	2-55
Table 6 Vibration Source Levels for Construction Equipment.....	2-58
 <b>Appendices</b>	
Appendix A1 California Emissions Estimator Model (CalEEMod), Version 2011.1.1.	
Appendix A2 GGERP Consistency Determination Checklist	
Appendix B1 Biological Resources Survey Report for the DWR Pearblossom Solar Energy Project	
Appendix B2 Biological Resource Assessment for the Pearblossom Pump Station Solar Energy Project	

# SECTION 1

---

## Project Description

### 1.1 Introduction

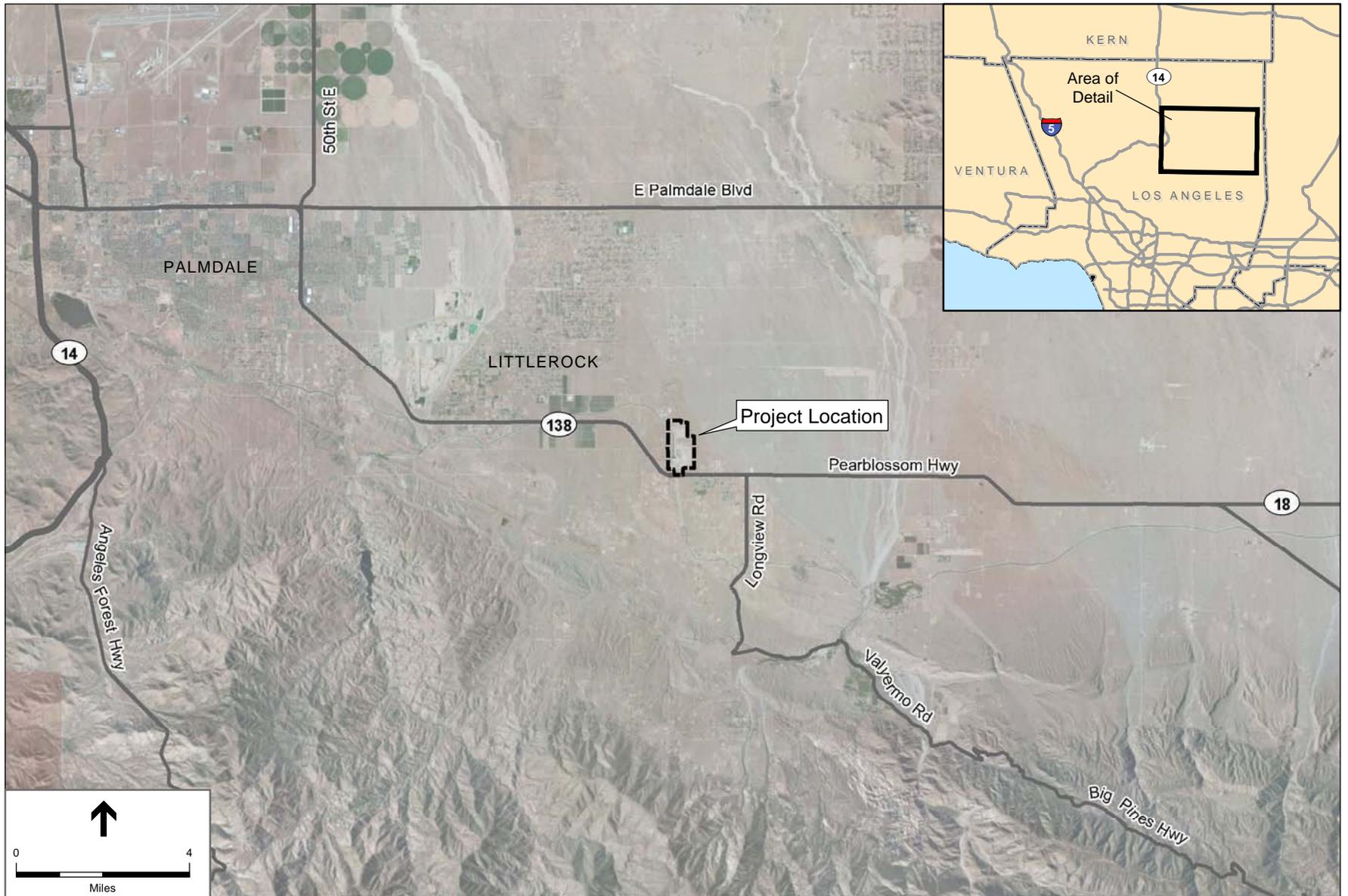
The California Department of Water Resources (DWR) is proposing to install photovoltaic solar panel arrays at the existing Southern Field Division Headquarters, Pearblossom Pumping Plant (PBPP), located in the Antelope Valley. The project would install approximately 70-acres of photovoltaic solar panel arrays adjacent to the existing PBPP on property owned by DWR. The proposed project would add renewable energy to the portfolio of energy resources used to supply electricity for pumping water on the State Water Project (SWP).

### 1.2 Project Location

The proposed project is located in Antelope Valley in unincorporated Los Angeles County (See **Figure 1**). Specifically, the proposed project is located at 34534 116<sup>th</sup> Street East near the community of Pearblossom. The region is flat desert land. The Antelope Valley encompasses approximately 2,400 square miles in northern Los Angeles County, southern Kern County, and western San Bernardino County. The unincorporated community of Pearblossom is approximately 25 miles south of the City of Lancaster and 12 miles southeast of the City of Palmdale. The proposed project is located at the PBPP located on the California Aqueduct and is bounded by East Avenue V to the north, 121<sup>st</sup> Street East to the west, Pearblossom Highway (SR-138) to the south, and 116<sup>th</sup> Street East to the east as shown in **Figure 2**. The project site has a land use designation of Public Service Facilities (P) under the Antelope Valley Area Plan and is zoned as Open Space (OS). Surrounding uses include non-urban uses zoned as heavy agriculture, light agriculture, and residential agriculture.

### 1.3 Project Background

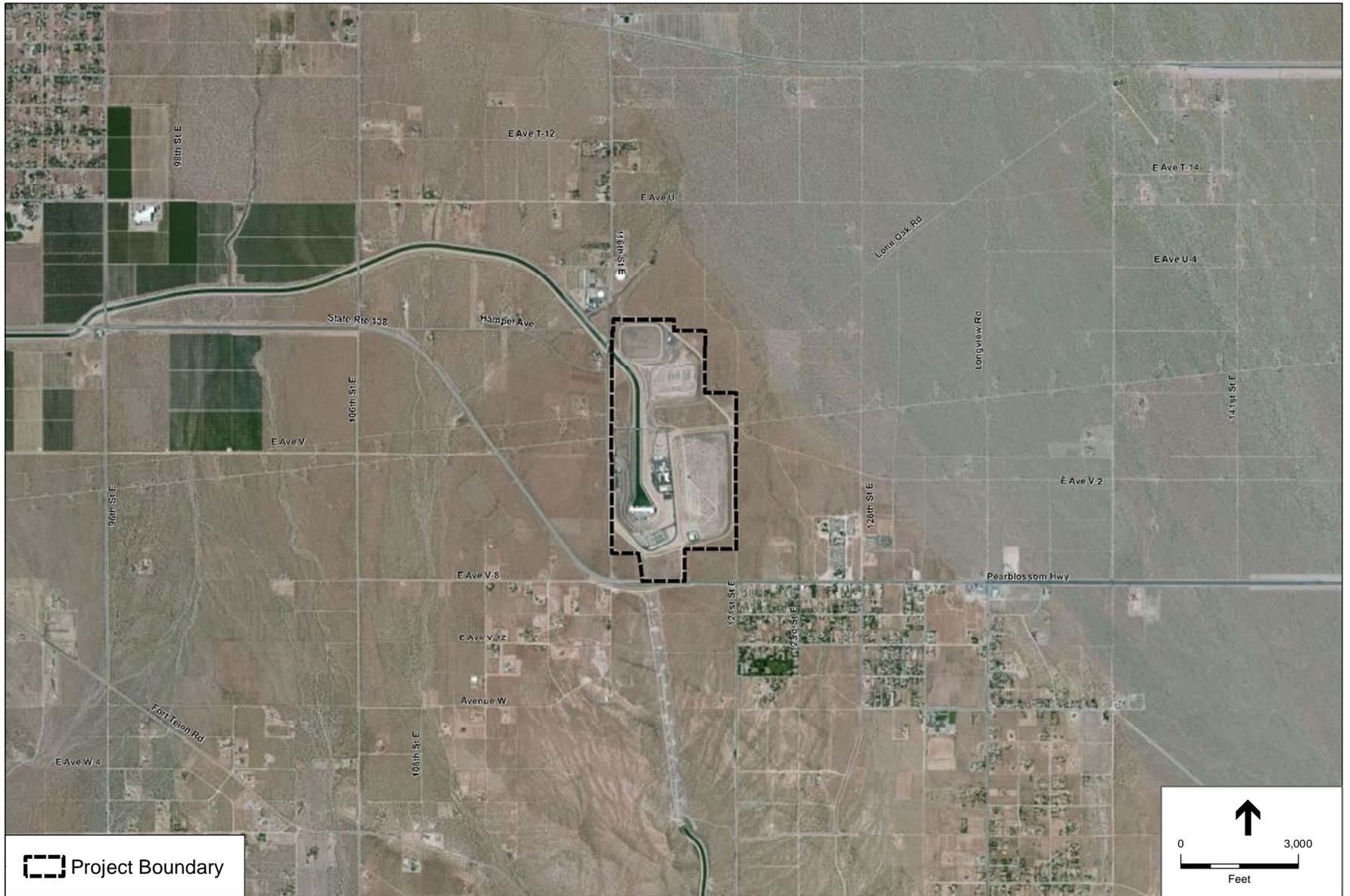
DWR operates and maintains the SWP, supplying water to 29 contracting agencies across the state. The SWP consists of 34 storage facilities, 20 pumping plants, four pumping-generating plants, five hydroelectric power plants, and 701 miles of canals and pipelines (DWR, 2012).



SOURCE: ESA, 2013

DWR Pearblossom . 206008.12

**Figure 1**  
Regional Location



SOURCE: ESA, 2013

DWR Pearblossom . 206008  
**Figure 2**  
Project Vicinity

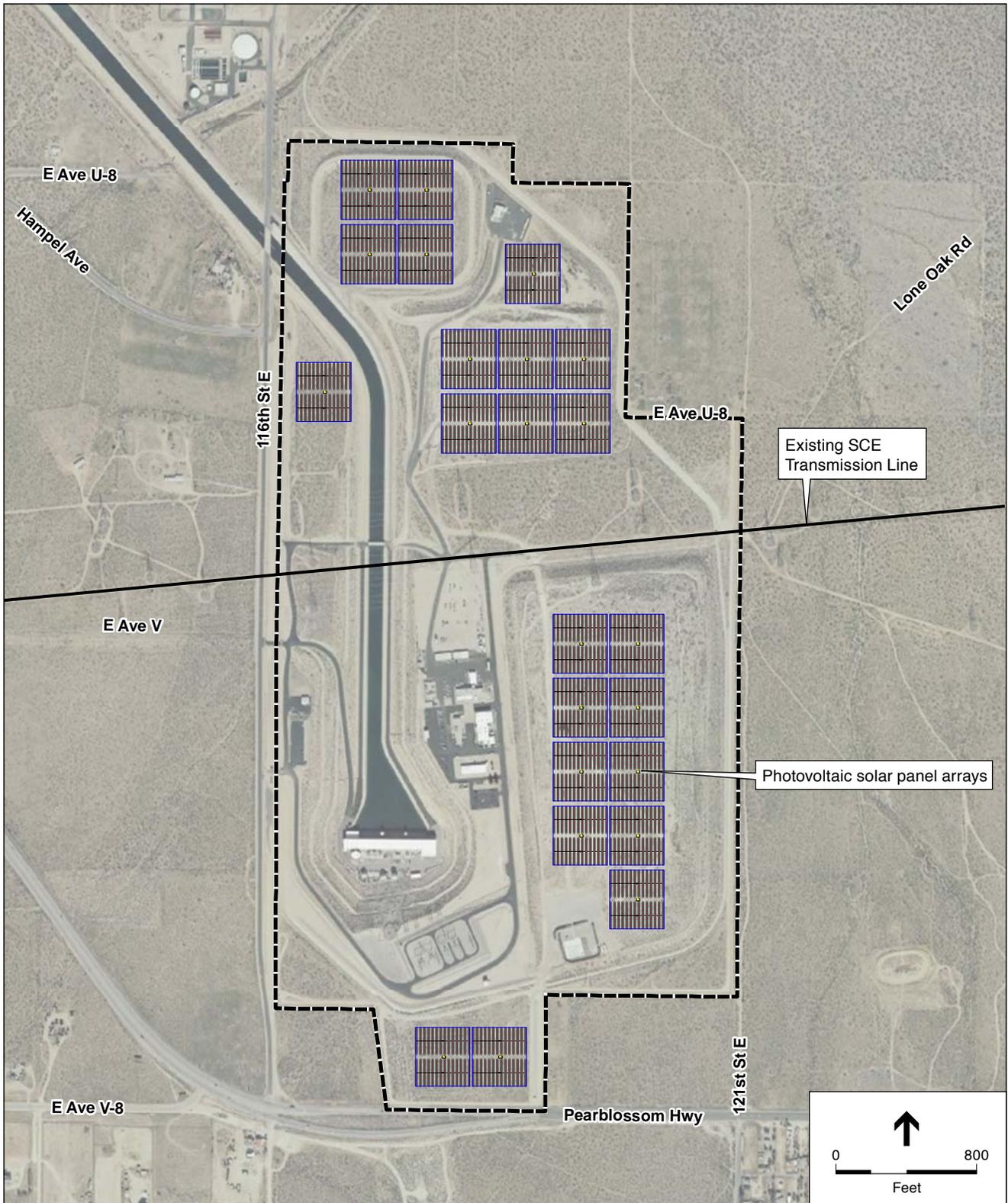
## 1.4 Project Description

The proposed project is located at the PBPP operated by DWR. DWR proposes to develop approximately 70 acres within the PBPP site with photovoltaic (PV) solar panel technology. It is anticipated that approximately 10 megawatt (MW) of energy would be generated by the proposed project. The energy will be transmitted to the California Independent System Operator (CAISO) via a Southern California Edison (SCE) 230 kilovolt (kV) radial distribution line (See **Figure 3**) or alternatively the energy may be used directly by the SWP to offset load. Through the proposed project, DWR would implement a renewable energy project, thereby reducing greenhouse gas emissions and implementing DWR's Climate Action Plan. The proposed project would include the installation of photovoltaic panels, Direct Current (DC) to Alternating Current (AC) inverters, mounting systems, a substation including step-up transformer, breakers, electrical protection equipment, and metering equipment.

### 1.4.1 Proposed Project Characteristics

The proposed project consists of the installation of solar PV technology modules mounted to a racking systems secured to the ground. It is expected that the racking system will be horizontal single-axis tracker (HSAT) system. The HSAT system would allow the PV modules to rotate in the direction of the sun as it moves across the sky. Alternatively, the mounting system may be fixed in which case the modules would not track or the sun.

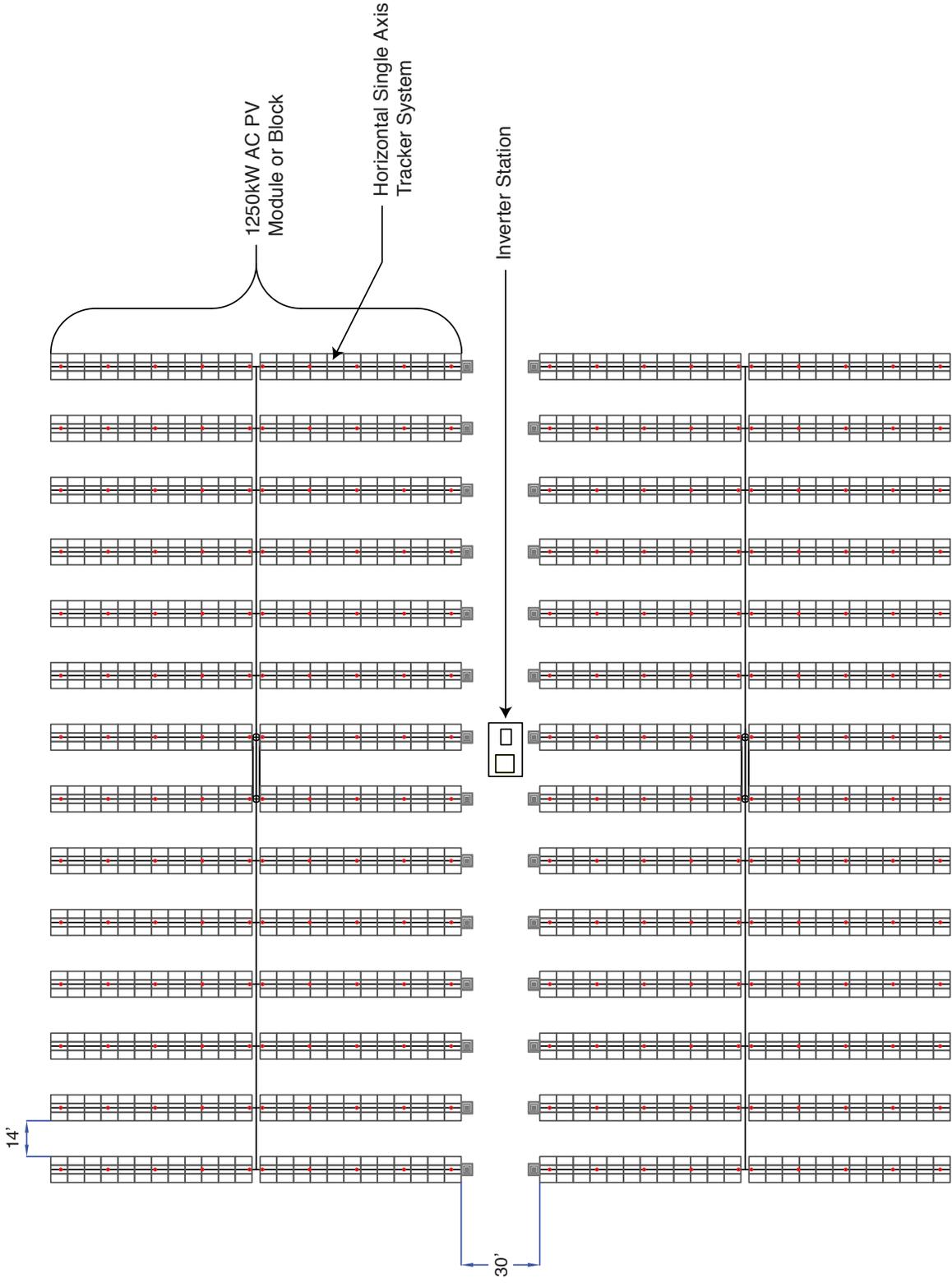
Each PV racking system would be arranged to maximize operational performance and to allow access for panel cleaning (See **Figure 4**). The PV modules would reach their maximum height of approximately nine feet above ground, at both sunrise and sunset, if the HSAT racking system is employed, when the HSAT is rotated so the face of the panels tilts towards the rising or setting sun. During high wind conditions when the panels would be stowed, or when the sun is directly overhead, the HSAT would rotate the PV module to a horizontal position. The proposed project will have its own interconnection facility substation and a generator facility tie-in line (gen-tie) which includes DC to AC inverters, step-up transformer and necessary electrical protection and isolation equipment allowing the project to interconnect to SCE electrical transmission distribution system. The interconnection will be located near the south end of the proposed project site. The electricity generated by the proposed project would support electricity use for the SWP. Existing utility easements cross the project site in an east west manner and are operated by SCE, the Los Angeles Department of Water and Power, and the City of Los Angeles.



SOURCE: Zglobal Engineering & Energy Solutions; ESRI; ESA, 2013.

DWR Pearblossom . 206008.12

**Figure 3**  
Proposed Site Plan



DWR Pearblossom .206008.12  
**Figure 4**  
 HSAT System Layout

## 1.4.2 Project Construction

Construction of the proposed project would occur entirely on-site at DWR's PBPP. Site access would be from Pearblossom Highway and existing adjacent private roadways. Construction activities beyond the initial land or site preparation work would include roadway access into and through the planned facility boundaries; establishment of equipment receipt, storage, lay-down and staging areas; assembly and installation of the HSAT system; trenching for the underground collector/feeder circuits; installation of the PV Inverters; installation of feeder collection circuits and main "homeruns" from the Inverters to the site's interconnection facility; installation of the collector feeder switchgear equipment, generator step-up transformer, miscellaneous protection equipment, ground grid, breakers, CTs/PTs; and installation of perimeter fencing and gate(s).

Minimal grading with minor amounts of exported soils is anticipated. No paving is anticipated; however, the surface of each array foundation would consist of ¾-inch crushed rock covering the ground surface.

Construction vehicles would include the following: backhoe, flat bed trucks, fork lift, portable boom, grader, dump truck, and a drilling rig. Approximately two to five construction truck trips would be staggered throughout the day during construction of the solar generating facility, with one additional truck expected for delivery of construction materials. In total, six truck trips per day for construction and material delivery would be anticipated. Project construction would also require a maximum of 25 workers at any given time. Approximately 25 percent of the workforce is expected to carpool with a minimum of two persons per vehicle and the remaining driving as single occupants.

Development of the proposed project would take approximately five months commencing on May 26, 2014 ending on November 28, 2014 and no planned phasing is anticipated for the proposed Project. Construction would occur during normal construction hours from 8:00 a.m. to 5:00 p.m., Monday through Friday. Saturday construction would occur occasionally during the construction phase.

## 1.4.3 Project Operation

The anticipated life of the solar facility is expected to be 25 years during which time DWR will receive energy and renewable credits. Operational activities would be limited to monitoring plant performance, performing scheduled maintenance for on-site electrical equipment and PV panels, and responding to utility needs for equipment adjustment. No permanent workers would be required at the project site. Temporary workers would be utilized to conduct quarterly maintenance activities and they would not be stationed at the PBPP. Maintenance activities would consist of performing periodic inspections and maintenance of modules and HSAT system; responding to any problems detected by remote monitoring; cleaning PV panels and maintaining the project site. The quarterly maintenance activities would take approximately five days to complete.

Cleaning of the PV panels would occur every three months through a third-party service water truck using approximately two gallons of water per panel. The PV panels would be cleaned with water. If the panels are mounted on a fixed tilt arrangement then quarterly maintenance would be minimal. If the panels are mounted on a single axis tracking system, maintenance related to the operating mechanism of this system would require periodic adjusting, cleaning and potential lubrication.

Dust abatement and erosion control would occur as part of the quarterly maintenance activities. Approved palliatives (soil binders and chemical dust suppressants) mixed with water and erosion control additives would be applied as necessary for dust abatement. The maintenance personnel would apply dust control additives using small equipment that act as soil-binding agents. This work is similar to hydro-seeding without the inclusion of seed mix, and would be performed in combination with conventional weed control measures such as spraying and mowing. The palliatives would be used on project roads and in between PV panels. The types of palliatives that would be used onsite would be based on the soil characteristics at the site (as recommended by the Antelope Valley Air Quality Management District.) On-site activities associated with long-term operations and maintenance would be minimal.

At the end of the operational life of the project, the PV panels and racking systems would be decommissioned and dismantled. Decommissioning would involve disassembly of PV panels. The panels do not contain materials that are toxic such as mercury or lead. A majority of the components of the solar panels are made of materials that can be readily recycled. If the panels can no longer be used in a solar array, the silicon can be recovered, the aluminum resold, and the glass recycled. Other components of the solar installation, such as the tracker structures and mechanical assemblies, can be recycled as they are made from galvanized steel. Equipment such as drive controllers, inverters, transformers, and switchgear can be either reused or their components recycled. The equipment pads are made from concrete which can be crushed and recycled. Underground conduit and wire can be removed by uncovering trenches and backfilling when done. The electrical wiring is made from copper and/or aluminum and can be reused or recycled as well. Panels and appurtenances would be removed and the site would be restored to its pre-construction condition.

## 1.5 Project Review and Approvals

Approvals and/or permits would be required to implement the proposed project. **Table 1-1** presents a preliminary list of the agencies and entities with discretionary approval over the Project.

**TABLE 1-1  
DISCRETIONARY PERMITS POTENTIALLY REQUIRED**

Agency	Permits and Authorizations Required	Activities Subject to Regulations
Regional Water Quality Control Board	Report of Waste Discharge for Waste Discharge Requirement (WDR) Permit	Waste discharge to land

## References

Department of Water Resources. 2011. *California State Water Project Overview*.  
<http://www.water.ca.gov/swp/>. Accessed 12/7/12.

## SECTION 2

### Environmental Checklist Form

---

1. **Project Title:** DWR Pearblossom Solar Project
2. **Lead Agency Name and Address:** California Department of Water Resources
3. **Contact Person and Phone Number:** George Baldini, (916) 574-0940
4. **Project Location:**  
Pearblossom Pumping Plant  
34534 116<sup>th</sup> Street E, Pearblossom, California  
  
APNs: 303-(9029907, 9029903, 9030909, 8001903)  
  
United States Geologic Service, Littlerock  
Quadrangle
5. **Project Sponsor's Name and Address:** State of California Department of Water  
Resources,  
Headquarters  
1416 Ninth Street, Sacramento, CA 95814
6. **General Plan Designation(s):** P – Public Service Facilities (Antelope Valley  
Area Plan)
7. **Zoning Designation(s):** O-S Open Space
8. **Description of Project:** See Section 1, Project Description
9. **Surrounding Land Uses and Setting:** The proposed project is located at the California  
Department of Water Resources (DWR) Pearblossom Pumping Plant (PBPP). A majority of the  
land surrounding the PBPP is undeveloped desert land. Approximately 1,000 feet southeast of the  
PBPP are residential land uses and there is a single family residential unit approximately 400 feet  
to the northwest.
10. **Other public agencies whose approval is required:** Lahontan Regional Water Quality  
Control Board.

## Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The proposed project will not, however, have significant effects, as discussed in the following pages, which present a more detailed checklist and discussion of each environmental factor.

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Aesthetics           | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality                              |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources      | <input checked="" type="checkbox"/> Geology, Soils and Seismicity |
| <input type="checkbox"/> Greenhouse Gas Emissions        | <input type="checkbox"/> Hazards and Hazardous Materials    | <input checked="" type="checkbox"/> Hydrology and Water Quality   |
| <input type="checkbox"/> Land Use and Land Use Planning  | <input type="checkbox"/> Mineral Resources                  | <input type="checkbox"/> Noise                                    |
| <input type="checkbox"/> Population and Housing          | <input type="checkbox"/> Public Services                    | <input type="checkbox"/> Recreation                               |
| <input type="checkbox"/> Transportation and Traffic      | <input type="checkbox"/> Utilities and Service Systems      | <input type="checkbox"/> Mandatory Findings of Significance       |

### DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.



Signature

March 29, 2013

Date

George Baldini  
Printed Name

State of California Department of Water Resources  
For

# Environmental Impacts

## Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>1. AESTHETICS — Would the project:</b>				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Discussion

- a) **No Impact.** The proposed project is located in the Antelope Valley in southern California. The Antelope Valley is bounded by the San Gabriel Mountains to the south, the Tehachapi Mountains to the north, and extends from the City of Gorman on the west to San Bernardino County to the east.

The proposed project is located within the PBPP site. Site elevations range from approximately 2,880 feet above mean sea level (amsl) in the northeast to approximately 3,100 feet amsl in the southwest. The project site generally slopes downward from south to the north, with the Central Transverse Ranges in close proximity to the south and the Mojave Desert basin to the north. Views from these hills span across the valley floor. The project area and immediate surrounding areas have not been designated as a scenic vista by the County of Los Angeles. The proposed project is not characterized as providing views of the nearby mountains or the desert. While the proposed project would be visible to nearby residential use to the northwest and longer range views from higher elevations, the PV solar modules would not block views of scenic vistas. The project would be located adjacent to industrial and residential developments and would not substantially alter long range views. Impacts to scenic vistas would be less than significant.

- b) **No Impact.** The project area does not include any eligible or officially designated Scenic Highways as designated by the California Department of Transportation (Caltrans) (Caltrans, 2012). The nearest scenic highway is State Route 2, located in the San Gabriel Mountains, approximately 19 miles away from the project area. Therefore, implementation of the proposed project would not impact scenic resources within a state scenic highway corridor. The proposed project would not substantially damage scenic resources such as trees, rock outcroppings, or historic buildings.

c) **Less than Significant Impact.**

**Construction**

Construction and operation of the proposed project would introduce new infrastructure to the PBPP property. Construction of the proposed project would result in short-term impacts to the surrounding visual character of the site as construction activities use construction equipment at the site for approximately of six months. However, construction would be located entirely onsite at the PBPP property and use of construction equipment would not significantly impact the long-term visual character of the area.

**Operation**

The PBPP is currently developed with a pumping plant, operations buildings, a substation, switch yard relay protection and metering system, and electrical transformers at the southern end of the project site. The proposed project would modify the existing character of the project site by installing PV solar arrays and associated equipment and improvements at PBPP. The solar panels would be installed in a uniform manner that would provide a consistent appearance. The PV solar modules would have a maximum height of approximately nine feet above ground and lowered to a minimum height of six feet. The solar arrays and PV solar modules would not exceed the height of the electrical transformers. Nevertheless, operation of the solar project would alter the existing visual character of the PBPP property.

Pearblossom Highway (State Route 138) parallels the project area to the south for the length of the southern portion of the site. Although Pearblossom Highway is on the same horizontal plane as the project site, proposed PV solar modules would be noticeable from Pearblossom Highway on south side of the facility due to the close proximity between the road and the facility. In addition, 116<sup>th</sup> Street East is adjacent to the project area boundary to the west. The proposed PV solar modules would be visible from this road, however due to the developed nature of the PBPP the increased development of the site would be less than significant, as the proposed project site is currently developed with utility supporting buildings and ancillary facilities.

- d) **Less than Significant with Mitigation.** No nighttime construction is proposed and no short-term nighttime light impacts would occur. However, the proposed project proposes exterior lighting during operational activities. Low-level lighting would be installed throughout the project site for safety and security purposes, as well as operation and maintenance. The exterior lighting system could impact day and nighttime views by introducing new sources of light and glare to the project area. Currently, nighttime exterior lighting is located onsite at the facility and is shielded and directed downward to minimize light spillover to surrounding areas. The new lighting system would also incorporate these design features to minimize new light and glare impacts. Implementation of Mitigation Measure **AE-1** would ensure the proposed project would not have impacts associated with light and glare on the surrounding vicinity.

Most PV panels are manufactured utilizing non-glare technology, nevertheless, once the PV modules are constructed, any glare from the solar panels is expected to reach highest levels at sunrise and sunset, when the panels rotate to face the rising or setting sun to a maximum height of nine feet. Furthermore, this potential situation would only occur if a horizontal single axis tracker (HSAT) mounting system is utilized. However, the preferred system is a fixed tilt arrangement. Therefore, impacts from the PV modules would not cause a temporary loss of vision, but may cause people in the immediate viewshed to be less able to distinguish levels of contrast. There is a small potential that drivers on Pearblossom Highway may experience glare at sunrise or sunset while approaching the project area from the northwest or southeast (if non-glare HSAT panels are used), however the PV module glare would be temporary to drivers and would not be expected to cause extreme visual discomfort or impairment.

### ***Mitigation Measures***

**AE-1:** The DWR shall prepare and implement a lighting plan. Proposed exterior lighting shall be shielded and directed downward, and shall be full cutoff shielded fixtures that cast low-angle illumination to minimize incidental spillover of light onto adjacent properties and open space. Fixtures that project light upward or horizontally shall not be used, and luminaries shall be directed away from properties adjacent to the project site.

### **References**

California Department of Transportation (Caltrans), *California Highway Mapping System*, [http://www.dot.ca.gov/hq/LandArch/scenic\\_highways/index.htm](http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm), accessed August 2012.

National Scenic Byways Program, *Angels Crest Scenic Byway (Route 2)*, <http://byways.org/explore/byways/10245/travel.html>, accessed August 2012.

Google Inc., Google Earth, <http://www.google.com/earth/index.html>, accessed August 2012.

## Agricultural and Forest Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>2. AGRICULTURAL AND FOREST RESOURCES —</b>				
<p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.</p> <p><b>Would the project:</b></p>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a,b) **No Impact.** The proposed project is located entirely onsite at the PBPP property. The project site is developed and designated as Public Services Facility and zoned as Open Space. The project site is designated by the Farmland Mapping and Monitoring Program (FMMP) as urban and built-up land. As such, it does not consist of agricultural land and would not conflict with a Williamson Act contract. Therefore, no impact would occur.
- c,d) **No Impact.** The project site is developed with a pumping facility, and is surrounded by desert habitat and nearby residential uses. It does not contain any forest land or timberland nor is it zoned for forest land or timberland or associated uses. Therefore, no impact would occur.
- e) **No Impact.** The project site is not zoned for agricultural uses, farmland, or forest land. The project would not convert such uses. No impacts would occur.

## References

State of California Department of Conservation, Farmland Mapping and Monitoring Program,  
*Los Angeles County Important Farmland 2010*, September 2010.

---

## Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>3. AIR QUALITY —</b>				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
<b>Would the project:</b>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Discussion

- a) **Less Than Significant.** The proposed project is in the Mojave Valley Air Basin (Basin). The Antelope Valley Air Quality Management District (AVAQMD) is the regional regulatory authority for air quality in the Basin. The *2004 Antelope Valley Ozone Attainment Plan* is the applicable air quality plan for the AVAQMD. The purpose of the plan is to bring the Antelope Valley into attainment for ozone. The *2004 Ozone Attainment Plan* is based on approved regional air emission modeling, which takes into account future development consistent with adopted plans and policies. Because the Los Angeles County Antelope Valley Area Plan was used by the Southern California Association of Governments (SCAG) to prepare the regional growth forecasts for the northeastern portion Los Angeles County where the project site is located, development that is consistent with the Area Plan would also not create air emissions that exceed the AVAQMD's *2004 Ozone Attainment Plan*. As discussed below under Item 10(a), *Land Use and Land Use Planning*, the proposed project would not conflict or change the existing Public Service Facilities (P) land use designation or Open Space (O-S) zoning of the project site. As such, the proposed project has been accounted for in the Antelope Valley Area Plan. In addition, as discussed in Item 3(b) below, the proposed project's construction and operational emissions would also not exceed the AVAQMD's significance thresholds. Consequently, implementation of the proposed project would not conflict with or obstruct implementation of the *2004 Antelope Valley Ozone Attainment Plan*, the proposed project would have a less than significant impact.

b) **Less Than Significant.**

***Construction Emissions***

Proposed project construction activities would involve site preparation and clearing, grading and excavation, and construction. These activities would emit criteria pollutants (primarily ozone precursors such as reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>) as a result of using heavy-duty construction equipment). Mobile source emissions would also be produced from construction worker vehicle trips to and from the project site. In addition, fugitive dust emissions would be generated from site preparation and excavation activities and vehicle travel on paved and unpaved surfaces.

Construction equipment exhaust also would include some PM<sub>10</sub> and PM<sub>2.5</sub> emissions. PM<sub>10</sub> and PM<sub>2.5</sub> consists of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM<sub>10</sub> and PM<sub>2.5</sub> emissions from construction would vary from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, and represent more of a soiling nuisance than a health hazard. PM<sub>10</sub> and PM<sub>2.5</sub> are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. Therefore, unmitigated construction dust emissions could result in significant local effects.

Construction emissions during the approximately six month construction period have been quantified using the California Emissions Estimator Model (CalEEMod), Version 2011.1.1. The results of the analysis are summarized in **Table 2** below, and are compared to the AVAQMD thresholds of significance for each air pollutant. A copy of the CalEEMod data is presented in **Appendix A1**.

As shown in Table 2, the estimated emissions of VOC, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from proposed project construction would not exceed their respective AVAQMD significance thresholds. Furthermore, the proposed project would be subject to AVAQMD Rule 403 that requires the implementation of dust control measures during project construction activities that would further reduce the project's fugitive PM<sub>10</sub> emissions. Therefore, air quality impacts associated with construction of the proposed project would be less than significant.

Proposed project construction would not emit two criteria pollutants for which the AVAQMD has established emissions thresholds for, hydrogen sulfide and lead. Hydrogen sulfide is a colorless, flammable gas that is often produced by the breakdown of waste material, while lead is a metal that is generated predominantly today by industrial processes that are primarily associated with metals processing, such as smelters. The construction equipment used for construction of the proposed project would not result in the release of these pollutants into the atmosphere. Overall, air quality impacts during construction would be less than significant.

**TABLE 2**  
**ESTIMATED DAILY UNMITIGATED CONSTRUCTION EMISSIONS<sup>a</sup>**

Project Construction Year	Criteria Pollutant Emissions (lbs/day)					
	VOC	NOx	CO	SOx	PM <sub>10</sub>	PM <sub>2.5</sub>
2013	8.26	64.10	40.67	0.08	17.13	9.76
AVAQMD Thresholds of Significance	137	137	548	137	82	82
Significant?	No	No	No	No	No	No

<sup>a</sup> The construction emissions shown in this table do not account for implementation of the mandatory dust control measures that are required under AVAQMD Rule 403, which would result in further reductions of the project's fugitive PM<sub>10</sub> emissions during construction.

SOURCE: Modeling performed by ESA, 2012.

### **Operational Emissions**

Once operational, the proposed PV solar modules would be operated on electricity (only in the case that a HSAT arrangement is utilized) and would not generate any criteria pollutant emissions. Emissions associated with the proposed project would be those generated from vehicle trips to the site for periodic maintenance and inspection purposes as well as panel washing. Wind erosion is expected to generate fugitive dust from maintenance activities on the unpaved access roads at the PBPP site and on the 70 acres graded to install the PV solar panels. Approved dust palliatives (soil binders and chemical dust suppressants) mixed with water and erosion control additives would be applied where needed for dust abatement. Maintenance visits would occur every three months and would take approximately five days to complete. Maintenance personnel would apply dust control additives using small equipment that act as soil-binding agents. This work is similar to hydro-seeding without the inclusion of seed mix, and would be performed in combination with conventional weed control measures such as spraying, weed whipping, and mowing. The palliatives would be used on new roads and other exposed work areas.

Panel washing is anticipated to occur every three months at the project site. As the proposed project would not require any new permanent workers at the PBPP, no emissions from new worker trips would be generated. Because operational emissions would only be generated from quarterly visits to the project site and would last five days at a time, the daily operational emissions of air pollutants from the proposed project would be minimal and would not exceed the AVAQMD significance thresholds. Therefore, air quality impacts during project operation would be less than significant.

- c) **Less Than Significant.** The Basin is in nonattainment for federal and state ozone standards and state PM<sub>10</sub> standards (CARB, 2011). The emissions of pollutants associated with construction of the proposed project, including ozone precursors and PM<sub>10</sub>, would not exceed AVAQMD thresholds of significance, and therefore are not expected to be cumulatively considerable. Emissions associated with operation of the proposed project

- are negligible and also are not expected to contribute to cumulatively considerable air quality impacts. Development of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant, and would be less than significant.
- d) **Less Than Significant.** Some population groups, such as children and the elderly, are considered more sensitive to air pollution than others. The proposed project will not be constructed in the immediate proximity of sensitive receptors. The nearest sensitive receptor to the project site is a single-family residence that is located approximately 400 feet northwest of the project site off of 116<sup>th</sup> Street E, other potential sensitive receptors in the project vicinity are located over 1,000 feet of the project site. The project's construction emissions would not exceed the AVAQMD air quality significance thresholds. In addition, implementation of best management practices (BMPs) and compliance with AVAQMD Rule 403 during project construction would further minimize emissions of localized particulate matter generated at the project site. Project operations would not result in any new worker vehicle trips to the project site and would not result in any operational emissions from stationary sources. The only operational emissions that would be generated by the proposed project would be vehicle emissions associated with inspection and maintenance and panel washing visits to the project site. However, because the routine inspection and maintenance visits for the proposed project would be minimal, operational emissions would be minimal. Thus, construction and operation of the proposed project would not expose sensitive receptors in the project area to substantial pollutant concentrations. This impact would be less than significant.
- e) **No impact.** Land uses typically associated with potential odor problems include agriculture, wastewater treatment plants, food processing and rendering facilities, chemical plants, composting facilities, landfills, waste transfer stations, and dairies. The proposed project, is not a land use that would generate objectionable odors during its operation. Therefore the project would not create objectionable odors that would affect a substantial number of people and no impact would occur.

## References

- Antelope Valley Air Quality Management District (AVAQMD), *California Environmental Quality Act and Federal Conformity Guidelines*, August 2011.
- Antelope Valley Air Quality Management District (AVAQMD), *Antelope Valley Ozone Attainment Plan*, 2004.
- California Air Resources Board (CARB), *Area Designations Maps / State and National*, <http://www.arb.ca.gov/desig/adm/adm.htm>, accessed May 8, 2012.

## Biological Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>4. BIOLOGICAL RESOURCES — Would the project:</b>				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Discussion

Environmental Science Associates (ESA) prepared a Biological Resources Survey Report (ESA, 2012) which summarizes the findings of several focused studies for the proposed project, attached as **Appendix B1** to this IS/MND. A survey report was also prepared to specifically document the results of protocol-level Mohave ground squirrel (*Spermophilus mohavense*) and desert tortoise (*Gopherus agassizii*) surveys. (**Appendix B2**) Rare plants were also searched during the desert tortoise surveys and the findings are included in this report. Both focused studies were prepared to gather baseline data on sensitive biological resources. Collectively, the focused studies included: rare plant surveys, burrowing owl (*Athene cunicularia*) burrow surveys, protocol-level Mohave ground squirrel (*Spermophilus mohavense*) surveys, and protocol-level desert tortoise (*Gopherus agassizii*) surveys. In addition, a literature and database review was conducted to assess previously documented occurrences of sensitive biological resources in the region, which included a review of other recently prepared environmental documents for solar energy projects in the vicinity. In addition, a (nine USGS Quadrangle) query of the California Department of Fish and Wildlife’s (CDFW) California Natural Diversity Database (CNDDDB) and the California Native Plant Society (CNPS) database were reviewed. This information, combined with the data

gathered by ESA during the spring and summer of 2012 was used to analyze the potential impacts to biological resources as a result of implementation of the proposed project.

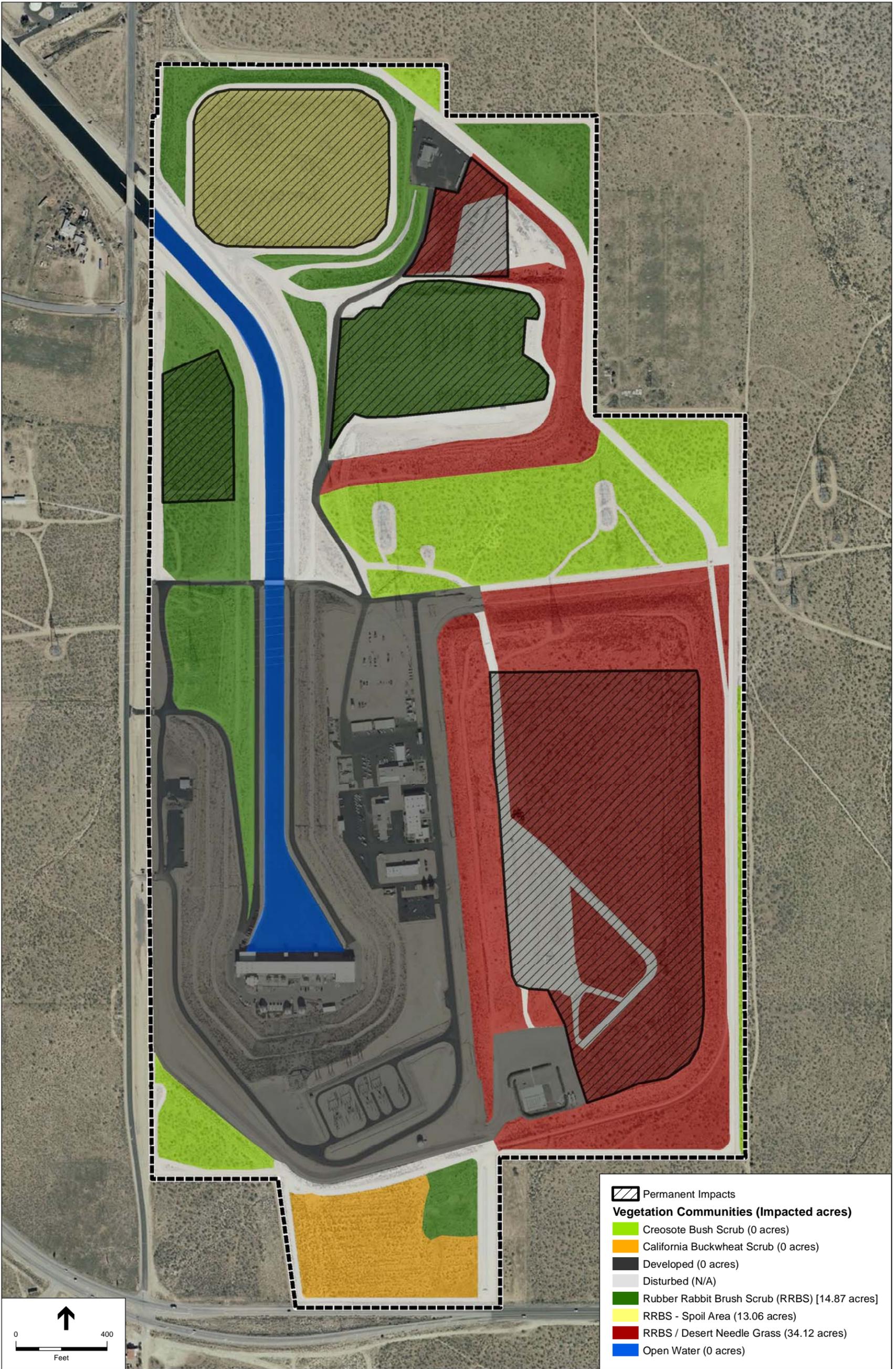
The proposed project occurs within areas that have been moderately disturbed by existing operations within the PBPP. Various paved and compacted dirt access roads traverse the site and several portions of the site have been disturbed from previous unrelated grading, fill, and excavation activities and extensive vehicle usage is apparent within the areas that are proposed for solar development. The California Aqueduct runs through the center of the facility and several buildings are concentrated on the east-side of the aqueduct. The PBPP is enclosed by an approximately seven foot high chain-link fence that is mostly intact and in most locations extends to the ground surface; however, there are some gaps between the fence and ground in areas where there are gates and there are a few areas where the bottom of the fence does not touch the ground. The proposed PV solar modules would be constructed within existing fencing.

Adjacent land uses include relatively undisturbed native desert vegetation (i.e., creosote scrub) to the north, northeast and east. An approximate 150 foot-wide area of undisturbed desert scrub is present immediately to the south, beyond which is Pearblossom Highway and scattered residences within the community of Pearblossom. The site is bounded to the west by 116<sup>th</sup> Street East, beyond which is relatively undisturbed native desert vegetation.

There are four distinct plant communities within the PBPP: California Buckwheat Scrub, Creosote Bush Scrub, Rubber Rabbitbrush Scrub, and Disturbed areas (i.e., developed land) or heavily graded. California buckwheat scrub occurs in one isolated area at the southern most extent of the Pumping Plant, encompassing 7.67 acres in total. Creosote bush scrub occurs in three distinct areas of the Pumping Plant, encompassing approximately 23.13 acres. Rubber rabbitbrush scrub (RRBS) is the dominant plant community on the project site, encompassing approximately 118.71 acres. None of these plant communities are considered a CDFW or county sensitive community. The dominant plant community that would be disturbed or removed on the site is RRBS. The RRBS within the PBPP does not support any listed species based on survey results, therefore, no mitigation is necessary. Disturbed areas that occur within the project site are associated with existing facilities and access roads, and encompass 47.15 acres. The plant communities that have been mapped within the project site are depicted on **Figure 5**

- a) **Less than Significant with Mitigation.** According to the CNDDDB/CNPS databases, a number of special-status wildlife and plant species have been previously recorded in the project area. The potential for many of these species to be present on the project site is low due to the existing perimeter fence, previous disturbances, and fragmentation from continuous and suitable habitat by surrounding roadways and development. However, reptiles and mammal species could be present. As shown in Figure 5, Special-Status Plant Occurrences and Natural Communities of Special Concern (ESA, 2012), several special-status plants have been reported to the CNDDDB/CNPS, many of which occur within the foothills of the San Gabriel Mountains to the south and within the nearby undisturbed desert environments to the south; however, none have been recorded within the footprint of the project area or immediately adjacent to the project site. **Table 3** and **Table 4** identify these species and indicates those that have the potential to occur on the project site.

**This page left intentionally blank**



SOURCE: ESRI; ESA, 2013.

DWR Pearblossom . 206008.12

**Figure 5**  
Plant Communities on the Project Site



**TABLE 3  
SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROPOSED PROJECT**

<b>Species</b>	<b>Status: Federal/State</b>	<b>Preferred Habitat</b>	<b>Potential to Occur</b>
<b>Amphibians</b>			
Arroyo Toad ( <i>Bufo microscaphus californicus</i> )	Endangered/Species of Special Concern	Semi-arid regions near washes or intermittent streams, including valley - foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores, loose gravelly areas of streams in drier parts of range.	None: No suitable habitat is present on or adjacent to the site.
Sierra Madre Yellow-Legged Frog ( <i>Rana muscosa</i> )	Endangered/Candidate Endangered - Species of Special Concern	In southern California, populations are restricted to streams in ponderosa pine, montane hardwood-conifer, and montane riparian habitats.	None: No suitable habitat is present on or adjacent to the site.
<b>Birds</b>			
Cooper's Hawk ( <i>Accipiter cooperii</i> )	-/DFG Watch List	Nests in woodlands and sometimes suburban settings if mature trees are present. Broken woodlands or near habitat edges with the exception of their desert occurrences; seldom found in areas that do not have dense, or patchy, wooded areas. Occurs in dense stands of live oak, riparian deciduous, or other forest habitats near water.	None (nesting): No suitable habitat is present on or adjacent to the site. This species has the potential to forage on the project site.
Tricolored Blackbird ( <i>Agelaius tricolor</i> )	-/Species of Special Concern	A highly colonial species, most numerous in the Central Valley and vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km. of colony.	None: No suitable habitat is present on or adjacent to the site.
Burrowing Owl ( <i>Athene cunicularia</i> )	-/Species of Special Concern	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel.	Moderate: Suitable nesting, foraging and wintering habitat present; however, no sign of burrowing owls were observed during focused breeding season burrow searches, which includes suitable burrows for nesting. One recorded occurrence in the vicinity of the project site.

**TABLE 3**  
**SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROPOSED PROJECT**

Species	Status: Federal/State	Preferred Habitat	Potential to Occur
Ferruginous Hawk ( <i>Buteo regalis</i> )	-/ DFG Watch List	Winters at lower elevations and open grasslands, agricultural areas in southwestern California, sagebrush flats, desert scrub, low foothills surrounding valleys, and the edges of pinyon-juniper habitats.	Low: Suitable foraging habitat exists within the vicinity of the project site and low quality habitat present on the site based on the level of existing disturbances and fragmented plant communities.
Swainson's Hawk ( <i>Buteo swainsoni</i> )	-/Threatened	Stands with few trees, juniper-sage flats, riparian habitat, and oak savannah. Forages in adjacent grasslands and agricultural fields and pastures.	Low: Suitable foraging habitat exists within the vicinity of the project site. No nesting sites have been recorded in the vicinity and suitable nesting habitat is absent from the project site.
Mountain Plover ( <i>Charadrius montanus</i> )	Proposed Threatened/ Species of Special Concern	Occurs in dry regions away from water. Prefers shortgrass prairie and dry lowland areas. Often found on grassy or bare dirt fields.	Low: Suitable wintering habitat exists within the vicinity of the project site. Species not expected to nest on the site.
Prairie Falcon ( <i>Falco mexicanus</i> )	-/DFG Watch List	Dry, open terrain. Forages in a wide variety of habitats, including deserts, grasslands, marshlands, and ocean shores. Nests in cliffs.	Moderate: Potential foraging habitat exists within the vicinity of the project site; however, suitable nesting habitat is absent.
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	-/Species of Special Concern	Lowlands and foothills throughout California. Prefers open habitats with scattered shrubs, trees, posts, fences, and other perches.	High: Suitable foraging habitat and marginal nesting habitats present on site. Species observed during 2010 surveys conducted by RBF Consultants and there's a recorded occurrence within the vicinity of the project site.
Le Conte's Thrasher ( <i>Toxostoma lecontei</i> )	-/Species of Special Concern	Resident of desert areas, primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Nests in dense, spiny shrub or densely branched cactus, usually 2-8 ft. above ground in desert wash habitat.	High: Suitable foraging habitat present. The project site lacks suitable nesting habitat. One recorded occurrence within the vicinity of the project site.

**TABLE 3  
SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROPOSED PROJECT**

<b>Species</b>	<b>Status: Federal/State</b>	<b>Preferred Habitat</b>	<b>Potential to Occur</b>
Least Bell's Vireo ( <i>Vireo bellii pusillus</i> )	Endangered/Endangered	Prefers dense, low, shrubby vegetation, generally within early successional stages in riparian areas, brushy field, young second-growth forest or woodland, scrub oak, coastal chaparral, and mesquite brushlands, often near water in more arid portions of its range.	None: No suitable habitat is present on or adjacent to the site.
<b>Mammals</b>			
Pallid San Diego Pocket Mouse ( <i>Chaetodipus fallax pallidus</i> )	-/Species of Special Concern	Species occurs in desert and coastal habitats in southern California. Prefers chaparral habitat, can also be found in open, sandy areas.	Low: Low quality habitat exists within the project site. One recorded occurrence several miles to the south within the lower slopes of the Transverse Ranges.
San Bernardino Kangaroo Rat ( <i>Dipodomys merriami parvus</i> )	Endangered/Species of Special Concern	Species prefers alluvial scrub/coastal sage scrub habitats on gravelly and sandy soils adjoining river and stream terraces, and on alluvial fans; and rarely occur in dense vegetation or rocky washes.	None: No suitable habitat is present on or adjacent to the site.
Western Mastiff Bat ( <i>Eumops perotis californicus</i> )	-/Species of Special Concern	Open, semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, chaparral. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Moderate (foraging): The California Aqueduct provides foraging habitat to bats; therefore, this species has a moderate potential to forage near the project site. No roosting habitat is present.
Long-eared Myotis ( <i>Myotis evotis</i> )	-/- Western Bat Working Group Listed	Species occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but is usually associated with coniferous forests. Individuals roost under exfoliating tree bark, and in hollow trees, caves, mines, cliff crevices, sinkholes, and rocky outcrops on the ground. Also known to roost in buildings and under bridges.	Moderate (foraging): The California Aqueduct provides foraging habitat to bats; therefore, this species has a moderate potential to forage near the project site. No roosting habitat is present.
Long-legged Myotis ( <i>Myotis volans</i> )	-/- Western Bat Working Group Listed	Primarily occurs within coniferous forests, but also occurs seasonally in riparian and desert habitats. Species uses abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark, and hollows within snags as summer day roosts.	Moderate (foraging): The California Aqueduct provides foraging habitat to bats; therefore, this species has a moderate potential to forage near the project site. No roosting habitat is present.

**TABLE 3  
SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROPOSED PROJECT**

<b>Species</b>	<b>Status: Federal/State</b>	<b>Preferred Habitat</b>	<b>Potential to Occur</b>
Yuma Myotis ( <i>Myotis yumaensis</i> )	-/- Western Bat Working Group Listed	Species occurs in a variety of habitats including riparian, arid scrublands and deserts, and forests. The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees.	Moderate (foraging): The California Aqueduct provides foraging habitat to bats; therefore, this species has a moderate potential to forage near the project site. No roosting habitat is present.
Southern Grasshopper Mouse ( <i>Onychomys torridus ramona</i> )	-/Species of Special Concern	Common in arid desert habitats in southern California. Species found in alkali desert scrub and desert scrub habitats; less commonly in succulent scrub and wash/riparian areas.	Moderate: Marginal foraging and nesting habitat exists on, and within the vicinity of, the project site.
San Joaquin Pocket Mouse ( <i>Perognathus inornatus inornatus</i> )	-/- Rare	Grasslands and blue oak savannahs. Species requires friable soils for burrowing.	None: No suitable habitat is present on or adjacent to the site.
Mohave Ground Squirrel ( <i>Spermophilus mohavensis</i> )	-/Threatened	Open desert scrub, alkali scrub, and Joshua tree woodland. Endemic to the Mojave Desert. Prefers sandy-to-gravelly soils and avoids rocky places. Finds cover and nests in burrows at the base of shrubs.	Presumed absent: Marginally suitable habitat is present on the project site. Species was not observed during protocol-level surveys in 2012.
American Badger ( <i>Taxidea taxus</i> )	-/Species of Special Concern	Most abundant in drier, open stages of most shrub, forest, and herbaceous habitats with friable soils. Requires open, uncultivated ground and sufficient burrowing rodent prey.	Low: Suitable habitat present within the vicinity of the project site; however, no suitable burrows were observed during focused surveys conducted in 2012.
<b>Reptiles</b>			
Silvery Legless Lizard ( <i>Anniella pulchra pulchra</i> )	-/Species of Special Concern	Known to occur primarily in areas with sandy or loose loamy soils such as under sparse vegetation of beaches, chaparral, or pine-oak woodland; or near sycamores, cottonwoods, or oaks that grow on stream terraces.	Low: The project site generally lacks friable soils or leaf litter, which tends to be the preferred habitat for this species.
Rosy Boa ( <i>Aspidoscelis tigris stejnegeri</i> )	-/- USFWS Sensitive	Inhabits areas with a mix of moderate to dense brushy cover and rocky soil, such as coastal canyons and hillsides, desert canyons, washes and mountains. Found in desert and chaparral from the coast to the Mojave and Colorado deserts.	None: No suitable habitat is present on or adjacent to the site.

**TABLE 3  
SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROPOSED PROJECT**

<b>Species</b>	<b>Status: Federal/State</b>	<b>Preferred Habitat</b>	<b>Potential to Occur</b>
Desert Tortoise ( <i>Gopherus agassizii</i> )	Threatened/Threatened	Desert scrub, desert wash, and Joshua tree woodland habitats. Requires friable soil for burrow and nest construction. Prefers creosote bush habitat with large annual wildflower blooms.	Low: Marginally suitable habitat is present on the project site and good quality habitat exists within the surrounding undisturbed open space areas. Species was not observed during protocol-level surveys in 2012. Moreover, the perimeter fence that surrounds the site reduces the potential for this species to be present. No tortoises have ever been documented within the pumping plant facility or within 5 miles from the site.
Coast Horned Lizard ( <i>Phrynosoma blainvillii</i> )	-/Species of Special Concern	A wide variety of habitats, most common in sandy washes with scattered, low bushes. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	High: Suitable habitat present within, and adjacent to, the project site. This species was not observed during focused surveys in 2012 (i.e., plants, burrowing owl, Mojave ground squirrel and desert tortoise).
Two-Striped Garter Snake ( <i>Thamnophis hammondi</i> )	-/Species of Special Concern	Typically found in or near permanent fresh water, often associated with streams with rocky beds and dense riparian growth.	None: No suitable habitat is present on or adjacent to the site.

**TABLE 4**  
**RARE PLANTS RECORDED IN THE REGION OF THE PROPOSED PROJECT**

Species	Status/CNP S Rank	Growth Habit	Elevation (m)	Habitat	Flowering Period	Potential to Occur
<i>Arctostaphylos glandulosa</i> ssp. <i>Gabrielensis</i> San Gabriel manzanita	-/1B.2	perennial evergreen shrub	595-1500	Chprl	March	None: This species was not observed during focused surveys conducted in 2012.
<i>Astragalus lentiginosus</i> var. <i>Antonius</i> San Antonio milk-vetch	-/1B.3	perennial herb	1500-2600	LMCFrs/UMCFrs	April-July	None: The project site is at an elevation of approximately 914 meters (3000 feet), which is below the known elevation range for this species. This species was not observed during focused surveys conducted in 2012.
<i>Astragalus preussii</i> var. <i>laxiflorus</i> Lancaster milk-vetch	-/1B.1	perennial herb	elevation range unknown	ChScr	March-May	Low: This species was not observed during focused surveys conducted in 2012.
<i>Calochortus palmeri</i> var. <i>palmeri</i> Palmer's mariposa lily	-/1B.2	perennial bulbiferous herb	100-2390	Chprl/LMCFrs/MeSe	April-July	Low: This species was not observed during focused surveys conducted in 2012.
<i>Calochortus striatus</i> alkali mariposa lily	-/1B.2	perennial bulbiferous herb	70-1595	Chprl/MDSr	April-June	Moderate: This species was not observed during focused surveys conducted in 2012; however, this species could have been dormant during the 2012 blooming period due to excessively low amount of precipitation. The alkali soils on the project site provide suitable habitat for this species.
<i>Calystegia peirsonii</i> Peirson's morning-glory	-/4.2	perennial rhizomatous herb	30-1500	Chprl/ChScr/CMWld/CoScr/ LMCFrs/VFG	April-June	Low: This species was not observed during focused surveys conducted in 2012.

**TABLE 4  
RARE PLANTS RECORDED IN THE REGION OF THE PROPOSED PROJECT**

Species	Status/CNP S Rank	Growth Habit	Elevation (m)	Habitat	Flowering Period	Potential to Occur
<i>Canbya candida</i> white pygmy-poppy	-/4.2	annual herb	600-1460	JTW	March-June	Moderate: This species was not observed during focused surveys conducted in 2012; however, this species could have been dormant during the 2012 blooming period due to excessively low amount of precipitation. The alkali soils on the project site provide suitable habitat for this species.
<i>Castilleja gleasoni</i> Mt. Gleason paintbrush	Rare/1B.2	perennial herb hemiparasitic	1000-2200	YPFRs	May-June	None: The project site is below the known elevation range of this species. This species was not observed during focused surveys conducted in 2012.
<i>Chorizanthe parryi</i> var. <i>parryi</i> Parry's spineflower	-/1B.1	annual herb	275-1220	Chprl/CoScr/CMWld/	April-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012 during the typical blooming period.
<i>Clarkia xantiana</i> ssp. <i>Parviflora</i> Kern Canyon clarkia	-/4.2	annual herb	700-3620	Chprl/CMWld/GBScr/VFG	May-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Layia heterotricha</i> pale-yellow layia	-/1B.1	annual herb	300-1705	CMWld/CoScr/PJW/VFG	March-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012 during the typical blooming period.
<i>Lilium parryi</i> lemon lily	-/1B.2	perennial bulbiferous herb	1220-2745	LMCFrs/MeSe/RiWld/ UMCFrs	July-August	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.

**TABLE 4  
RARE PLANTS RECORDED IN THE REGION OF THE PROPOSED PROJECT**

<b>Species</b>	<b>Status/CNP S Rank</b>	<b>Growth Habit</b>	<b>Elevation (m)</b>	<b>Habitat</b>	<b>Flowering Period</b>	<b>Potential to Occur</b>
<i>Linanthus concinnus</i> San Gabriel linanthus	-/1B.2	annual herb	1520-2800	Chprl/LMCFrs/UMCFrs	April-July	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i> sagebrush loeflingia	-/2.2	annual herb	700-1615	GBScr/DesDun/SDScr	April-May	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Lupinus peirsonii</i> Peirson's lupine	-/1B.3	perennial herb	1000-2500	JTW/LMCFrs/PJW/UMCFrs	April-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Nemacladus secundiflorus</i> var. <i>robbinsii</i> Robbins' nemacladus	-/1B.2	annual herb	350-1700	Chprl/VFG	April-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Opuntia basilaris</i> var. <i>brachyclada</i> short-joint beavertail	-/1B.2	perennial stem succulent	425-1800	Chprl/JTW/MDSr/PJW	April-August	None: Suitable habitat is present on the project site; however, if present, this species would have been observed during the focused surveys conducted in 2012. Therefore, this species is presumed absent from the site.
<i>Oreonona vestita</i> woolly mountain-parsley	-/1B.3	perennial herb	1615-3500	LMCFrs/UMCFrs	March-September	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Orobanche valida</i> ssp. <i>Valida</i> Rock Creek broomrape	-/1B.2	perennial parasitic herb	1250-2000	Chprl/PJW	May-September	Low: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.

**TABLE 4  
RARE PLANTS RECORDED IN THE REGION OF THE PROPOSED PROJECT**

Species	Status/CNP S Rank	Growth Habit	Elevation (m)	Habitat	Flowering Period	Potential to Occur
<i>Muhlenbergia californica</i> California muhly	-/4.3	perennial rhizomatous herb	100-2000	Chprl/CoScr/LMCFrs/MeSe	June- September	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Plagiobothrys parishii</i> Parish's popcornflower	-/1B.1	annual herb	750-1400	GBScr/JTW	March- November	Low: Typical habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Symphotrichum greatae</i> Greata's aster	-/1B.3	perennial rhizomatous herb	300-2010	Chprl/CMWld/LMCFrs/ RiWld	June-October	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.

CNPS Status

Rank 1B = Plants Rare, Threatened, Endangered in California and elsewhere

Rank 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Rank 4 = Plants of Limited Distribution - A Watch List

Threat ranks

.1 = seriously Endangered in California

.2 = fairly Endangered in California

.3 = Not very threatened in California (low degree/immediacy of threats or no current threats known)

Habitat

JTW = Joshua Tree Woodland, MDScr = Mojavean Desert Scrub, SDScr = Sonoran Desert Scrub, PJW = Pinyon-Juniper Woodland, Chprl = Chaparral, GBScr = Great Basin Scrub, LMCFrs = Lower Montane Coniferous Forest, UMCfrs = Upper Montane Coniferous Forest, ChScr = Chenopod Scrub, CMWld = Cismontane Woodland, CoScr = Coastal Scrub, YPFrs = Yellow Pine Forest, RiWld = Riparian Woodland, VFG = Valley and Foothill Grasslands, MeSe = Meadows and Seeps, DesDun = Desert Dunes.

Direct impacts as a result of construction activities would include permanent removal of onsite plant communities and displacement of common wildlife that utilized these habitats for breeding, foraging and refuge. Indirect impacts to plant communities and habitats could result through alterations to existing topographical conditions, increased erosion and sediment transport, and the establishment of nonnative and invasive weeds.

The entire 70-acre site would be cleared and graded. Approximately 8-acres of previously developed areas have already been impacted and represent the baseline condition on the PBPP site. Approximately 62-acres of undisturbed and disturbed RRBS habitat would be permanently impacted. However, because RRBS is not considered a special status plant community permanent impacts to approximately 62 acres of RRBS would be considered less than significant.

### ***Desert Tortoise***

Since a majority of the project site is fenced and no desert tortoise signs were observed, implementation of the proposed project is not expected to result in a substantial loss of habitat that would affect the ability of species to disperse and persist throughout the project vicinity and the surrounding habitats. The potential for desert tortoises to be on (or pass through) the site is low. No desert tortoises, burrows, or signs of them were observed during protocol surveys conducted during the spring and summer of 2012 (ESA, 2012). The existing perimeter fence further discourages the desert tortoises from traversing the site. The nearest recorded desert tortoise occurrence is 7.5 miles northwest of the proposed project site. Because desert tortoises are known to occur in the region, mitigation measures are included to avoid potential impacts to the species during construction. With the implementation of Mitigation Measures **BIO-1** through **BIO-7**, impacts to desert tortoises are considered less than significant with mitigation.

### ***Mojave Ground Squirrel***

Mojave ground squirrel protocol trapping surveys were conducted in the spring and summer of 2012 (ESA, 2012). No Mojave ground squirrels were observed on the project site. Therefore, Mojave ground squirrel are assumed to be absent from the project site. No impacts to this species would occur.

### ***Coast Horned Lizard***

The coast horned lizard inhabits a wide variety of habitats but is most commonly found in sandy washes with scattered, low bushes. Although suitable habitat is present on the project site, no coast horned lizards were observed during burrowing owl, desert tortoise, Mojave ground squirrel or plant surveys conducted in the spring and summer of 2012 (ESA, 2012). However, this species is known to occur frequently in the region, and was determined to have a high potential to occur based on the presence of suitable habitat, and this species has the potential to move onto to the site. A CNDDDB search revealed one recorded occurrence within a five-mile radius of the project site. Therefore,

implementation of Mitigation Measures **BIO-1** through **BIO-7** would ensure potential impacts to coast horned lizard are less than significant.

### ***Burrowing Owl***

Burrowing owl can be found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The species is a subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel. No owls, or sign (i.e., pellets, feathers) or suitable burrows were observed during focused burrow surveys during the summer of 2012 (ESA, 2012). A few larger-sized burrows were observed within the project vicinity, but did not show sign of burrowing owl utilization. However, the project area has the potential to be colonized by burrowing owl used by the species in the future and/or used by the species as a wintering location, and thus preconstruction surveys are recommended to assure the proposed project does not result in any impacts to the species. Implementation of Mitigation Measure **BIO-7** would reduce potential impacts to the burrowing owl to less than significant.

### ***Southern Grasshopper Mouse***

The southern grasshopper mouse is a nocturnal species that is active year-round. It occurs in low densities, and is common in arid desert habitats of the Mojave Desert and southern Central Valley of California, occurring primarily in alkali desert scrub and desert scrub habitats. Low to moderate shrub cover is preferred. It is uncommon in valley foothill and montane riparian, and in a variety of other habitats. The project site contains suitable habitat for this. If present, direct impacts during vegetation clearing and grading could occur; however, implementation of Mitigation Measure **BIO-7** would reduce potential impacts to southern grasshopper mouse to less than significant.

### ***Prairie Falcon, LeConte's Thrasher and Loggerhead Shrike***

Prairie falcon, LeConte's thrasher, and loggerhead shrike could forage on the project site; however, suitable nesting habitat is absent for both the prairie falcon and LeConte's thrasher. Prairie falcons inhabit grasslands, shrub-steppe, deserts, and other open areas up to about 10,000 feet elevation. During the winter, they also reside in cultivated fields, lakeshores, desert scrub, as well as feedlots where European starlings may provide a steady food source. Most prairie falcons nests are on overhanging, south-facing cliffs up to 500 feet high. They also nest in trees, on power poles, on buildings, in caves, or in stone quarries. They sometimes use abandoned nests of other species, such as ravens and golden eagles.

Le Conte's thrasher prefers open desert with scattered shrubs and sandy and/or alkaline soil. The nest typically is placed in a cactus, thorny shrub, or small tree, chosen to offer protection from predators and the sun.

Loggerhead shrikes breed in open country, including grasslands and shrub-steppe areas, where there are scattered trees, tall shrubs, fence posts, utility wires, or other lookout

posts. They tend to nest in northeast- or southeast-facing ravines. Loggerhead shrikes often nest in dense, thorny trees or shrubs, brush-piles, and even tumbleweeds (i.e., Russian thistle).

Construction activities are not expected to directly impact foraging bird species, such as prairie falcon and Le Conte's thrasher, since birds are highly mobile species. However, noises and vibrations associated with construction activities could indirectly affect the breeding cycle for loggerhead shrike, if breeding pairs are present. Implementation of Mitigation Measure **BIO-9** would reduce potential impacts to a level of less than significant.

### ***Western Mastiff Bat, Long-eared Myotis, Long-legged Myotis, and Yuma Myotis***

Many bat species are expected to forage in the project area, especially over areas of water, which includes the California Aqueduct. However, there is no suitable habitat on the project site for supporting day roosts or maternity roosts. Construction and operation activities associated with the proposed project would not impact foraging bats; therefore, impacts to foraging bat species are considered less than significant.

### ***Common Wildlife and Nesting Birds***

Depending on the timing of construction nesting bird species could be encountered. Impacts to animals would result primarily during vegetation clearing, grading and excavation, and equipment movement. Vehicle and equipment travel on access roads during operation and maintenance may also disturb wildlife. Vehicles could cause direct mortality or injury to wildlife that are unable to move out of the way of vehicle traffic. As with construction, injury to or mortality of a special-status species during operations and maintenance would be significant, unless mitigated.

The likelihood of impacts to both common and potentially occurring special-status species is expected to be low. Impacts would be less than significant with the implementation of Mitigation Measures **BIO-1** through **BIO-9**.

### ***Rare Plants***

The 2012 spring rare plant surveys revealed that there are no special-status plant species on the project site and habitat suitability for supporting special-status plants is generally considered poor, primarily due to previous disturbances within the plant facility. Although Joshua tree woodland (a CDFW sensitive plant community) does not occur on the project site, Joshua tree (*Yucca brevifolia*) seedlings were observed within the creosote bush scrub community.

Many native desert plants are protected under the California Desert Native Plant Act, including yucca (i.e., Joshua tree) species. Impacts to the Joshua tree seedlings are

considered less than significant with the implementation of Mitigation Measures **BIO-10** and **BIO-11**.

### ***Mitigation Measures***

**BIO-1:** Site access shall be limited to designated access roads so as to avoid direct impacts to terrestrial wildlife species, including desert tortoise and coast horned lizard, on unmonitored roads.

**BIO-2:** All vehicles at the project site shall not exceed 15 mile per hour (MPH).

**BIO-3:** Initial clearance surveys shall be conducted before construction of any roads or facilities at 15-foot intervals prior to declaring the site clear of special-status species (e.g., coast horned lizard).

**BIO-4:** The project proponent shall provide environmental training to all personnel working on the site during proposed project construction and operation. The training should include a review of special-status species known to occur near the project site to promote their awareness, and shall provide avoidance measures if a species is encountered, and legal consequences associated with take of the species.

**BIO-5:** If a special-status animal is encountered during construction, the project proponent shall stop work and a no work buffer zone shall be determined by the monitoring biologist and remain in place until the animal moves out of harm's way or until the animal is relocated to suitable habitat by a qualified biologist with possession of a CDFW Scientific Collection Permit. The monitoring biologist shall notify the DWR biologist and shall contact the appropriate resource agency (e.g., USFWS or CDFW) before construction is allowed to proceed within the buffer area.

**BIO-6:** All steep-walled trenches or excavation pits used during construction shall be covered at all times except when being actively utilized. Covers shall be strong enough to prevent wildlife from falling through and shall be designed to exclude small animals, including coast horned lizard. If the trenches or excavations cannot be covered, exclusion fencing constructed of materials that would exclude both large and small wildlife species shall be installed around the trench or excavation area to prevent entrapment of wildlife. Open trenches or other excavations could entrap and endanger wildlife. During trenching activities, a biological monitor shall be present at the start of each construction day to inspect trenches for trapped animals. If any animals are observed, a biologist with a handling permit shall be notified within 24 hours to move the animals to a safe location. Construction shall not occur until the animal has left the trench or been removed by a qualified biological monitor.

Employees and contractors shall look under vehicles and equipment for the presence of wildlife before movement. If wildlife is observed, no vehicles or

equipment shall be moved until the animal has left voluntarily or is removed by the biological monitor. No listed species shall be handled.

**BIO-7:** Preconstruction surveys for wildlife within the proposed construction limits shall occur immediately prior to all initial ground disturbing activities. The monitoring biologist shall have possession of a memorandum of Understanding (MOU) from CDFW for relocating (non-listed) special-status animals (e.g., coast horned lizard) to adjacent habitats that are outside of the construction limits.

**BIO-8:** If small rodent burrows are observed within areas proposed for grading, live rodent traps shall be set for one night near the borrow site. Traps shall be set at dusk and checked at dawn by a qualified biologist. If southern grasshopper mice are trapped, they shall be relocated to a nearby location containing suitable habitat.

**BIO-9:** If construction is scheduled to occur during the breeding bird season (February 1–August 31), a qualified wildlife biologist shall conduct preconstruction surveys of all potential nesting habitats (including burrowing owl) within 500 feet of construction activities for presence of breeding or nesting birds. Surveys shall be conducted no more than 30 days prior to construction activities with a second survey conducted no more than 24 hours prior to the onset of construction.

If active nests are found, no-disturbance buffers shall be implemented around each nest as follows: a 500-foot buffer shall be created around any confirmed active raptor nest (including burrowing owl); a 300-foot buffer shall be created around active nests of non-raptor special-status bird species; and a buffer appropriate to ensure no take of the species based on observations of the birds behavior shall be created around any other bird species' nests protected by the MBTA or CDFW Code. The buffers should be implemented until it is determined by a qualified biologist that young have fledged or otherwise authorized by CDFW. If a nest is found in an area where ground disturbance is scheduled to occur, the project proponent shall avoid the area either by delaying ground disturbance in the area until a qualified wildlife biologist has determined that the young have fledged or by re-siting the proposed project component(s) to avoid the area.

**BIO-10:** Priority should be given to avoid individual Joshua trees whenever feasible. All Joshua tree seedlings that are located within proposed construction areas shall be translocated to suitable habitats within the PBPP.

**BIO-11:** A Joshua tree relocation plan shall be prepared and shall include at a minimum the following: removal and translocation methods, identification of suitable planting site(s), post-planting care, performance measures, monitoring procedures, and adaptive management strategies.

- b) **No Impact.** The project site does not contain riparian habitat. The project site is located at the PBPP property and no sensitive natural communities present on or adjacent to the proposed project.
- c) **No Impact.** The potential for jurisdictional resources to be present was initially evaluated by an ESA biologist through a desktop review of topographic maps, aerial photographs, and a review of biological studies previously conducted within the project area. The desktop analysis was then further refined and verified in the field by ESA biologists, where it was confirmed that no jurisdictional resources including federal- and state-protected wetlands or riparian habitat, or associated vegetation communities are present. The project site is circumnavigated by a concrete-lined stormwater channel and the California Aqueduct; however, construction and other disturbances associated with the proposed project are not anticipated to impact these features.
- d) **Less than Significant.** Wildlife movement corridors provide a connection between two or more habitat areas that are often larger or superior in quality to the linkage. Such linkages can be quite small or constricted, but can be vital to the long-term health of connected habitats. Linkage values are often addressed in terms of “gene flow” between populations, with movement potentially taking many generations. The U.S. Court of Appeals, Ninth Circuit, has defined wildlife corridors as “...avenues along which wide-ranging animals can travel, plants can propagate, genetic interchange can occur, populations can move in response to environmental changes and natural disasters, and threatened species can be replenished from other areas.”

The resources available within the project site support a variety of wildlife movement functions on some scale. Movement on a smaller or “local” scale occurs throughout the surrounding vicinity as well as within the project site itself, mostly for common reptiles and small mammalian species. The project site contains natural communities which provide foraging habitat for common species. Data gathered from biological surveys indicate that the project site contains habitat that supports common species of reptiles, birds, and rodents. The home range and average dispersal distance of many of these species may be entirely contained within the project site and immediate vicinity. Populations of animals such as insects, reptiles, small mammals may find all their resource requirements without moving far or outside of the project site at all. Occasionally, individuals expanding their home range or dispersing from their parental range will attempt to move outside of the project site. Nonetheless, the project site is not within an established migratory wildlife corridor and does not provide a linkage between two or more habitat areas.

- e) **Less than Significant with Mitigation.** Many native desert plants are protected under the California Desert Native Plant Act, including yucca species. Additionally, although there are no specific policies included in the Antelope Valley Area Plan regarding Joshua tree preservation, the Area Plan does express concern over loss of Joshua trees in the Antelope Valley and the need for Joshua tree protection. The proposed project would implement mitigation measure to protect Joshua tree seedlings. Therefore, with the

implementation of Mitigation Measures **BIO-7** and **BIO-8** above, impacts associated with Joshua trees are reduced to less than significant.

- f) **Less than Significant.** The proposed project is within the Draft West Mojave Habitat Conservation Plan. The proposed project also falls under the jurisdiction of the Desert Renewable Energy Conservation Plan, a Natural Community Conservation Plan that is intended to provide for effective protection and conservation of desert ecosystems while allowing for the appropriate development of renewable energy projects. The project is proposed in an area designated as P – Public Service Facilities by the Los Angeles County General Plan and does not conflict with the provisions of any local policies or ordinances or an adopted conservation plan.

## References

Environmental Science Associates (ESA), *Biological Resources Survey Report for the DWR Pearblossom Solar Energy Project, December 2012.*

Vanherweg, William, *Biological Resource Assessment for the Pearblossom Pump Station Solar Energy Project, 2012.*

---

## Cultural Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>5. CULTURAL RESOURCES — Would the project:</b>				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Discussion

ESA cultural resources staff conducted a project-specific Phase I Cultural Resources Assessment (Ehringer et al., 2012) in order to identify and evaluate the potential for any historical or archaeological resources to be impacted as a result of the proposed project. This assessment included: (1) archival research; (2) a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search; and (3) a pedestrian survey.

As a result of the archival research, a Caltrans letter was located. Caltrans determined and, in July of 2012, SHPO concurred that the California Aqueduct was eligible for listing in the National Register (P-19-004154). The California Aqueduct was described as “the largest and most significant of the water conveyance systems developed as part of the State Water Project, comprised of 444 miles of the 701 miles of aqueducts, canals and pipelines that make up the SWP... The California Aqueduct was a planned comprehensive water redistribution system that helped shape the development of much of California following the mid-20<sup>th</sup> century. The American Society of Civil Engineers lists the California Aqueduct as one of only 10 internationally ranked ‘Monuments of the Millennium’ for its remarkable engineering aspects, as well as for the positive impact it had on regional economic trade and development.” The Aqueduct has not, however, been listed on the National Register or California Register, and it is unclear if it has been formally determined eligible for listing in these registers. Moreover, although the listing proposal references a system, its remarkable engineering aspects, and its role in California history, a determination of “those physical characteristics of [the] historical resource that convey its historical significance” has not been made. DWR is currently examining the status of the California Aqueduct as an historical resource and, if such a status is appropriate, DWR will determine those physical characteristics that convey its historical significance. (See CEQA Guidelines Section 15064.5.) For purposes of this CEQA review, the Aqueduct in the vicinity of the proposed project will be treated as a historic resource, and the characteristics that convey its historical significance are those stated in the Caltrans letter, i.e., the California Aqueduct as a historically significant water redistribution system and a remarkable engineering

achievement. The California Aqueduct, therefore will be considered a historical resource under CEQA for this project. A discussion of potential impacts to this resource is provided below in subsection a.

In addition, three historic-period archaeological resources, sites ESA-PFS-001, ESA-PFS-002, and ESA-PFS-003, were identified during the survey. These three sites were evaluated for eligibility to the CRHR to determine if they would qualify as historical resources under CEQA. Sites ESA-PFS-001, ESA-PFS-002, and ESA-PFS-003, although possibly associated with historic-period ranching in the Antelope Valley, are not known to be directly associated with events or people that have had a significant impact on the community at the local, state, or national level (Criteria 1 and 2). The sites do not embody the characteristics of a distinctive type, period, or method of construction, or represent the work of a master (Criterion 3). Finally, the sites do not appear significant under Criterion 4 because it does not have the potential to yield information important to an understanding of the history of the local area, the state, or the nation. Therefore, the three sites are not considered historical resources under CEQA. A discussion of whether the three sites should be considered unique archaeological resources under CEQA is provided below in subsection b.

- a) **Less than Significant.** Only one resource qualifies as a historical resource – the California Aqueduct (P-19-004154), The California Aqueduct has been determined eligible for the CRHR under Criteria 1 (events) and 3 (design).

DWR proposes to develop approximately 70 acres within the PBPP site with PV solar panels. The proposed project would include the installation of PV panels, AC/DC inverters, mounting systems, a substation, a switchyard, a relay protection system, and a metering system. The project also consists of the installation of PV modules potentially mounted on a horizontal single-axis tracker (HSAT) arrangement but most likely mounted on a fixed tilt arrangement; each PV mounting system would be arranged in large arrays measuring approximately 370 feet in an east-west direction and 420 feet in a north-south direction. The PV modules would reach a maximum height of approximately nine feet above ground, at both sunrise and sunset should the HSAT mounting arrangement be utilized and when rotated to the face the panels towards the rising or setting sun.

The proposed project would not result in direct effects to character-defining features of the California Aqueduct. Although construction of PV solar modules would occur in the immediate vicinity of the California Aqueduct, the proposed project would not directly affect any of them through demolition or substantial alteration. The California Aqueduct, as part of the water redistribution system and as a remarkable engineering achievement, would be unaltered. Indeed, all of the California Aqueduct's basic facilities that were completed and operational by 1974 (the end of the period of significance) would remain intact after implementation of the project. After completion of the proposed project, the California Aqueduct would continue to supply water to southern California and would continue to convey its significance as a part of a comprehensively

planned and publicly sanctioned water conveyance public works project designed to facilitate development throughout the state (Criterion 1) and for the complex design necessary to redistribute water throughout the state of California on such a massive level (Criterion 3). The California Aqueduct would maintain an overall high level of integrity after completion of the proposed project.

Therefore, the proposed project would not cause a substantial adverse change to the physical characteristics of the California Aqueduct that convey its historical significance and project implementation would have a less than significant impact.

- b) **Less than Significant with Mitigation.** Three historic-period archaeological sites (ESA-PFS-001, ESA-PFS-002, and ESA-PFS-003) were identified in the project area. These three archaeological resources are not recommended eligible for listing in the CRHR (and therefore are not considered historical resources under CEQA), nor do they appear to qualify as unique archaeological resources under CEQA. No prehistoric resources were identified within the project area, and no prehistoric sites have been previously identified within one mile of the project area (one prehistoric isolate has been previously recorded within one mile of the project area).

According to the definition referenced in Section 15064.5(c)(3) of the *CEQA Guidelines*, a unique archaeological resource is an archaeological artifact, object, or site that does not qualify for the designation of historical resource as defined above, but that meets one or more of the following criteria (without merely adding to the current body of knowledge):

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Sites ESA-PFS-001, ESA-PFS-002, and ESA-PFS-003, although possibly associated with historic-period ranching in the Antelope Valley, do not contain information needed to answer important scientific research questions. The three sites are not special (a number of similar historic-period ranching sites are located throughout southern California), nor are they the oldest or best available examples of their type. Research did not reveal that any of these three sites are directly associated with a scientifically recognized important historic event or person. Therefore, the three sites are not considered unique archaeological resources under CEQA. No mitigation is required for these three sites.

However, there remains the possibility that unknown, buried archaeological resources could be encountered during project-related ground disturbance. With the incorporation

of Mitigation Measures **CUL-1** and **CUL-2**, this potential impact would be reduced to a less than significant impact.

### ***Mitigation Measures***

**CUL-1:** Prior to start of any ground-disturbing activities, a qualified archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology shall be retained to conduct archaeological resources sensitivity training for all construction personnel. Construction personnel shall also be informed of the proper procedures to be enacted in the event of an inadvertent archaeological discovery (Mitigation Measure **CUL-2**).

**CUL-2:** Any accidental discovery of archaeological resources during construction shall be evaluated by a qualified archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology. If the find is determined to be potentially significant, the archaeologist, in consultation with the lead agency and appropriate Native American group(s) (in the event prehistoric resources are discovered), shall develop a treatment plan. All work in the immediate vicinity of the unanticipated discovery shall cease until the qualified archaeologist has evaluated the discovery, or until the treatment plan has been implemented, if appropriate.

- c) **Less Than Significant with Mitigation.** Fossil remains are considered unique and significant to the scientific community. Because the proposed project requires grading activities, it is possible that the proposed project would unearth unknown resources during construction. If a paleontological resource is uncovered and inadvertently damaged, the impact to the resource could be substantial, therefore implementation of the proposed project could result in significant impacts to paleontological resources. With implementation of Mitigation Measure **CUL -3** the proposed project would have less than significant impacts regarding the disturbance of paleontologic resources.

### ***Mitigation Measure***

**CUL -3:** During the grading operation if paleontological resources are identified, work shall be halted or redirected until a qualified paleontologist can evaluate the significance of the discovery. If the project paleontologist determines that the discovery represents a potentially significant paleontological resource, additional investigation may be required to mitigate adverse impacts from project implementation.

- d) **Less than Significant Impact with Mitigation.** Land use designations for the project area do not include cemetery uses, and no human remains are known to exist within the project area. The proposed project would not disturb known human remains. However, because the proposed project would involve ground-disturbing activities it is possible that such actions could unearth, expose, or disturb previously unknown human remains. With the incorporation of Mitigation Measure **CUL-4**, which requires compliance with State

Health and Safety Code Section 7050.5 and PRC Section 5097.98, any project-related impacts to human remains would be reduced to a level of less than significant.

### ***Mitigation Measure***

**CUL-4:** In the event that previously unknown human remains are uncovered during project excavation, those remains shall be treated in accordance with State Health and Safety Code Section 7050.5 and PRC Section 5097.98, as required by California state law. State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission. The NAHC shall then identify the person(s) thought to be the Most Likely Descendant (MLD) of the individual(s), who will then help determine the future disposition of the remains. Per PRC Section 5097.98, the landowner shall ensure that the immediate vicinity (defined according to generally accepted cultural or archaeological standards or practices) around where the human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the MLD(s) regarding their recommendations, taking into account the possibility of multiple human remains.

### **References**

Ehringer, Candace and Madeleine Bray, *Pearblossom Solar Project, Los Angeles County California: Phase I Cultural Resources Assessment*, prepared for the California Department of Water Resources, prepared by ESA, December 2012.

---

## Geology, Soils, and Seismicity

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>6. GEOLOGY, SOILS, AND SEISMICITY — Would the project:</b>				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 28-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a.i) **Less than Significant Impact.** The Alquist-Priolo Earthquake Fault Zoning Act requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development and prohibit construction on or near active fault traces to reduce hazards associated with fault rupture. The Alquist-Priolo Earthquake Fault Zones are the regulatory zones that include surface traces of active faults. The project site is located in the Littlerock Quadrangle of the Alquist-Priolo Earthquake Fault Zoning Map (CGS, 2003). Current facilities at the PBPP are located directly over a fault zone and a series of fault lines within the Littlerock Quadrangle. These faults are currently active and may cause significant ground shaking and surface fault rupture along the trace of the fault. Construction of the proposed project includes PV solar panels, a substation, and generation tie-in line. The PV solar modules are each mounted on a steel post that is stabilized on a slab concrete foundation, rising no more than nine feet from the ground. Due to the height and design of these structures, there is relatively little risk of severe damage due to potential ground shaking activities, other than to the structures themselves.

- The substation and generation tie-in line would be constructed entirely within the property boundary and would be minimal in nature. In addition, while construction would implement a maximum of 25 temporary workers at the site, operation of the PV solar panels would not introduce any new workers. Thus, implementation of the proposed project would have limited exposure of people or habitable structures to hazards associated with surface rupture of a known earthquake fault. Impacts would be less than significant.
- a.ii) **Less than Significant Impact.** The proposed project is located in a seismically active area, as is all of southern California, and has the potential to experience strong ground shaking. The nearest known active fault to the project site is the San Andreas Fault Zone, located approximately 2.5 miles south of the project site (CGS, 2003). A major earthquake associated with this fault could result in moderate to severe ground shaking in the project area and would be a potential hazard to the proposed project. Damage to PV solar panels and aboveground structures associated with the proposed project could occur as a result of ground shaking during a seismic event. However, implementation of the proposed project would have limited exposure of people or habitable structures to hazards associated with surface rupture of a known earthquake fault. Impacts would be less than significant.
- a.iii) **No Impact.** Liquefaction is a phenomenon where unconsolidated and/or near saturated soils lose cohesion and are converted to a fluid state as a result of severe vibratory motion. The relatively rapid loss of soil during strong earthquake shaking results in the temporary fluid-like behavior of the soil. Soils on the project site are composed of silty sand, fine to coarse sand and gravel and are characterized as dense to very dense (CGS, 2003). According to the California Geological Survey, Seismic Hazard Zone Map, the project site is not located in an area with the potential for liquefaction (CGS, 2003). Therefore, no impact would occur.
- a.iv) **No Impact.** A landslide is a mass of rock, soil, and debris displaced down-slope by sliding, flowing, or falling. The susceptibility of land (slope) failure is dependent on the slope and geology as well as the amount of rainfall, excavation, or seismic activities. The Juniper Hills are located approximately 1.5 miles south of the project site and are situated approximately 400 feet above the PBPP. Due to the distance between the Juniper Hills and the project area, the potential for landslides is very low. Therefore, no impacts would occur.
- b) **Less than Significant Impact with Mitigation.** Project construction would result in land disturbance greater than one acre. During construction, excavation and grading activities would expose and disturb surface soils. Soils in the region are highly susceptible to water or wind erosion or both. Therefore, during project construction, short-term losses of topsoil and subsoil due to wind and water erosion could be substantial. Implementation of Mitigation Measure **GEO-1** would ensure water and wind erosion of soils would be minimized to less than significant levels.

### **Mitigation Measure**

**GEO-1:** To control water and wind erosion during construction of the project, DWR shall prepare a Stormwater Pollution Prevention Plan (SWPPP) prior to the start of construction. The objectives of a SWPPP is to identify pollutant sources (such as sediment) that may affect the quality of stormwater discharge and to implement best management practices (BMPs) to reduce pollutants in stormwater. The SWPPP shall prescribe temporary BMPs to control wind and water erosion during and shortly after construction of the project and permanent BMPs to control erosion and sedimentation once construction is complete.

Erosion control BMPs would be used to prevent the degradation of water quality in the construction area. Other BMPs that could be used to enhance erosion control include scheduling to avoid wet weather events; preservation of existing vegetation where feasible; using soil binders; straw mulching; using geotextiles, plastic covers, and erosion control blankets/mats. Example of erosion control BMPs are installing a silt fence; creating a sediment/desilting basin; installing sediment traps; installing check dams; using fiber rolls; creating gravel bag berms; street sweeping and vacuuming; creating a sandbag barrier; creating a straw bale barrier; and storm drain inlet protection. BMPs would also include practices for proper handling of chemicals such as avoiding fueling at the construction site and overtopping during fueling and installing containment pans.

- c) **Less than Significant Impact.** The proposed project is not located in an area defined as having unstable soils, landslides, lateral spreading, subsidence, liquefaction or collapse. Impacts from proposed project implementation are less than significant (CGS, 2003).
- d) **No Impact.** Expansive soils possess a shrink-swell characteristic that can result in structural damage over a long period of time. Expansive soils are largely comprised of silicate clays, which expand in volume when water is absorbed and shrink when dried. Highly expansive soils can cause damage to foundations and roads. Soils at the project site consist of Adelanto and Cajon loamy sand, as well as Hanford coarse and Hesperia fine sandy loam (NCRS, 2012). These soils are characterized as dense to very dense sand and gravel, and are not expansive in nature. The proposed project would be constructed consistent with the California Building Code, and other applicable regulations. Therefore, no impact would occur.
- e) **No Impact.** The existing facilities at the project site include wastewater treatment facilities to accommodate current employees. The proposed project does not include the construction of septic tanks or alternative wastewater disposal systems. No impacts would occur.

### **References**

California Geological Survey, *Seismic Hazard Zone Map for the Littlerock 7.5-Minute Quadrangle, Los Angeles County, California*, 2003.

California Geological Survey, *Seismic Hazard Zone Report for the Littlerock 7.5-Minute Quadrangle, Los Angeles County, California*, 2003.

Google Earth, 2012.

National Resources Conservation Service (NRCS), *Web Soil Survey*, <http://websoilsurvey.nrcs.usda.gov/app/>. Accessed August 2012.

Thule Scientific, *Interactive Map of the San Andreas Fault*, <http://www.thulescientific.com/san-andreas-fault-map.html>. Accessed August 2012.

---

## Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>7. GREENHOUSE GAS EMISSIONS — Would the project:</b>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

In May 2012, DWR adopted its *Climate Action Plan Phase 1: Greenhouse Gas Emissions Reductions Plan* (GGERP), which details DWR’s efforts to reduce its greenhouse gas (GHG) emissions consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006 (Assembly Bill 32) (DWR 2012). DWR also adopted an IS/ND prepared for the GGERP in accordance with the CEQA Guidelines review and public process. Both the GGERP and the IS/ND are incorporated herein by reference and are available at <http://www.water.ca.gov/climatechange/CAP.cfm>. The GGERP provides estimates of historical (back to 1990), current, and future GHG emissions related to operations, construction, maintenance, and business practices (e.g., building-related energy use). The GGERP specifies aggressive 2020 and 2050 emission reduction goals and identifies a list of GHG emissions reduction measures to achieve these goals.

DWR specifically prepared its GGERP as a “Plan for the Reduction of Greenhouse Gas Emissions” for purposes of CEQA Guidelines Section 15183.5. That section provides that such a document, which must meet certain specified requirements, “may be used in the cumulative impacts analysis of later projects.” Because climate change, by its nature, is a global cumulative impact, an individual project’s compliance with a qualifying GHG reduction plan may suffice to mitigate the project’s incremental contribution to that cumulative impact to a level that is not “cumulatively considerable” (CEQA Guidelines, Section 15064[h][3]).

More specifically, “[l]ater project-specific environmental documents may tier from and/or incorporate by reference” the “programmatic review” conducted for the GHG emissions reduction plan. “An environmental document that relies on a GHG reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project” (CEQA Guidelines Section 15183.5[b][2]).

Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. These steps include (1) analysis of GHG emissions from construction of the project, (2) determination that the construction emissions from the project do not exceed the levels of construction emissions analyzed in the GGERP, (3) incorporation into the design of the project DWR’s project-level GHG emissions reduction strategies, (4) determination that the project does not conflict with DWR’s ability to implement any of the “Specific Action” GHG emissions reduction measures identified in the GGERP, and (5) determination that the project would not add electricity demands to the SWP system that could alter DWR’s emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

This project is a specific-action GHG emission measure pursuant to the GGERP - OP-4, On-site Renewable Generation.

- a) **Less than Significant Impact.** Based on the analysis provided in the GGERP and the demonstration that the Proposed Project is a specific-action GHG emission measure identified in the GGERP, DWR as the lead agency has determined that the Proposed Project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs would be less than cumulatively considerable and therefore less than significant.
- b) **Less than Significant Impact.** Based on the analysis provided in the GGERP and the demonstration that the Proposed Project is consistent with the GGERP pursuant to DWR's Consistency Determination Checklist submitted pursuant to Section 12 of the GGERP, DWR as the lead agency has determined that the Proposed Project would not conflict with any plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Thus, this impact would be less than significant.

## References

Antelope Valley Air Quality Management District (AVAQMD), *California Environmental Quality Act and Federal Conformity Guidelines*, August 2011.

California Air Resources Board (CARB), *Climate Change Scoping Plan*, December 2008.

California Department of Water Resources (DWR) *Climate Action Plan: Phase 1: Greenhouse Gas Emissions Reductions Plan*, May 2012.

California Department of Water Resources (DWR), *Initial Study for the California Department of Water Resources Draft Climate Action Plan Phase 1: Greenhouse Gas Emissions Reduction Plan*, March 2012.

## Hazards and Hazardous Materials

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>8. HAZARDS AND HAZARDOUS MATERIALS — Would the project:</b>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Discussion

- a) **Less than Significant Impact.** Construction activities for the proposed project would require the transportation and use of limited quantities of fuel and oil for construction vehicles and equipment. These construction activities would occur over a six month period and are therefore short-term, and temporary. The use of hazardous materials and substances during construction would be subject to federal, state, and local health and safety requirements for handling, storage, and disposal. The proposed project is a solar project and would not require the use of chemicals that could create a hazard through routine transport, use, or disposal of hazardous materials other than the fuel and oil used for construction mentioned above. Operation and maintenance of PV solar modules are minimal, and would require limited use of hazardous materials such as fuel and oil for operation of maintenance vehicles. Long-term maintenance and equipment replacement would be scheduled in accordance with manufacturer recommendations throughout the

- 25 year lifetime of the PV panels. At the end-of-life of the proposed project, PV solar panels would be decommissioned and dismantled. The component materials lack toxic metals such as mercury, lead, cadmium telluride, or gallium, and the majority of the components of the solar installation are made of materials that can be readily recycled. After the operational life of the project, all panels and appurtenances would be removed and recycled where possible. When the PV solar modules are decommissioned at the end of the project lifetime, they would be disposed of based on the California Hazardous Waste Control Law (HWCL). Decommissioned or defective solar panels are considered hazardous waste if they do not meet the U.S. Environmental Protection Agency (EPA) Toxicity Characteristic Leaching Procedure standards (this determination varies depending on the technology used). All potentially hazardous materials would be disposed of in accordance with federal, state and county regulations. As the use of hazardous materials during construction and operation would be minimal, impacts related to the transport, use, or disposal of hazardous materials would be less than significant.
- b) **Less than Significant Impact.** As discussed above in 3.8(a), the use of hazardous materials during construction would be temporary. However, hazardous materials may accidentally be spilled or otherwise released into the environment. To minimize negative impacts the use of hazardous materials and substances during construction would be subject to federal, state, and local health and safety requirements for handling, storage, and disposal. In addition, a SWPPP would be required that includes BMPs to minimize the effects of such spills. Therefore, impacts related to hazards and hazardous materials would be less than significant.
- c) **No Impact.** The nearest school is Pearblossom Elementary School approximately 1.5 miles southeast of the project site. Thus, the proposed project is not located within one-quarter mile of an existing or proposed school. Construction and operation activities would be located entirely onsite would not impact the local school. No impacts would occur.
- d) **No Impact.** A review of the the State Water Resources Control Board GeoTracker database and the Department of Toxic Substances Control (DTSC) EnviroStor database did not identify the project site as having permitted underground storage tanks (PUST). The project site was not listed as a hazardous materials site. GeoTracker identified a leaking underground diesel stage tanks (LUST) onsite in 1995; however, the site was cleaned up in 1999 and the case is now closed (Geotracker, 2012). Therefore, the project would not create a significant hazard to the public or the environment. No impacts would occur.
- e,f) **No Impact.** The nearest public airport is Palmdale Regional Airport located approximately 12 miles northwest of the project area. A small glider airport, Crystal Airport, is located approximately six miles southeast of the project area. The proposed project is not located within an airport land use plan, within two miles of a public airport or public use airport, or within the vicinity of a private airstrip. Therefore, no impacts would occur.

- g) **No Impact.** The proposed project is not located within an adopted emergency response plan or emergency evacuation plan. The proposed project would be located entirely within the PBPP property. Staging areas would also be located within the plant and proposed project-related vehicles would not block existing street access to the site. Implementation of the proposed project would not physically impede the existing emergency response plans, emergency evacuation plan, emergency vehicle access, or personnel access to the site. Therefore, no impacts would occur.
- h) **No Impact.** The proposed project does not include construction of habitable structures. Land that would be included in the proposed project area is designated as both a moderate fire hazard zone and an urbanized/developed area outside of a hazard zone (Department of Forestry and Fire Protection, 2006). The moderate fire zone is the hazard zone with the lowest potential for fires to occur. Because the proposed project would be constructed mostly within the urban/developed area designation, no impacts would occur.

## References

Department of Forestry and Fire Protection, *Fire Hazard Severity Zone for Los Angeles County*, December 2006.

State Water Resources Control Board, *Geotracker Database for 34534 116th Street E, Pearblossom, California*, [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0603700384](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603700384), accessed August 2012.

## Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>9. HYDROLOGY AND WATER QUALITY — Would the project:</b>				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a) **Less than Significant Impact with Mitigation.** Construction of the proposed project would require earth moving activities such as site preparation and grading. These construction activities would disturb vegetation and underlying surface soils. Once disturbed, the soils would be exposed to the effects of wind and water erosion in stormwater runoff.

The project site is located in the South Lahontan Basin. The South Lahontan Basin includes three major surface water systems (Mono Lake, Owens River, and Mojave River

watersheds) and a number of separate closed ground water basins. Very little quantitative information is available on most of the water bodies in the Region. The project site is located in the Antelope Hydrologic Unit, within the Rock Creek Hydrologic Area. The project site is circumnavigated by a concrete-lined stormwater channel and the California Aqueduct. This concrete-lined channel drains in a northern direction off-site.

All of the waters of the Lahontan Region that are internally drained are considered isolated. The U.S. Army Corps of Engineers has determined that isolated waters within the Lahontan Region are not “waters of the United States” and would not be subject to regulation under the federal Clean Water Act. However, State standards still apply to any “waters of the State” under the State Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.).

Section 13260(a) of the California Water Code (Water Code) requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the waters of the State, file a report of waste discharge (ROWD). Absent a potential effect on the quality of waters of the state, no notification is required.

As previously stated, the proposed project would not impact “waters of the United States.” The nearest river or stream to the project site is an unnamed mapped blue line stream (ephemeral) located approximately 0.2 mile east of the proposed project site; this stream would not be impacted by the proposed project. As such, the proposed project is not required to file ROWD nor would the project violate waste discharge requirements. However, the Lahontan RWQCB encourages implementation of best management practices (BMPs) similar to those required for NPDES storm water permits to protect the water quality objectives and beneficial uses of local surface waters as provided in the Lahontan Region Water Quality Control Plan (Basin Plan) (RWQCB, 1995).

Project construction would result in land disturbance greater than one acre. During construction, excavation and grading activities would expose and disturb surface soils. Soils in the region are highly susceptible to water or wind erosion or both. Therefore, during project construction, short-term losses of topsoil and subsoil due to wind and water erosion could be substantial. Implementation of Mitigation Measure **GEO-1** would ensure water and wind erosion of soils would be minimized to less than significant levels.

Further, implementation of standard construction procedures and precautions as discussed in Section 7, Hazards and Hazardous Materials, would also ensure that the water quality impacts related to the handling of hazardous materials from project construction would be less than significant.

- b) **Less than Significant Impact.** The proposed project involves the installation of PV solar modules and does not require regular use of water or result in the generation of wastewater that would deplete groundwater supplies nor interfere with groundwater recharge, as a portion of the site will remain pervious. The site would be graded for the

preparation of the PV panels, but would not be paved, leaving the site in a mostly pervious condition. Therefore the proposed project would not interfere with groundwater recharge such that there would be a net deficit in aquifer volume; impacts are less than significant.

c) **Less than Significant Impact with Mitigation.**

***Construction***

During construction of the proposed project, excavated soils would have the potential to erode and be transported to down gradient areas, potentially resulting in substantial erosion or siltation on- or off-site. Construction of the proposed project would involve site preparation and clearing, grading and excavation, and construction of the PV solar modules and ancillary facilities on approximately 70 acres of land at the PBPP site. In the event of a heavy rain the graded 70 acres may experience erosion. The proposed project will implement Mitigation Measure **GEO-1**, which requires preparation of a SWPPP prior to the start of construction. Implementation of the BMPs detailed in the SWPPP, particularly measures addressing erosion control, would minimize the potential for the project to substantially alter the existing drainage pattern in a manner that would result in erosion or siltation on- or off-site.

***Operation***

The project site would not be recontoured after the site is graded to accommodate the support and mounting system and PV solar panels. If a major rain event occurred, soil erosion could occur on-site. Most on-site flows would be allowed to infiltrate into the subsurface soils and eventually percolate into the groundwater basin below. Although the amount of surface runoff on the project site may not substantially change, implementation of Mitigation Measure **HYDRO-1**, which requires the DWR to prepare a drainage plan for the site, would ensure surface runoff from the project site would not significantly alter drainage patterns and downstream flows due to erosion or siltation. Additionally, with implementation of the drainage plan, onsite flows would be contained within the boundary of the project site. The final drainage design would be selected during the final design stage of the proposed project and shall be improved in accordance with the industry standards for retention basin design. Therefore, long-term impacts associated with the alteration of drainage patterns resulting from substantial erosion or siltation would not occur.

***Mitigation Measure***

**HYDRO-1:** Prior to the initiation of any grading activities, DWR will prepare a drainage plan. The drainage plan shall include components for the accommodation of storm water flows, flood drainage and water quality control, including location of key discharge points for retention basins (if necessary).

- d) **Less than Significant Impact with Mitigation.** The proposed project would not include any elements that would impede or redirect flood flows. Operation of the proposed project is not expected to substantially alter existing drainage patterns within the project area following completion of construction activities; however, the proposed project would develop approximately 70 acres within the PBPP site with photovoltaic solar panel technology. However, the entire 70 acres would not be developed with impervious surfaces and will continue to allow surface water to sheet flow across the site and/or percolate onsite. Therefore, due to the limited development areas and the pervious nature of the site, development of the proposed project would not result in a significant increase in runoff from the site and would not likely result in localized flood impacts. With the implementation of Mitigation Measure **HYDRO-1**, design features would either capture and infiltrate storm water onsite or transport storm water offsite. With implementation of these design measures, impacts under this criterion would be less than significant.
- e) **Less than Significant Impact with Mitigation.** Refer to response a, c, and d, above. Although development of the proposed project would increase impermeable surfaces at the PBPP, a majority of the site would remain permeable and would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. Implementation of Mitigation Measure **GEO-1** requires preparation of a SWPPP, which would further minimize impacts from stormwater runoff during and after construction. BMPs would be implemented to address erosion and sediment control to effectively prevent the off-site migration of storm water. Additionally, Mitigation Measure **HYDRO-1**, requires the design and implementation of a drainage plan on-site which would contain the surface run-off on and off the project site. Thus, the local stormwater drainage systems capacity would not be exceeded or increased sources of polluted runoff would not occur. With implementation of these measures, impacts under this criterion would be less than significant.
- f) **Less than Significant Impact.** See (a) through (e) above. No other substantial water quality degradation is expected to occur as a result of the proposed project. The proposed project would have a less than significant impact to water quality on the project site or in the project vicinity.
- g) **No Impact.** The proposed project is not located within a 100-year flood hazard area as mapped on the Federal Emergency Management Agency (FEMA) 100-year Flood Insurance Rate Map (ESRI, 2012). In addition, the proposed project does not include housing. The proposed PV solar modules would be supported on steel posts with slab concrete foundations and located aboveground. Therefore, no impacts would occur.
- h) **No Impact.** The proposed project is not located within a 100-year flood hazard area. Therefore, the project would not locate structures that would impede or redirect flows in a flood hazard area, and no impact would occur.
- i) **Less than Significant Impact.** The proposed project is located adjacent to the California Aqueduct. The California Aqueduct is located below the existing ground surface

- elevation. An embankment is located on the Aqueduct. This embankment provides freeboard above the water surface elevation. The surface water elevation would generally be below the ground surface elevation so that water would not drain from the site resulting in an inundation hazard to nearby land uses. Flooding hazards associated with the California Aqueduct failure are considered less than significant.
- j) **No Impact.** The proposed project is not located near the ocean or any large body of water which would expose people or structures to a significant risk of loss, injury or death as a result of inundation by tsunami or mudflow. A seiche is a standing wave in an enclosed or partially enclosed body of water caused by atmospheric or seismic events. The California Aqueduct is adjacent to the proposed project, and could be subject to a seiche as a result of catastrophic events. While seiches have occurred in manmade features such as dams and reservoirs, relatively few instances have occurred in aqueduct channels. This is because the force needed to generate oscillation does not have as much momentum in a narrow aqueduct channel as it does in a large round body of water. Therefore, no impact would occur.

## References

ESRI, 2012.

Lahontan Regional Water Quality Control Board, *Table of General Permits for use within the Lahontan Region*, August 2012.

Lahontan Regional Water Quality Control Board, *Water Quality Control Plan for the Lahontan Region, North and South Basins*, March 31, 1995 with amendments through December 2005.

State Water Resources Control Board, *Guidance for Regulation of Discharge to "Isolated" Waters*, June 25, 2004.

State Water Resources Control Board, Water Quality Order No. 2004-0004-DWQ, Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction (General WDRs).

## Land Use and Land Use Planning

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>10. LAND USE AND LAND USE PLANNING —</b>				
<b>Would the project:</b>				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **No Impact.** The proposed project involves the installation of PV solar modules on the existing PBPP and would not physically divide an establish community. Therefore, no impacts would occur.
- b) **No Impact.** The project site is designated as Public Service Facilities (P) by the Los Angeles County Antelope Valley Area Plan and is zoned for Open Space (O-S). The proposed project would not conflict with or change the existing land use or zoning of the project site and would be compatible with the Antelope Valley Area Plan’s Energy Conservation and Open Space Element 13, which encourages utility-scale energy production facilities that reduce consumption of non-renewable resources (LACDRP, 2011). Therefore no impacts would occur.
- c) **Less than Significant Impact.** The proposed project is covered under the Draft West Mojave Habitat Conservation Plan. The proposed project is also located within the Desert Renewable Energy Conservation Plan, a Natural Community Conservation Plan that is intended to provide for effective protection and conservation of desert ecosystems while allowing for the appropriate development of renewable energy projects. The proposed project does not conflict with the provisions within the adopted conservation plan. Impacts would be less than significant.

### References

Los Angeles County Department of Regional Planning, *Preliminary Draft Antelope Valley Area Plan*, March 2011.

## Mineral Resources

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>11. MINERAL RESOURCES — Would the project:</b>				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Discussion

- a) **No Impact.** The California Department of Conservation, California Geological Survey, (CGS) classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act of 1975 (SMARA). CGS designates Mineral Resource Zones (MRZs) that have regionally significant mineral deposits. The proposed project is not located within any designated MRZs (California Department of Conservation, 1999). The closest MRZ to the project area is the Little Rock Creek Fan located approximately eight miles southwest of the proposed project. According to USGS, the land is not identified as a known mineral resource and not used for mineral extraction (USGS, 2012). In addition, according to the State of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, no oil well exists on the project site. Therefore, the proposed project would not have an impact to a known mineral resource that is valuable to the region or residents of the state.
- b) **No Impact.** The project site is not located in an area designated as a MRZ. The Antelope Valley Area Plan does not define the project site as containing an important mineral resource. The proposed project would not result in the loss of availability of a locally important mineral resource and no impacts would occur.

## References

California Department of Conservation, Division of Mines and Geology, *Aggregate Resources in the Los Angeles Metropolitan Area*, 1999.

Google Earth, 2012.

U.S. Geologic Survey, *Mineral Resource Data System*, <http://mrdata.usgs.gov/mineral-resources/mrds-us.html>, accessed August 2012.

# Noise

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>12. NOISE — Would the project:</b>				
a) Result in Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in Exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Discussion

- a) **Less than Significant Impact.** Noise impacts associated with the construction and operation of the proposed project are provided below.

### **Construction**

Construction of the proposed project would involve site preparation and clearing, grading and excavation, and construction of the PV solar modules and ancillary facilities. Construction activity noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. The proposed project would involve the use of heavy-duty combustion equipment such as backhoes, flat bed trucks, forklifts, portable booms, graders, dump trucks, and a drilling rig. There would also be times when construction activities at the project site would involve the use of smaller power tools, electrically-driven machinery, and other sources of noise. During each construction phase there would be a different mix of equipment operating and noise levels would vary based on the amount of equipment in operation and the location of each activity. In addition, the operating cycles for the construction equipment that would be used at the project site would typically involve one or two minutes of full power operation followed by three or four minutes at lower power settings.

The U.S. Environmental Protection Agency (USEPA) has compiled data for outdoor noise levels for typical construction activities. The noise level data that are presented in **Table 5** represent composite noise levels associated with typical construction activities, which take into account both the number of pieces and spacing of heavy construction equipment that are typically used during each phase of construction. These noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 84 dBA Leq measured at 50 feet from the noise source to the receptor would reduce to 78 dBA Leq at 100 feet from the source to the receptor, and reduce by another 6 dBA Leq to 72 dBA Leq at 200 feet from the source to the receptor.

**TABLE 5  
TYPICAL OUTDOOR CONSTRUCTION NOISE LEVELS**

Construction Phase	Noise Level (dBA, Leq) <sup>a</sup>
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

<sup>a</sup> Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: U.S. Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, 1971.

The nearest sensitive receptor to the project site is a single-family residence that is located approximately 400 feet west of the project site off of 116<sup>th</sup> Street E, while the remainder of the sensitive receptors in the project area are all located beyond 1,000 feet of the project site. Assuming an attenuation rate of 6 dBA per doubling of distance, the nearest single-family residence would experience maximum noise levels of approximately 71 dBA Leq. Based on Chapter 12.08, Noise Control, of the County of Los Angeles Municipal Code, the maximum noise level for nonscheduled, intermittent, short-term operation of mobile equipment associated with construction activities at single-family residential buildings is 75 dBA. As the maximum construction-related noise level at this nearest sensitive receptor would not exceed this noise threshold, the noise levels at all of the other remaining sensitive receptors that are located beyond 1,000 feet of the project site would also not exceed the County noise threshold for construction mobile equipment. Thus, noise impacts associated with project construction would be less than significant.

Additionally, the duration for construction activities is anticipated to last six months, therefore, construction noise levels would only be temporary in nature. Furthermore, while Section 12.08.440 of the Los Angeles County Municipal Code limits the hours of

construction to 7:00 a.m. to 7:00 p.m. every day except Sundays and legal holidays, construction activities associated with the project would only occur on weekdays from 8:00 a.m. to 5:00 p.m. No nighttime construction is anticipated during construction activities. Construction on Saturdays may only occur occasionally during the project construction phase.

### **Operations**

The proposed PV solar panel system would operate on electricity (only in the case that a HSAT mounting system is utilized) and similar to other solar projects would be virtually silent when in operation. Although the PV panels could be mounted on an axis tracker (HSAT), any noise from the tracker would be well below existing ambient noise levels at all noise-sensitive receivers due to their distance from the project site (i.e., the nearest sensitive receptor is located approximately 400 feet away, while all other sensitive receptors are located beyond 1,000 feet of the project site). As such, noise impacts associated with operation of the PV panel system would be less than significant.

No new permanent workers would be required at the PBPP as a result of the proposed project. Vehicle trips to the project site would be conducted periodically for maintenance and inspection purposes as well as panel washing. Maintenance visits would occur on every three months and would take approximately five days to complete. Panel washing is anticipated to occur every three months at the project site. Due to the infrequent occurrence of these activities, these activities would not generate a significant amount of traffic, or create a substantial increase of vehicular noise in the project vicinity. Any increase in traffic would be minimal and therefore, project related vehicle noise would be less than significant.

The proposed generation tie-in line and substation serving the proposed project would also generate audible noise, which is generally characterized as a crackling, hissing, or humming sound. These noise levels are generated by the corona effect, which is the ionization of the air that occurs at the surface of an energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. However, given the distances of the surrounding noise sensitive receptors to the project site, the minor noise levels that would be generated by these particular project components would not be perceptible above the ambient noise levels at these receptors. Therefore, the noise levels generated from operation of the generation tie-in line and substation would not generate noise levels in excess of noise standards or create a substantial increase in ambient noise levels within the vicinity of the project site, and impacts would be less than significant

- b) **Less than Significant Impact.** Vibration is sound radiated through the ground and can result from a source (e.g., subway operations, vehicles, machinery equipment, etc.) causing the adjacent ground to move, thereby creating vibration waves that propagate through the soil to the foundations of nearby buildings. This effect is referred to as groundborne vibration. The peak particle velocity (PPV) or the root mean square (RMS)

velocity is usually used to describe vibration levels. PPV is defined as the maximum instantaneous peak of the vibration level, while RMS is defined as the square root of the average of the squared amplitude of the level. PPV is typically used for evaluating potential building damage, while RMS velocity in decibels (VdB) is typically more suitable for evaluating human response.

Construction activities that would occur at the project site have the potential to generate low levels of groundborne vibration. The operation of heavy-duty construction equipment (e.g., graders, dump trucks, etc.) generates vibrations that propagate through the ground and diminish in intensity with distance from the source. Vibration impacts can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage of buildings at the highest levels.

In terms of vibration impacts on buildings, the Los Angeles County Code (LACC Section 12.08.350) states a presumed perception threshold of 0.01 inch per second RMS. However, this threshold applies to groundborne vibrations from long-term operational activities, not construction. Consequently, as the County of Los Angeles does not have a significance threshold to assess vibration impacts during construction, the Federal Transit Administration (FTA) and Caltrans adopted vibration standards for buildings are used to evaluate potential impacts related to project construction. Based on the FTA and Caltrans criteria, construction impacts relative to groundborne vibration would be considered significant if the following were to occur:

- Project construction activities would cause a PPV groundborne vibration level to exceed 0.5 inches per second at any building that is constructed with reinforced-concrete, steel, or timber;
- Project construction activities would cause a PPV groundborne vibration level to exceed 0.3 inches per second at any engineered concrete and masonry buildings;
- Project construction activities would cause a PPV groundborne vibration level to exceed 0.2 inches per second at any non-engineered timber and masonry buildings; or
- Project construction activities would cause a PPV ground-borne vibration level to exceed 0.08 inches per second at any historical building or building that is extremely susceptible to vibration damage.

In addition, the County of Los Angeles has not adopted any thresholds associated with human annoyance for groundborne vibration impacts. Therefore, this analysis uses the FTA's vibration impact threshold for human annoyance at residences, which is 80 VdB.

**Table 6** identifies various PPV and RMS velocity (in VdB) levels for various types of construction equipment. It is expected that the operation of the heavy-duty construction equipment at the project site (i.e., backhoes, graders, dump trucks, drill rig, etc.) would generate similar levels of vibration that are shown in Table 6.

**TABLE 6**  
**VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT**

Equipment	Approximate PPV (in/sec)					Approximate RMS (VdB)				
	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet
Large Bulldozer	0.089	0.031	0.024	0.017	0.011	87	78	76	73	69
Caisson Drilling	0.089	0.031	0.024	0.017	0.011	87	78	76	73	69
Loaded Trucks	0.076	0.027	0.020	0.015	0.010	86	77	75	72	68
Jackhammer	0.035	0.012	0.009	0.007	0.004	79	70	68	65	61
Small Bulldozer	0.003	0.001	0.0008	0.0006	0.0004	58	49	47	44	40

SOURCE: FTA, 2006.

For the purpose of conducting a conservative analysis, it is assumed that the equipment used at the project site would generate the same vibration levels as that of large bulldozers and caisson drills in Table 6, which are the equipment identified as generating the highest levels of vibration. Pile driving is not expected to be used as part of this project.

Given that the nearest off-site receptor to the project site is the single-family residence located 400 feet away, the highest vibration level that this receptor would be exposed to during project construction would be approximately 0.001 PPV or 51 VdB. Other sensitive receptors in the project vicinity would be exposed to vibration levels at incrementally lower levels as they are all located beyond 1,000 feet of the project site. In addition, the nearest PV solar modules to the operations building located at the Pearblossom Pump Plant would be approximately 353 feet east. Given this distance the highest vibration level that this receptor would be exposed to during project construction would be approximately 0.001 PPV or 51 VdB, which would not exceed the FTA thresholds. Therefore, construction activities at the project site would not generate ground-borne vibration levels that would exceed the FTA criteria of 0.2 PPV for non-engineered timber and masonry buildings, which are used in this analysis to represent the off-site residential structures. In addition, the vibration exposure level of 51 VdB at the nearest sensitive receptor would not exceed the FTA's 80 VdB threshold for residences. Thus, the vibration impacts experienced by this nearest off-site receptor, and also at other off-site receptors that are located farther away, during construction at the project site would be less than significant.

- c) **Less than Significant Impact.** As discussed in the "Operation" sub-section of criterion (a) this impact is considered less than significant.
- d) **Less than Significant Impact.** As discussed in the "Construction" sub-section of criterion (a) the resulting impact would be less than significant.

- e) **No Impact.** The proposed project is not located within an airport land use plan, within two miles of a public airport or public use airport. The nearest public airport is Palmdale Regional Airport located approximately 12 miles northwest of the project area. Therefore, no noise impacts would occur in association with excessive noise levels and airports.
  
- f) **No Impact.** A small glider airport, Crystal Airport, is located approximately six miles southeast of the project area. Therefore, no noise impacts would occur in association with excessive noise levels and private airstrips.

## References

California Department of Transportation (Caltrans), *Transportation- and Construction-Induced Vibration Guidance Manual*, June 2004.

County of Los Angeles, Municipal Code, <http://search.municode.com/html/16274/index.htm>, accessed September 5, 2012.

Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, May 2006.

United States Environmental Protection Agency (USEPA), *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, December 1971.

---

## Population and Housing

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>13. POPULATION AND HOUSING — Would the project:</b>				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a) **No Impact.** The proposed project would not directly or indirectly induce growth in the area. The project is anticipated to generate 10 MW which will be returned to the substation. The construction and use of PV solar modules is mainly to provide energy for the Pearblossom Pump Plant, any additional energy would be sold to Southern California Edison. The small solar operation would accommodate existing on-site uses. Due to the small nature of the proposed project, there would be no impacts related to population growth.
- b) **No Impact.** The proposed project does not involve the construction or demolition of housing. Therefore, the proposed project would not displace people or housing, and no impact would occur.
- c) **No Impact.** The proposed project does not involve demolition or displacement of existing residents and would require the construction of replacement housing. No impact would occur.

## Public Services

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>14. PUBLIC SERVICES — Would the project:</b>				
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Discussion

- a.i-v) **No Impact.** The proposed project would not require the provision of new or additional public services. There would be no increases in demand for police, fire, or other emergency services associated with this project. The proposed project would not result in substantial adverse impacts to any local schools, parks, hospitals, or other public facilities because the proposed project is industrial in nature and is not a community development project which would generate the need for additional public services and result in impacts to public facilities. There would be a temporary increase in employees for onsite construction, with a maximum of 25 workers at any given time. Public services related to fire protection, police protection, schools or parks would not be augmented as a result of the proposed project. Therefore, no impact would occur.

## Recreation

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>15. RECREATION — Would the project:</b>				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Discussion

- a) **No Impact.** The proposed project would construct and operate PV solar modules system which would not generate additional residents to the project area and would not increase the use of existing neighborhood and regional parks or other recreational facilities. No impacts would occur.
- b) **No Impact.** The proposed project does not involve the use, construction, or expansion of recreational facilities No adverse physical effect on the environment would occur from the construction or expansion of recreational facilities and no impact would occur.

# Transportation and Traffic

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>16. TRANSPORTATION AND TRAFFIC —</b>				
<b>Would the project:</b>				
a) 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 non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Discussion

- a) **Less than Significant Impact.** Applicable transportation plans and policies include the Southern California Association of Government’s (SCAG) Regional Transportation Plan, the Antelope Valley Transit Authority Bus Plan, and the Circulation Section of the Antelope Valley Area Plan.

Construction-generated traffic would be temporary and therefore would not result in any long-term degradation in operating conditions or conflict with the Circulation Element of the Antelope Valley Area Plan, or the SCAG’s Regional Transportation plan.

Construction activities would require approximately two to five construction truck trips staggered throughout the day and one truck trip per day for the materials delivery. Given the conservative estimate, a total of approximately six daily roundtrip construction trips are proposed during the six month period of construction. Project construction would also require a maximum of 25 workers at any given time, in which approximately 25 percent of the workforce is expected to carpool with a minimum of two persons per vehicle.

Construction of the PV solar modules would occur completely within the site boundaries, resulting in minimal impacts to roadway circulation. Implementation of the proposed project would generate a minimal short-term increase in traffic on regional and local roadways due to construction worker vehicle trips and truck trips for material hauling.

Because, this construction-generated traffic would be minimal and temporary, the project would not result in any long-term degradation in operating conditions or conflict with any applicable plans, ordinances, or policies. Impacts would be less than significant.

- b) **Less than Significant Impact.** The local applicable Congestion Management Plans (CMP) is the County of Los Angeles CMP. Pearblossom Highway is identified as a principal arterial route in the Los Angeles CMP Highway and Roadway System (Los Angeles County Metropolitan Transportation Authority, 2010). The level of standard (LOS) for the Pearblossom Highway at selected points between State Route 14 and the Los Angeles County line is LOS D or Better, which characterizes a zone of increasing restriction, but not yet at capacity. Construction-generated traffic would be temporary and therefore would not result in any long-term degradation in operating conditions or conflict with the Los Angeles County CMP. Standards for roadways that are part of the Los Angeles County CMP network are intended to regulate long-term traffic increases resulting from the operation of new development, and do not apply to temporary construction projects. As project construction is anticipated to last six months, long-term transportation policies and plans would not be affected. Impacts would be less than significant.
- c) **No Impact.** The proposed project is not located in the immediate vicinity of an airport of private airstrip. The nearest public airport is Palmdale Regional Airport located approximately 12 miles northwest of the project site. A small glider airport, Crystal Airport, is located approximately six miles southeast of the project area.

Height standards for quantifying obstructions to air navigation are established by the Federal Aviation Administration (FAA) and are defined in Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace. In order to make the determination whether a project constitutes a hazard to air navigation, FAR Part 77 requires that notice be given to the FAA if any kind of construction or alteration is (1) more than 200 feet in height above the ground level at its site or (2) of a greater height than an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from all edges of the runway surface if the runway is more than 3,200 feet in length. The proposed project involves development of a solar energy facility, with the tallest onsite structure would be well below that would exceed the height. No project activities would alter the existing air traffic patterns, levels, or locations that result in safety risks and no impact would occur.

- d) **No Impact.** Construction and operation of the proposed project does not include the creation of new roadways, the project would utilize existing roadways in the project vicinity. The project would not alter existing public roadways or create hazardous design features such as sharp curves or dangerous intersections. No impacts would occur.
- e) **No Impact.** The proposed project would have adequate emergency access from 116<sup>th</sup> Street, the Pearblossom Pump Plant access road. Additionally, the proposed project includes the development of a new access road. Construction and operation of the solar

PV system would not result in interference with emergency response access. No impacts would occur.

- f) **No Impact.** The proposed project would not propose any activities that would conflict with any policies, plans, or programs that support alternative transportation or pedestrian facilities in the project vicinity or other adjacent areas. Therefore, no impact would occur.

## References

Los Angeles County, *Antelope Valley Area Plan*, 1993.

Los Angeles County Metropolitan Transportation Authority, *2010 Congestion Management Program*, 2010.

---

## Utilities and Service Systems

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>17. UTILITIES AND SERVICE SYSTEMS —</b>				
<b>Would the project:</b>				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Discussion

- a) **No Impact.** The proposed project involves the construction of a PV solar system modules and would not generate wastewater that would be disposed of in a sewer or septic system. Cleaning of the PV module panels would occur every three months through a third-party service water truck using approximately two gallons of water per panel. Any additional runoff generated by construction activities would be a short-term impact and would not conflict with applicable requirements of the RWQCB. As no hazardous materials would be used on-site as part of the proposed project, proposed project wastewater is not expected to exceed established standards. Therefore, no impact would occur concerning wastewater treatment requirements.
- b) **No Impact.** The Pearblossom Pump Plant's existing facilities would accommodate any needs for water and wastewater treatment. As no permanent employees would be required for the operation of the PV solar system, construction of the proposed project would not result in or require a need for expansion of water or wastewater treatment. Therefore, no construction impacts would occur from new facilities.
- c) **Less than Significant Impact.** The proposed project would include storm water drainage facilities to ensure that stormwater is effectively detained and conveyed offsite. However,

- the proposed project is contained within the Pearblossom Pumping Facility, and impacts associated with the development of these conveyance facilities would be less than significant.
- d) **No Impact.** The proposed project would only require water to wash the solar panels. Cleaning of the PV module panels would occur every three months through a third-party service water truck using approximately two gallons of water per panel. The routine cleaning is the only expected water use associated with the PV modules. The third-party cleaning service would supply the water to clean the panels, and would provide all necessary equipment for cleaning. No new or expanded water entitlements would be required as a result of the proposed project. Therefore, no impacts would occur.
  - e) **No Impact.** The project involves the installation of PV solar modules and ancillary facilities and would not produce wastewater that would require an increase in wastewater treatment capacity by the existing wastewater treatment provider. Therefore, there would be no impacts to the existing wastewater treatment provider.
  - f) **Less than Significant Impact.** Construction of the proposed project would result in minor amounts of excavated soil for construction of the PV solar panels, substation, and generation tie-in line. It is anticipated that there will be minor grading work with minor net export from the proposed project. The amount of solid waste generated at the proposed project area would not be a significant amount, and would not place a great demand on the local landfill. Therefore less than significant impacts on local landfill services from the generation of solid waste would occur.
  - g) **Less than Significant Impact.** The proposed project would generate solid waste during construction of the activities. Construction waste would include rocks, dirt, cardboard or green waste. Assembly Bill 939, also known as the 1989 Integrated waste Management Act requires Los Angeles County to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design.

Proposed project waste would be delivered to the Los Angeles County Antelope Valley landfill, which is permitted for 267,000 tons (LADPW, 2009). Reuse and recycling of construction debris would reduce operating expenses and save valuable landfill space. At the end-of-life of the proposed project, PV panels would be decommissioned and dismantled. The PV solar modules lack toxic metals such as mercury or lead and the majority of the components of the solar installation are made of materials that can be readily recycled. All panels and appurtenances would be removed and recycled where possible. When the PV panels are decommissioned at the end of the project lifetime, they would be disposed of based on the California Hazardous Waste Control Law.

Decommissioned or defective solar panels are considered hazardous waste if they do not meet the U.S. Environmental Protection Agency's Toxicity Characteristic Leaching Procedure standards (this determination varies depending on the technology utilized to

construct the panels). All potentially hazardous materials would be disposed of in accordance with federal, state and county regulations. Therefore, impacts would be less than significant.

---

## References

Los Angeles County Department of Public Works, *Waste Disposal by Jurisdiction of Origin at permitted Municipal Solid Waste Facilities in Los Angeles County*, 2009;  
<http://dpw.lacounty.gov/epd/swims/site/distribution-of-waste.aspx>

## Mandatory Findings of Significance

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<b>18. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:</b>				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

- a) **Less Than Significant with Mitigation.** The proposed project would have the potential to impact sensitive wildlife species and natural communities during construction activities. However, with the incorporation of Mitigation Measures **BIO-1** through **BIO-8**, potential impacts to biological resources would be reduced to less than significant levels.

The project would involve excavation and grading activities which could potentially unearth prehistoric archaeological resources. Such actions could unearth, expose, or disturb subsurface paleontological, archaeological, historical, or Native American resources that were not observable on the surface. However, with the incorporation of Mitigation Measures **CUL-1** through **CUL-4**, potential impacts to paleontological or cultural resources that represent major periods of California history or prehistory would be reduced to less than significant levels.

- b) **Less Than Significant Impact.** The proposed project would have a less than significant impact on aesthetics, agriculture and forestry resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and land use planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. Additionally, the individual proposed project impacts identified in this document are mitigated to less-than-significant levels with implementation of mitigation measures described herein.

In May 2012, DWR adopted the DWR Climate Action Plan-Phase I: Greenhouse Gas Emissions Reduction Plan (GGERP), which details DWR's efforts to reduce its greenhouse gas (GHG) emissions consistent with Executive Order S-3-05 and the Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32). DWR also adopted the Initial Study/Negative Declaration prepared for the GGERP in accordance with the CEQA Guidelines review and public process. Both the GGERP and Initial Study/Negative Declaration are incorporated herein by reference and are available at: <http://www.water.ca.gov/climatechange/CAP.cfm>. The GGERP provides estimates of historical (back to 1990), current, and future GHG emissions related to operations, construction, maintenance, and business practices (e.g. building-related energy use). The GGERP specifies aggressive 2020 and 2050 emission reduction goals and identifies a list of GHG emissions reduction measures to achieve these goals.

DWR specifically prepared its GGERP as a "Plan for the Reduction of Greenhouse Gas Emissions" for purposes of CEQA Guidelines section 15183.5. That section provides that such a document, which must meet certain specified requirements, "may be used in the cumulative impacts analysis of later projects." Because global climate change, by its very nature, is a global cumulative impact, an individual project's compliance with a qualifying GHG Reduction Plan may suffice to mitigate the project's incremental contribution to that cumulative impact to a level that is not "cumulatively considerable." (See CEQA Guidelines, § 15064, subd. (h)(3).)

More specifically, "[l]ater project-specific environmental documents may tier from and/or incorporate by reference" the "programmatic review" conducted for the GHG emissions reduction plan. "An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project." (CEQA Guidelines § 15183.5, subd. (b)(2).)

Section 12 of the GGERP outlines the steps that each DWR project will take to demonstrate consistency with the GGERP. These steps include: 1) analysis of GHG emissions from construction of the proposed project, 2) determination that the construction emissions from the project do not exceed the levels of construction emissions analyzed in the GGERP, 3) incorporation into the design of the project DWR's project level GHG emissions reduction strategies, 4) determination that the project does not conflict with DWR's ability to implement any of the "Specific Action" GHG emissions reduction measures identified in the GGERP, and 5) determination that the project would not add electricity demands to the State Water Project (SWP) system that could alter DWR's emissions reduction trajectory in such a way as to impede its ability to meet its emissions reduction goals.

Consistent with these requirements, a GGERP Consistency Determination Checklist is attached to **Appendix A2** to this IS/MND documenting that the project has met each of the required elements.

When the potential impacts of the proposed project are viewed in connection with past and ongoing projects, its impacts would not be considered cumulatively considerable. Impacts would be less than significant. Based on the analysis provided in the GGERP and the demonstration that the proposed project is consistent with the GGERP (as shown in the attached Consistency Determination Checklist), DWR as the lead agency has determined that the proposed project's incremental contribution to the cumulative impact of increasing atmospheric levels of GHGs is less than cumulatively considerable and, therefore, less than significant.

- c) **Less Than Significant Impact.** The proposed project is intended to add renewable energy to the DWR portfolio of energy resources used to supply electricity to the SWP. The proposed project would become a new source of clean energy which is considered a beneficial effect of the project. Therefore, direct and indirect environmental effects on human beings from the project would be considered less than significant.

**Appendix A1**  
California Emissions  
Estimator Model (CalEEMod),  
Version 2011.1.1.



**Pearblossom Solar Project - Construction Emissions**  
**Antelope Valley APCD Air District, Summer**

**1.0 Project Characteristics**

---

**1.1 Land Usage**

Land Uses	Size	Metric
User Defined Industrial	0	User Defined Unit

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	<b>Utility Company</b>
<b>Climate Zone</b>	9	2.2	
		<b>Precipitation Freq (Days)</b>	

**1.3 User Entered Comments**

33

- Project Characteristics -
- Land Use - PV panels installed over 61.6 acres.
- Construction Phase - Estimated construction schedule for project.
- Off-road Equipment - Equipment for building phase.
- Off-road Equipment - Equipment for grading phase.
- Off-road Equipment - Equipment for site preparation.
- Trips and VMT - Estimated construction-related vehicle trips.
- Grading - Estimated project material movement.

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	8.26	63.99	40.67	0.08	13.98	3.45	17.12	6.63	3.44	9.76	0.00	8,258.47	0.00	0.73	0.00	8,273.70
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	8.26	63.99	40.67	0.08	11.25	3.45	13.46	2.59	3.44	5.72	0.00	8,258.47	0.00	0.73	0.00	8,273.70
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## 3.0 Construction Detail

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Site Preparation - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.04	0.00	12.04	6.62	0.00	6.62						0.00
Off-Road	7.34	58.19	33.99	0.05		3.03	3.03		3.03	3.03		5,882.56		0.66		5,896.40
<b>Total</b>	<b>7.34</b>	<b>58.19</b>	<b>33.99</b>	<b>0.05</b>	<b>12.04</b>	<b>3.03</b>	<b>15.07</b>	<b>6.62</b>	<b>3.03</b>	<b>9.65</b>		<b>5,882.56</b>		<b>0.66</b>		<b>5,896.40</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.20	2.61	1.02	0.00	1.64	0.10	1.74	0.00	0.09	0.09		409.58		0.01		409.79
Vendor	0.01	0.16	0.08	0.00	0.01	0.01	0.01	0.00	0.00	0.00		27.14		0.00		27.15
Worker	0.16	0.14	1.61	0.00	0.29	0.01	0.29	0.00	0.01	0.01		229.67		0.01		229.95
<b>Total</b>	<b>0.37</b>	<b>2.91</b>	<b>2.71</b>	<b>0.00</b>	<b>1.94</b>	<b>0.12</b>	<b>2.04</b>	<b>0.00</b>	<b>0.10</b>	<b>0.10</b>		<b>666.39</b>		<b>0.02</b>		<b>666.89</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Fugitive Dust					4.70	0.00	4.70	2.58	0.00	2.58						0.00
Off-Road	7.34	58.19	33.99	0.05			3.03	3.03		3.03	3.03	0.00	5,882.56		0.66	5,896.40
<b>Total</b>	<b>7.34</b>	<b>58.19</b>	<b>33.99</b>	<b>0.05</b>	<b>4.70</b>	<b>3.03</b>	<b>7.73</b>	<b>2.58</b>	<b>3.03</b>	<b>5.61</b>	<b>0.00</b>	<b>5,882.56</b>		<b>0.66</b>		<b>5,896.40</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.20	2.61	1.02	0.00	1.64	0.10	1.74	0.00	0.09	0.09		409.58		0.01		409.79
Vendor	0.01	0.16	0.08	0.00	0.01	0.01	0.01	0.00	0.00	0.00		27.14		0.00		27.15
Worker	0.16	0.14	1.61	0.00	0.29	0.01	0.29	0.00	0.01	0.01		229.67		0.01		229.95
<b>Total</b>	<b>0.37</b>	<b>2.91</b>	<b>2.71</b>	<b>0.00</b>	<b>1.94</b>	<b>0.12</b>	<b>2.04</b>	<b>0.00</b>	<b>0.10</b>	<b>0.10</b>		<b>666.39</b>		<b>0.02</b>		<b>666.89</b>

**3.3 Grading - 2013**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.72	0.00	2.72	0.00	0.00	0.00						0.00
Off-Road	7.87	60.97	37.92	0.08			3.33		3.33	3.33		7,575.00		0.70		7,589.73
<b>Total</b>	<b>7.87</b>	<b>60.97</b>	<b>37.92</b>	<b>0.08</b>	<b>2.72</b>	<b>3.33</b>	<b>6.05</b>	<b>0.00</b>	<b>3.33</b>	<b>3.33</b>		<b>7,575.00</b>		<b>0.70</b>		<b>7,589.73</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.21	2.72	1.06	0.00	2.92	0.10	3.03	0.00	0.09	0.10		426.65		0.01		426.86
Vendor	0.01	0.16	0.08	0.00	0.01	0.01	0.01	0.00	0.00	0.00		27.14		0.00		27.15
Worker	0.16	0.14	1.61	0.00	0.29	0.01	0.29	0.00	0.01	0.01		229.67		0.01		229.95
<b>Total</b>	<b>0.38</b>	<b>3.02</b>	<b>2.75</b>	<b>0.00</b>	<b>3.22</b>	<b>0.12</b>	<b>3.33</b>	<b>0.00</b>	<b>0.10</b>	<b>0.11</b>		<b>683.46</b>		<b>0.02</b>		<b>683.96</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.06	0.00	1.06	0.00	0.00	0.00						0.00
Off-Road	7.87	60.97	37.92	0.08		3.33	3.33		3.33	3.33	0.00	7,575.00		0.70		7,589.73
<b>Total</b>	<b>7.87</b>	<b>60.97</b>	<b>37.92</b>	<b>0.08</b>	<b>1.06</b>	<b>3.33</b>	<b>4.39</b>	<b>0.00</b>	<b>3.33</b>	<b>3.33</b>	<b>0.00</b>	<b>7,575.00</b>		<b>0.70</b>		<b>7,589.73</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.21	2.72	1.06	0.00	2.92	0.10	3.03	0.00	0.09	0.10		426.65		0.01		426.86
Vendor	0.01	0.16	0.08	0.00	0.01	0.01	0.01	0.00	0.00	0.00		27.14		0.00		27.15

Worker	0.16	0.14	1.61	0.00	0.29	0.01	0.29	0.00	0.01	0.01		229.67		0.01		229.95
<b>Total</b>	<b>0.38</b>	<b>3.02</b>	<b>2.75</b>	<b>0.00</b>	<b>3.22</b>	<b>0.12</b>	<b>3.33</b>	<b>0.00</b>	<b>0.10</b>	<b>0.11</b>		<b>683.46</b>		<b>0.02</b>		<b>683.96</b>

### 3.4 Building Construction - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.25	29.57	23.59	0.04		2.10	2.10		2.10	2.10		3,461.21		0.47		3,471.08
<b>Total</b>	<b>5.25</b>	<b>29.57</b>	<b>23.59</b>	<b>0.04</b>		<b>2.10</b>	<b>2.10</b>		<b>2.10</b>	<b>2.10</b>		<b>3,461.21</b>		<b>0.47</b>		<b>3,471.08</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.20	2.61	1.02	0.00	10.95	0.10	11.05	0.00	0.09	0.09		409.58		0.01		409.79
Vendor	0.01	0.16	0.08	0.00	0.01	0.01	0.01	0.00	0.00	0.00		27.14		0.00		27.15
Worker	0.16	0.14	1.61	0.00	0.29	0.01	0.29	0.00	0.01	0.01		229.67		0.01		229.95
<b>Total</b>	<b>0.37</b>	<b>2.91</b>	<b>2.71</b>	<b>0.00</b>	<b>11.25</b>	<b>0.12</b>	<b>11.35</b>	<b>0.00</b>	<b>0.10</b>	<b>0.10</b>		<b>666.39</b>		<b>0.02</b>		<b>666.89</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
--	-----	-----	----	-----	---------------	--------------	------------	----------------	---------------	-------------	----------	-----------	-----------	-----	-----	------

Category	lb/day										lb/day					
Off-Road	5.25	29.57	23.59	0.04		2.10	2.10		2.10	2.10	0.00	3,461.21		0.47		3,471.08
<b>Total</b>	<b>5.25</b>	<b>29.57</b>	<b>23.59</b>	<b>0.04</b>		<b>2.10</b>	<b>2.10</b>		<b>2.10</b>	<b>2.10</b>	<b>0.00</b>	<b>3,461.21</b>		<b>0.47</b>		<b>3,471.08</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.20	2.61	1.02	0.00	10.95	0.10	11.05	0.00	0.09	0.09		409.58		0.01		409.79
Vendor	0.01	0.16	0.08	0.00	0.01	0.01	0.01	0.00	0.00	0.00		27.14		0.00		27.15
Worker	0.16	0.14	1.61	0.00	0.29	0.01	0.29	0.00	0.01	0.01		229.67		0.01		229.95
<b>Total</b>	<b>0.37</b>	<b>2.91</b>	<b>2.71</b>	<b>0.00</b>	<b>11.25</b>	<b>0.12</b>	<b>11.35</b>	<b>0.00</b>	<b>0.10</b>	<b>0.10</b>		<b>666.39</b>		<b>0.02</b>		<b>666.89</b>

**Pearblossom Solar Project - Construction Emissions**  
 Antelope Valley APCD Air District, Winter

**1.0 Project Characteristics**

---

**1.1 Land Usage**

Land Uses	Size	Metric
User Defined Industrial	0	User Defined Unit

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>		<b>Utility Company</b>
<b>Climate Zone</b>	9		2.2	
		<b>Precipitation Freq (Days)</b>		
			33	

**1.3 User Entered Comments**

- Project Characteristics -
- Land Use - PV panels installed over 61.6 acres.
- Construction Phase - Estimated construction schedule for project.
- Off-road Equipment - Equipment for building phase.
- Off-road Equipment - Equipment for grading phase.
- Off-road Equipment - Equipment for site preparation.
- Trips and VMT - Estimated construction-related vehicle trips.

Grading - Estimated project material movement.

Construction Off-road Equipment Mitigation -

## 2.0 Emissions Summary

---

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	8.25	64.10	40.50	0.08	13.98	3.45	17.13	6.63	3.44	9.76	0.00	8,220.40	0.00	0.72	0.00	8,235.61
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	8.25	64.10	40.50	0.08	11.25	3.45	13.46	2.59	3.44	5.72	0.00	8,220.40	0.00	0.72	0.00	8,235.61
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

## 3.0 Construction Detail

---

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Site Preparation - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.04	0.00	12.04	6.62	0.00	6.62						0.00
Off-Road	7.34	58.19	33.99	0.05		3.03	3.03		3.03	3.03		5,882.56		0.66		5,896.40
<b>Total</b>	<b>7.34</b>	<b>58.19</b>	<b>33.99</b>	<b>0.05</b>	<b>12.04</b>	<b>3.03</b>	<b>15.07</b>	<b>6.62</b>	<b>3.03</b>	<b>9.65</b>		<b>5,882.56</b>		<b>0.66</b>		<b>5,896.40</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.21	2.71	1.13	0.00	1.64	0.10	1.74	0.00	0.09	0.10		406.97		0.01		407.18
Vendor	0.01	0.17	0.09	0.00	0.01	0.01	0.01	0.00	0.00	0.00		26.88		0.00		26.89
Worker	0.15	0.15	1.32	0.00	0.29	0.01	0.29	0.00	0.01	0.01		194.59		0.01		194.84
<b>Total</b>	<b>0.37</b>	<b>3.03</b>	<b>2.54</b>	<b>0.00</b>	<b>1.94</b>	<b>0.12</b>	<b>2.04</b>	<b>0.00</b>	<b>0.10</b>	<b>0.11</b>		<b>628.44</b>		<b>0.02</b>		<b>628.91</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.70	0.00	4.70	2.58	0.00	2.58						0.00
Off-Road	7.34	58.19	33.99	0.05		3.03	3.03		3.03	3.03	0.00	5,882.56		0.66		5,896.40
<b>Total</b>	<b>7.34</b>	<b>58.19</b>	<b>33.99</b>	<b>0.05</b>	<b>4.70</b>	<b>3.03</b>	<b>7.73</b>	<b>2.58</b>	<b>3.03</b>	<b>5.61</b>	<b>0.00</b>	<b>5,882.56</b>		<b>0.66</b>		<b>5,896.40</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.21	2.71	1.13	0.00	1.64	0.10	1.74	0.00	0.09	0.10		406.97		0.01		407.18
Vendor	0.01	0.17	0.09	0.00	0.01	0.01	0.01	0.00	0.00	0.00		26.88		0.00		26.89
Worker	0.15	0.15	1.32	0.00	0.29	0.01	0.29	0.00	0.01	0.01		194.59		0.01		194.84
<b>Total</b>	<b>0.37</b>	<b>3.03</b>	<b>2.54</b>	<b>0.00</b>	<b>1.94</b>	<b>0.12</b>	<b>2.04</b>	<b>0.00</b>	<b>0.10</b>	<b>0.11</b>		<b>628.44</b>		<b>0.02</b>		<b>628.91</b>

**3.3 Grading - 2013**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.72	0.00	2.72	0.00	0.00	0.00						0.00
Off-Road	7.87	60.97	37.92	0.08		3.33	3.33		3.33	3.33		7,575.00		0.70		7,589.73

<b>Total</b>	<b>7.87</b>	<b>60.97</b>	<b>37.92</b>	<b>0.08</b>	<b>2.72</b>	<b>3.33</b>	<b>6.05</b>	<b>0.00</b>	<b>3.33</b>	<b>3.33</b>		<b>7,575.00</b>		<b>0.70</b>		<b>7,589.73</b>
--------------	-------------	--------------	--------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	--	-----------------	--	-------------	--	-----------------

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.21	2.82	1.17	0.00	2.92	0.10	3.03	0.00	0.10	0.10		423.93		0.01		424.14
Vendor	0.01	0.17	0.09	0.00	0.01	0.01	0.01	0.00	0.00	0.00		26.88		0.00		26.89
Worker	0.15	0.15	1.32	0.00	0.29	0.01	0.29	0.00	0.01	0.01		194.59		0.01		194.84
<b>Total</b>	<b>0.37</b>	<b>3.14</b>	<b>2.58</b>	<b>0.00</b>	<b>3.22</b>	<b>0.12</b>	<b>3.33</b>	<b>0.00</b>	<b>0.11</b>	<b>0.11</b>		<b>645.40</b>		<b>0.02</b>		<b>645.87</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.06	0.00	1.06	0.00	0.00	0.00						0.00
Off-Road	7.87	60.97	37.92	0.08		3.33	3.33		3.33	3.33	0.00	7,575.00		0.70		7,589.73
<b>Total</b>	<b>7.87</b>	<b>60.97</b>	<b>37.92</b>	<b>0.08</b>	<b>1.06</b>	<b>3.33</b>	<b>4.39</b>	<b>0.00</b>	<b>3.33</b>	<b>3.33</b>	<b>0.00</b>	<b>7,575.00</b>		<b>0.70</b>		<b>7,589.73</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
--	-----	-----	----	-----	---------------	--------------	------------	----------------	---------------	-------------	----------	-----------	-----------	-----	-----	------

Category	lb/day										lb/day				
Hauling	0.21	2.82	1.17	0.00	2.92	0.10	3.03	0.00	0.10	0.10	423.93		0.01		424.14
Vendor	0.01	0.17	0.09	0.00	0.01	0.01	0.01	0.00	0.00	0.00	26.88		0.00		26.89
Worker	0.15	0.15	1.32	0.00	0.29	0.01	0.29	0.00	0.01	0.01	194.59		0.01		194.84
<b>Total</b>	<b>0.37</b>	<b>3.14</b>	<b>2.58</b>	<b>0.00</b>	<b>3.22</b>	<b>0.12</b>	<b>3.33</b>	<b>0.00</b>	<b>0.11</b>	<b>0.11</b>	<b>645.40</b>		<b>0.02</b>		<b>645.87</b>

### 3.4 Building Construction - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.25	29.57	23.59	0.04		2.10	2.10		2.10	2.10		3,461.21		0.47		3,471.08
<b>Total</b>	<b>5.25</b>	<b>29.57</b>	<b>23.59</b>	<b>0.04</b>		<b>2.10</b>	<b>2.10</b>		<b>2.10</b>	<b>2.10</b>		<b>3,461.21</b>		<b>0.47</b>		<b>3,471.08</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.21	2.71	1.13	0.00	10.95	0.10	11.05	0.00	0.09	0.10		406.97		0.01		407.18
Vendor	0.01	0.17	0.09	0.00	0.01	0.01	0.01	0.00	0.00	0.00		26.88		0.00		26.89
Worker	0.15	0.15	1.32	0.00	0.29	0.01	0.29	0.00	0.01	0.01		194.59		0.01		194.84
<b>Total</b>	<b>0.37</b>	<b>3.03</b>	<b>2.54</b>	<b>0.00</b>	<b>11.25</b>	<b>0.12</b>	<b>11.35</b>	<b>0.00</b>	<b>0.10</b>	<b>0.11</b>		<b>628.44</b>		<b>0.02</b>		<b>628.91</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.25	29.57	23.59	0.04		2.10	2.10		2.10	2.10	0.00	3,461.21		0.47		3,471.08
<b>Total</b>	<b>5.25</b>	<b>29.57</b>	<b>23.59</b>	<b>0.04</b>		<b>2.10</b>	<b>2.10</b>		<b>2.10</b>	<b>2.10</b>	<b>0.00</b>	<b>3,461.21</b>		<b>0.47</b>		<b>3,471.08</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.21	2.71	1.13	0.00	10.95	0.10	11.05	0.00	0.09	0.10		406.97		0.01		407.18
Vendor	0.01	0.17	0.09	0.00	0.01	0.01	0.01	0.00	0.00	0.00		26.88		0.00		26.89
Worker	0.15	0.15	1.32	0.00	0.29	0.01	0.29	0.00	0.01	0.01		194.59		0.01		194.84
<b>Total</b>	<b>0.37</b>	<b>3.03</b>	<b>2.54</b>	<b>0.00</b>	<b>11.25</b>	<b>0.12</b>	<b>11.35</b>	<b>0.00</b>	<b>0.10</b>	<b>0.11</b>		<b>628.44</b>		<b>0.02</b>		<b>628.91</b>

**Pearblossom Solar Project - Construction Emissions**  
**Antelope Valley APCD Air District, Annual**

**1.0 Project Characteristics**

---

**1.1 Land Usage**

Land Uses	Size	Metric
User Defined Industrial	0	User Defined Unit

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>		<b>Utility Company</b>
<b>Climate Zone</b>	9		2.2	
		<b>Precipitation Freq (Days)</b>		
			33	

**1.3 User Entered Comments**

- Project Characteristics -
- Land Use - PV panels installed over 61.6 acres.
- Construction Phase - Estimated construction schedule for project.
- Off-road Equipment - Equipment for building phase.
- Off-road Equipment - Equipment for grading phase.
- Off-road Equipment - Equipment for site preparation.
- Trips and VMT - Estimated construction-related vehicle trips.

Grading - Estimated project material movement.

Construction Off-road Equipment Mitigation -

## 2.0 Emissions Summary

---

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.42	2.72	1.97	0.00	0.63	0.17	0.80	0.05	0.17	0.22	0.00	305.52	305.52	0.03	0.00	306.21
<b>Total</b>	<b>0.42</b>	<b>2.72</b>	<b>1.97</b>	<b>0.00</b>	<b>0.63</b>	<b>0.17</b>	<b>0.80</b>	<b>0.05</b>	<b>0.17</b>	<b>0.22</b>	<b>0.00</b>	<b>305.52</b>	<b>305.52</b>	<b>0.03</b>	<b>0.00</b>	<b>306.21</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.42	2.72	1.97	0.00	0.56	0.17	0.73	0.02	0.17	0.19	0.00	305.52	305.52	0.03	0.00	306.21
<b>Total</b>	<b>0.42</b>	<b>2.72</b>	<b>1.97</b>	<b>0.00</b>	<b>0.56</b>	<b>0.17</b>	<b>0.73</b>	<b>0.02</b>	<b>0.17</b>	<b>0.19</b>	<b>0.00</b>	<b>305.52</b>	<b>305.52</b>	<b>0.03</b>	<b>0.00</b>	<b>306.21</b>

## 3.0 Construction Detail

---

### 3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

### 3.2 Site Preparation - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.08	0.00	0.08	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.05	0.41	0.24	0.00		0.02	0.02		0.02	0.02	0.00	37.35	37.35	0.00	0.00	37.43
<b>Total</b>	<b>0.05</b>	<b>0.41</b>	<b>0.24</b>	<b>0.00</b>	<b>0.08</b>	<b>0.02</b>	<b>0.10</b>	<b>0.05</b>	<b>0.02</b>	<b>0.07</b>	<b>0.00</b>	<b>37.35</b>	<b>37.35</b>	<b>0.00</b>	<b>0.00</b>	<b>37.43</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.02	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	2.59	2.59	0.00	0.00	2.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.00	0.17
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	1.27	0.00	0.00	1.27
<b>Total</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>4.03</b>	<b>4.03</b>	<b>0.00</b>	<b>0.00</b>	<b>4.04</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.03	0.00	0.03	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.05	0.41	0.24	0.00		0.02	0.02		0.02	0.02	0.00	37.35	37.35	0.00	0.00	37.43
<b>Total</b>	<b>0.05</b>	<b>0.41</b>	<b>0.24</b>	<b>0.00</b>	<b>0.03</b>	<b>0.02</b>	<b>0.05</b>	<b>0.02</b>	<b>0.02</b>	<b>0.04</b>	<b>0.00</b>	<b>37.35</b>	<b>37.35</b>	<b>0.00</b>	<b>0.00</b>	<b>37.43</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.02	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	2.59	2.59	0.00	0.00	2.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.00	0.00	0.17
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	1.27	0.00	0.00	1.27
<b>Total</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>4.03</b>	<b>4.03</b>	<b>0.00</b>	<b>0.00</b>	<b>4.04</b>

**3.3 Grading - 2013**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.09	0.73	0.45	0.00		0.04	0.04		0.04	0.04	0.00	82.44	82.44	0.01	0.00	82.60

<b>Total</b>	<b>0.09</b>	<b>0.73</b>	<b>0.45</b>	<b>0.00</b>	<b>0.03</b>	<b>0.04</b>	<b>0.07</b>	<b>0.00</b>	<b>0.04</b>	<b>0.04</b>	<b>0.00</b>	<b>82.44</b>	<b>82.44</b>	<b>0.01</b>	<b>0.00</b>	<b>82.60</b>
--------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	--------------	--------------	-------------	-------------	--------------

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.03	0.01	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	4.63	4.63	0.00	0.00	4.63
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.29	0.00	0.00	0.29
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	2.17	0.00	0.00	2.17
<b>Total</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.09</b>	<b>7.09</b>	<b>0.00</b>	<b>0.00</b>	<b>7.09</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.09	0.73	0.45	0.00		0.04	0.04		0.04	0.04	0.00	82.44	82.44	0.01	0.00	82.60
<b>Total</b>	<b>0.09</b>	<b>0.73</b>	<b>0.45</b>	<b>0.00</b>	<b>0.01</b>	<b>0.04</b>	<b>0.05</b>	<b>0.00</b>	<b>0.04</b>	<b>0.04</b>	<b>0.00</b>	<b>82.44</b>	<b>82.44</b>	<b>0.01</b>	<b>0.00</b>	<b>82.60</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
--	-----	-----	----	-----	---------------	--------------	------------	----------------	---------------	-------------	----------	-----------	-----------	-----	-----	------

Category	tons/yr										MT/yr					
	Hauling	0.00	0.03	0.01	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	4.63	4.63	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.29	0.00	0.00	0.29
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	2.17	0.00	0.00	2.17
<b>Total</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7.09</b>	<b>7.09</b>	<b>0.00</b>	<b>0.00</b>	<b>7.09</b>

### 3.4 Building Construction - 2013

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.25	1.39	1.11	0.00		0.10	0.10		0.10	0.10	0.00	147.54	147.54	0.02	0.00	147.96
<b>Total</b>	<b>0.25</b>	<b>1.39</b>	<b>1.11</b>	<b>0.00</b>		<b>0.10</b>	<b>0.10</b>		<b>0.10</b>	<b>0.10</b>	<b>0.00</b>	<b>147.54</b>	<b>147.54</b>	<b>0.02</b>	<b>0.00</b>	<b>147.96</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.01	0.12	0.05	0.00	0.46	0.00	0.46	0.00	0.00	0.00	0.00	17.42	17.42	0.00	0.00	17.43
Vendor	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.15	0.00	0.00	1.15
Worker	0.01	0.01	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.50	8.50	0.00	0.00	8.51
<b>Total</b>	<b>0.02</b>	<b>0.14</b>	<b>0.11</b>	<b>0.00</b>	<b>0.47</b>	<b>0.00</b>	<b>0.47</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>27.07</b>	<b>27.07</b>	<b>0.00</b>	<b>0.00</b>	<b>27.09</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.25	1.39	1.11	0.00		0.10	0.10		0.10	0.10	0.00	147.54	147.54	0.02	0.00	147.96
<b>Total</b>	<b>0.25</b>	<b>1.39</b>	<b>1.11</b>	<b>0.00</b>		<b>0.10</b>	<b>0.10</b>		<b>0.10</b>	<b>0.10</b>	<b>0.00</b>	<b>147.54</b>	<b>147.54</b>	<b>0.02</b>	<b>0.00</b>	<b>147.96</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.01	0.12	0.05	0.00	0.46	0.00	0.46	0.00	0.00	0.00	0.00	17.42	17.42	0.00	0.00	17.43
Vendor	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.15	0.00	0.00	1.15
Worker	0.01	0.01	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.50	8.50	0.00	0.00	8.51
<b>Total</b>	<b>0.02</b>	<b>0.14</b>	<b>0.11</b>	<b>0.00</b>	<b>0.47</b>	<b>0.00</b>	<b>0.47</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>27.07</b>	<b>27.07</b>	<b>0.00</b>	<b>0.00</b>	<b>27.09</b>

# Appendix A2

## GGERP Consistency Determination Checklist

# DWR GHG Emissions Reduction Plan Consistency Determination Form For Projects Using Contractors or Other Outside Labor

Print Form



California Department of Water Resources  
1416 9th Street  
Sacramento, CA  
95814  
[dwrclimatechange.water.ca.gov](http://dwrclimatechange.water.ca.gov)  
[www.water.ca.gov/climatechange](http://www.water.ca.gov/climatechange)

This form is to be used by DWR project managers to document a DWR CEQA project's consistency with the DWR Greenhouse Gas Emissions Reduction Plan. This form is to be used only when DWR is the Lead Agency and when contractors or outside labor and equipment are used to implement the project.

Additional Guidance on filling out this form can be found at:  
[dwrclimatechange.water.ca.gov/guidance\\_resources.cfm](http://dwrclimatechange.water.ca.gov/guidance_resources.cfm)

The DWR Greenhouse Gas Emissions Reduction Plan can be accessed at:  
<http://www.water.ca.gov/climatechange/CAP.cfm>

<b>Project Name:</b>	DWR Pearblossom Solar Project
<b>Environmental Document type:</b>	Initial Study/Mitigated Negative Declaration
<b>Manager's Name:</b>	George Baldini
<b>Manager's email:</b>	george.baldini@water.ca.gov
<b>Division:</b>	PARO
<b>Office, Branch, or Field Division</b>	Compliance and Regulatory

**Short Project Description:**

The proposed Project is located at the Pearblossom Pumping Plant operated by DWR. DWR proposes to develop approximately 70 acres within the Pearblossom Pumping Plant site with photovoltaic solar panel technology. It is anticipated approximately 10 MW of energy would be generated. The energy would be transmitted to SCE via a nearby 230 kilovolt (kV) radial distribution line. Through the proposed project, DWR would acquire Renewable Energy Credits (RECs) and meet DWR's sustainability objectives. The proposed project would include the installation of photovoltaic panels, Direct Current (DC) to Alternating Current (AC) inverters, mounting systems, a substation, a switchyard, a relay protection system, and a metering system. Development of the solar project would also include construction of a new access road, parking area, and exterior lighting.

**Project GHG Emissions Summary**

Total Construction Emissions  mtCO<sub>2</sub>e  
 Maximum Annual Construction Emissions  mtCO<sub>2</sub>e

All other emissions from the project not accounted for above will occur as ongoing operational, maintenance, or business activity emissions and therefore have already been accounted for and analyzed in the GGERP.

**Extraordinary Construction Project Determination**

Do total project construction emissions exceed 25,000 mtCO<sub>2</sub>e for the entire construction phase or exceed 12,500 mtCO<sub>2</sub>e in any single year of construction.

- Yes - Additional analysis is required, consult with C4  
 No - Additional analysis not required

**Project GHG Reduction Plan Checklist**

All Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project. (Project Level GHG Emissions Reduction Measures)

Or

All feasible Project Level GHG Emissions Reduction Measures have been incorporated into the design or implementation plan for the project and Measures not incorporated have been listed and determined not to apply to the proposed project (include as an attachment)

Project does not conflict with any of the Specific Action GHG Emissions Reduction Measures (Specific Action GHG Emissions Reduction Measures)

Would implementation of the project result in additional energy demands on the SWP system of 15 GWh/yr or greater?

Yes  No

If you answered Yes, attach a Renewable Power Procurement Plan update approval letter from the DWR SWP Power and Risk Office.

Is there substantial evidence that the effects of the proposed project may be cumulatively considerable notwithstanding the proposed project's compliance with the requirements of the DWR GHG Reduction Plan?

Yes  No

If you answered Yes, the project is not eligible for streamlined analysis of GHG emissions using the DWR GHG Emissions Reduction Plan. (See CEQA Guidelines, section 15183.5, subdivision (b)(2).)

Based on the information provided above and information provided in associated environmental documentation completed pursuant to the above referenced project, the DWR CEQA Climate Change Committee has determined that the proposed project is consistent with the DWR Greenhouse Gas Reduction Plan and the greenhouse gasses emitted by the project are covered by the plan's analysis.

<b>Project Manager Signature:</b>	George Baldini	Digitally signed by George Baldini DN: cn=George Baldini, o=California Department of Water Resources, c=US, st=CA, email=gbaldini@water.ca.gov, cn=George Baldini Date: 2013.04.10 13:22:31 -0700	Date: 4/10/2013
<b>C4 Approval Signature:</b>	Andrew M. Schwarz	Digitally signed by Andrew M. Schwarz DN: cn=Andrew M. Schwarz, o=California Department of Water Resources, ou=DSIRM, email=aschwarz@water.ca.gov, c=US Date: 2013.04.16 09:43:13 -0700	Date: 4/16/13

**Attachments:**

- GHG Emissions Inventory
- List and Explanation of excluded Project Level GHG Emissions Reduction Measures
- Plan to update Renewable Energy Procurement Plan from DWR SWP Power and Risk Office

# Appendix B1

Biological Resources Survey Report  
for the DWR Pearblossom  
Solar Energy Project



# DWR PEARBLOSSOM SOLAR ENERGY PROJECT

## Biological Resources Survey Report

Prepared for  
California Department of Water Resources

March 2013



# DWR PEARBLOSSOM SOLAR ENERGY PROJECT

## Biological Resources Survey Report

Prepared for  
California Department of Water Resources

March 2013



626 Wilshire Boulevard  
Suite 1100  
Los Angeles, CA 90017  
213.599.4300  
[www.esassoc.com](http://www.esassoc.com)

Oakland

Orlando

Palm Springs

Petaluma

Portland

Sacramento

San Diego

San Francisco

Santa Cruz

Seattle

Tampa

Woodland Hills

206008.12

# TABLE OF CONTENTS

---

## Biological Resources Survey Report: Pearblossom Solar Energy Project Los Angeles County, California

	<u>Page</u>
<b>Executive Summary</b> .....	1
<b>1.0 Introduction</b> .....	2
<b>2.0 Project Description</b> .....	2
<b>3.0 Methods</b> .....	5
3.1 Biological Resource Assessment .....	5
3.2 Desert Tortoise Surveys .....	6
3.3 Burrowing Owl Burrow Survey .....	6
3.4 Mohave Ground Squirrel Surveys.....	7
3.5 Rare Plant Surveys .....	7
3.6 Jurisdictional Analysis .....	7
<b>4.0 Existing Conditions</b> .....	7
4.1 Natural Resource Setting.....	7
4.2 Regulatory Framework.....	28
<b>5.0 Impacts Discussion</b> .....	35
5.1 Special-Status Wildlife Species .....	37
5.2 Special-Status Plants.....	41
5.3 Jurisdictional Resources .....	42
5.4 Connectivity and Migration Corridors.....	42
5.5 Loss of Habitat .....	42
<b>6.0 Recommended Mitigation Measures</b> .....	45
6.1 Nesting Birds.....	45
6.2 Special-Status Wildlife Species .....	46
6.3 Rare Plants .....	47
<b>7.0 Contributing Biologists</b> .....	47
<b>8.0 References</b> .....	48
<b>Appendix A: Plant and Wildlife Species Observed on the Project Site</b>	

**Figures**

Figure 1	Regional Location Figure 2 Project Vicinity .....	3
Figure 2	Project Vicinity.....	4
Figure 3	Soils.....	9
Figure 4	Plant Community Map.....	13
Figure 5	Special-Status Plant Occurrences and Natural Communities of Special Concern .....	26
Figure 6	Special-Status Wildlife Occurrences.....	27
Figure 7	Permanent Impacts Map.....	43

**Tables**

Table 1	Special-Status Wildlife Species Recorded in the Region of the Project .....	17
Table 2	Rare Plants Recorded in the Region of the Project.....	22
Table 3	Project IMpacts to Habitat.....	45

# PEARBLOSSOM SOLAR ENERGY PROJECT

---

## Biological Resources Survey Report

### Executive Summary

Environmental Science Associates (ESA) conducted several focused studies for the Pearblossom Pumping Plant (PBPP) (Project) to gather baseline data on sensitive biological resources. These focused studies included: rare plant surveys, burrowing owl (*Athene cunicularia*) burrow surveys, protocol-level Mohave ground squirrel (*Xerospermophilus mohavense*) surveys, and protocol-level desert tortoise (*Gopherus agassizii*) surveys. ESA also reviewed other reports for the Project that describes the habitats and potential for sensitive biological resources to occur (RBF, 2010). The analysis for the Project also included an extensive review of the results, impacts, and approved mitigation measures described in other recently prepared environmental documents for solar energy projects in the vicinity. This information, combined with the data gathered by ESA during the spring and summer of 2012, has been used to analyze the potential impacts to biological resources as a result of implementation of the Project.

During protocol-level desert tortoise surveys, no desert tortoises, burrows, or signs were observed. The nearest recorded desert tortoise occurrence is 7.5 miles northwest of the project site. Because desert tortoises are known to occur in the region, preconstruction surveys are recommended to avoid potential impacts to the species if they should move into the area in the future. Mojave ground squirrel protocol trapping surveys resulted in negative findings and therefore, are determined to be absent from the Project site. Focused burrowing owl surveys did not find owls, signs of owl or signs of suitable burrows. However, the Project site has the potential to be colonized by burrowing owls as a wintering location; therefore, preconstruction surveys are recommended to ensure that no burrowing owls would be inadvertently impacted during construction.

Rare plant surveys revealed no special-status plant species on the Project site (See Section 4.1 for a definition of special-status species). Joshua tree (*Yucca brevifolia*) seedlings were observed on the Project site. The California Native Plant Act protects many native desert plant species, including cacti and plant from the *Yucca* genus. Therefore, measures to reduce impacts to Joshua trees are recommended.

Jurisdictional resources were initially evaluated through a desktop analysis of topographic maps, aerial photographs, and a review of biological studies previously conducted within the Project area. The desktop analysis was then further refined and verified in the field by ESA biologists. The Project site does not contain any jurisdictional resources including wetland or riparian habitat, or associated vegetation communities. The Project site is circumnavigated by a concrete-

lined stormwater channel and the California Aqueduct; however, construction and other disturbances associated with the Project are not anticipated to impact these features.

The PBPP is enclosed by an approximately seven foot high chain-link fence that is mostly intact and in most locations extends to the ground surface; however, there are some gaps between the fence and ground in areas where there are gates and there are a few areas where the bottom of the fence does not touch the ground. The proposed PV panels would be constructed within existing fencing.

Several mitigation measures are recommended in Section 6.0 of this report that would reduce potential Project-related impacts to biological resources to a level of less than significant.

## 1.0 Introduction

This report describes effects to biological resources that would result from implementation of the Project. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for the Project, and recommends measures to reduce or avoid significant impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to biological resources are described.

## 2.0 Project Description

The Project is located in the Antelope Valley, in unincorporated Los Angeles County (**Figure 1**). Specifically, the Project is located at 34534 116<sup>th</sup> Street East near the unincorporated community of Pearblossom. The Antelope Valley encompasses approximately 2,400 square miles in northern Los Angeles County, southern Kern County, and western San Bernardino County. The unincorporated community of Pearblossom is approximately 25 miles south of City of Lancaster and 12 miles southeast of the City of Palmdale. The Project is located at PBPP and is bounded by East Avenue V to the north, 121<sup>st</sup> Street East to the west, Pearblossom Highway (SR-138) to the south, and 116<sup>th</sup> Street East to the east, as shown in **Figure 2**. The Project site has a land use designation of Public Service Facilities (P) under the Antelope Valley Area Plan and is zoned as Open Space (OS). Surrounding uses include non-urban uses zoned as heavy agriculture, light agriculture, and residential agriculture.

The Project would construct and operate a solar energy generation facility located at the PBPP in the California Department of Water Resources (DWR) Southern Field Division. The Project site is approximately 70 acres located in portions of Section 15, Township 5 North, Range 10 West and Section 22, Township 5 North, Range 10 West, San Bernardino Base Meridian, United States (U.S.) Geologic Survey (USGS) Littlerock Quadrangle. The Project would create 10 megawatts (MW) of solar electric capacity using photovoltaic (PV) solar panel technology. This renewable energy resource would assist DWR in acquiring Renewable Energy Credits (RECs) and help meet DWR's sustainability objectives.



SOURCE: ESA, 2013

DWR Pearblossom . 2006008

**Figure 1**  
Regional Location



The Project consists of the installation of solar photovoltaic (PV) technology modules mounted on a horizontal single-axis tracker (HSAT) system at the PBPP. The HSAT system would allow the PV modules to rotate in the direction of the sun as it moves across the sky. Each PV module would have an electrical output of approximately 500 kilowatts (kW) and a maximum capacity of 10 MW. Twenty 500kW PV modules are proposed for the Project. The HSAT system supports are manufactured with steel posts that are anchored into the ground with

slab concrete foundations. The Project would also include the construction of one substation and a generation tie-in line. The substation would be part of the electrical generation, transmission, and distribution system. Electric power generated by the solar panels would flow through the substation to the Southern California Edison via the 230kV radial distribution line.

Construction is scheduled to begin in May 2014, and is anticipated to take six months to complete. The Project duration, including construction, and operations and maintenance, is expected to be 25 years. Access to the proposed project site is from 116th Street via HWY 138.

### 3.0 Methods

The information and analyses presented in this report have been derived from the following sources:

- RBF Consulting. 2010. *Habitat Assessment Pearblossom Pumping Station and Surrounding Areas: Pearblossom, California*. (Appendix A);
- Vanherweg, William. 2012. *Biological Resource Assessment for the Pearblossom Pump Station Solar Energy Project*;
- California Department of Fish and Game (CDFG)<sup>1</sup>, 2012a. California Natural Diversity Database (CNDDDB). Los Angeles County and the following USGS 7.5 minute topographic quadrangles: Littlerock, Lovejoy Buttes, Hi Vista, Alpine Butte, Lancaster East, Palmdale, Pacifico Mountain, Juniper Hills, Valyermo, and Mescal Creek;
- California Native Plant Society (CNPS). 2012. *Inventory of Rare and Endangered Plants* (online edition, v7-09b). California Native Plant Society. Sacramento, CA.;
- U.S. Department of Agriculture, National Resources Conservation Service (NRCS). 2012. *Web Soil Survey*, data request for Pearblossom Project site;
- U.S. Fish and Wildlife Service (USFWS). 2012. *Federal Endangered and Threatened Species in Los Angeles County*;
- Review of relevant literature on biological resources on and in the vicinity of the Project site; and
- Review of maps and aerial photographs on and in the vicinity of the Project.

---

<sup>1</sup> The California Department of Fish and Game (CDFG) changed its name on January 1, 2013 to The California Department of Fish and Wildlife (CDFW). In this document, references to literature published by CDFW prior to Jan. 1, 2013 are cited as 'CDFG'. The agency is otherwise referred to by its new name, CDFW.

In addition, several field surveys were conducted on the Project site. A discussion of these studies is described in the subsections below.

### 3.1 Biological Resource Assessment

On March 2, 2012, ESA Senior Biologist Greg Ainsworth conducted an initial biological resource reconnaissance to identify natural resources present or with the potential to occur on and adjacent to the Project site. Mr. Ainsworth was accompanied by DWR biologist Megan Evans during this initial reconnaissance assessment.

Following the initial reconnaissance, a CNDDDB database search was conducted for the following 7.5-minute USGS quadrangles prior to conducting a more focused habitat assessment in the field. The following USGS Quadrangles were included in the query: Littlerock, Lovejoy Buttes, Hi Vista, Alpine Butte, Lancaster East, Palmdale, Pacifico Mountain, Juniper Hills, Valyermo, and Mescal Creek (CDFG, 2012a). On April 24, 2012, ESA biologists visited the Project site to characterize, and quantify onsite and adjacent plant communities/habitats, and conduct a thorough assessment of the suitability for these areas to support those sensitive wildlife and plant species known to occur in the region, based on the CNDDDB search results. Soils occurring within the Project area were also assessed in the field and characterized based on the U.S. Department of Agriculture, National Resources Conservation Service Web Soil Survey Database (NRCS). (NRCS, 2012). During the April 24 assessment, biologists also characterized and mapped all onsite plant communities according to *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986). The information obtained during the field assessments along with information gathered in the literature and database reviews were used to develop field survey protocols for determining the presence, absence, or abundance of sensitive biological resources on and adjacent to the Project site.

### 3.2 Desert Tortoise Surveys

Desert tortoise surveys were conducted on the Project site by William Vanherweg, a USFWS permitted biologist for conducting desert tortoise surveys. These surveys were conducted in accordance with the USFWS *Pre-Project Field Survey Protocol for Potential Desert Tortoise Habitat*. Desert tortoise surveys were conducted on April 24, May 23, May 24, May 25, and May 26, 2012. Mr. Vanherweg walked east-west transects spaced approximately 10 meters (30 feet) apart within the Project boundary to obtain 100 percent visual coverage. Surveys are typically required at 200 meters (655 feet), 400 meters (1310 feet), and 600 meters (1965 feet) from the Project boundary; however, because the perimeter of the Pumping Facility is enclosed by a chain-link fence, these buffer surveys were not conducted. This modification to the survey protocol was based on verbal (telephone) communication with USFWS (personal communication with Ray Bransfield, USFWS, April 27, 2012).

### 3.3 Burrowing Owl Burrow Survey

In accordance with the Burrowing Owl Survey Protocol and Mitigation Guidelines (The California Burrowing Owl Consortium, April 1993) and the Staff Report for Burrowing Owl Mitigation (CDFG, 2012b) a burrowing owl habitat assessment was conducted on the project site

during the March 2, 2012 biological resource assessment. The assessment found the presence of marginal burrowing owl habitat within, and adjacent to, the Project site. Therefore, a focused burrow survey was then conducted on April 24, 2012 by walking pedestrian transects spaced to achieve 100 percent visual coverage through suitable habitat over the entire Project site and in areas within 150 meters of the disturbance footprint, which includes areas outside of the Pumping Facility. The buffer zone was included to account for adjacent burrows and foraging habitat outside the study area and impacts from factors such as noise and vibration due to heavy equipment which could impact resources outside the study area. No suitable burrows capable of providing shelter or nesting habitat were discovered, nor was any sign of burrowing owl presence (e.g., pellets, feathers, and excrement) observed. A few larger-sized burrows were observed within the project vicinity, but did not show sign of burrowing owl utilization.

### **3.4 Mohave Ground Squirrel Surveys**

Mohave ground squirrel surveys were conducted in accordance with the California Department of Fish and Wildlife (CDFW) *Mohave Ground Squirrel Survey Guidelines* (CDFG, 2003a) by CDFW permitted biologist William Vanherweg. Mr. Vanherweg conducted visual surveys of the Project site on March 29, 2012. The surveys did not reveal the presence of Mohave ground squirrel. Following the negative results of the visual surveys, Mr. Vanherweg trapped the Project site in accordance with the Guidelines for three five-day periods between April and July, 2012. The first trapping period occurred between April 21 and April 25, the second trapping period occurred between May 22 and May 26, and the third trapping period occurred between July 6 and July 10.

### **3.5 Rare Plant Surveys**

Rare plant surveys were conducted concurrently with desert tortoise and burrowing owl surveys by ESA and Mr. Vanherweg on March 29, April 24, 25 and 26, 2012. Rare plant surveys were conducted in accordance with the methodology outlined in the CDFW *Guidelines For Assessing The Effects Of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG, 2000), and the CNPS Policy on *Botanical Survey Guidelines of the California Native Plant Society* (CNPS, 2001). Biologists walked belts transects, located approximately 100 feet apart to ensure 100% visual coverage and to inventory plant species located on the Project site. A list of species observed during focused surveys is appended to this report as Appendix A.

### **3.6 Jurisdictional Analysis**

A desk top analysis of jurisdictional resources was conducted by ESA biologists through a review of topographic maps, aerial photographs, and a review of the RBF biological study that was previously conducted within the Project area. The desk top analysis was followed by field verification of potential jurisdictional waters by ESA biologists on April 24, 2012.

## 4.0 Existing Conditions

### 4.1 Natural Resource Setting

The Project site is generally located at the southern junction of the Sierra Nevada Mountains and the Coast Ranges, along the northern limit of the Transverse Ranges, and separated from the San Joaquin Valley to the north by the Tehachapi Mountains (See Figure 1). Elevations in the regional vicinity of the Project site range from approximately 2,880 feet above mean sea level (amsl) in the northeast to approximately 3,100 feet amsl in the southwest. The site generally slopes downward from south to the north, with the Central Transverse Ranges in close proximity to the south and the Mojave Desert basin to the north.

#### 4.1.2 Climate

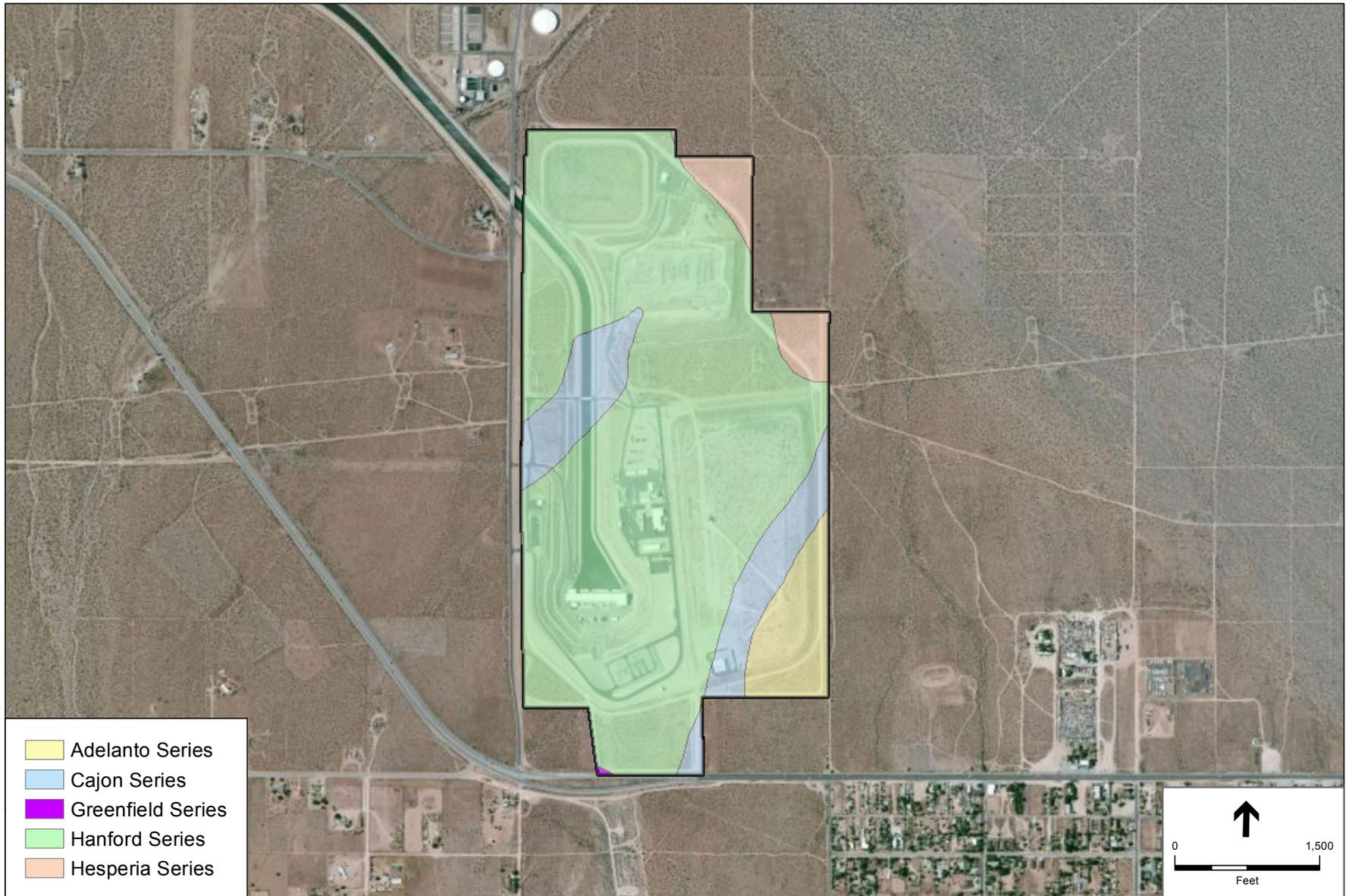
The climate of the northwestern Mojave Desert is generally arid, with an average of 7.90 inches of rain per year recorded in Palmdale, approximately 12 miles northwest of the Project site (WRCC, 2012). The average annual maximum temperature in Palmdale is 77.1° F, with an average annual minimum temperature of 47.0° F (WRCC, 2012). The annual rainfall and temperature at the Project site is likely similar to that of Palmdale, as both locations are in the rain shadow of, and lie approximately equidistant from, the Transverse Ranges.

#### 4.1.3 Soils and Topography

In general, the topography of the Project site gently slopes from southwest to northeast (0-9 percent). Soils on the Project site are excessively drained to well drained, more than 80 inches in depth, low in clay content, and moderately to highly permeable (NRCS, 2012). With the arid climatic regime of the region, these soils generally lack substantial amounts of organic material. Descriptions of the five soil types found within the Project site are discussed below and are depicted on **Figure 3**.

##### ***Adelanto Series***

Adelanto loamy sand, 2 to 5 percent slopes is mapped as occurring within the Project site. The Adelanto series consists of well drained loamy sands and sandy loams formed in alluvium derived from granitic rocks. These soils are found on alluvial fans and plains on slope gradients ranging from 0 to 5 percent. Adelanto soils have low to very low runoff rates and moderate to moderately rapid subsoil permeability. Typically, these soils are moderately alkaline. When irrigated, Adelanto soils are used primarily to grow alfalfa, and can be used to support rangeland activities. Native vegetation typically supported by these soils includes creosote bush scrub, some annual forbs, annual and perennial grasses, and Joshua tree woodland in more moist locations.



SOURCE: ESA, 2013

DWR Pearblossom . 206008

**Figure 3**  
Soils

### ***Cajon Series***

Cajon loamy sand, 2 to 9 percent slopes is mapped as occurring within the Project site. The Cajon series consists of excessively drained fine sands and loamy sands formed in alluvium derived from granitic rocks. These soils are found on alluvial fans, fan aprons, fan skirts, inset fans, and river terraces on slope gradients ranging from 0 to 15 percent. Cajon soils have negligible to low runoff rates and moderately rapid to rapid subsoil permeability. Typically, these soils are slightly-to-moderately alkaline. Cajon soils are used primarily for range, watershed, and recreation. When irrigated, these soils can be used to grow alfalfa and other crops. Native vegetation typically supported by these soils includes desert shrub types, such as saltbush scrub, creosote bush scrub, and Joshua tree woodland.

### ***Greenfield Series***

Greenfield sandy loam, 2 to 9 percent slopes is mapped as occurring within the Project site. The Greenfield series consists of well drained fine sandy loams and loamy sands formed in alluvium derived from granitic rocks and mixed rock sources. These soils are found on alluvial fans and terraces on slope gradients ranging from 0 to 30 percent. Greenfield soils have slow to medium runoff rates and moderately rapid subsoil permeability. Typically, these soils are slightly-to-moderately alkaline. Greenfield soils are used primarily for the production of irrigated field, forage, and fruit crops. Native vegetation typically supported by these soils includes annual grass, forbs, shrub, and occasionally scattered oak trees.

### ***Hanford Series***

Hanford coarse sandy loam, 2 to 9 percent slopes is mapped as occurring within the Project site. The Hanford series consists of well drained sands and sandy loams formed in alluvium derived from granitic rocks. These soils are found on alluvial fans, stream bottoms, and flood plains on slope gradients ranging from 0 to 15 percent. Hanford soils have negligible to low runoff rates and moderately rapid subsoil permeability. Typically, these soils are medium acidic slightly alkaline. Hanford soils are used primarily to grow a wide range of fruit, vegetable and general farm crops. Secondarily, these soils are also used for urban development and dairies. Native vegetation typically supported by these soils are primarily annual grasses and associative herbaceous plants.

### ***Hesperia Series***

Hesperia fine sandy loam, 2 to 5 percent slopes is mapped as occurring in the Project site. The Hesperia series consists of well drained sandy loams formed in alluvium derived from granitic rocks. These soils are found on alluvial fans, stream terraces, and valley plains on slope gradients ranging from 0 to 9 percent. Hesperia soils have negligible to low runoff rates and moderately rapid subsoil permeability. Typically, these soils are slightly acidic moderately alkaline. Hesperia soils are used primarily for range and irrigated agriculture. Native vegetation typically supported by these soils are primarily creosote bush scrub and annual grasses.

#### 4.1.4 Plant Communities and Habitats

Plant communities are assemblages of plant species that occur together in the same area. They are defined by species composition and relative abundance. Plant communities within the Project site were mapped according to the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986). Common plant names are taken from the *Jepson Manual: Vascular Plants of California* (Baldwin, et al., 2012). Plant communities of the Project site are depicted in **Figure 4**.

Four distinct plant communities are found on the Project site: California Buckwheat Scrub, Creosote Bush Scrub, Rubber Rabbitbrush Scrub, and Disturbed habitat. In addition, Developed land and Open Water have been mapped within the Project site. Subassociations of Rubber Rabbitbrush Scrub have been mapped on the Project site, but are grouped together for the purpose of this discussion. The different plant communities within the Project area show similar species

composition, although dominance and cover vary significantly. Descriptions of the four distinct plant communities found within the Project site are provided below and are depicted on Figure 4.

##### **California Buckwheat Scrub**

California buckwheat scrub occurs in one isolated area at the southern most extent of the Project site, encompassing 7.67 acres in total. California buckwheat scrub is a community dominated by the shrub species California buckwheat (*Eriogonum fasciculatum*) and often co-dominated by Mormon tea (*Ephedra nevadensis*). The canopy can be relatively open to continuous. Soils are generally well drained, coarse, and moderately acidic to slightly saline; often occurring on slopes, channels, washes, and flood plains. Within the Project site this community type appears to conform to the California buckwheat series classification per Sawyer and Keeler-Wolf (2000). Common shrub associates include Mojave saltbush (*Atriplex spinifera*), California matchweed (*Gutierrezia californica*), and yellow aster (*Eastwoodia elegans*). This community supports a relatively low diversity and cover of native annual herbaceous species, with the herbaceous understory dominated by redstem filaree (*Erodium cicutarium*), foxtail chess (*Bromus madritensis*), and perfoliate spineflower (*Mucronea perfoliata*).

##### **Creosote Bush Scrub**

Creosote bush scrub occurs in three distinct areas of the Project site, encompassing 23.13 acres in total. As described by Holland (1986), creosote bush scrub is an open community dominated by the shrub species creosote bush (*Larrea tridentata*) and often by white bursage (*Ambrosia dumosa*), with much bare ground between. Soils are generally well drained, have a low water holding capacity, and occur on slopes, fans, and valleys. Shrub associates include spiny hopsage (*Grayia spinosa*), cotton thorn (*Tetradymia comosa*), Mormon tea, and rubber rabbitbrush (*Ericameria nauseosus*). Within the Project site, this community supports a relatively low number of native annual herbaceous species; the herbaceous understory is dominated by redstem filaree and foxtail chess.

## **Rubber Rabbitbrush Scrub**

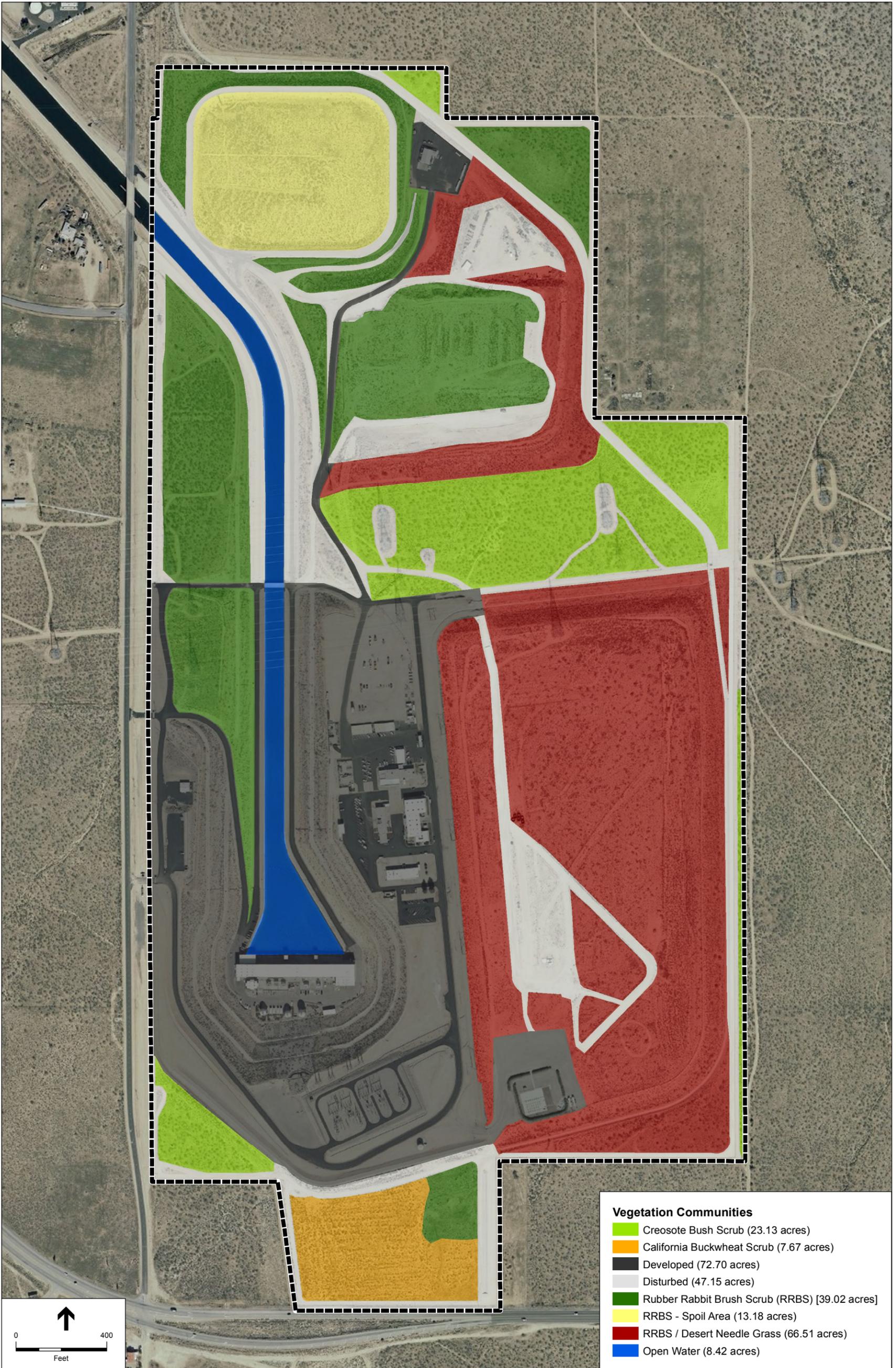
Rubber rabbitbrush scrub is the dominant plant community on the Project site, encompassing 118.71 acres in total. The community occurs as three distinct subassociations within the Project site; Rubber Rabbitbrush Scrub (39.02 acres), Rubber Rabbitbrush Scrub - Spoil Area (13.18 acres), and Rubber Rabbitbrush Scrub/Desert Needle Grass (66.51 acres). The three subassociations differ in dominance, although overall species composition is similar across the subassociations. As described by Holland (1986), rabbitbrush scrub is typically a disturbance-maintained community dominated by the shrub species rubber Rabbitbrush, and common throughout the Great Basin and western Margin of the Mojave Desert. Soils are generally well drained, and gravelly, occurring on bajadas, pediments, and valleys. Within much of the Project site, this community is associated with previous disturbance. Common associate species within this community include desert needlegrass (*Stipa* sp.) big sagebrush (*Artemisia tridentata*), ephedras (*Ephedra* spp.), yellow aster, and desert brittlebush (*Purshia tridentat* var. *glandulosa*). Within the Project site, this community supports a relatively sparse herbaceous understory dominated by redstem filaree and foxtail chess.

## **Disturbed Habitat**

Disturbed habitat within the Project site is associated with existing facilities and access roads, and encompasses 47.15 acres in total. As described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986), disturbed habitats are those that have been physically affected and are no longer recognizable as a native or naturalized plant community, but still maintain an active soil substrate. Species composition is typically dominated by non-native forbs and a limited number of grass species. Soils are variable, although they often lack topsoil due to previous disturbance. Common species include thistles (*Centaurea*, *Carduus*, and *Cynara* spp.) and mustards (*Brassicaceae*).

### **4.1.5 Wildlife**

Wildlife species observed and expected to occur on the Project site are typical for the desert habitats of the surrounding region. Reptile species common to the region include western whiptail (*Aspidoscelis tigris*), side-blotched lizard (*Uta stansburiana*), zebra-tailed lizard (*Callisaurus draconoides*), desert spiny lizard (*Sceloporus magister*), long-nosed leopard lizard (*Gambelia wisizenii*), desert iguana (*Dipsosaurus dorsalis*), gopher snake (*Pituophis catenifer*), coachwhip (*Masticophis flagellum*), Mojave rattlesnake (*Crotalus scutulatus*), and western diamondback (*Crotalus atrox*). Mammals species common to the region include black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beechyi*), white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), mule deer (*Odocoileus hemionus*), desert kit fox (*Vulpes macrotis*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert woodrat (*Neotoma lepida*) and coyote (*Canis latrans*); and bat species including western small-footed myotis (*Myotis ciliolabrum*), California myotis (*Myotis californicus*), western pipistrelle (*Pipistrellus hesperus*), and canyon bat (*Pipistrellus hesperus*). Bird species common to the region, and associated with the habitat types found within the Project area include mourning dove (*Zenaida macroura*), California quail



DWR Pearblossom . 206008.12

**Figure 4**

Plant Community Map

SOURCE: ESRI; ESA, 2013



(*Callipepla californica*), common raven (*Corvus corax*), loggerhead shrike (*Lanius ludovicianus*), red tailed hawk (*Buteo jamaicensis*), and prairie falcon (*Falco mexicanus*). Due to the lack of a perennial water source and habitat types present, no amphibian species are expected in the Project area.

#### **4.1.6 Special-Status Species**

Special status species are defined as listed plant and animal species that receive specific protection defined in federal or state legislation (Endangered Species Act), and are formally designated as endangered, threatened or rare under state or federal legislation. Also included in this definition are species that have no formal listing status as threatened or endangered, but are regarded as locally “rare,” “sensitive,” or “species of concern” on the basis of adopted policies and expertise of federal, state or local resource agencies, or local organizations with acknowledged expertise, such as the California Native Plant Society. Species that meet the criteria of Section 15380 of the California Environmental Quality Act or the California Native Plant Protection Act are defined as special status species. In general, plants constituting CNPS List 1A, 1B or 2 meet the definitions of California Department Fish and Game Code Section 1901 (Native Plant Protection Act) and/or Sections 2062 and 2067 (California Endangered Species Act), and are protected as such.

Due to a general decline in population and habitat of certain species throughout California as a result of urbanization, agriculture, and industrial development, state and federal agencies; particularly the USFWS, CDFW, and CNPS; have listed a number of wildlife and plant species as threatened, endangered, or otherwise vulnerable to decline. Moreover, a number of state, federal, and local regulations have been adopted to restrict and/or mitigate activities that could potentially impact a listed species or its habitat directly, indirectly, or cumulatively. Provided below in **Tables 1 and 2** are a list of special-status wildlife and plant species (respectively) that have been previously reported in the region to the CNDDDB. Maps depicting the approximate location of species with recorded occurrences within a five-mile radius of the Project site are provided in **Figures 5 and 6**.

#### **4.1.7 Natural Communities of Special Concern**

Certain natural communities are afforded special status as identified in local or regional plans, policies, or regulations, or designated by the CDFW and USFWS. A literature review and CNDDDB nine-quadrangle search revealed three natural communities of special concern within the vicinity of the Project area. These communities are Mojavean Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Southern Riparian Scrub. Mojavean Riparian Forest and Southern Riparian Scrub have recorded occurrences within five miles of the Project site (Figure 6). Neither of these communities occurs on the Project site, or in the immediate vicinity.

#### **4.1.8 Connectivity and Migration Corridors**

Habitat linkages are contiguous areas of open space that connect two larger habitat areas. Linkages provide for both diffusion and dispersal for a variety of species within the landscape. In addition, linkages can serve as primary habitat for some smaller species. Corridors are linear

linkages between two or more habitat patches. Corridors provide for movement and dispersal, but do not necessarily include habitat capable of supporting all life history requirements of a species.

Wildlife corridors can be quite small or constricted, but can be vital to the long-term health of connected habitats. Linkage or corridor values are often addressed in terms of “gene flow” between populations, with movement taking potentially many generations. The U.S. Court of Appeals, Ninth Circuit, has defined wildlife corridors as “...avenues along which wide-ranging animals can travel, plants can propagate, genetic interchange can occur, populations can move in response to environmental changes and natural disasters, and threatened species can be replenished from other areas.”

The Project area is situated approximately 10 miles west of the Edwards Air Force Base-San Gabriel Mountains Connection, identified by the South Coast Missing Linkages as one of 15 major landscape linkages essential to a functioning wildland network both within the South Coast Ecoregion (SC Wildlands, 2012). The Edwards Air Force Base-San Gabriel Mountains Connection provides a link between the desert floor habitat and the more mountainous habitat present within the Transverse Ranges. The corridor has been identified as a vital connection for the American badger (*Taxidea taxus*).

Additionally, the Pacific Flyway, a large migration route used by numerous bird species that pass throughout large portions of California, is within the vicinity of the Project area. Migratory birds have the potential to be present in the vicinity of the Project site during migrations, although records indicate that the majority of migratory birds tend to fly further east than the Project site on their way to and from the Salton Sea.

**TABLE 1  
SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROJECT**

<b>Species</b>	<b>Status: Federal/State</b>	<b>Preferred Habitat</b>	<b>Potential to Occur</b>
<b>Amphibians</b>			
arroyo toad ( <i>Bufo microscaphus californicus</i> )	Endangered/Species of Special Concern	Semi-arid regions near washes or intermittent streams, including valley - foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores, loose gravelly areas of streams in drier parts of range.	None: No suitable habitat is present on or adjacent to the site.
Sierra Madre yellow-legged frog ( <i>Rana muscosa</i> )	Endangered/Candidate Endangered - Species of Special Concern	In southern California, populations are restricted to streams in ponderosa pine, montane hardwood-conifer, and montane riparian habitats.	None: No suitable habitat is present on or adjacent to the site.
<b>Birds</b>			
Cooper's Hawk ( <i>Accipiter cooperii</i> )	-/DFG Watch List	Nests in woodlands and sometimes suburban settings if mature trees are present. Broken woodlands or near habitat edges with the exception of their desert occurrences; seldom found in areas that do not have dense, or patchy, wooded areas. Occurs in dense stands of live oak, riparian deciduous, or other forest habitats near water.	None (nesting): No suitable habitat is present on or adjacent to the site. This species has the potential to forage on the project site.
Tricolored Blackbird ( <i>Agelaius tricolor</i> )	-/Species of Special Concern	A highly colonial species, most numerous in the Central Valley and vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km. of colony.	None: No suitable habitat is present on or adjacent to the site.
Burrowing Owl ( <i>Athene cunicularia</i> )	-/Species of Special Concern	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel.	Moderate: Suitable nesting, foraging, and wintering habitat present; however, no sign of burrowing owls were observed during focused breeding season burrow searches. One recorded occurrence within the vicinity of the project site.

**TABLE 1  
SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROJECT**

<b>Species</b>	<b>Status: Federal/State</b>	<b>Preferred Habitat</b>	<b>Potential to Occur</b>
Ferruginous Hawk ( <i>Buteo regalis</i> )	-/ DFG Watch List	Winters at lower elevations and open grasslands, agricultural areas in southwestern California, sagebrush flats, desert scrub, low foothills surrounding valleys, and the edges of pinyon-juniper habitats.	Low: Suitable foraging habitat exists within the vicinity of the project site and low quality habitat present on the site.
Swainson's Hawk ( <i>Buteo swainsoni</i> )	-/Threatened	Stands with few trees, juniper-sage flats, riparian habitat, and oak savannah. Forages in adjacent grasslands and agricultural fields and pastures.	Low: Suitable foraging habitat exists within the vicinity of the project site. No nesting sites have been recorded in the vicinity and suitable nesting habitat is absent from the project site.
Mountain Plover ( <i>Charadrius montanus</i> )	Proposed Threatened/ Species of Special Concern	Occurs in dry regions away from water. Prefers shortgrass prairie and dry lowland areas. Often found on grassy or bare dirt fields.	Low: Suitable wintering habitat exists within the vicinity of the project site. Species not expected to nest on the site.
Prairie Falcon ( <i>Falco mexicanus</i> )	-/DFG Watch List	Dry, open terrain. Forages in a wide variety of habitats, including deserts, grasslands, marshlands, and ocean shores. Nests in cliffs.	Moderate: Potential foraging habitat exists within the vicinity of the project site; however, suitable nesting habitat is absent.
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	-/Species of Special Concern	Lowlands and foothills throughout California. Prefers open habitats with scattered shrubs, trees, posts, fences, and other perches.	High: Suitable foraging habitat and marginal nesting habitat is present on site. Species observed during 2010 surveys conducted by RBF Consultants and there's a recorded occurrence within the vicinity of the project site.
Le Conte's Thrasher ( <i>Toxostoma lecontei</i> )	-/Species of Special Concern	Resident of desert areas, primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Nests in dense, spiny shrub or densely branched cactus, usually 2-8 ft. above ground in desert wash habitat.	High: Suitable foraging habitat present. The project site lacks suitable nesting habitat. One recorded occurrence within the vicinity of the project site.
Least Bell's Vireo ( <i>Vireo bellii pusillus</i> )	Endangered/Endangered	Prefers dense, low, shrubby vegetation, generally within early successional stages in riparian areas, brushy field, young second-growth forest or woodland, scrub oak, coastal chaparral, and mesquite brushlands, often near water in more arid portions of its range.	None: No suitable habitat is present on or adjacent to the site.

**TABLE 1  
SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROJECT**

<b>Species</b>	<b>Status: Federal/State</b>	<b>Preferred Habitat</b>	<b>Potential to Occur</b>
<b>Mammals</b>			
Pallid San Diego Pocket Mouse ( <i>Chaetodipus fallax pallidus</i> )	-/Species of Special Concern	Species occurs in desert and coastal habitats in southern California. Prefers chaparral habitat, can also be found in open, sandy areas.	Low: Low quality habitat exists within the project site. One recorded occurrence several miles to the south within the lower slopes of the Transverse Ranges.
San Bernardino Kangaroo Rat ( <i>Dipodomys merriami parvus</i> )	Endangered/Species of Special Concern	Species prefers alluvial scrub/coastal sage scrub habitats on gravelly and sandy soils adjoining river and stream terraces, and on alluvial fans; and rarely occur in dense vegetation or rocky washes.	None: No suitable habitat is present on or adjacent to the site.
Western Mastiff Bat ( <i>Eumops perotis californicus</i> )	-/Species of Special Concern	Open, semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, chaparral. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Moderate (foraging): The California Aqueduct provides foraging habitat to bats; therefore, this species has a moderate potential to forage near the project site. No roosting habitat is present.
Long-eared Myotis ( <i>Myotis evotis</i> )	-/- Western Bat Working Group Listed	Species occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but is usually associated with coniferous forests. Individuals roost under exfoliating tree bark, and in hollow trees, caves, mines, cliff crevices, sinkholes, and rocky outcrops on the ground. Also known to roost in buildings and under bridges.	Moderate (foraging): The California Aqueduct provides foraging habitat to bats; therefore, this species has a moderate potential to forage near the project site. No roosting habitat is present.
Long-legged Myotis ( <i>Myotis volans</i> )	-/- Western Bat Working Group Listed	Primarily occurs within coniferous forests, but also occurs seasonally in riparian and desert habitats. Species uses abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark, and hollows within snags as summer day roosts.	Moderate (foraging): The California Aqueduct provides foraging habitat to bats; therefore, this species has a moderate potential to forage near the project site. No roosting habitat is present.
Yuma Myotis ( <i>Myotis yumaensis</i> )	-/- Western Bat Working Group Listed	Species occurs in a variety of habitats including riparian, arid scrublands and deserts, and forests. The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees.	Moderate (foraging): The California Aqueduct provides foraging habitat to bats; therefore, this species has a moderate potential to forage near the project site. No roosting habitat is present.

**TABLE 1**  
**SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROJECT**

<b>Species</b>	<b>Status: Federal/State</b>	<b>Preferred Habitat</b>	<b>Potential to Occur</b>
Southern Grasshopper Mouse ( <i>Onychomys torridus ramona</i> )	-/Species of Special Concern	Common in arid desert habitats in southern California. Species found in alkali desert scrub and desert scrub habitats; less commonly in succulent scrub and wash/riparian areas.	Moderate: Suitable foraging and nesting habitat exists on, and within the vicinity of, the project site.
San Joaquin Pocket Mouse ( <i>Perognathus inornatus inornatus</i> )	-/- Rare	Grasslands and blue oak savannahs. Species requires friable soils for burrowing.	None: No suitable habitat is present on or adjacent to the site.
Mohave Ground Squirrel ( <i>Spermophilus mohavensis</i> )	-/Threatened	Open desert scrub, alkali scrub, and Joshua tree woodland. Endemic to the Mojave Desert. Prefers sandy-to-gravelly soils and avoids rocky places. Finds cover and nests in burrows at the base of shrubs.	Presumed absent: Marginally suitable habitat is present on the project site. Species was not observed during protocol-level surveys in 2012.
American Badger ( <i>Taxidea taxus</i> )	-/Species of Special Concern	Most abundant in drier, open stages of most shrub, forest, and herbaceous habitats with friable soils. Requires open, uncultivated ground and sufficient burrowing rodent prey.	Low: Suitable habitat present within the vicinity of the project site; however, no suitable burrows were observed during focused surveys conducted in 2012.
<b>Reptiles</b>			
Silvery Legless Lizard ( <i>Anniella pulchra pulchra</i> )	-/Species of Special Concern	Known to occur primarily in areas with sandy or loose loamy soils such as under sparse vegetation of beaches, chaparral, or pine-oak woodland; or near sycamores, cottonwoods, or oaks that grow on stream terraces.	Low: The project site generally lacks friable soils or leaf litter, which tends to be the preferred habitat for this species.
Rosy Boa ( <i>Aspidoscelis tigris stejnegeri</i> )	-/- USFWS Sensitive	Inhabits areas with a mix of moderate to dense brushy cover and rocky soil, such as coastal canyons and hillsides, desert canyons, washes and mountains. Found in desert and chaparral from the coast to the Mojave and Colorado deserts.	None: No suitable habitat is present on or adjacent to the site.

**TABLE 1**  
**SPECIAL-STATUS WILDLIFE SPECIES RECORDED IN THE REGION OF THE PROJECT**

Species	Status: Federal/State	Preferred Habitat	Potential to Occur
Desert Tortoise ( <i>Gopherus agassizii</i> )	Threatened/Threatened	Desert scrub, desert wash, and Joshua tree woodland habitats. Requires friable soil for burrow and nest construction. Prefers creosote bush habitat with large annual wildflower blooms.	Low: Marginally suitable habitat is present on the project site and good quality is present within surrounding undisturbed open space areas. Species was not observed during protocol- level surveys in 2012. Moreover, the perimeter fence that surrounds the site reduces the potential for this species to be present. No tortoises have ever been documented within the pumping plant facility or within 5 miles from the site.
Coast Horned Lizard ( <i>Phrynosoma blainvillii</i> )	-/Species of Special Concern	A wide variety of habitats, most common in sandy washes with scattered, low bushes. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	High: Suitable habitat present within, and adjacent to, the project site.
Two-Striped Garter Snake ( <i>Thamnophis hammondi</i> )	-/Species of Special Concern	Typically found in or near permanent fresh water, often associated with streams with rocky beds and dense riparian growth.	None: No suitable habitat is present on or adjacent to the site.

Table 2 includes a list of rare and special-status plants that have been recorded in the region of the Project site and briefly describes that habitat suitability required for each plant species.

**TABLE 2**  
**RARE PLANTS RECORDED IN THE REGION OF THE PROJECT**

Species	Status/CNPS Rank	Growth Habit	Elevation (m)	Habitat	Flowering Period	Potential to Occur
<i>Arctostaphylos glandulosa</i> ssp. <i>Gabrielensis</i> San Gabriel manzanita	-/1B.2	perennial evergreen shrub	595-1500	Chprl	March	None: This species was not observed during focused surveys conducted in 2012.
<i>Astragalus lentiginosus</i> var. <i>Antonius</i> San Antonio milk-vetch	-/1B.3	perennial herb	1500-2600	LMCFrs/UMCFrs	April-July	None: The project site is at an elevation of approximately 914 meters (3000 feet), which is below the known elevation range for this species. This species was not observed during focused surveys conducted in 2012.
<i>Astragalus preussii</i> var. <i>laxiflorus</i> Lancaster milk-vetch	-/1B.1	perennial herb	elevation range unknown	ChScr	March-May	Low: This species was not observed during focused surveys conducted in 2012.
<i>Calochortus palmeri</i> var. <i>palmeri</i> Palmer's mariposa lily	-/1B.2	perennial bulbiferous herb	100-2390	Chprl/LMCFrs/MeSe	April-July	Low: This species was not observed during focused surveys conducted in 2012.
<i>Calochortus striatus</i> alkali mariposa lily	-/1B.2	perennial bulbiferous herb	70-1595	Chprl/MDSr	April-June	Moderate: This species was not observed during focused surveys conducted in 2012; however, this species could have been dormant during the 2012 blooming period due to excessively low amount of precipitation. The alkali soils on the project site provide suitable habitat for this species.
<i>Calystegia peirsonii</i> Peirson's morning-glory	-/4.2	perennial rhizomatous herb	30-1500	Chprl/ChScr/CMWld/CoScr/LMCFrs/VFG	April-June	Low: This species was not observed during focused surveys conducted in 2012.

**TABLE 2**  
**RARE PLANTS RECORDED IN THE REGION OF THE PROJECT**

Species	Status/CNPS Rank	Growth Habit	Elevation (m)	Habitat	Flowering Period	Potential to Occur
<i>Canbya candida</i> white pygmy-poppy	-/4.2	annual herb	600-1460	JTW	March-June	Moderate: This species was not observed during focused surveys conducted in 2012; however, this species could have been dormant during the 2012 blooming period due to excessively low amount of precipitation. The alkali soils on the project site provide suitable habitat for this species.
<i>Castilleja gleasoni</i> Mt. Gleason paintbrush	Rare/1B.2	perennial herb hemiparasitic	1000-2200	YPFrS	May-June	None: The project site is below the known elevation range of this species. This species was not observed during focused surveys conducted in 2012.
<i>Chorizanthe parryi</i> var. <i>parryi</i> Parry's spineflower	-/1B.1	annual herb	275-1220	Chprl/CoScr/CMWld/	April-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012 during the typical blooming period.
<i>Clarkia xantiana</i> ssp. <i>Parviflora</i> Kern Canyon clarkia	-/4.2	annual herb	700-3620	Chprl/CMWld/GBScr/VFG	May-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Layia heterotricha</i> pale-yellow layia	-/1B.1	annual herb	300-1705	CMWld/CoScr/PJW/VFG	March-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012 during the typical blooming period.
<i>Lilium parryi</i> lemon lily	-/1B.2	perennial bulbiferous herb	1220-2745	LMCFrs/MeSe/RiWld/ UMCFrs	July-August	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.

**TABLE 2**  
**RARE PLANTS RECORDED IN THE REGION OF THE PROJECT**

Species	Status/CNPS Rank	Growth Habit	Elevation (m)	Habitat	Flowering Period	Potential to Occur
<i>Linanthus concinnus</i> San Gabriel linanthus	-/1B.2	annual herb	1520-2800	Chprl/LMCFrs/UMCFrs	April-July	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i> sagebrush loeflingia	-/2.2	annual herb	700-1615	GBScr/DesDun/SDScr	April-May	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Lupinus peirsonii</i> Peirson's lupine	-/1B.3	perennial herb	1000-2500	JTW/LMCFrs/PJW/UMCFrs	April-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Nemacladus secundiflorus</i> var. <i>robbinsii</i> Robbins' nemacladus	-/1B.2	annual herb	350-1700	Chprl/VFG	April-June	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Opuntia basilaris</i> var. <i>brachyclada</i> short-joint beavertail	-/1B.2	perennial stem succulent	425-1800	Chprl/JTW/MDSr/PJW	April-August	None: Suitable habitat is present on the project site; however, if present, this species would have been observed during the focused surveys conducted in 2012. Therefore, this species is presumed absent from the site.
<i>Oreonona vestita</i> woolly mountain-parsley	-/1B.3	perennial herb	1615-3500	LMCFrs/UMCFrs	March-September	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Orobanche valida</i> ssp. <i>Valida</i> Rock Creek broomrape	-/1B.2	perennial parasitic herb	1250-2000	Chprl/PJW	May-September	Low: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.

**TABLE 2**  
**RARE PLANTS RECORDED IN THE REGION OF THE PROJECT**

Species	Status/CNPS Rank	Growth Habit	Elevation (m)	Habitat	Flowering Period	Potential to Occur
<i>Muhlenbergia californica</i> California muhly	-/4.3	perennial rhizomatous herb	100-2000	Chprl/CoScr/LMCFrs/MeSe	June-September	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Plagiobothrys parishii</i> Parish's popcornflower	-/1B.1	annual herb	750-1400	GBScr/JTW	March-November	Low: Typical habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.
<i>Symphotrichum greatae</i> Greata's aster	-/1B.3	perennial rhizomatous herb	300-2010	Chprl/CMWld/LMCFrs/RiWld	June-October	None: Suitable habitat does not exist on the project site. This species was not observed during focused surveys conducted in 2012.

CNPS Status

Rank 1B = Plants Rare, Threatened, Endangered in California and elsewhere

Rank 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

Rank 4 = Plants of Limited Distribution - A Watch List

Threat ranks

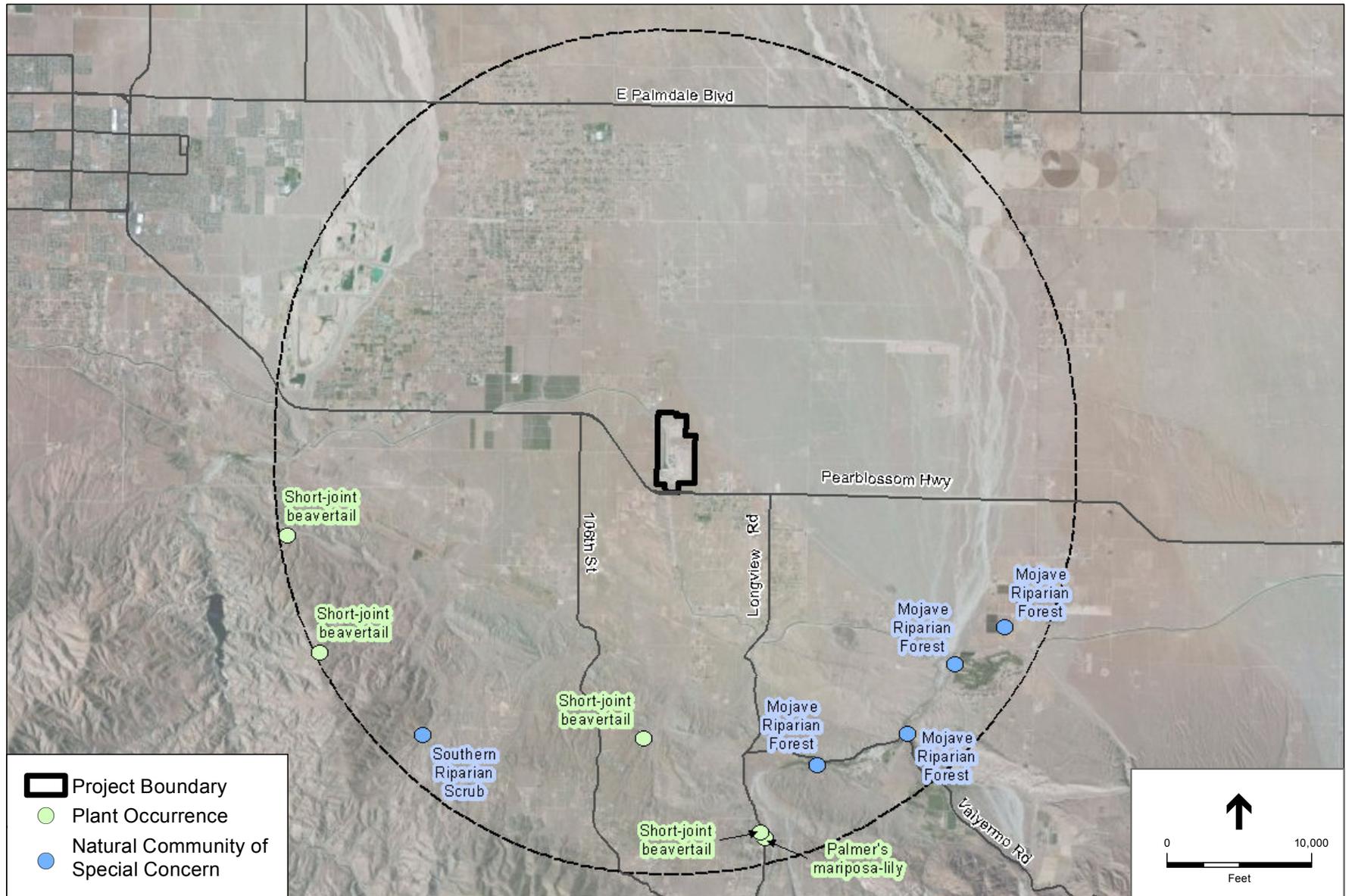
.1 = seriously Endangered in California

.2 = fairly Endangered in California

.3 = Not very threatened in California (low degree/immediacy of threats or no current threats known)

Habitat

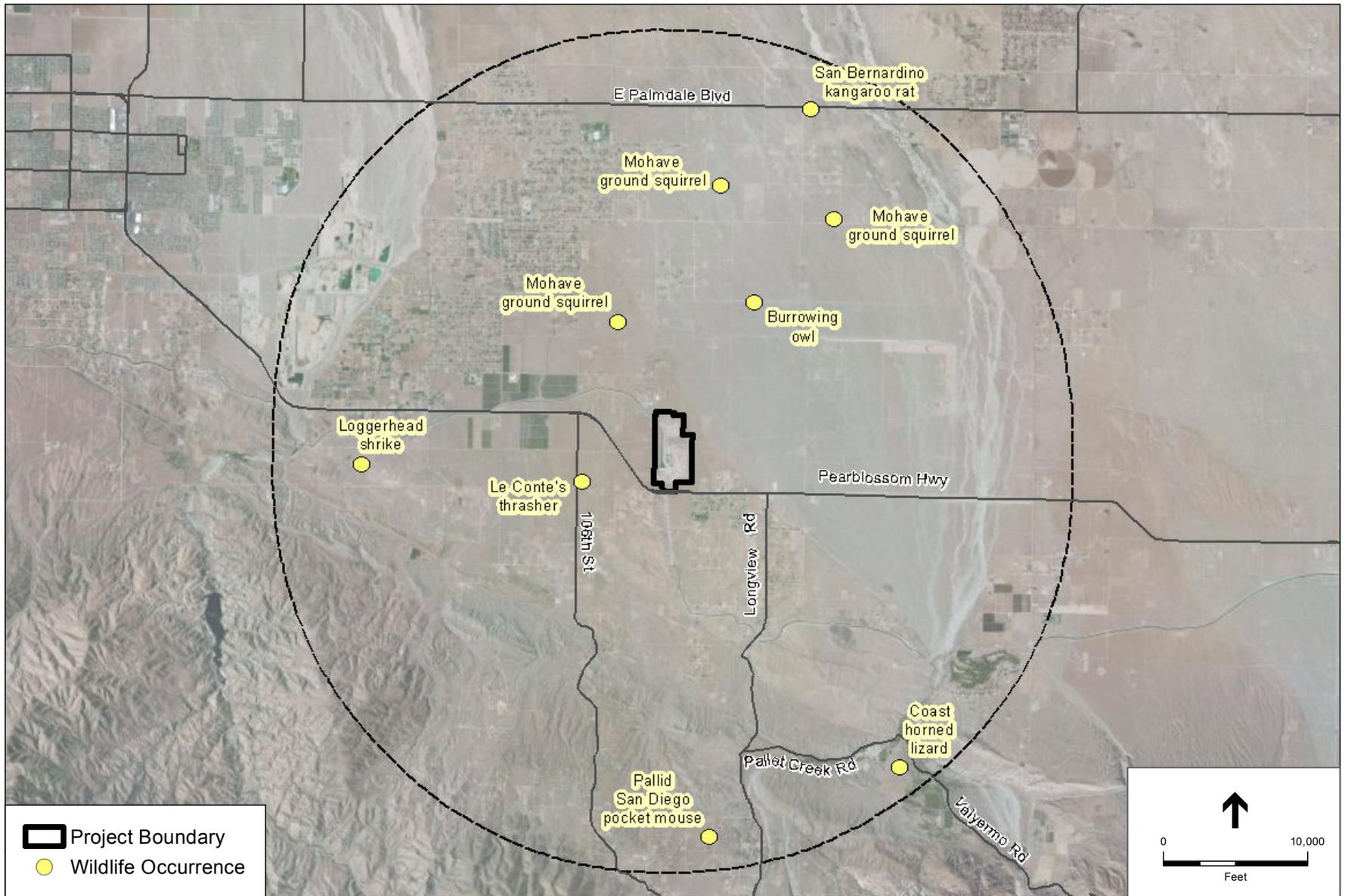
JTW = Joshua Tree Woodland, MDScr = Mojavean Desert Scrub, SDScr = Sonoran Desert Scrub, PJW = Pinyon-Juniper Woodland, Chprl = Chaparral, GBScr = Great Basin Scrub, LMCFrs = Lower Montane Coniferous Forest, UMCFrs = Upper Montane Coniferous Forest, ChScr = Chenopod Scrub, CMWld = Cismontane Woodland, CoScr = Coastal Scrub, YPFrs = Yellow Pine Forest, RiWld = Riparian Woodland, VFG = Valley and Foothill Grasslands, MeSe = Meadows and Seeps, DesDun = Desert Dunes.



SOURCE: ESA, 2013; CNDDDB

DWR Pearblossom . 206008

**Figure 5**  
Special-Status Plant Occurrences and  
Natural Communities of Special Concern



SOURCE: ESA, 2013; CNDDB

DWR Pearblossom . 206008

**Figure 6**  
Special-Status Wildlife Occurrences

## 4.2 Regulatory Framework

The Project is subject to a number of federal, state, and local regulations regarding biological resources. A summary of the primary regulations pertaining to the Project is provided below.

### 4.2.1 Federal

#### ***Federal Endangered Species Act***

Under the federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 USC 1533(c)). Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed or proposed species may be present in the project region and determine whether the proposed project would have a potentially significant impact on such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536(3), (4)). Project-related impacts to these species or their habitats would be considered “significant.” Section 7 of FESA contains a “take” prohibition which prohibits any action conducted, funded, or approved by a federal agency that adversely affects a member of an endangered or threatened species without prior formal consultation with the USFWS. Formal consultation with the USFWS would result in the issuance of a Biological Opinion (BO) that includes either a jeopardy or non-jeopardy decision issued by the USFWS to the consulting federal agency. The BO would also include the possible issuance of an “incidental take” permit. If such authorization is given, the project proponent must provide the USFWS with a Habitat Conservation Plan (HCP) for the affected species and publish notification of the application for a permit in the Federal Register.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A) of the FESA as (1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special management consideration or protection, and (2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

#### ***Migratory Bird Treaty Act***

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, domestically implements a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it shall be unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird...” (U.S. Code Title 16, Section 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species

protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property.

### ***Bald and Golden Eagle Protection Act***

Similar to the MBTA, the federal Bald and Golden Eagle Protection Act prohibits the unauthorized take of a bald eagle or a golden eagle. “Take” means to *pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb*. Furthermore, “disturb” means “to agitate or bother a Bald Eagle or a Golden Eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

### ***Federal Regulation of Waters of the United States, Including Wetlands***

Wetlands are a subset of “waters of the United States” and receive protection under Section 404 of the Clean Water Act (CWA). The term “waters of the U.S.” as defined in Code of Federal Regulations (33 CFR 328.3(a); 40 CFR 230.3(s)), includes all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide. Wetlands are defined by the federal government (CFR, Section 328.3(b), 1991) as those areas that are inundated or saturated by surface or groundwater 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. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area’s status as prior converted cropland by any other federal agency, for the purposes of the FCWA, the final authority regarding CWA jurisdiction remains with U.S. Environmental Protection Agency (EPA) (328.3(a)(8) added 58 FR 45035, August 25, 1993). The Corps regulates the discharge of dredged or fill material into waters of the U.S. under Section 404 of the CWA.

### ***Regional Water Quality Control Board***

Under Section 401 of the CWA, the Regional Water Quality Control Board (RWQCB) must certify that actions receiving authorization under section 404 of the CWA also meet state water quality standards. The RWQCB also regulates waters of the state under the Porter-Cologne Act Water Quality Control Act (Porter-Cologne Act). The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction over waters

deemed ‘isolated’ or not subject to Section 404 jurisdiction under the SWANCC decision.<sup>2</sup> Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of the Porter-Cologne Act.

### ***Clean Water Act***

In accordance with Section 404 of the federal CWA, the Corps regulates discharge of dredged or fill material into waters of the U.S. Waters of the U.S. and their lateral limits are defined in Title 33, Part 328.3(a) of the Code of Federal Regulations to include navigable waters of the U.S., interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Waters of the U.S. are often categorized as “jurisdictional wetlands” (i.e., wetlands over which the Corps exercises jurisdiction under Section 404) and “other waters of the United States” when habitat values and characteristics are being described. “Fill” is defined as any material that replaces any portion of a water of the U.S. with dry land or that changes the bottom elevation of any portion of a water of the U.S. Any activity resulting in the placement of dredged or fill material within waters of the United States requires a permit from Corps. In accordance with Section 401 of the CWA, projects that apply for a Corps permit for discharge of dredged or fill material must obtain water quality certification from the appropriate RWQCB indicating that the proposed project would uphold State of California water quality standards.

### ***Porter-Cologne Water Quality Control Act***

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA.

### ***Draft West Mojave Habitat Conservation Plan***

The Draft West Mojave Plan area in Los Angeles County covers the entirety of the county located northeast of the Transverse Ranges, which are covered under the U.S. Forest Service Southern California Province Forest Plan.

---

<sup>2</sup> Based on the Supreme Court ruling *Solid Waste Agency of Northern Cook City. v. Army Corps of Engineers*, 531 U. S. 159 (SWANCC) concerning the Clean Water Act jurisdiction over isolated waters (January 9, 2001), non-navigable, isolated, intrastate waters based solely on the use of such waters by migratory birds are no longer defined as waters of the United States. Jurisdiction of non-navigable, isolated, intrastate waters may be possible if their use, degradation, or destruction could affect other waters of the United States, or interstate or foreign commerce. Jurisdiction over such other waters is analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on a case-by-case basis.

The Draft West Mojave Plan is a pending HCP pursuant to the FESA and an amendment to the California Desert Conservation Area Plan covering over nine million acres in five counties (Inyo, Kern, Los Angeles, San Bernardino, and Riverside) with a purpose of creating a comprehensive strategy to conserve and protect the desert tortoise, the Mohave ground squirrel, and almost 100 other sensitive species, as well as the natural communities where they reside. In addition, this HCP provides a streamlined program for complying with the requirements of the California Endangered Species Act (CESA) and FESA.

In 2007, the USFWS issued a BO amending the incidental take permit for desert tortoise, authorizing a specified level of take within the West Mojave Plan area from BLM-authorized activities.

According to the BLM's March 2006 Record of Decision for the Final EIR evaluating the amendment to the California Desert Conservation Area Plan, the HCP has not yet been adopted. Once it is completed, incidental take permits for an additional 48 covered species would be issued to participating local jurisdictions and state agencies. This incidental take authorization cannot be implemented, however, until the local governments complete the application for incidental take permits and receive approval from state and federal wildlife agencies.

### ***Desert Renewable Energy Conservation Plan***

In response to Executive Order S-14-08, which established a target of obtaining 33 percent of the state's electricity from renewable resources by 2020, the CEC, CDFW, BLM, and USFWS have started preparing the Desert Renewable Energy Conservation Plan (DRECP). The plan area encompasses the Mojave and Colorado Desert regions in California, including all or a portion of the following counties: Kern, Los Angeles, San Bernardino, Inyo, Riverside, Imperial, and San Diego.

The DRECP is a state Natural Community Conservation Plan (NCCP) that is intended to provide for effective protection and conservation of desert ecosystems while allowing for the appropriate development of renewable energy projects. It is anticipated to provide long-term endangered species permit assurances to renewable energy developers and provide a process for conservation funding to implement the DRECP. It will also serve as the basis for one or more HCPs under the FESA. It is anticipated that the DRECP will be approved and adopted by the end of 2013.

## **4.2.2 State**

### ***CEQA Guidelines Section 15380***

Although threatened and endangered species are protected by specific federal and state statutes, *CEQA Guidelines* Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that

has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

### ***California Wetland Definition***

Unlike the federal government, California has adopted the Cowardin, et al. (1979) definition of wetlands. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (at least 50 percent of the aerial vegetative cover); (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Under normal circumstances, the federal definition of wetlands requires all three wetland identification parameters to be met, whereas the Cowardin definition requires the presence of at least one of these parameters. For this reason, identification of wetlands by state agencies consists of the union of all areas that are periodically inundated or saturated, or in which at least seasonal dominance by hydrophytes may be documented, or in which hydric soils are present.

### ***California Department of Fish and Wildlife Streambed Alteration Agreement***

CDFW regulates activities that would interfere with the natural flow of, or substantially alter, a channel, bed, or bank of a lake, river, or stream. These activities are regulated under the California Fish and Game Code Sections 1600-1616. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Requirements may include avoidance or minimization of the use of heavy equipment, limitations on work periods to avoid impacts on wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses. A Streambed Alteration Agreement may be required by CDFW for construction activities that could result in an accidental release into a jurisdictional area.

Both state and federal wetland laws require that the biological and hydrological functions, which are lost when a wetland or water is altered or filled, be replaced as part of the respective permit processes. Compensatory actions include replacement of lost wetland acreage, usually in amounts substantially greater than the amount lost.

## ***California Endangered Species Act***

Under CESA, the CDFW is responsible for maintaining a list of threatened and endangered species (California Fish and Game Code, 2007), candidate species, and species of special concern. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state listed endangered or threatened species may be present on the project region and determine whether the proposed project would have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may impact a candidate species. If there were project-related impacts to species on the CESA threatened and endangered list, they would be considered “significant.” Impacts to “species of concern” would be considered “significant” under certain circumstances, discussed below.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the CEQA Guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not yet been listed by either the USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from a project’s potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

## ***State Fish and Game Codes***

Section 2080 of the State Fish and Game Code states, “No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act.” Pursuant to Section 2081 of the Code, the CDFW may authorize individuals or public agencies to import, export, take, or possess, any state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if: (1) the take is incidental to an otherwise lawful activity; (2) impacts of the authorized take are minimized and fully mitigated; (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species; and (4) the applicant ensures adequate funding to implement the measures required by CDFW. The CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce. Due to the potential presence of state-listed rare, threatened, or endangered species on the project site, Sections 2080 and 2081 of the Code were considered in this evaluation.

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is

unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first notifying CDFW: substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake, or 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. A stream is defined as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. CDFW has informed nonfederal agencies and private parties that they must avoid take of any fully protected species in carrying out projects.

### ***Native Plant Protection Act***

The Native Plant Protection Act (NPPA) includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the NPPA includes those listed as rare and endangered under the CESA. The NPPA provides limitations on take as follows: "No person will import into this State, or take, possess, or sell within this State" any rare or endangered native plant, except in compliance with provisions of the act. Individual landowners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material. Due to the absence of state-listed rare, threatened, or endangered plant species on the project site, the NPPA was not considered in this evaluation.

### ***California Desert Native Plants Act***

The California Desert Native Plants Act (California Food and Agricultural Code, Sections 80001-80006) was enacted to protect desert vegetation from unlawful harvest on both private and public lands. Protected species under the Act include, among others, Joshua trees and other yuccas,

bristlecone pine, fan palm, and a variety of cacti. The Act requires a permit for removal of Joshua trees and other desert vegetation.

### **4.2.3 Local**

#### ***Los Angeles County General Plan***

The Draft Los Angeles County General Plan identifies the federal, state, and local statutes, ordinances, or policies that govern the conservation and protection of biological resources that must be considered by the County during the decision-making process for projects that have the potential to affect biological resources. The Draft Los Angeles County General Plan includes the following goals related to biological resources.

The Draft General Plan identifies six main types of biological resources to be protected and enhanced: regional habitat linkages; forests; coastal zone; riparian habitats; streambeds and wetlands; woodlands; and Significant Ecological Areas (SEAs). Additionally, the Draft General Plan outlines two unincorporated areas under U.S. Department of Defense control that contain significant biological resources: Edwards Air Force Base and San Clemente Island.

The Draft General Plan outlines the following policies to protect biological resources within the County.

#### Policies:

- Policy C/NR 3.1: Conserve and enhance the ecological function of the County's diverse natural habitats and biological resources.
- Policy C/NR 3.2: Create and administer innovative County programs incentivizing the permanent dedication of SEAs and other important biological resources as open space areas.
- Policy C/NR 3.3: Restore significant riparian resources such as degraded streams, rivers, wetlands to maintain ecological function.
- Policy C/NR 3.4: Conserve and sustainably manage the County's forests and woodlands.
- Policy C/NR 3.5: Ensure compatibility of development in the national forests in conjunction with the U.S. Forest Service Land and Resource Management Plan.
- Policy C/NR 3.6: Assist state and federal agencies with the preservation of special status species, their associated habitat and wildlife movement corridors through the administration of the SEAs and other programs.
- Policy C/NR 3.7: Participate in inter-jurisdictional collaborative strategies that protect biological resources.

- Policy C/NR 3.8: Discourage development in areas with identified significant biological resources, such as SEAs.
- Policy C/NR 3.9: Consider the following in the design of a project that is located within an SEA, to the greatest extent feasible:
- Preservation of biologically valuable habitats, species, wildlife corridors and linkages;
  - Protection of sensitive resources on the site within open space;
  - Protection of water sources from hydromodification to maintain the ecological function of riparian habitats; and
  - Placement of the development in the least biologically sensitive areas on the site.
- Policy C/NR 3.10: Require that development mitigate ‘in-kind’ for unavoidable impacts on biologically sensitive areas within the County, and permanently preserve mitigation sites.
- Policy C/NR 3.11: Discourage new development from increasing the urban-wildland interface in undisturbed natural areas through compact design.
- Policy C/NR 3.12: Discourage development to maintain and support the preservation of riparian habitats, streambeds, and wetlands in a natural state, unaltered by grading, fill, or diversion activities.
- Policy C/NR 4.1: Conserve and sustainably manage the County’s oak woodlands.

## 5.0 Impacts Discussion

A number of direct, indirect, and cumulative impacts to biological resources could occur as a result of implementation of the Project. Under the stipulations of CEQA, potential impacts to biological resources could be considered significant if actions associated with the Project:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the CDFW or USFWS.
- c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- d) Interfere substantially with the movement of any native resident or migratory fish or

- wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
  - f) Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

Construction and operation of the Project could impact plants and wildlife in a variety of ways. Construction activities could result in mortality or harm to sensitive species or displace wildlife and would result in the loss of habitat for plant and wildlife species. Use of access roads for maintenance operations could also result in the injury or mortality of wildlife species.

## 5.1 Special-Status Wildlife Species

This section describes the special-status wildlife species that are known, or have a moderate to high potential to occur in the Project area and the status of their presence based on field surveys and documented references. As indicated in Table 1, several sensitive wildlife species have been detected in the general region of the Project site, which include desert tortoise, Mohave ground squirrel, southern grasshopper mouse, Prairie Falcon, Le Conte's thrasher, loggerhead shrike, coast horned lizard, pallid San Diego pocket mouse, burrowing owl, and sensitive bat species. These species are described in detail below:

### Desert Tortoise

Desert tortoise often occurs in desert scrub habitats found in the region. The species also prefers creosote bush habitat with large wildflower blooms and requires friable soils for burrow and nest construction. Since reconnaissance-level field assessments found suitable desert tortoise habitat within the Desert Tortoise Study Area, focused surveys were conducted in accordance with the *USFWS Pre-Project Field Survey Protocol for Potential Desert Tortoise Habitat*. Two consecutive protocol-level transect surveys for desert tortoises were conducted on the Project site in April and May, 2012. No desert tortoises or desert tortoise sign was observed during the surveys. Therefore, the desert tortoise is currently presumed to be absent from the Project site. The nearest recorded desert tortoise occurrence is 7.5 miles northwest of the proposed project site. Because desert tortoises are known to occur in the region, mitigation measures are included to avoid potential impacts to the species during construction.

### Mohave Ground Squirrel

Endemic to the Mojave Desert, the Mohave ground squirrel prefers sandy-to-gravelly soils in open desert scrub, alkali scrub, and Joshua tree woodland. The species finds cover and nests in burrows at the base of shrubs. Focused surveys were conducted in accordance with USFWS and CDFW survey protocols that included three trapping sessions of five consecutive days each, fulfilling 100 percent coverage throughout the Project site during the spring and summer of 2012. No Mohave ground squirrels were found during the trapping surveys and thus this species is presumed absent from the Project site.

## **Southern Grasshopper Mouse**

Southern grasshopper mouse is common in arid desert habitats in southern California. The species is commonly associated with alkali desert scrub and desert scrub habitats; less commonly with succulent scrub and wash or riparian areas. The species was determined to have a moderate potential to occur due to its common association with habitats found within the vicinity of the Project site. A CNDDDB search did not reveal any recorded occurrences within the vicinity of the Project site. Because there is a moderate potential for the southern grasshopper mouse to occur on the Project site, if present, direct impacts during vegetation clearing and grading could occur; however, implementation of recommended mitigation measures described in Section 6 of this report.

## **Prairie falcon**

Prairie falcon (*Falco mexicanus*) is an uncommon permanent resident that ranges from southeastern deserts northwest throughout the Central Valley and along the inner Coast Ranges and Sierra Nevada. Distributed from annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. This species uses open terrain for foraging. It usually nests in a scrape on a sheltered ledge of a cliff overlooking a large, open area, and sometimes uses old raven or golden eagle stick nests on cliffs, bluffs, or rock outcrops. It eats mostly small mammals, some birds, and reptiles. The prairie falcon catches prey in the air or on the ground in open areas.

The prairie falcon is on the CDFW Watch List. This species is vulnerable to DDE poisoning. Egg and nestling predation can occur at sites accessible to mammal predators, great horned owls, and golden eagles. Although this species was not observed during the biological resources reconnaissance survey and no known CNDDDB occurrences have been recorded in the area, this species is known to compete with other locally-occurring raptor species and may forage in suitable habitat in the vicinity of the project area. Potential impacts to prairie falcon would be avoided and/or reduced to a level less than significant with implementation of the recommended mitigation measures described in Section 6 of this report.

## **Le Conte's Thrasher**

Le Conte's thrasher can be found in low-growing mixed desert scrub habitats and desert wash areas. Suitable foraging and nesting habitat is located in the vicinity of the Project site. The species was not identified during field surveys, although a CNDDDB search revealed one recorded occurrence less than two miles from the Project site. Pre-construction nesting bird surveys are recommended to assure the implementation of the Project site does not result in any impacts to the species. Potential impacts Le Conte's thrasher would be avoided and/or reduced to a level less than significant with implementation of the recommended mitigation measures described in Section 6 of this report.

## **Loggerhead Shrike**

Loggerhead shrike typically occurs within lowlands and grasslands throughout California. They prefer open habitats with scattered shrubs, trees, posts, fences, and other perches. The species was observed during the 2010 RBF surveys within the Project area, but no breeding or nesting activity was observed. The species was not observed during the 2012 ESA surveys, although a CNDDDB search revealed one recorded occurrence approximately four miles west of the Project site. Suitable foraging and nesting habitat is located in the vicinity of the Project site. Pre-construction nesting bird surveys are recommended to assure the implementation of the Project does not result in any impacts to the species. Potential impacts Loggerhead shrike would be avoided and/or reduced to a level less than significant with implementation of recommended mitigation measures described in Section 6 of this report.

## **Coast Horned Lizard**

The coast horned lizard inhabits a wide variety of habitats but is most commonly found in sandy washes with scattered, low bushes. Although suitable habitat is present on the Project site, no coast horned lizards were observed during field surveys. However, this species is known to occur frequently in the region, and was determined to have a high potential to occur. A CNDDDB search revealed one recorded occurrence within a five-mile radius of the Project site.

Coast horned lizard is a California Species of Special Concern and a BLM Sensitive species. Although this species was not observed during the biological resources reconnaissance survey, one CNDDDB occurrence has been recorded. This species thus has a moderate potential to occur within the project area. Potential impacts to coast horned lizard, however, would be reduced to a level less than significant with implementation of recommended mitigation measures described in Section 6 of this report.

## **Pallid San Diego Pocket Mouse**

The pallid San Diego pocket mouse occurs in desert and coastal habitats in southern California. This species prefers chaparral habitat and can also be found in open sandy areas. Low quality habitat exists within the project site for the pallid San Diego pocket mouse. Although this species has not been observed on the project site, there has been one recorded occurrence several miles to the south within the lower slopes of the Transverse Ranges.

## **Burrowing Owl**

Burrowing owl can be found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The species is a subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel. No owls or sign (i.e., pellets, feathers) were observed during surveys. A few large burrows were observed within the Project vicinity, but did not show sign of burrowing owl utilization. However, the Project area has the potential to be colonized by burrowing owl in the future and/or used by the species as a wintering location, and thus further surveys are recommended to assure the Project does not result in any impacts to the species

Burrowing owl is a California Species of Special Concern and a BLM Sensitive species. Conversion of grassland to agriculture, other habitat destruction, and poisoning of ground squirrels have contributed to the reduction in numbers in recent decades, which was noted in the 1940s (Grinnell and Miller 1944, Zarn 1974, Remsen 1978). Predators include prairie falcons, red-tailed hawks, Swainson's hawks, ferruginous hawks, northern harriers, golden eagles, foxes, coyotes, and domestic dogs and cats. Fleas, lice, and feather mites are common ectoparasites. Collisions with autos may be a significant cause of mortality. The potential for burrowing owls to be present in the project area is considered to be moderate and any impacts to burrowing owls would be considered significant. Potential impacts to burrowing owl would be avoided and/or reduced to a level less than significant with implementation of recommended mitigation measures described in Section 6 of this report.

## **Western Mastiff Bat**

Western mastiff bat is typically considered a cliff-dwelling species, and is known to roost in large maternal colonies. The species is widespread throughout much of western North America, with declines concentrated in the Los Angeles basin. Western mastiff bat is also known to use large boulders and buildings as roosting habitat. The species typically forages at a much higher altitude than other species, and is known to range considerable distances from roosting locations during evening foraging. There is no suitable habitat on the project site for supporting day roosts or maternity roosts and construction and operation activities associated with the Project would not impact foraging bats.

## **Long-Eared Myotis**

Long-eared myotis occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but is most typically associated with coniferous forests. Roosting habitat for the species includes trees, caves, mines, cliffs, sinkholes, and rocky outcrops. They are also known to roost in buildings and under bridges. There is no suitable habitat on the project site for supporting day roosts or maternity roosts and construction and operation activities associated with the Project would not impact foraging bats.

## **Long-Legged Myotis**

Long-legged myotis typically occurs in coniferous forests, although the species is known to seasonably in riparian and desert habitats. The species is known use abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark, and hollows within snags as summer day roosts; and caves and mine tunnels as hibernacula. The species is widespread throughout North America, although regionally declining due to development and forest-management. There is no suitable habitat on the project site for supporting day roosts or maternity roosts and construction and operation activities associated with the Project would not impact foraging bats.

## **Yuma Myotis**

Yuma myotis occurs in a variety of habitats including riparian, arid scrublands and deserts, and forests. The species is known to roost in bridges, buildings, cliff crevices, caves, mines, and trees.

The species is common throughout much of western North America. There is no suitable habitat on the project site for supporting day roosts or maternity roosts and construction and operation activities associated with the Project would not impact foraging bats.

## 5.2 Special-Status Plants

Precipitation for the 2011/2012 rainy season in the Project region was below average. Thus, floristic survey results in the spring and summer of 2012 may not be representative of the flora within the Project site (i.e., less drought tolerant species may not have been as prevalent as in typical years). No special-status plant species were found within the Project site during surveys and none are expected to occur. Rare plant surveys were conducted concurrently with Mohave ground squirrel and desert tortoise surveys during March, April, May, and July.

Based on the database search results (Table 2), potentially occurring species included eight annual species, four perennial herbaceous species, three perennial bulbiferous herbaceous species, four perennial rhizomatous herbaceous species, one perennial hemiparasitic herbaceous species, one perennial parasitic herbaceous species, one stem succulent species, and one evergreen shrub species. A total of 18 plant species belonging to nine families were observed during the 2012 surveys. These were primarily perennial herbaceous species, with a few herbaceous annuals generally widespread throughout the Project site. Overall, there was a low to moderate abundance of annual plant cover, with generally low species diversity.

Rare plant surveys did not yield any species belonging to genera that contain one or more special-status species on the list of species considered (Table 2). All observed plants were keyed to a level sufficient enough to rule them out as special-status due to known distribution and/or one or more morphological or ecological characteristics.

With the below average rainfall in the preceding season, the potential for special-status species to go undetected during surveys is greater than in average or above-average rainfall years. Based on CNPS species descriptions, nine special status plants with known occurrences within the surrounding CNDDDB nine-quadrangle search area are known to occur in scrub and desert habitats common within the region. Of these nine species, only short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) has a recorded occurrence within five miles of the Project site. Palmer's mariposa lily (*Calochortus palmeri* var. *palmeri*) also has a recorded occurrence within five miles of the Project site, but is only known to occur in chaparral, meadow and seep, and lower montane coniferous forest habitats; which do not occur on or in the vicinity of the Project site. Rare plant surveys coincided with the blooming period of all nine species with known occurrences near the Project site, and the potential to exist on habitats present.

Although Joshua tree woodland (a CDFW sensitive plant community) does not occur on the project site, Joshua tree (*Yucca brevifolia*) seedlings were observed within the project site. Many native desert plants are protected under the California Desert Native Plant Act, including yucca species. Significant impacts to the Joshua tree seedlings would be avoided by implementing the recommended mitigation measures described in Section 6 of this report.

### 5.3 Jurisdictional Resources

It should be noted that two well-known jurisdictional drainages (Waters of the United States as determined by the U.S. Army Corps of Engineers) are located within approximately five miles of the Project site: Big Rock Wash is located approximately five miles east of the Project site and Littlerock Wash is located approximately five miles west of the Project site. These drainages do not affect the habitat within the vicinity of the Project site, and will not be impacted by Project development.

### 5.4 Connectivity and Migration Corridors

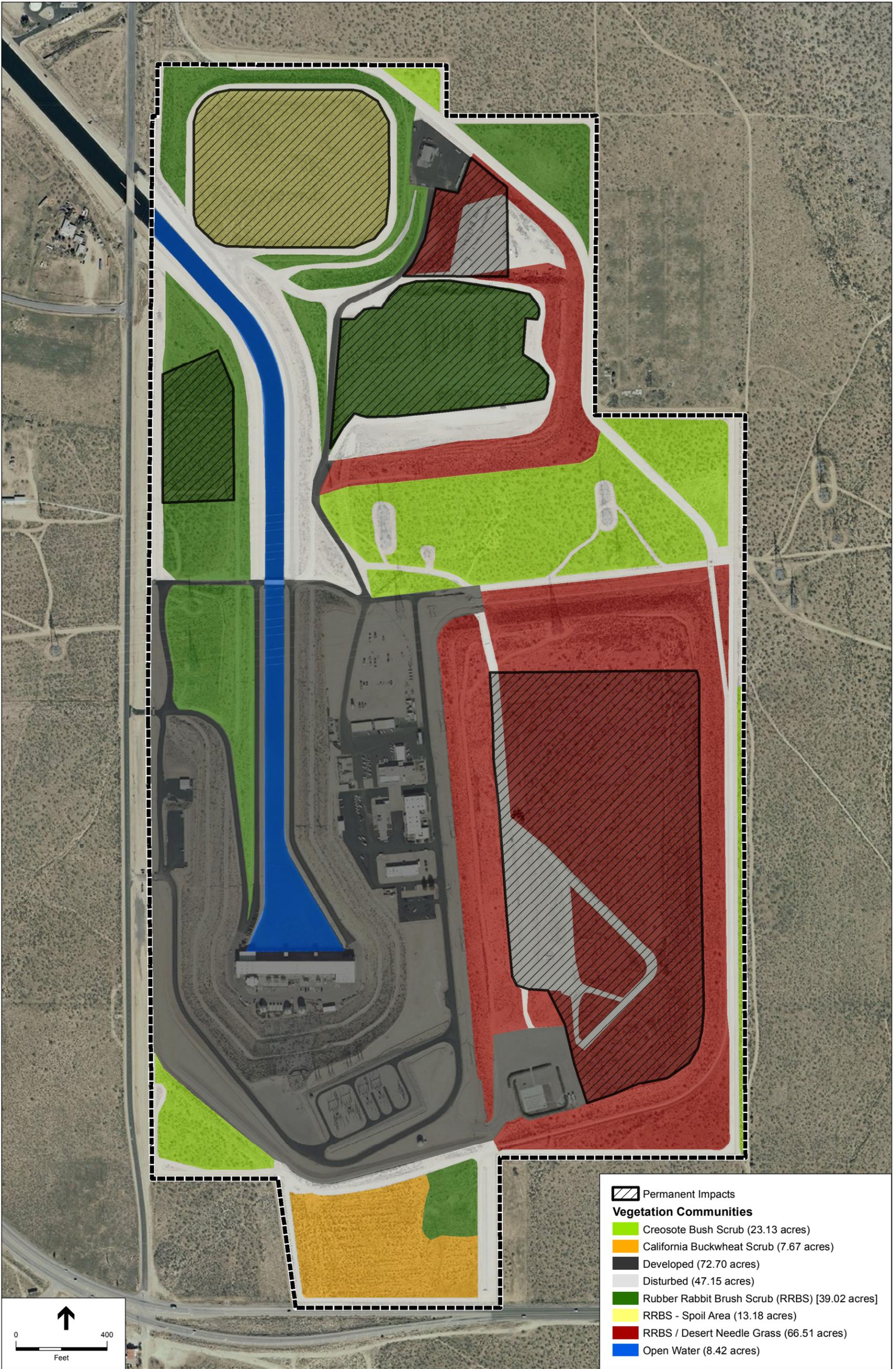
The resources available within the project site support a variety of wildlife movement functions on some scale. Movement on a smaller or “local” scale occurs throughout the surrounding vicinity as well as within the project site itself, mostly for common reptiles and small mammalian species. The project site contains natural communities which provide foraging habitat for common species. Data gathered from biological surveys indicate that the project site contains habitat that supports common species of reptiles, birds, and rodents. The home range and average dispersal distance of many of these species may be entirely contained within the project site and immediate vicinity. Populations of animals such as insects, reptiles, small mammals may find all their resource requirements without moving far or outside of the project site at all. Occasionally, individuals expanding their home range or dispersing from their parental range will attempt to move outside of the project site. Nonetheless, the project site is not within an established migratory wildlife corridor and does not provide a linkage between two or more habitat areas.

Impacts on wildlife movement are expected to be minimal based on the general area of impacts and the type of impacts that would occur. New structures constructed for the Project are unlikely to affect regional movement because their locations would not be within areas where such movement normally occurs. In addition, a majority of the project site is fenced which limits opportunities for large wildlife from moving across the site.

### 5.5 Loss of Habitat

Direct impacts as a result of construction activities associated with the Project would include the permanent removal and temporary disturbance of sensitive vegetation communities utilized as habitat for both common and rare wildlife, fugitive dust, and increased noise levels due to heavy equipment operations occurring in these areas. Indirect impacts to habitat could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, and the establishment of nonnative and invasive weeds. Operational impacts include increased human presence.

The entire 70-acre site would be cleared and graded. Approximately 8-acres of previously developed areas have already been impacted and represent the baseline condition on the PBPP site. Approximately 62-acres of undisturbed and disturbed rubber rabbit brush scrub habitat would be permanently impacted. **Table 3** depicts anticipated vegetation and habitat impacts. **Figure 7** depicts the areas that would be impacted by the Project.



SOURCE: ESRI; ESA, 2013.



**TABLE 3  
PROJECT IMPACTS TO HABITAT**

Plant Community	Permanent Impacts (acres)
Rubber Rabbit Brush Scrub	14.87
Rubber Rabbit Brush Scrub /Desert Needle Grass	34.12
Rubber Rabbit Brush Scrub – Spoils Area (disturbed)	13.06
<b>TOTAL</b>	<b>62.05</b>

## 6.0 Recommended Mitigation Measures

Implementation of the Project could potentially result in adverse impacts to local and regional biological resources. Although these impacts are anticipated to be minimal, the implementation of the recommended mitigation measures provided below would reduce these impacts to a level less than significant.

### 6.1 Nesting Birds

A number of resident and seasonal bird species have the potential to nest on the Project site. The following measures are recommended to reduce potential impacts to nesting birds, including raptors (e.g., red-tailed hawk), special-status bird species (e.g., loggerhead shrike), and common passerines as part of the approval for a grading or building permit:

- If construction is scheduled to occur during the bird breeding season (February 1–August 31), **a qualified wildlife biologist shall conduct preconstruction surveys** of all potential nesting habitats (including burrowing owl) within 500 feet of construction activities for presence of breeding or nesting birds. Surveys shall be conducted no more than 30 days prior to construction activities with a second survey conducted no more than 24 hours days prior to the onset of construction.
- If active nests are found, **no-disturbance buffers shall be implemented** around each nest as follows: a 500-foot buffer shall be created around any confirmed active raptor nest (including burrowing owl); a 300-foot buffer shall be created around nests of non-raptor special-status bird species’ nests; and a buffer appropriate to ensure no take of the species based on observations of the birds behavior shall be created around any other bird species’ nests protected by the MBTA or Fish and Game Code. The buffers should be implemented until it is determined by a qualified biologist that young have fledged or otherwise authorized by CDFW. If a nest is found in an area where ground disturbance is scheduled to occur, the Project proponent shall avoid the area either by delaying ground disturbance in the area until a qualified wildlife biologist has determined that the young have fledged or by re-siting the Project component(s) to avoid the area.

## 6.2 Special-Status Wildlife Species

The following mitigation measures are recommended to reduce potential impacts to special-status species not covered in the above mitigation discussion that have potential to occur in the Project area.

- **Site access should be limited to designated access roads** so as to avoid direct impacts to terrestrial wildlife species, including desert tortoise and coast horned lizard, on unmonitored roads.
- All vehicles at the project site **should not exceed 15 mile per hour (MPH)**.
- **Initial clearance surveys** should be conducted before construction of any roads or facilities at 15-foot intervals prior to declaring the site clear of tortoises and coast horned lizard. All burrows that have potential to provide shelter for a desert tortoise should be excavated during the clearance survey by a qualified biologist.
- The project proponent should provide **environmental training** to all personnel working on the site during proposed project construction and operation. The training should include a review of special-status species known to occur near the project site to promote their awareness, and should provide avoidance measures if a species is encountered, and legal consequences associated with take of the species.
- **If a special-status animal is encountered** during construction, the project proponent should stop work and a no work buffer zone shall be determined by the monitoring biologist and remain in place until the animal moves out of harm's way or until the animal is relocated to suitable habitat by a qualified biologist with possession of a CDFW Scientific Collection Permit. The monitoring biologist should notify the DWR biologist and should contact the appropriate resource agency (e.g., USFWS or CDFW) before construction is allowed to proceed within the buffer area.
- **All steep-walled trenches or excavation pits used during construction should be covered at all times except when being actively utilized.** Covers should be strong enough to prevent wildlife from falling through and should be designed to exclude small animals, including desert tortoise and coast horned lizard. If the trenches or excavations cannot be covered, exclusion fencing constructed of materials that would exclude both large and small wildlife species should be installed around the trench or excavation area to prevent entrapment of wildlife. Open trenches or other excavations could entrap and endanger wildlife. During trenching activities, a biological monitor should be present at the start of each construction day to inspect trenches for trapped animals. If any animals are observed, a biologist with a handling permit should be notified within 24 hours to move the animals to a safe location. Construction should not occur until the animal has left the trench or been removed by a qualified biological monitor as feasible.
- **Employees and contractors should look under vehicles and equipment for the presence of wildlife before movement.** If wildlife is observed, no vehicles or equipment

should be moved until the animal has left voluntarily or is removed by the biological monitor. No listed species should be handled.

- **Preconstruction surveys** for wildlife within the proposed construction limits should occur immediately prior to all initial ground disturbing activities. The monitoring biologist should have possession of a memorandum of Understanding (MOU) from CDFW for relocating (non-listed) special-status animals (e.g., coast horned lizard) to adjacent habitats that are outside of the construction limits.
- **If small rodent burrows** are observed within areas proposed for grading, live rodent traps should be set for one night near the borrow site. Traps should be set at dusk and checked at dawn by a qualified biologist. If southern grasshopper mice are trapped, they should be relocated to a nearby location containing suitable habitat.

## 6.3 Rare Plants

No special-status plants were found to be in the Project site; therefore, it is presumed that no such species are present on the Project site. The Project, however, is likely to result in the removal of individual Joshua trees. Joshua trees are afforded protection under applicable provisions of the California Desert Native Plants Act.

- Priority should be given to avoid individual Joshua trees and cacti whenever feasible. All Joshua tree seedlings that are located within proposed construction areas shall be translocated to suitable habitats within the PBPP.
- A Joshua tree relocation plan shall be prepared and shall include at a minimum the following: removal and translocation methods, identification of suitable planting site(s), post-planting care, performance measures, monitoring procedures, and adaptive management strategies.

## 7.0 Contributing Biologists

Greg Ainsworth, Project Director, Senior Biologist

- Field reconnaissance and habitat assessment, vegetation mapping, burrowing owl surveys, rare plant surveys, jurisdictional assessment, and Primary author of Biological Resource Survey Report.

Jon West, Associate Biologist

- Habitat assessment, vegetation mapping, burrowing owl surveys, rare plant surveys, jurisdictional assessment, and Primary author of Biological Resource Survey Report.

William Vanherweg, Certified Wildlife Biologist

- Mohave ground squirrel surveys, desert tortoise surveys, and rare plant surveys

Matthew South, Senior Biologist

- Habitat assessment, vegetation mapping and contributing author of Biological Resource Survey Report.

Joe Henry, Associate Biologist

- Contributing author of Biological Resource Survey Report.

Dallas Pugh, Managing Associate Biologist

- Editorial review of Biological Resource Survey Report.

## 8.0 References

Baldwin, et al. *Jepson Manual: Vascular Plants of California; Second Edition* (2012). University of California Press.

California Department of Fish and Game (CDFG), 2012a. California Natural Diversity Database (CNDDDB). Los Angeles County and the following USGS 7.5 minute topographic quadrangles: Littlerock, Lovejoy Buttes, Hi Vista, Alpine Butte, Lancaster East, Palmdale, Pacifico Mountain, Juniper Hills, Valyermo, and Mescal Creek. Information dated August 2012.

California Department of Fish and Game (CDFG). 2012b. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

California Department of Fish and Game (CDFG). 2007. *Fish and Game Code of California*.

California Department of Fish and Game (CDFG). 2003a. *Mohave Ground Squirrel Survey Guidelines*.

California Department of Fish and Game (CDFG). 2000. *Guidelines For Assessing The Effects Of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*.

California Native Plant Society (CNPS). 2012. Inventory of Rare and Endangered Plants (online edition, v7-09b). California Native Plant Society. Sacramento, CA. Accessed on Monday, August 13, 2012 from <http://www.cnps.org/inventory>.

California Native Plant Society (CNPS). 2001. *Botanical Survey Guidelines of the California Native Plant Society*.

*Code of Federal Regulations*, as amended. Volume 33: Sections 325 through 328.

Cowardin LM, Carter V, Golet FG & LaRoe E 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Report No. FWS/OBS-79/31. Fish and Wildlife Service, United States Department of the Interior. Washington DC.

Grinnell, Joseph, and Alden H. Miller. 1944. *The Distribution of Birds in California*. Cooper Ornithological Club. Berkeley, CA.

Holland, Robert F. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. 1986. California Department of Fish and Game, Natural Heritage Division, Sacramento, CA.

- Lovich, J.E. and Banbridge, D. 1999. *Anthropogenic Degradation of the Southern California Desert Ecosystem and Prospects for Natural Recovery and Restoration*, Environmental Management Vol. 24, No. 3, p. 309–326.
- Munz, Phillip. 1974. *A Flora of Southern California*. University of California Press, Berkeley, California.
- Penrod, K., P. Beier, E. Garding, and C. Cabañero (SC Wildlands). 2012. *A Linkage Network for the California Deserts. Produced for the Bureau of Land Management and The Wildlands Conservancy*. Produced by Science and Collaboration for Connected Wildlands, Fair Oaks, CA [www.scwildlands.org](http://www.scwildlands.org) and Northern Arizona University, Flagstaff, Arizona <http://oak.ucc.nau.edu/pb1/>.
- RBF Consulting. 2010. *Habitat Assessment Pearblossom Pumping Station and Surrounding Areas: Pearblossom, California*.
- Remsen, J.V., Jr. 1978. *Bird species of special concern in California*. Calif. Dept. of Fish and Game, Wildlife Management Branch Admin. Report, No. 78-1.
- Sawyer, John O. and Keeler-Wolf, Todd. 2009. *A Manual of California Vegetation, 2<sup>nd</sup> Edition*. California Native Plant Society. United States of America.
- Sawyer, J.O. and T. Keeler-Wolf. 2000. *A Manual of California Vegetation*. California Native Plant Society, Sacramento, CA.
- Sibley, D. 2003. *The Sibley Field Guide to Birds of Western North America*. Alfred A. Knopf, New York.
- Solid Waste Agency of Northern Cook City. v. Army Corps of Engineers. 531 U. S. 159 (2001).
- Stebbens, Robert. 1985. *Western Reptiles and Amphibians*. Houghton Mifflin Company, New York.
- The California Burrowing Owl Consortium. 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines*.
- U.S. Army Corps of Engineers (Corps). 2008a. *Arid West Supplement to the 1987 Wetlands Delineation Manual*.
- U.S. Army Corps of Engineers (Corps). 2008b. *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*.
- U.S. Department of Agriculture, National Resources Conservation Service (NRCS). 2012. *Web Soil Survey*, data request for Pearblossom Project site. Accessed Monday August 13 at: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>.
- U.S. Fish and Wildlife Service (USFWS). 2012. Federal Endangered and Threatened Species in Los Angeles County.
- U.S. Fish and Wildlife Service (USFWS). 2012. Personal communication with Ray Bransfield. April 27, 2012.
- U.S. Fish and Wildlife Service (USFWS). 2010. *Pre-Project Field Survey Protocol for Potential Desert Tortoise Habitat*.

Vanherweg, William. 2012. *Biological Resource Assessment for the Pearblossom Pump Station Solar Energy Project*.

Western Regional Climate Center (WRCC, 2012), Climate Summary, Palmdale, California.  
Accessed online at: [www.wrcc.dri.edu](http://www.wrcc.dri.edu).

Zam, M. 1974. *Burrowing Owl, Speotyto Cunicularia Hypugaea. Report No. 11. Habitat management series for unique or endangered species*. Bureau of Land Management. Denver, Colorado.

# Appendix A

**PLANT SPECIES OBSERVED ON PEARBLOSSOM SITE**

Scientific Name	Common Name	Comments
<i>Agavaceae</i>	Agave Family	
<i>Yucca brevifolia</i>	Joshua tree	Observed as seedlings
<i>Asteraceae</i>	Sunflower Family	
<i>Ambrosia acanthicarpa</i>	annual bursage	
<i>Ambrosia salsola</i>	cheesebush	formerly in genus <i>Hymenoclea</i>
<i>Cichorium</i> sp.	chicory	
<i>Encelia farinosa</i>	brittlebush	
<i>Ericameria cooperi</i>	Cooper's goldenbush	
<i>Ericameria nauseosus</i>	rubber rabbitbrush	formerly in genus <i>Chrysothamnus</i>
<i>Gutierrezia californica</i>	California matchweed	
<i>Lasthenia californica</i>	California goldfields	
<i>Tetradymia</i> sp.	cotton thorn	
<i>Boraginaceae</i>	Borage Family	
<i>Amsinckia tessellate</i> var. <i>tessellate</i>	fiddleneck	
<i>Cryptantha circumscissa</i>	Cushion cryptantha	
<i>Phacelia fremontii</i>	Fremont's phacella	
<i>Ephedraceae</i>	Ephedra Family	
<i>Ephedra nevadensis</i>	Mormon tea	
<i>Euphorbiaceae</i>	Spurge Family	
<i>Chamaesyce albmarginata</i>	rattlesnake weed	
<i>Geraniaceae</i>	Geranium Family	
<i>Erodium cicutarium</i>	redstem filaree	
<i>Lamiaceae</i>	Mint Family	
<i>Salvia coumbariae</i>	chia	
<i>Poaceae</i>	Grass Family	
<i>Bromus madritensis</i>	foxtail chess	
<i>Schismus arabicus</i>	Arabian schismus	
<i>Stipa</i> sp.	Desert needlegrass	formerly in genus <i>Achnantherum</i>
<i>Polemoniaceae</i>	Phlox Family	
<i>Gilia</i> sp.	gilia	
<i>Polygonaceae</i>	Buckwheat Family	
<i>Eriogonum fasciculatum</i>	California buckwheat	
<i>Zygophyllaceae</i>	Caltrop Family	
<i>Larrea tridentata</i>	creosote bush	

**WILDLIFE SPECIES OBSERVED ON PEARBLOSSOM SITE**

Scientific Name	Common Name	Comments
<b>BIRDS</b>		
<i>Accipitidae</i>	Hawks, eagles, and relatives	
<i>Buteo jamaicensis</i>	red tailed hawk	
<i>Columbidae</i>	Pigeons and doves	
<i>Zenaida macroura</i>	mourning dove	
<i>Corvidae</i>	Jays and crows	
<i>Corvus corax</i>	common raven	
<i>Fringillidae</i>	Finches	
<i>Haemorhous mexicanus</i>	house finch	
<i>Icteridae</i>	Larks	
<i>Sturnella neglecta</i>	western meadowlark	
<i>Lanidae</i>	Shrike family	
<i>Lanius ludovicianus</i>	loggerhead shrike	
<i>Odontophoridae</i>	New World quails	
<i>Callipepla californica</i>	California quail	
<b>LAGOMORPHS</b>		
<i>Leporidae</i>	hares and rabbits	
<i>Lepus californicus</i>	black-tailed jackrabbit	
<b>REPTILES</b>		
<i>Phrynosomatidae</i>	Lizards	
<i>Callisaurus draconoides</i>	zebra-tailed lizard	
<i>Uta stansburiana</i>	side-blotched lizard	

---

Scientific Name	Common Name	Comments
<i>RODENTS</i>		
<i>Scuridae</i>	squirrels and relatives	
<i>Ammospermophilus leucurus</i>	white-tailed antelope squirrel	

**Appendix B2**  
Biological Resource  
Assessment for the  
Pearblossom Pump Station  
Solar Energy Project



**CALIFORNIA DEPARTMENT OF WATER  
RESOURCES**

**PEARBLOSSOM PUMP STATION  
SOLAR ENERGY PROJECT**

**BIOLOGICAL RESOURCE ASSESSMENT**

Prepared by:

William J. Vanherweg, Certified Wildlife Biologist

March 2013

## INTRODUCTION

The purpose of this document is to present baseline data to be used to assess the presence of some of the rare, threatened, or endangered wildlife and plant resources on the project site.

### Studies Required

We conducted protocol level surveys to identify the presence of desert tortoise (*Gopherus agassizii*), Mohave ground squirrel (*Xerospermophilus mohavense*), and rare plant species. These were the only species surveyed for this report. Focused surveys for desert tortoise were conducted in accordance with the USFWS *Pre-Project Field Survey Protocol for Potential Desert Tortoise Habitat (2010)*. Mohave ground squirrel surveys were conducted in accordance with the California Department of Fish and Wildlife's (CDFW)<sup>1</sup> *Mohave Ground Squirrel Survey Guidelines (CDFG 2003)*. Rare plant surveys were conducted in accordance with the methodology outlined in the *CDFW Guidelines For Assessing The Effects Of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG, 2000)*, and the *CNPS Policy on Botanical Survey Guidelines of the California Native Plant Society (CNPS, 2001)*.

## SENSITIVE SPECIES

We considered two sensitive wildlife species and five sensitive plant species that potentially occur within the project area, they are listed in Table 1. This list was compiled using California Natural Diversity Data Base records (CDFG 2012). I also used my knowledge of indigenous sensitive species distributions and habitat preferences in relation to the project area.

---

<sup>1</sup> The California Department of Fish and Game (CDFG) changed its name on January 1, 2013 to The California Department of Fish and Wildlife (CDFW). In this document, references to literature published by CDFW prior to Jan. 1, 2013 are cited as 'CDFG'. The agency is otherwise referred to by its new name, CDFW.

**Table 1.** Sensitive plant and animal species that potentially occur in the project area.

<b>Species</b>	<b>Status</b>
<b>Desert tortoise</b> ( <i>Gopherus agassizii</i> )	CT, FT
<b>Mojave ground squirrel</b> ( <i>Spermophilus mojavensis</i> )	CT
<b>Short-joint beavertail cactus</b> ( <i>Opuntia basilaris</i> var. <i>brachyclada</i> )	CNPS 1B
<b>Palmer's mariposa lily</b> ( <i>Calochortus palmeri</i> var. <i>palmeri</i> )	CNPS 1B
<b>Alkali mariposa-lily</b> ( <i>Calochortus striatus</i> )	CNPS 1B
<b>Peirson's lupine</b> ( <i>Lupinus peirsonii</i> )	CNPS 1B
<b>Robbin's nemacladus</b> ( <i>Nemacladus secundiflorus</i> var. <i>robbinsii</i> )	CNPS 1B

Legend

CT= Listed as threatened by the state of California

FT= Listed as threatened by the federal government

CNPS1B= Plants rare, threatened, or endangered in California and elsewhere.

---

The section below contains brief descriptions of each of the sensitive species contained in Table 1.

### **Desert Tortoise**

Desert tortoises are 4-15 inches in length, have a high domed shell and are the only tortoise species located in the Mojave Desert. Desert tortoises can be active at any time of year but are most active from mid March to June and they feed on grasses, forbs, and low growing vegetation. Drought conditions in the Mojave Desert have led to a dramatic decrease in desert tortoise numbers in recent years; they have also been threatened by urban development, grazing, mining, off road vehicle use, and illegal collection. They are listed as threatened by CDFW and USFWS in California (CDFG 1994).

### **Mojave Ground Squirrel**

Mojave ground squirrels are approximately 8.5 - 9 inches in length and can be found in desert scrub habitats. Activity periods for this species vary and little is known about their reproduction (Ingles 1979). Their diet consists of seeds, vegetative parts of desert plants including fruits of the Joshua tree. Due to the aridity and high temperatures of its environment they are a diurnal species spending up to seven months underground. The Mojave ground

squirrel was delisted as threatened by California Department of Fish and Game Commission. The delisting action was challenged and the species remains on the threatened list until the courts decide otherwise.

#### **Short-joint beavertail cactus**

Short-joint beavertail cactus inhabits Mojave Desert scrub, and Joshua tree woodland habitats.

#### **Palmer's mariposa lily**

Palmer's mariposa lily inhabits seeps and meadows.

#### **Alkali mariposa-lily**

Alkali mariposa lily inhabits seeps and meadows.

#### **Peirson's lupine**

Peirson's lupine inhabits granite slides and talus slopes.

#### **Robbin's nemacladus**

Robbin's nemacladus inhabits dry sandy slopes.

### **FIELD SURVEY METHODS**

We conducted protocol level surveys to identify the potential presence of species listed in Table 1, copies of agency approved survey protocols can be found in Appendix A.

### **RESULTS**

#### **Desert Tortoise**

Surveys were conducted 4/24 and 5/23-26/2012. Habitat in the project area is fenced with chainlink, fragmented, and disturbed but is marginally suitable to support desert tortoise. Protocol level surveys identified no desert tortoises, burrows, or sign.

#### **Rare Plant Species**

We observed suitable habitat for short-jointed beavertail cactus, the species is not present in the project area. Habitat for the other plants listed in Table 1 does not exist in the

project area.

### **Common Plant Species**

**ANNUALS** – *Erodium cicutarium*, *Amsinkia* sp., *Schismus arabicus*, *Bromus madritensis*., *Gilia* sp., *Chicory* sp., *Ambrosia acanthicarpa*

**PERENNIALS**-, *Hymenoclea salsola*, *Acanthotherum* sp., *Gutierrzia californica*, *Yucca brevifolia* (seedlings), *Ericameria* sp., *Chrysothamnus nauseosus*, *Encelia farinosa*. *Eriogonum fasciculatum*., *Ephedra* sp., *Tetradymia* sp., *Larrea* sp.

### **Mohave Ground Squirrel**

Habitat in the study area has been modified during construction of the pump station, however, suitable plant community Mojave Desert Scrub have been reestablished on most of the project sites.

**Visual Surveys were conducted by:** Bill Vanherweg on 3/29/2012.

**Results of Visual Survey:** No MGS were observed

No Mohave ground squirrels were captured in the project area. The following table shows the number of white-tailed antelope squirrel (*Ammospermophilus leucurus*) captures and weather conditions during our trapping surveys.

---

**First Sampling Term**

DATE	TIME	TEMP °F air	CAPTURES		Cloud Cover		Wind speed (Mi/hr)	
			AGS	MGS	AM	PM	AM	PM
4/21/2012	0630	69	1	0	0 %	0 %	0-5	0-5
	1200	90+						
4/22/2012	0630	70	3	0	0 %	0 %	0	0-5
	1115	90+						
4/23/2012	0630	68	8	0	0 %	20 %	0	5-10
	1400	82						
4/24/2012	0630	56	2	0	10 %	100 %	0	5-10
	1500	82						
4/25/2012	0640	67	4	0	100 %	50 %	5-10	0-5
	1500	83						

**Second Sampling Term**

DATE	TIME	TEMP °F air	CAPTURES		Cloud Cover		Wind speed (Mi/hr)	
			AGS	MGS	AM	PM	AM	PM
5/22/2012	0600	61	6	0	10%	20%	0	10-20
	1300	90						
5/23/2012	0600	60	6	0	20%	20%	0-5	15-20
	1500	80						
5/24/2012	0600	59	3	0	0%	0%	0-5	10-20
	1400	80						
5/25/2012	0600	55	2	0	10%	50%	10-15	20-40
	1400	67						
5/26/2012	0600	46	1	0	10%	50%	5-10	5-15
	1500	70						

**Third Sampling Term**

DATE	TIME	TEMP °F air	CAPTURES		Cloud Cover		Wind speed (Mi/hr)	
			AGS	MGS	AM	PM	AM	PM
7/6/2012	0530	67	0	0	0%	0%	0-5	5-10
	1130	90+						
7/7/2012	0530	70	3	0	0 %	0 %	0-5	5-10
	1000	90+						
7/8/2012	0530	65	0	0	0 %	0 %	0-5	5-10
	1030	90+						
7/9/2012	0530	72	1	0	0 %	0 %	0-5	0-5
	9000	90+						
7/10/2012	0530	76	0	0	10%	10%	0-5	0-5
	0845	90+						

---

\*AGS=antelope ground squirrel, MGS=Mohave ground squirrel

## REFERENCES AND LITERATURE CITED

- Abrams, L. 1944. Illustrated Flora of the Pacific States. Four Volumes. Stanford University Press. Stanford, California.
- Burt, W. B. and R. P. Grossenheimer. 1976. A field guide to the mammals. Houghton Mifflin Co. Boston, MA 289 pp.
- California Department of Fish and Game. 2003. CDFG unpubl. guidelines. Mohave Ground Squirrel Survey Guidelines.
- California Department of Fish and Game. 2012. California Natural Diversity Data Base Records.
- California Native Plants Society. 1994. Inventory of Rare and Endangered Plants of California. 336 pp.
- Hickman, James C. 1993. The Jepson Manual: Higher Plants of California. University of California Press. Berkeley, California. 1400 pp.
- Ingles, Lloyd G. 1979. Mammals of the Pacific States. Stanford University Press, Stanford, CA. 506pp.
- United States Fish and Wildlife Service. 2010. Preparing for any action that may occur within the range of the Mojave Desert Tortoise.

# Appendix A

---

USFWS Desert Tortoise Survey Protocol

CDFG Mohave Ground Squirrel Survey Protocol

## PREPARING FOR ANY ACTION THAT MAY OCCUR WITHIN THE RANGE OF THE MOJAVE DESERT TORTOISE (*Gopherus agassizii*)

The Mojave population of the desert tortoise (*Gopherus agassizii*) was listed by the U.S. Fish and Wildlife Service (USFWS) as threatened on April 2, 1990 (USFWS 1990). Subsequently, proposed actions within the range of the desert tortoise fall under purview of the Endangered Species Act 1973, as amended (ESA), in addition to State regulations. For detailed information on the ecology of the Mojave desert tortoise, please see USFWS (2010).

This protocol provides recommendations for survey methodology to determine presence/absence and abundance of desert tortoises for projects within the range of the species and a standard method for reporting survey results. Information gathered from these procedures will: 1) help determine the appropriate level of consultation with USFWS and the appropriate state agency; 2) help determine the amount of incidental take of desert tortoises resulting from proposed projects as defined by the ESA and appropriate state laws; and 3) help minimize and avoid take.

This guidance includes:

- Site Assessment
- Pre-project Field Survey Protocol for Potential Desert Tortoise Habitats
- USFWS 2010 Desert Tortoise Pre-project Survey Data Sheet

This guidance is subject to revision as new information becomes available. Before initiating the protocols described below, please check with your local USFWS and appropriate state agency office to verify that you are implementing the most up-to-date methods. To ensure quality and reduce the likelihood of nonconcurrency with survey results, we recommend that the names and qualifications of the surveyors be provided to USFWS and appropriate state agency for review prior to initiating surveys.

In Arizona:

U.S. Fish and Wildlife Service  
Arizona Ecological Services  
323 N. Leroux St., Suite 201  
Flagstaff, AZ 86001  
(928) 226-0614

In California, for Inyo, Kern, Los Angeles, and San Bernardino Counties:

U.S. Fish and Wildlife Service  
Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003  
(805) 644-1766

In California, for Imperial and Riverside Counties, and Joshua Tree National Park and the San Bernardino National Forest in San Bernardino Co:

U.S. Fish and Wildlife Service  
Carlsbad Fish and Wildlife Office  
6010 Hidden Valley Road  
Carlsbad, California 92009  
(760) 431-9440

In Nevada:

U.S. Fish and Wildlife Service  
Nevada Fish and Wildlife Office  
4701 North Torrey Pines Drive  
Las Vegas, Nevada 89130  
(702) 515-5230

In Utah:

U.S. Fish and Wildlife Service  
Utah Ecological Services Field Office  
2369 West Orton Circle  
West Valley City, Utah 84119  
(801) 975-3330

---

**State Agencies**

---

Arizona Game & Fish Department  
State Headquarters--Nongame Branch  
5000 W. Carefree Highway  
Phoenix, AZ 85086  
623-236-7767

---

California Department of Fish and Game (CDFG)

For Kern County:

Central Region Headquarters Office  
1234 E. Shaw Avenue  
Fresno, CA 93710  
(559) 243-4005 ext. 151

For Imperial, Inyo, Riverside and San Bernardino Counties:

Inland Deserts Regional Office  
3602 Inland Empire Boulevard, Suite C-220  
Ontario, CA 91764  
(909) 484-0167

For Los Angeles County:

South Coast Regional Office  
4949 Viewridge Avenue  
San Diego, CA 92123  
(858) 467-4201

---

Nevada: Department of Wildlife:

Southern Region  
4747 Vegas Dr.  
Las Vegas, NV 89108  
(702) 486-5127

---

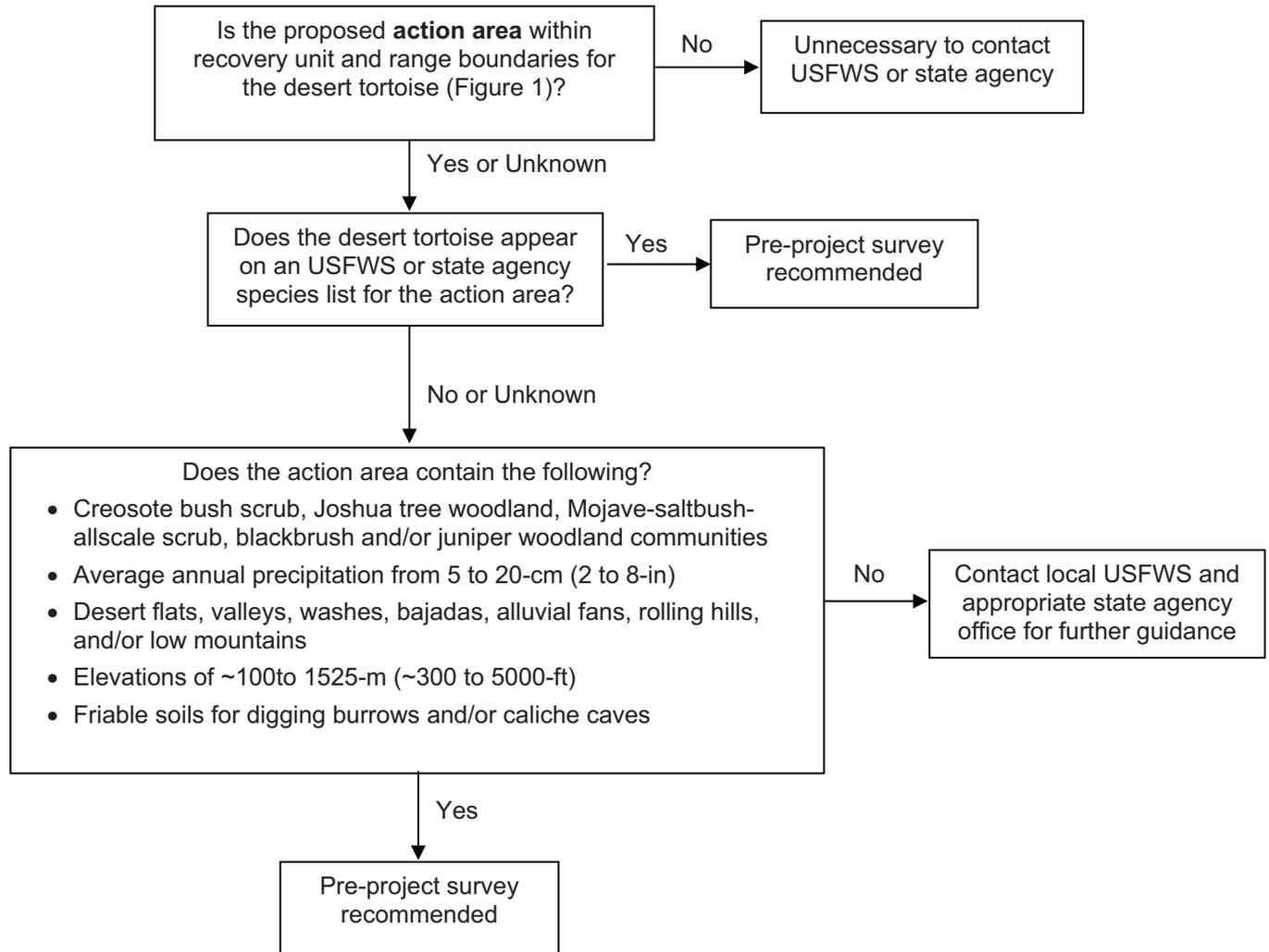
Utah Division of Wildlife Resources:

Southern Region  
1470 N Airport Rd  
Cedar City, UT 84720  
(435) 865-6100

---

## Site Assessment

Use the key below to assess if desert tortoises may be present within or near the action area and determine survey and consultation requirements. The **action area** is defined by regulation as all areas to be affected directly or indirectly and not merely the immediate area involved in the action (50 CFR §402.02). The extent of the action area is not limited to the "footprint" of the action nor is it limited by the authority of the Federal, state, or local agency or any other entity proposing the project; it can and will vary accordingly with each proposed action. The environmental baseline, the analysis of the effects of the action, and the amount or extent of incidental take are based upon the action area. If you cannot access the entire action area during your surveys for some reason (e.g. access to private property is unavailable), please note that in your survey report.





**Figure 1.** Known range of the desert tortoise (Mojave Population) shown as USGS desert tortoise habitat potential model (Nussear et al. 2009). Boundaries of 2010 revised recovery units are shown, with the North-East Mojave Recovery Unit, split into north and south (as in Table 2).

## Pre-project Field Survey Protocol for Potential Desert Tortoise Habitats

### Objectives of survey

- Determine presence or absence of desert tortoises within the action area
- Estimate the number of tortoises (abundance) within the action area
- Assess the distribution of tortoises within the action area to inform take avoidance and minimization

See *Frequently Asked Questions* for further definition and discussion of the action area.

### Field Methods

This protocol takes into account the fact that not all tortoises within the action area are seen by the surveyor. The following equation accounts for tortoises that are below ground at the time of surveys and for above-ground tortoises that are cryptic and may be missed and should be used to estimate the number of tortoises within the actions area for both 100% coverage and probabilistic sampling.

$$\left( \begin{array}{c} \text{Estimated number of tortoises} \\ \text{within action area} \end{array} \right) = \frac{\left( \begin{array}{c} \text{Number of tortoises} \\ \text{observed above ground} \end{array} \right)}{\left( \begin{array}{c} \text{Probability that} \\ \text{a tortoise is} \\ \text{above ground (P}_a\text{)} \end{array} \right) \left( \begin{array}{c} \text{Probability of} \\ \text{detecting a tortoise,} \\ \text{if above ground (P}_d\text{)} \end{array} \right)} \left( \begin{array}{c} \text{Size of action area} \\ \text{Size of area surveyed} \end{array} \right)$$

- Information to determine presence/absence *and* estimate number of tortoises within the action area is collected during the same survey effort. Surveyed objects include all tortoises that are above ground (both out of burrows and within burrows but still visible), as well as all tortoise sign (burrows, scats, carcasses, etc). Record all locations of tortoises and sign using the USFWS 2010 Desert Tortoise Pre-Project Survey Data Sheet (attached). Please submit a copy of the original datasheets with results of the survey to the local USFWS office within 30 days of survey completion.
- If the action area is large (e.g., 16 hectares [40 acres]) or the project could affect more than 2 or 3 tortoises, surveys should be conducted during the tortoise's most active periods [April through May or September through October when air temperatures are below 40°C (104°F)] (Zimmerman et al. 1994; Frielich et al. 2000; Walde et al. 2003; Nussear and Tracy 2007; Inman 2008). Air temperature is measured ~5-cm from the soil surface in an area of full sun, but in the shade of the observer. Surveys outside these periods may be approved by the local USFWS office when only presence/absence needs to be determined.
- Ten-meter (~30-ft) wide belt transects should be used during surveys. For all projects, surveys which cover the entire project area with the 10-m belt transects (100% coverage) are always an acceptable option. For very large action areas, probabilistic sampling may also be an option, such that the appropriate proportion of the action area is surveyed (Table 2). If probabilistic sampling is an option for the project site, each transect should be chosen either systematically or randomly ensuring that the entire action area has an equal probability of being included in the sample. Transects should be completed in a random order, oriented in a logistically convenient pattern (e.g., lines, squares, or triangles). Any sampling design other than simple systematic or random sampling (e.g. stratification) must be approved by USFWS and appropriate state agency. See *Frequently Asked Questions* for further discussion of 100% coverage and probabilistic sampling.
- USFWS considers the results of a pre-project survey to be valid for no more than one year. If survey results are older than one year, please contact the local USFWS office.

*Presence or absence of desert tortoises within the project vicinity*

- Occurrence of *either* live tortoises or tortoise sign (burrows, scats, and carcasses) in the action area indicates desert tortoise presence. If either live tortoises or tortoise sign are observed in the action area, contact the USFWS to determine the best manner in which to comply with the Federal Endangered Species Act.
- If neither tortoises nor sign are encountered during the action area surveys and the project, or any portion of project, is  $\leq 0.8 \text{ km}^2$  (200 acres) or linear, three additional 10-m (~30-ft) belt transects at 200-m (~655-ft) intervals parallel to and/or encircling the project area perimeter (200-m, 400-m, and 600-m from the perimeter of the project site) should be surveyed. These transects are only for the presence/absence determination; they are not included in the estimation of tortoise abundance. See *Frequently Asked Questions* for an explanation of why additional surveys are needed.
- If neither tortoises nor sign are encountered during the action area surveys, as well as project perimeter surveys where appropriate, please contact your local USFWS office. This will allow the USFWS to advise you on how best to demonstrate compliance with the Endangered Species Act. Also contact the responsible state agency to determine compliance with State laws.

*Number of tortoises within the action area*

The attached Table 3 spreadsheet will estimate the number of adult tortoises (>160 mm MCL) within the action area using the “Number of tortoises within the action area” equation from above.

Enter the requested information into the Table 3 spreadsheet, as follows:

1. Enter the area of the total project.
2. Enter the appropriate value from Table 1 for the term “probability that a tortoise is above ground” ( $P_a$ ).
3. Enter the number of adult tortoises (>160-mm midline carapace length) found during the survey of the action area for the term “number of tortoises observed above ground” ( $n$ ).

---

**Table 1.** Probability that a desert tortoise is above ground ( $P_a$ ) relative to the previous winter’s rainfall (October through March)

---

*Use amount of rainfall from the winter preceding the pre-project survey to determine which value of  $P_a$  is appropriate for the project*

*To find this amount of rainfall, go to the Western Regional Climate Center site:*

*<http://www.wrcc.dri.edu/summary/Climsmsca.html>; click on your location and scroll down to “monthly totals”*

Previous Winter Rain	Probability ( $P_a$ )	Variance( $P_a$ )
<40 mm (~1.5 inches)	0.64	0.08
$\geq$ 40 mm (~1.5 inches)	0.80	0.05

---

The estimate for the term “probability of detecting a tortoise if above ground ( $P_d$ )” is already included in spreadsheet Table 3 ( $P_d = 0.63$ ; variance = 0.011). See *Frequently Asked Questions* section below for how  $P_a$  and  $P_d$  and their associated variances were estimated.

See *Appendix 1* for a detailed description of the method used to estimate desert tortoise abundance.

*100% Coverage or Probabilistic Sampling?*

100% coverage surveys are always an acceptable option, regardless of the size of the action area. For very large action areas, probabilistic sampling may be an additional option, such that the appropriate proportion of the action area is surveyed as detailed below. Use the boundaries in Figure 1 and numbers provided in Table 2 to determine if probabilistic sampling could be an appropriate option for the proposed action area.

**For the 2010 field season, probabilistic sampling may not be an option for desert tortoise pre-project surveys in California due to the requirement of CESA to avoid, minimize, and fully mitigate (CDFG code section 2081). Please contact your local CDFG office (see contact info on page 2).**

**Table 2.** Is probabilistic sampling an appropriate option for the proposed action area?

*Is your action area smaller than the area given below for the recovery unit in which the project occurs?*

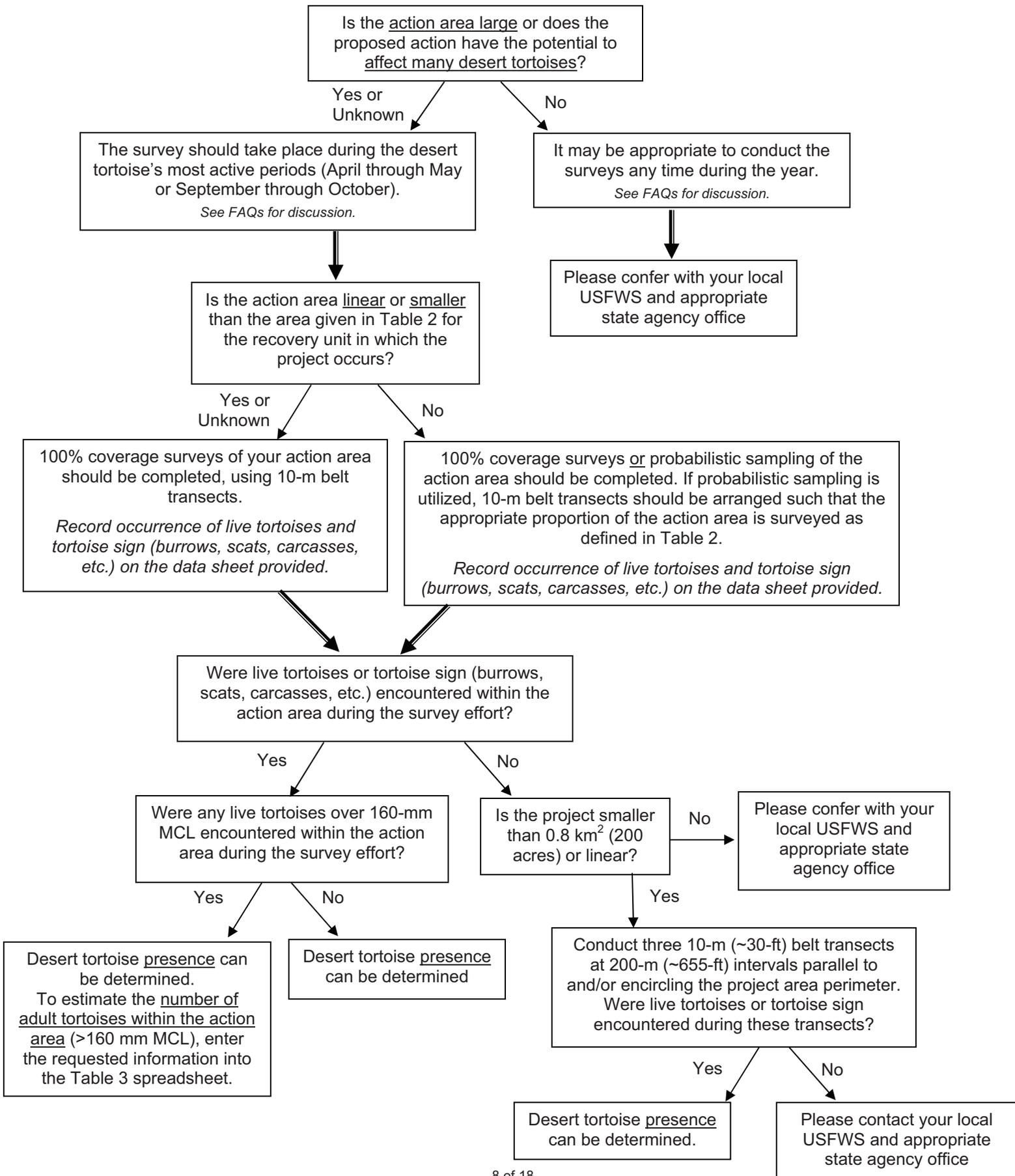
Recovery Unit	Threshold Action Area to Allow Sampling
Western Mojave	4.3 km <sup>2</sup> (1,066 acres)
Colorado Desert	3.3 km <sup>2</sup> (811 acres)
North-East Mojave: North	11.3 km <sup>2</sup> (2,789 acres)
North-East Mojave: South	4.5 km <sup>2</sup> (1,103 acres)
Upper Virgin River	1.1 km <sup>2</sup> (270 acres)

*If yes: 100% coverage surveys of your action area must be completed.*

*If no, total transect lengths that must be surveyed are given below. 100% coverage surveys are also an option, regardless of the size of the project.*

Recovery Unit	Total Transect Length (km) to Sample
Western Mojave	431
Colorado Desert	328
North-East Mojave: North	1,129
North-East Mojave: South	446
Upper Virgin River	109

**DECISION TREE FOR PRE-PROJECT FIELD SURVEY PROTOCOL FOR POTENTIAL DESERT TORTOISE HABITATS**



## **FREQUENTLY ASKED QUESTIONS: DESERT TORTOISE PRE-PROJECT FIELD SURVEY PROTOCOL**

### ***Why did USFWS revise the 1992 USFWS Desert Tortoise Pre-project Survey Protocol?***

The 2010 protocol uses the best available science on the desert tortoise to determine presence and abundance. Desert tortoises occur at low densities across most of the Mojave Desert (USFWS 2006). They are cryptic and spend much of their time underground in burrows (Burge 1977; Nagy and Medica 1986; Bulova 1994) and therefore not all animals within an area will be seen by even the best trained surveyors. Tortoises underground in burrows, as well as individuals hidden above ground, need to be included in estimates of abundance.

The 1992 USFWS Desert Tortoise Pre-project Survey protocol was based on a Bureau of Land Management protocol from the mid-1970s, which utilized the best available information at the time, but did not take into account that some tortoises will be underground and missed during the survey effort. The data collected during the USFWS range-wide monitoring program (currently >7,000-km of transects each year; USFWS 2006) have allowed us to improve pre-project survey methods for estimating abundance. Data about the proportion of tortoises underground in burrows, as well as the probability that an above-ground tortoise greater than 160 mm MCL will be observed by the surveyor are included in the estimate of the number of tortoises within the action area ( $P_a$  and  $P_d$ ).

This revised protocol also addresses the potential for using probabilistic sampling when the action area is larger than size limits given in Table 2. 100% coverage surveys are *always* an acceptable option, regardless of size of the action area. For very large action areas, sampling may be an additional option, such that the abundance estimate can be calculated when an appropriate proportion of the action area is surveyed. Estimates of tortoise densities within recovery units have been used to calculate how many km<sup>2</sup> of a project site must be surveyed to produce a statistically robust abundance estimate (Table 2).

### ***Why did you make the change to recommend that the “action area” should be surveyed, as opposed to the “project area? How do I determine the action area?***

We recommend that the action area be surveyed to better reflect the scope of an action that USFWS is required to review under the authorities of the Endangered Species Act. When USFWS is considering whether desert tortoises may be affected by a proposed action, we cannot limit our evaluation to the actual footprint of the proposed action; we have to consider all areas that may be affected directly or indirectly by the action. We call this the “action area,” which is defined by the implementing regulations for section 7(a)(2) of the Endangered Species Act (50 *Code of Federal Regulations* 402.02), as “areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” (Non-federal actions for which a project proponent has requested an incidental take permit under the authority of section 10(a)(1)(B) of the Endangered Species Act also require consideration of the effects within the action area.)

You can determine the action area by thinking about all components of the proposed action plus desert tortoise ecology, and then calculating the area that may be affected. For example, the proposed action is a 10-acre mine site located adjacent to I-15. From the Harvard Road exit, haul trucks would pull immediately into the mine site. The action area in this case would be the 10-acre mine site. We would not include I-15 in the action area because traffic associated with the mine would not measurably change traffic volume on the freeway.

If the mine operator proposes to conduct blasting activities at the site, the action area includes areas to be affected directly or indirectly by the blasting. If debris moved by the blast, noise, or vibrations would extend beyond the boundaries of the mine site, the area affected by the blasting would become part of the action area. In this case, the delineation of the action area is less than precise; we suggest that you discuss the issue with the project proponent to assess the area that may be affected by the blasting.

As a third example, if the mine site is located 5 miles from Interstate 15 and is accessed by a lightly travelled unpaved road, this unpaved road between the freeway and the mine is part of the action area. We suggest that the access road be treated as a linear project. The road bed itself would not need to be surveyed unless it is so degraded that tortoises would possibly use it for burrowing or shelter; otherwise, place the first transect so that it extends from the edge of the road into the desert, with the second and third transects placed as described in the decision tree. If a new road needs to be built, we recommend that the guidance for a linear project be followed.

If the action area encompasses restricted access private lands, survey the areas for which access is available and note the inaccessible areas in the report. If anything about habitat conditions on the inaccessible areas can be determined (e.g., they support the same type of habitat, are more or less disturbed, etc.), also note that in the report.

***What happened to the zone of influence transects recommended in the 1992 protocol?***

This revised protocol requires that the entire action area, rather than just the project footprint, be included in the survey effort. The action area provides a more realistic view of where desert tortoises may be affected by the proposed action.

***Why is it important to survey during the active period when the action area is large or the proposed action has the potential to affect more than 2 or 3 desert tortoises?***

In these cases, USFWS needs more information than just presence/absence to conduct our analyses and determine the extent of the effects on the desert tortoise; we also need a robust estimate of the number of tortoises within the project area, particularly for large projects that involve translocating tortoises >5 km or <5 km. The most expedient way to estimate abundance for tortoises is to conduct surveys when tortoises are most active, when the estimates of the number of tortoises below ground and of the number of tortoises missed during the survey are applicable. As mentioned above, these calculations have been developed from analyses of years of survey data. Abundance estimates will also be useful to the project proponent and lead agencies because it would allow them to conduct their own analyses and assess potential costs of proceeding with the proposed action in this location. The ESA's implementing regulations 50CFR 402 require federal agencies to use the best scientific information which can be obtained during the consultation process, and USFWS to specify the amount or extent of incidental take. Therefore, we have developed this estimate of abundance to comply with these regulations.

***What factors does the Service take into consideration when reviewing the results of surveys that are conducted outside the active period?***

Surveys outside the active period may be appropriate when only presence/absence is necessary or when the project area is small and only very few tortoises are likely present. We base our determination of whether the results are valid on a whole suite of factors, including but not limited to the type and condition of habitat, the general location of the survey area, the experience of the surveyors, the time and weather when the survey was conducted, the nature of the year in which the survey occurred (i.e., if it rained a lot, desert tortoises are likely to have been active and are more likely to have left evidence of their presence), how much time surveyors spent at the site, and whether they were conducting a focused survey for tortoises or looking for a suite of biological and/or cultural resources. We consider these factors in combination to determine whether the surveyors were likely to have found whatever evidence that desert tortoises were present. Depending on the factors that are present during a survey, the results are more or less likely to represent the true status of the tortoise in that specific area.

***What if the pre-project survey was negative (i.e., no desert tortoises or sign) and then a desert tortoise or sign is detected during implementation of the proposed project?***

If a tortoise or tortoise sign (shells, bones, scutes, limbs, burrows, pellets, scats, egg shell fragments, tracks, courtship rings, drinking sites, mineral licks, etc.) is found in the action area during implementation of the proposed project, we recommend that all activities that could result in the take of a desert tortoise cease *immediately* and that the USFWS and responsible State agency be contacted. USFWS would need to determine the necessary actions to comply with the ESA; the responsible State agencies would also need to review the situation to ensure their laws are not violated. Please notify the USFWS and appropriate state agency as soon as possible as well as in writing within three days of the discovery. If we determine that desert tortoises are indeed present on site, we would have very limited options for allowing the proposed action to proceed in short order. Consequently, we stress the importance of following USFWS guidance and ensuring that qualified workers conduct the surveys.

***How did USFWS determine the values for the “probability that a tortoise is above ground”?***

The USFWS range-wide monitoring program estimated the proportion of the desert tortoise population that is visible using telemetered animals from focal areas in spring 2001-2005 (USFWS 2006). This probability is related to the previous winter's rainfall, as illustrated in Table 1. The range of fall above-ground activity is similar to spring numbers, but the variability is much higher (Nussear and Tracy 2007; Inman 2008). Until more robust estimates of fall above-ground activity are available, spring estimates based on the previous winter's rainfall (October through March) are used for surveys conducted in either active period.

***How did USFWS establish the value for the “probability of detecting a tortoise, if above ground”?***

For the past 5 years, surveyors in the USFWS range-wide monitoring program have undergone training on established transects with artificial tortoises. Trained surveyors detected an average of ~63% of model tortoises that were within 5 m of either side of the transect center-line (USFWS unpublished).

***Why are only tortoises over 160-mm MCL used to estimate the number of tortoises within the action area?***

The values of  $P_a$  and  $P_d$  used in the equation to estimate the number of tortoises within the action area are based on USFWS range-wide monitoring data collected for adult tortoises  $\geq 160$ -mm MCL. Live tortoises of all sizes and tortoise sign are used to determine if tortoises are present within the action area.

***What is the purpose of 100% coverage surveys versus probabilistic sampling?***

The purpose of surveying is to determine presence/absence and estimate the abundance of desert tortoises within the action area. For 100% coverage surveys, transects are placed across the entire action area; thus, the entire area for which abundance is estimated is surveyed. A probabilistic sampling approach, on the other hand, uses data from randomly or systematically placed transects to draw inferences about locations where surveys are not conducted. All locations for which abundance will be estimated *must* have an equal probability of being included in the sample.

***How were the threshold project sizes calculated for determining whether 100% coverage or probabilistic sampling is appropriate?***

The validity of probabilistic sampling requires that all locations for which abundance will be estimated have an equal probability of being included in the sample, as well as a minimum expected sample size. Estimating the number of tortoises within the project area using probabilistic sampling is limited by number of tortoises encountered during the survey effort. Therefore, whether or not the project area must be surveyed using 100% coverage or can be probabilistically sampled is based on the area expected to yield a survey count of 20 tortoises (Krzysik 2002). Table 2 uses tortoise densities and detection probabilities estimated from 2004-2009 range-wide line-distance sampling efforts for each tortoise recovery unit (USFWS unpublished) to calculate that area of a project site that must be surveyed to produce a statistically robust estimate. If the project area is large enough to potentially allow probabilistic sampling, Table 2 provides the minimum transect kilometers (10-m wide) that must be surveyed.

***What if the minimum length of 10-m wide transect kilometers are completed but 20 tortoises were not found in the action area?***

If probabilistic sampling is used and  $< 20$  tortoises are found after surveying the total area prescribed by Table 2, the number of tortoises within the action area may be estimated using the number found.

***Do I keep surveying if 20 tortoises are found before the minimum transect kilometers that must be surveyed are completed?***

If probabilistic sampling was used and the transects have been completed in a random order, project-area surveys may be considered complete when 20 tortoises have been found or the specified number of kilometers have been sampled, whichever happens first. It is okay (even desirable) if more than 20 tortoises are found; this will decrease the width of the confidence interval for the abundance estimate.

***Why do small and linear projects where no tortoises were found have to do additional surveys at 200-m (~655-ft) intervals parallel to the project area perimeter?***

Even though neither tortoises nor tortoise sign were found within the action area at the time of the survey, the area may be part of an animal's home range. The annual home range of a female desert tortoise averages around 0.15 to 0.16 km<sup>2</sup> (35 to 40 acres), about one third the size of male home ranges, which are variable and can be >2 km<sup>2</sup> (500 acres; O'Conner et al. 1994; Duda et al. 1999; Harless et al. 2009). Therefore, projects that are ≤0.8 km<sup>2</sup> (200 acres) or linear may overlap only part of a tortoise's annual home range and the possibility that a resident tortoise was outside the project area at the time surveys were conducted must be addressed. In these cases, three additional 10-m (~30-ft) belt transects at 200-m (~655-ft) intervals parallel to and/or encircling the project area perimeter (200-m, 400-m, and 600-m from the perimeter of the project site) should be completed. Record any tortoises or sign encountered during these surveys. These transects are only used for the presence/absence determination; they are not included in the estimation of tortoise abundance within the project area.

***What does the 95% confidence interval for the number of tortoises within the action area mean?***

Confidence intervals are used to indicate the reliability of an estimate. The interval gives an estimated range of values, calculated from a set of sample data, which will include an unknown population parameter (in this case, the true number of tortoises within the action area) at the specified rate (e.g., 95%). A wider confidence interval indicates that less certainty is associated with the estimate (see Appendix 2). The Table 3 spreadsheet calculates the abundance and associated 95% confidence interval for the estimated number of tortoises within the project area (Buckland et al. 2001).

## Acknowledgments

The USFWS Desert Tortoise Recovery Office is grateful to the many individuals and agencies that were instrumental in development and review of this revised protocol. Specifically, we thank Jim Nichols (USGS) and Tony Krzysik (Prescott Audubon Society) for assistance with concept design; Alice Karl (independent tortoise biologist) and Andrew Thompson (USFWS) for development discussion, and Lisa Benvenuti (Redlands Institute) for GIS support.

This protocol has undergone extensive review. We would like to thank the 2009/2010 USFWS desert tortoise coordination group (Ashleigh Blackford, Ray Bransfield, Michael Burroughs, Renee Chi, Brian Croft, Tannika Engelhard, Jody Fraser, Judy Hohman, Brian Novosak, Pete Sorenson, Leilani Takano, and Brian Wooldridge) for thoughts and suggestions. We would also like to thank Bob Steidl (University of Arizona), Kathy Ralls (Smithsonian National Zoo), Alice Karl (independent tortoise biologist), Ed LaRue (Circle Mountain Biological Consultants), Bill Boarman (Conservation Science Research & Consulting), Phil Medica (USGS), Paulette Conrad (NDOW), Steve Ferrand (Nevada Biological Consulting), and the California Department of Fish and Game (including Kim Nicol, Julie Vance, Scott Flint, and Becky Jones) for insightful comments on the document.

## Literature Cited

- Anderson, D.R. and K.P. Burnham. 1996. A monitoring program for the desert tortoise. Report to the Desert Tortoise Management Oversight Group. 15pp.
- Buckland, S.T., D.R. Anderson, K.P. Burnham, J.L. Laake, D.L. Borchers, and L. Thomas. 2001. Introduction to Distance Sampling: Estimating Abundance of Biological Populations. Oxford University Press, Oxford. 432pp.
- Bulova, S.J. 1994. Patterns of burrow use by desert tortoises: gender differences and seasonal trends. *Herpetological Monographs* 8:133-143.
- Burge, B.L. 1977. Daily and seasonal behavior, and areas utilized by the desert tortoise, *Gopherus agassizii*, in southern Nevada. Proceedings of the Desert Tortoise Council Symposium 1977:59-94.
- Duda, J.J., A.J. Krzysik, and J.E. Freilich. 1999. Effects of drought on desert tortoise movement and activity. *The Journal of Wildlife Management* 63:1181-1192.
- Freilich, J.E., K.P. Burnham, C.M. Collins, and C.A. Garry. 2000. Factors affecting population assessments of desert tortoises. *Conservation Biology* 14:1479-1489.
- Germano, D.J., R.B. Bury, T.C. Esque, T.H. Frittz, and P.A. Medica. 1994. Range and habitats of the desert tortoise. Pages 73-84 in R.B. Bury and D.J. Germano, eds. *Biology of North American Tortoises*. National Biology Survey Technical Report Series, Fish and Wildlife Research 13.
- Harless, M.L., A.D. Walde, D.K. Delaney, L.L. Pater, W.K. Hayes. 2009. Home range, spatial overlap, and burrow use of the desert tortoise in the West Mojave Desert. *Copeia* 2009: 378-389.
- Inman, R.D. 2008. How elusive behavior and climate influence the precision of density estimate of desert tortoise populations. Master of Science in Biology Thesis. University of Nevada, Reno.
- Krzysik, A.J. 2002. A landscape sampling protocol for estimating distribution and density patterns of desert tortoises at multiple spatial scales. *Chelonian Conservation and Biology* 4:366-379.
- Nagy, K.A., and P.A. Medica. 1986. Physiological ecology of desert tortoises. *Herpetologica* 42:73-92.
- Nussear, K.E. and C.R. Tracy. 2007. Can modeling improve estimation of desert tortoise population densities? *Ecological Applications* 17:579-586.
- Nussear, K.E., T.C. Esque, R.D. Inman, L. Gass, K.A. Thomas, C.S.A. Wallace, J.B. Blainey, D.M. Miller, and R.H. Webb. 2009. Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran deserts of California, Nevada, Utah, and Arizona. U.S. Geological Survey Open-file Report 2009-1102. 18 pp.
- O'Connor, M.P., L.C. Zimmerman, D.E. Ruby, S.J. Bulova, and J.R. Spotila. 1994. Home range size and movement by desert tortoises, *Gopherus agassizii*, in the eastern Mojave Desert. *Herpetological Monographs* 8:60-71.
- U.S. Fish and Wildlife Service. 1990. Endangered and threatened wildlife and plants; determination of threatened status for the Mojave population of the desert tortoise. Federal Register 55 FR 12178-12191.
- U.S. Fish and Wildlife Service. 2006. Range-wide monitoring of the Mojave population of the desert tortoise: 2001-2005 summary report. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. 85pp.
- U.S. Fish and Wildlife Service. 2010. Draft Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service Region 8, Sacramento, California.
- Walde, A.D., L. Bol, D.K. Delaney, and L.L. Pater. 2003. The desert tortoise: a preliminary analysis of operative and environmental temperatures. A Report by the Construction Engineering Research Laboratory to the U.S. Fish and Wildlife Service. 18 pp.
- Zimmerman, L.C., M.P. O'Connor, S.J. Bulova, J.R. Spotila, S.J. Kemp, and C.J. Salice. 1994. Thermal ecology of desert tortoise in the Eastern Mojave Desert: seasonal patterns of operative and body temperatures, and microhabitat utilization. *Herpetological Monographs* 8:45-59.

## Appendix 1. Detailed description of desert tortoise abundance and CI estimation

The estimated abundance of adult desert tortoises within the action area is given by:

$$\left( \begin{array}{c} \text{Estimated number of tortoises} \\ \text{within action area} \end{array} \right) = \frac{\left( \begin{array}{c} \text{Number of tortoises} \\ \text{observed above ground} \end{array} \right)}{\left( \begin{array}{c} \text{Probability that} \\ \text{a tortoise is} \\ \text{above ground} \end{array} \right) \left( \begin{array}{c} \text{Probability of} \\ \text{detecting a tortoise,} \\ \text{if above ground} \end{array} \right)} \left( \begin{array}{c} \text{Size of action area} \\ \text{Size of area surveyed} \end{array} \right)$$

which is equivalent to:

$$\hat{N} = \left[ \frac{(n)}{(Table2)(0.63)} \right] \left[ \frac{(A)}{(a)} \right],$$

where  $\hat{N}$  = estimated abundance within entire action area,  $n$  = number of tortoises observed above ground,  $A$  = total action area, and  $a$  = size of actual area surveyed (= total # km surveyed \* 0.01). For 100% coverage surveys,  $A/a = 1$ .

Table 3 uses the following equations to calculate the 95% confidence interval for the estimate of tortoise abundance within the action area (Buckland et al. 2001), assuming all replicate transect lines are the same length, 10-km.

$$\text{var}(\hat{n}) = L \sum_{i=1}^k l_i \left( \frac{n_i}{l_i} - \frac{n}{L} \right)^2 / (k-1)$$

where  $\text{var}(\hat{n})$  = the spatial variation in the number of tortoises detected through the total transect length  $L$ ,  $n_i$  = the number of tortoises seen on transect  $i$ ,  $l_i$  = the length of individual transect  $i$ , and  $k$  = total number of transects walked.

Putting the sources of variability together, the variance of density is:

$$\text{var} \hat{D} = \hat{D}^2 \left[ \frac{\text{var}(n)}{n^2} + \frac{\text{var}(\hat{P}_a)}{(\hat{P}_a)^2} + \frac{\text{var}(\hat{P}_d)}{(\hat{P}_d)^2} \right]$$

Because the tortoise density sampling distribution is positively skewed, the confidence interval is calculated using a log-distribution for density and built with division and multiplication, rather than addition and subtraction from the mean as with a symmetrical interval (Buckland et al. 2001).

Thus, the 95% confidence interval for  $\hat{N}$  is:

$$\left( \hat{N} / C_N, \hat{N} \cdot C_N \right),$$

where  $C_N = \exp \left[ z_{\alpha} \sqrt{\text{var}(\log_e \hat{D})} \right]$  and  $\text{var}(\log_e \hat{D}) = \log_e \left[ 1 + \frac{\text{var}(\hat{D})}{\hat{D}^2} \right]$ .

Given the simplifying assumptions in this protocol, the 95% confidence interval around the estimated number of tortoises within the action area will be wide (e.g., the estimate of the number of tortoises will be imprecise). While this level of imprecision would not be appropriate for recovery planning and decision making at large scales, this protocol provides estimates at local scales that most efficiently utilize the best information that is available to provide statistically defensible results.

## Appendix 2. Example

Project location = near Beatty, NV (within the Eastern Mojave RU)

Action area = 12 km<sup>2</sup> (3,000 acres)

According to this protocol's Site Assessment key, the proposed action is within the known range of the desert tortoise. The local USFWS and appropriate state agency offices were contacted and a species list, which includes the desert tortoise, was obtained for the action area. Therefore, pre-project survey and consultation are necessary.

The project footprint is only 10 km<sup>2</sup>, but since the project will include blasting, the reach of the proposed action on listed species extends to 12 km<sup>2</sup>. Thus, the action area (and therefore the area which needs to be surveyed for desert tortoises) is 12 km<sup>2</sup> (which is more inclusive than the 10 km<sup>2</sup> project footprint).

According to Table 2 of the pre-project survey protocol, the project size of 12 km<sup>2</sup> is above the threshold project area to allow probabilistic sampling in the Western Mojave RU (10.8 km<sup>2</sup> threshold). Therefore, at a minimum, 1,083 km of transects must be walked. For this example, 108 10-km transects (10-m wide) were placed systematically across the project site and were completed in a random order. Surveys of 100% coverage in which 10-m wide transects were placed across the entire 12 km<sup>2</sup> action area would also have been acceptable.

Transects totaling 1,083 km were conducted and 19 adult tortoises (> 160 mm carapace length) were found (as well as tortoise sign, both of which were catalogued using the USFWS 2010 DT pre-project survey protocol data sheet). If 20 adult tortoises had been encountered before the 1,083 km of transects were completed, and transects were conducted in a random order, then surveys could have been considered complete after the 20<sup>th</sup> tortoise was catalogued.

Data collected from the 108 transects (live animals encountered <160-mm MCL)

Number of tortoises (n <sub>i</sub> )	Number of transects on which n <sub>i</sub> tortoises were seen
0	93
1	11
2	4

Using the Western Regional Climate Center website, it was determined that the Beatty area had received 97-mm (3.8 inches) of rain in the October through March preceding the survey effort, which is above the 40-mm (1.5 inches) in Table 1. Therefore, P<sub>a</sub> of 0.80 will be used in this estimation.

Thus, from

$$\hat{N} = \left[ \frac{(n)}{(Table2)(0.63)} \right] \left[ \frac{(A)}{(a)} \right], \text{ we get } \hat{N} = \left[ \frac{(19)}{(0.80)(0.63)} \right] \left[ \frac{(12 \text{ km}^2)}{(10.8 \text{ km}^2)} \right], \text{ or } \hat{N} \approx 42 \text{ tortoises}$$

$$\text{Density} = \frac{(\hat{N})}{(A)}, \text{ we get } \hat{D} = \frac{(42)}{(12 \text{ km}^2)}, \text{ or } \hat{D} \approx 3.5 \text{ tortoises/km}^2$$

To calculate the 95% confidence interval for our abundance estimate, we use:

$$\text{var}(\hat{n}) = L \sum_{i=1}^k l_i \left( \frac{n_i}{l_i} - \frac{n}{L} \right)^2 / (k-1),$$

$$\text{we get } \text{var}(\hat{n}) = 1080 \left[ (93)(10) \left( \frac{0}{10} - \frac{19}{1080} \right)^2 + (11)(10) \left( \frac{1}{10} - \frac{19}{1080} \right)^2 + (4)(10) \left( \frac{2}{10} - \frac{19}{1080} \right)^2 \right] / (108-1), \text{ or}$$

$$\text{var}(\hat{n}) = 23.88$$

And for,

$$\text{var } \hat{D} = \hat{D}^2 \left[ \frac{\text{var}(n)}{n^2} + \frac{\text{var}(\hat{P}_a)}{(\hat{P}_a)^2} + \frac{\text{var}(\hat{P}_d)}{(\hat{P}_d)^2} \right], \text{ we get } \text{var } \hat{D} = 3.5^2 \left[ \frac{23.88}{19^2} + \frac{0.05}{0.80^2} + \frac{0.011}{0.63^2} \right], \text{ or } \text{var } \hat{D} = 2.107$$

Using our log-transformation because the tortoise density sampling distribution is positively skewed,

$$\text{var}(\log_e \hat{D}) = \log_e \left[ 1 + \frac{\text{var}(\hat{D})}{\hat{D}^2} \right], \text{ we get } \text{var}(\log_e \hat{D}) = \log_e \left[ 1 + \frac{2.107}{3.5^2} \right], \text{ or } \text{var}(\log_e \hat{D}) = 0.15$$

Then,

$$C_N = \exp \left[ z_\alpha \sqrt{\text{var}(\log_e \hat{D})} \right], \text{ we get } C_N = \exp \left[ (1.96) \sqrt{0.15} \right], \text{ or } C_N = 2.18$$

And,

$$\left( \hat{N} / C_N, \hat{N} \cdot C_N \right), \text{ we get } ((42 / 2.18), (42 \cdot 2.18)), \text{ or } \sim (19, 92).$$

### Summary

Using the Site Assessment key, it was determined that survey and consultation were necessary for the proposed action. Thus, the pre-project field survey protocol was implemented. In this case, probabilistic sampling with equal length transects (10-km long) was used and 19 adult tortoises and tortoise sign were found during the sampling of the action area, indicating presence. Using the equations and data presented in Appendix 1 of this protocol, Table 3 estimated the actual number of tortoises within the project was estimated to be ~42, with a 95% confidence interval of ~ (19, 92).

**USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET**

*Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion*

Date of survey: \_\_\_\_\_ Survey biologist(s): \_\_\_\_\_  
(day, month, year) (name, email, and phone number)

Site description: \_\_\_\_\_  
(project name and size; general location)

County: \_\_\_\_\_ Quad: \_\_\_\_\_ Location: \_\_\_\_\_  
(UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: \_\_\_\_\_ Transect #: \_\_\_\_\_ Transect length: \_\_\_\_\_

GPS Start-point: \_\_\_\_\_ Start time: \_\_\_\_\_ am/pm  
(easting, northing, elevation in meters)

GPS End-point: \_\_\_\_\_ End time: \_\_\_\_\_ am/pm  
(easting, northing, elevation in meters)

Start Temp: \_\_\_\_\_ °C End Temp: \_\_\_\_\_ °C

**Live Tortoises**

Detection number	GPS location		Time	Tortoise location <small>(in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)</small>	Approx MCL >160-mm? <small>(Yes, No or Unknown)</small>	Existing tag # and color, if present
	Easting	Northing				
1						
2						
3						
4						
5						
6						
7						
8						

**Tortoise Sign (burrows, scats, carcasses, etc)**

Detection number	GPS location		Type of sign <small>(burrows, scats, carcass, etc)</small>	Description and comments
	Easting	Northing		
1				
2				
3				
4				
5				
6				
7				
8				

CALIFORNIA DEPARTMENT OF FISH AND GAME  
MOHAVE GROUND SQUIRREL SURVEY GUIDELINES  
(January 2003)

1. Visual surveys to determine Mohave ground squirrel activity and habitat quality shall be undertaken the period of 15 March through 15 April. All potential habitat on a project site shall be visually surveyed during daylight hours by a biologist who can readily identify the Mohave ground squirrel and the white-tailed antelope squirrel (*Ammospermophilus leucurus*).
2. If visual surveys do not reveal presence of the Mohave ground squirrel on the project site, standard small-mammal trapping grids shall be established in potential Mohave ground squirrel habitat. The number of grids will depend on the amount of potential habitat on the project site, as determined by the guidelines presented in paragraphs 4 and 5 of these guidelines.
3. For linear projects (for example, highways, pipelines, or electric transmission lines), each sampling grid shall consist of 100 Sherman live-traps (or equivalent; the minimum length of any trap is 12 inches) arranged in a rectangular pattern, 4 traps wide by 25 traps long, with traps spaced 35 meters apart along each of the four trap lines. At a minimum, one sampling grid of this type shall be established in each linear mile, or fraction thereof, of potential Mohave ground squirrel habitat along the project corridor.
4. For all other types of projects, one sampling grid consisting of 100 Sherman live-traps (or equivalent; the minimum length of any trap is 12 inches) shall be established for each 80 acres, or fraction thereof, of potential Mohave ground squirrel habitat on the project site. The traps shall be arranged in a 10 x 10 grid, with 35-meter spacing between traps.
5. Each sampling grid shall be trapped for a minimum five consecutive days, unless a Mohave ground squirrel is captured before the end of the five-day term on the grid or on another grid on the project site. If no Mohave ground squirrel is captured on a sampling grid on the project site in the first five-consecutive-day term, each sampling grid shall be sampled for a SECOND five-consecutive-day term. Trapping may be stopped before the end of the second term if a Mohave ground squirrel is captured on any sampling grid on the project site. If no Mohave ground squirrel is captured during the second five-consecutive-day term, each sampling grid shall be sampled for a THIRD five-consecutive -day term. The FIRST trapping term shall begin and be completed in the period of 15 March through 30 April. If a SECOND term is required, it shall begin at least two weeks after the end of the first term, but shall begin no earlier than 01 May, and shall be completed by 31 May. If a THIRD term is required, it shall begin at least two weeks after the end of the second term, but shall begin no earlier than 15 June, and shall be completed by 15 July. All trapping shall be conducted during appropriate weather conditions, avoiding periods of high wind, precipitation, and low temperatures (<50°F or 10°C).
6. For projects requiring two or more sampling grids, capture of a Mohave ground squirrel on any grid will establish presence of the species on the project site. Trapping may be stopped on all grids on the project site at that time. For linear projects, very large project sites, project sites characterized by fragmented or highly-heterogeneous habitats, or in other special circumstances, continued trapping may be necessary.
7. A maximum 100 traps shall be operated by each qualified biologist. Each trap shall be covered with a cardboard A-frame or equivalent non-metal shelter to provide shade. Trap and shelter orientation shall be on a north-south axis. All traps shall be opened within one hour of sunrise and may be closed beginning one hour before sunset. Traps shall be checked at least once every four hours to minimize heat stress to captured animals. When traps are open, temperature shall be measured at a location within the sampling grid, in the shade, and one foot (approx. 0.3 meters) above the ground at least once every hour. Traps shall be closed when the ambient air temperature at one foot above the ground in the shade exceeds 90°F (32°C). Trapping shall resume on the same day after the ambient temperature at one foot (approx. 0.3 meters) above

the ground in the shade falls to 90°F (32°C) and shall continue until one hour before sunset. Suggested baits are mixed grains, rolled oats, or bird seed, with a small amount of peanut butter.

8. A qualified biologist shall complete the Survey and Trapping Form, which is found on page 5 of these guidelines. This biologist, or the lead agency for the project, shall submit the completed form to the appropriate Department office (see page 4) with the biological report on the project site.
9. The Department may allow variation on these guidelines, with the advance written approval of the appropriate regional habitat conservation planning office (see page 4). Such variations could include biologically-appropriate modification of the trapping dates or changes in grid configuration that would enhance the probability of detecting Mohave ground squirrels. Any variation which concerns trapping or marking methods must be incorporated into the MOU or permit that authorizes the work.
10. If a survey conducted according to these guidelines results in no capture or observation of the Mohave ground squirrel on a project site, this is not necessarily evidence that the Mohave ground squirrel does not exist on the site or that the site is not actual or potential habitat of the species. However, in the circumstance of such a negative result, the Department will stipulate that the project site harbors no Mohave ground squirrels. This stipulation will expire one year from the ending date of the last trapping on the project site conducted according to these guidelines.