

**United States Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment CA-670-2007-93  
Case File Number: CACA 47740-01**

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**Finding of No Significant Impact  
And  
Decision Record**

**Project Title**

Proposed Geotechnical Investigation For The Stirling Energy  
Systems Solar Two Site Imperial, County, California

U.S. Department of the Interior  
Bureau of Land Management  
El Centro Field Office  
1661 South 4<sup>th</sup> Street  
El Centro, CA 93342

**August 2008**



**Finding of No Significant Impact**  
**El Centro Field Office**  
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Proposed Geotechnical Investigation For The Stirling Energy  
Systems Solar Two Site Imperial, County, California

**INTRODUCTION**

The Bureau of Land Management (BLM) has conducted an environmental assessment (EACA-670-2007-93) for proposed geotechnical investigations to collect subsurface data and information about the soils and geotechnical challenges on the site. The geotechnical investigation project is the first step in developing a large scale renewable solar energy project, the SES Solar Two Project. SES has submitted a separate right-of-way (ROW) application for a concentrated solar electrical generating facility capable of generating 750 megawatts (MW) of renewable energy. The geotechnical site assessment is independent from the right-of-way (ROW) application for solar energy development, which will be the subject of a separate environmental analysis. The results of the geotechnical investigation will be used to demonstrate the adequacy of project design for foundations and structures and to supplement the BLM Plan of Development (POD) and the Application for Certification (AFC) filed with the California Energy Commission for the SES Solar Two Project.

The project area is located approximately 14 miles west of El Centro, California. The proposed SES Solar Two site boundary to the north is generally located south of the Union Pacific Railroad south of Evan Hewes Highway (County S-80), Interstate Highway 8 to the south, one-half mile to the east of Dunaway Road to the east, and to the west by the westerly section line in Section 22 in Township 16 south, Range 12 East (Figure 1). The SES Solar Two Project area includes approximately 6,150 acres of BLM administered public lands and potentially 360 acres of private lands. Within this area the geotechnical investigation will involve less than 100 acres for 17 boring locations, 11 cone penetration test locations, 26 test pit locations, and 3 metal fin pipe foundation tests locations. The EA, available at the El Centro Field Office, is incorporated by reference for this Finding of No Significant Impact (FONSI).

The proposed action and a no action alternative were analyzed in the EA.

**PLAN CONFORMANCE AND CONSISTENCY:**

The proposed action and alternative have been reviewed and found to be in conformance with the following BLM Land Use Plans and the associated decision(s):

California Desert Conservation Area (CDCA) Plan, 1980, as amended  
Western Colorado Desert Routes of Travel Designations, 2003  
Flat-tailed Horned Lizard Rangelwide Management Strategy, 2003 revision

## **FINDING OF NO SIGNIFICANT IMPACT DETERMINATION:**

Based upon a review of the EA and the supporting documents, I have determined that the project is not a major federal action and will not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27 and do not exceed those effects described in the above listed Plans. Therefore, an environmental impact statement is not needed.

This finding is based on the context and intensity of the project as described:

**Context:** This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short and long term effects are relevant.

The project is a site-specific action directly involving approximately 100 acres of BLM administered land that by itself does not have international, national, regional, or state-wide importance. The context of the EA analysis was determined to be at a local and regional scale in Imperial County, California. The effects of the action are not applicable on a national scale since no nationally significant values were involved.

**Intensity:** This refers to the severity of impact. The following discussion is organized around the Ten Significance Criteria described in 40 CFR 1508.27 and incorporated into BLM's Critical Elements of the Human Environment list (H-1790-1), and supplemental Instruction Memorandum, Acts, regulations and Executive Orders. The following have been considered in evaluating intensity for this proposal:

*1) Impacts can be both beneficial and adverse and a significant effect may exist regardless of the perceived balance of effects.*

**Beneficial Effects:** Geotechnical investigations would allow for proper engineering of the proposed Solar Two project. The proposed Solar Two project is needed for compliance with California's growing electric power demand, especially for energy from renewable sources. It has the potential to have a beneficial effect on energy production and a positive effect on air quality by reducing the burning of fossil fuels.

**Adverse Effects:** As vehicles and machinery travel across the project area, there would be some disturbance of soils, creating some dust or particulate matter (PM<sub>10</sub>). Testing activity would generate low levels of emissions associated with usage of gasoline equipment (trucks, vehicles and machinery.) Following guidelines, the project would have negligible effects on air quality.

The Proposed Action could result in potential impacts sensitive species such as the flat-tailed horned lizard, Le Conte's thrasher, loggerhead shrike and horned lark. Best Management Practices will be implemented to minimize impacts to the flat-tailed horned lizard and proposed activities would be conducted during the non-breeding season (July-January) within limited areas that would constitute only a very small portion of a bird territory or home range.

All cultural resources identified can be avoided and there will be no affect.

It is possible that cone penetration tests and borings could have a minor impact on paleontological resources, but there is no practical way to mitigate those effects.

Geotechnical investigations within the proposed Solar Two site would be temporary and completed within a few weeks. As a result, closures required to conduct the investigations would not have a significant impact on recreational uses. Furthermore, nearby OHV recreation areas and other limited use areas would be accessible to recreational users during any temporary closures.

2) *The degree to which the selected alternative will affect public health or safety.* The proposed action is not anticipated to affect public health or safety.

3) *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas.* The proposed geotechnical investigations would not be situated in proximity to park lands, prime farmlands, wild and scenic rivers, or ecologically critical areas. The proposed project has been sited so as to avoid cultural or historic resources.

4) *The degree to which the effects on the quality of the human environment are likely to be highly controversial.* It is not likely that the proposed project would result in impacts to the quality of the human environment that would be highly controversial.

5) *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.* Effects of the proposed action are well understood and would not involve any unique or unknown risks.

6) *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

The proposed action would not establish precedents for future actions or represent a decision in principle about a future action.

7) *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts – which include connected actions regardless of land ownership.* Cumulative impacts of the proposed action on the environment would not be significant or related to any other action with significant cumulative impacts.

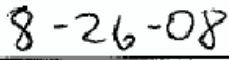
8) *The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. No significant scientific, cultural or historical resources would be affected by the proposed action.*

9) *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973, or the degree to which the action may adversely affect: 1) a proposed to be listed endangered or threatened species or its habitat, or 2) a species on BLM's sensitive species list. The BLM Sensitive flat-tailed horned lizard occurs throughout western Imperial County. BLM has implemented mitigation measures to minimize risk to Flat-tailed horned lizards. Because of these mitigation measures, the Bureau determined that this project is not likely to adversely affect flat-tailed horned lizards.*

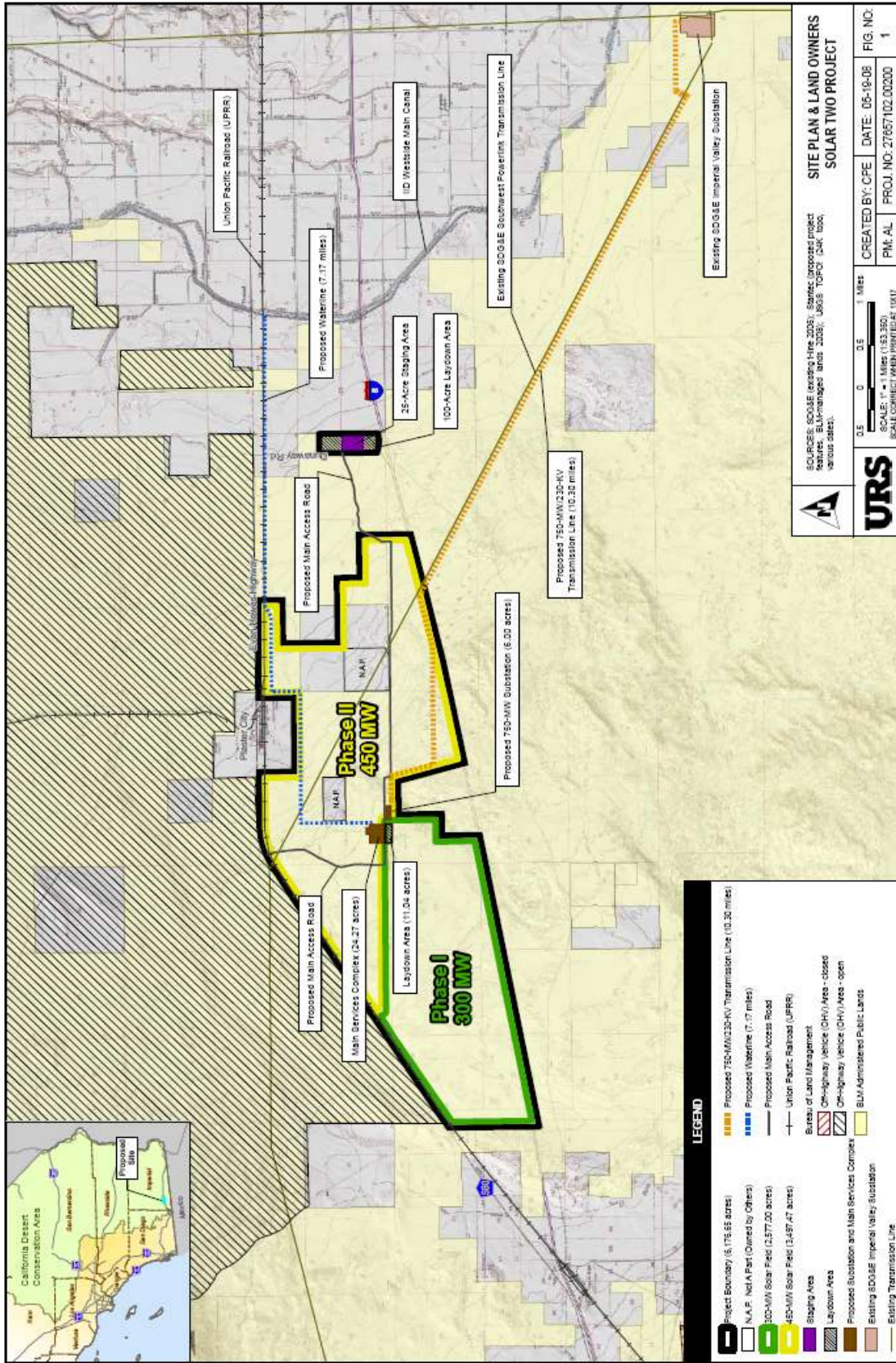
10) *Whether the action threatens a violation of a federal, state, local, or tribal law, regulation or policy imposed for the protection of the environment, where non-federal requirements are consistent with federal requirements. There is no indication that the proposed action will result in actions that will threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

Based on the findings discussed herein, I conclude that the proposed action is not a major Federal action and will result in no significant impacts to the environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27 and do not exceed those effects described in the California Desert Conservation Area Plan, as amended. Therefore, preparation of an environmental impact statement to further analyze possible impacts is not required pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969.

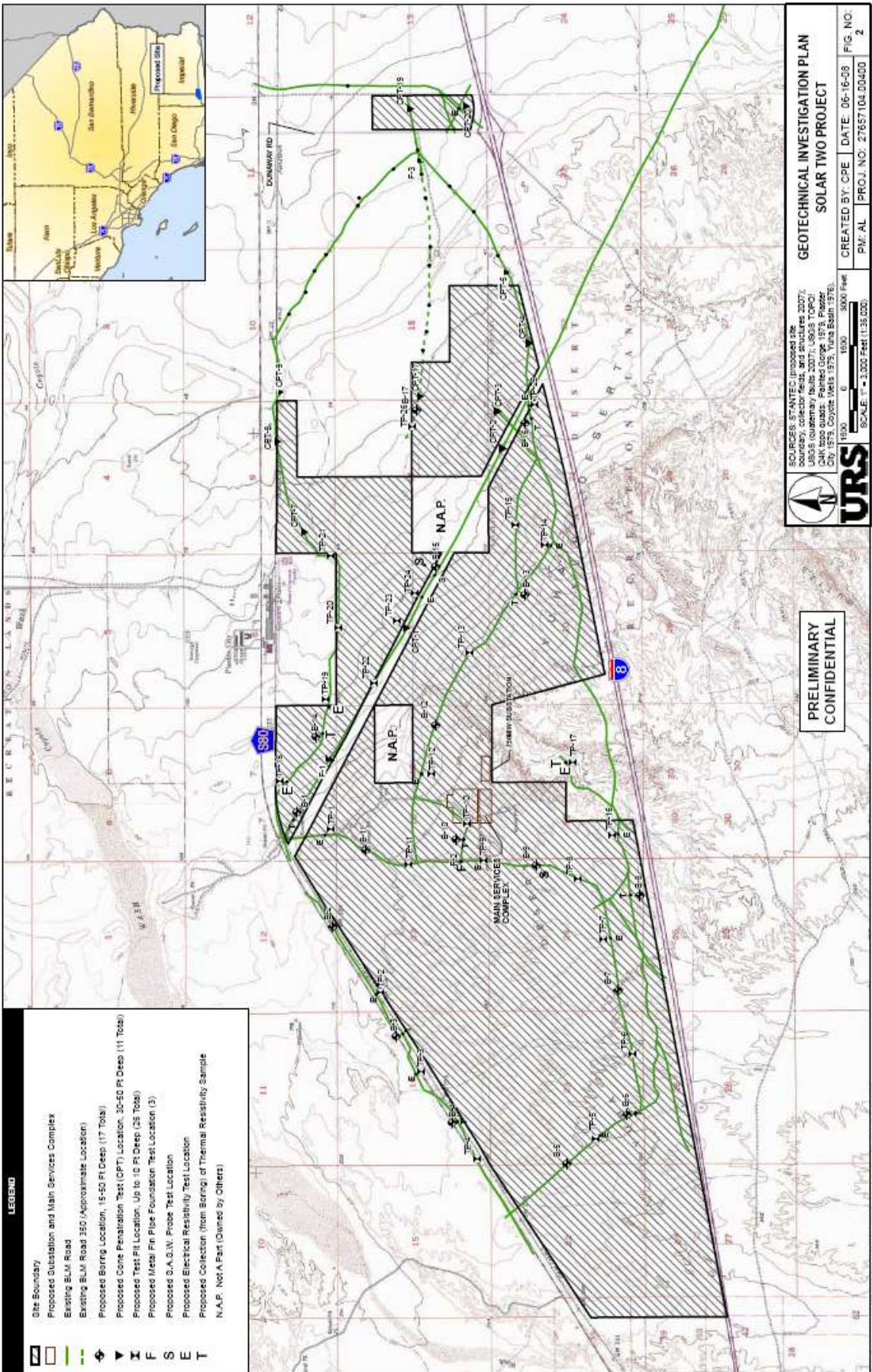
  
\_\_\_\_\_  
Vicki L. Wood, Field Manager  
El Centro Field Office

  
\_\_\_\_\_  
Date









**Decision Record**  
**El Centro Field Office**  
**Environmental Assessment CA-670-2007-93**  
**Case File Number: CACA 47740-01**

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Proposed Geotechnical Investigation For The Stirling Energy  
Systems Solar Two Site Imperial, County, California

## **1.0 Introduction and Background**

The Bureau of Land Management (BLM) has received an application (CACA 47740-01) from Stirling Energy Systems (SES) for a Land use Permit (2920-1) and approval of a proposed project for geotechnical investigation to collect subsurface data and information about the soils and geotechnical challenges on the site.

The geotechnical investigation project is the first step in developing a large scale renewable solar energy project, the SES Solar Two Project. SES has submitted a separate right-of-way (ROW) application for a concentrated solar electrical generating facility capable of generating 750 megawatts (MW) of renewable energy. The geotechnical site assessment is independent from the right-of-way (ROW) application for solar energy development, which will be the subject of a separate environmental analysis. The results of the geotechnical investigation will be used to demonstrate the adequacy of project design for foundations and structures and to supplement the BLM Plan of Development (POD) and the Application for Certification (AFC) filed with the California Energy Commission for the SES Solar Two Project.

The project area is located approximately 14 miles west of El Centro, California. The proposed SES Solar Two site boundary to the north is generally located south of the Union Pacific Railroad south of Evan Hewes Highway (County S-80), Interstate Highway 8 to the south, one-half mile to the east of Dunaway Road to the east, and to the west by the westerly section line in Section 22 in Township 16 south, Range 12 East (Figure 1). The project area includes approximately 6,150 acres of BLM administered public lands and potentially 360 acres of private lands.

Environmental Assessment (EA) CA-670-2007-93 was prepared to disclose and analyze the environmental consequences of issuing a Land Use Permit for the geotechnical investigations as proposed by SES. The EA is a site-specific analysis of potential impacts that could result with the implementation of a proposed action or alternatives to the proposed action.



## **2.0 Decision**

### **2.1 Alternatives Considered**

*Alternative A, the Proposed Action:* The purpose of geotechnical studies is to provide preliminary information to assist with permitting, site development, planning, and preliminary engineering design for the proposed SES Solar Two Project. Specifically, the potential seismic and geologic hazards would be evaluated with respect to the engineering design of structures, foundations, site grading, and other design elements. The geotechnical team would also conduct preliminary evaluations of the conditions and availability of groundwater and assess subsurface information. In addition, this evaluation would be used by engineers to determine the proper placement of solar dishes on the proposed SES Solar Two site and to provide the project team with the tools to design erosion control and soil resistivity. A variety of investigation techniques would be used, including geologic field mapping, air photo interpretation, and subsurface exploration at representative soil and rock locations. The installation and testing of dish foundations would be performed to validate the geotechnical and structural design. Figure 2 shows the location of the proposed explorations and test foundations.

*Alternative B, No Action:* Under the No Action Alternative, no Land Use Permit (2920.1) would be issued to SES for geotechnical investigation. Therefore, no research would be conducted to determine the applicability of the development of solar energy by use of SES' SunCatcher technology in this area, and no supplemental data could be submitted to BLM and the California Energy Commission. BLM's policy for the potential development of renewable resources on federal lands and with the National Energy Policy Act of 2005 would not be implemented at this site.

### **2.2 Decision and Rationale**

Based on information in the EA, and consultation with my staff, I have decided to implement the project as described in the EA. The granting of this Land Use Permit is needed to demonstrate the adequacy of project design for foundations and structures and for the filing of supplemental data to BLM and the California Energy Commission. The information would additionally be used by engineers to determine the proper placement of solar dishes on the proposed Solar Two site. The project is not expected to adversely impact any resources.

#### *Rationale and Management Considerations:*

Alternative A (proposed action) is preferred over Alternative B (no action) for the following reasons:

- Alternative A would be the first step in developing a large scale renewable solar energy project. The proposed SES Solar Two project is needed for compliance with California's growing electric power demand, especially for energy from renewable resources.

- With the Best Management Practices and mitigation measures listed below, the adverse environmental impacts of Alternative A are not significant and will be only nominally greater than those attributable to Alternative B.

*Description of Best Management Practices:*

- Drilling locations will be selected in areas previously disturbed to minimize impacts to flood channels, vegetation, and wildlife.
- Access routes and staging areas will be restricted to existing dirt roads and other disturbed areas onsite.
- The speed limit of vehicles on dirt roads within the project site will be limited to 20 miles per hour.
- A qualified project biologist (qualified as per FTHL Rangewide Management Strategy) will monitor the geotechnical testing process daily and provide recommendations where appropriate to minimize biological impacts.
- A qualified project biologist will be onsite during all ground-disturbing activities. The area will be cleared the day of disturbance and any horned lizards detected will be moved to an adjacent area of suitable habitat.

*Description of Mitigation Measures:*

- Test areas will be clearly staked prior to commencement of geotechnical investigations.
- A qualified biological monitor will accompany geotechnical crews and will conduct a pre-activity survey at all locations to be accessed prior to beginning work on each location.
- Clearing or damage to vegetation will be avoided or minimized to the extent possible. Any disturbance to vegetation will be revegetated as necessary using native material.
- A cultural resources monitor will accompany geotechnical crews and will conduct a preactivity survey at all locations to be accessed during the geotechnical investigation prior to beginning work on each location. This will ensure that all archaeological sites are avoided.
- To the fullest extent possible, coordination will occur with any Native American monitors that tribes have request be present during ground disturbing activities.
- Where ground disturbing activities are conducted, the cultural resources monitor will examine backdirt or drilling spoils for the presence of subsurface cultural resources.
- Existing roads or tracks will be used to the maximum extent possible. New tracks or routes will be minimized. If turn-around areas are required for vehicles, the biological and cultural monitors will assist with selecting a previously disturbed location adjacent to the road.
- All trash and materials from testing will be removed.
- No pets or dogs will be allowed on site.
- Vehicle speeds will be kept to 20 mph or below on site.

### **3.0 Consultation and Coordination**

#### **Fish and Wildlife**

No threatened or endangered species or their habitats were found; therefore, formal consultation with USFWS is not necessary. However, the project area contains habitat for the flat-tailed horned lizard outside of a Management Area. This BLM Sensitive Species occurs throughout western Imperial County. The BLM has implemented mitigation measures to minimize risk to flat-tailed horned lizards. Because of these mitigation measures, the Bureau determined that this project is not likely to adversely affect flat-tailed horned lizards.

#### **Native American**

BLM notified the following Native American tribes and their staff about the proposed geotechnical activities as well as the larger solar project by letter in January 2008:

Manzanita Band of Mission Indians  
Kwaaymii Laguna Band of Mission Indians  
Quechan Indian Tribe  
Ewiiapaayp Band of Kumeyaay Indians  
Torres-Martinez Desert Cahuilla Indians  
Cocopah Indian Tribe  
Campo Kumeyaay Nation  
La Posta Band of Kumeyaay Indians

Comments were received from the Kwaaymii Laguna Band of Mission Indians, the Cocopah Indian Tribe, and the Quechan Indian Tribe. All three tribes have requested that Native American monitors be present during ground disturbing activities at the geotechnical investigation locations.

### **4.0 Public Involvement**

Scoping was announced for the project in July 2008, via BLM's internet site. E-mail notices were sent to known interested parties. The EA was available for a formal 30-day public comment period. No comments, other than those received from the Native Americans above, were received.

### **5.0 Consistency with Land Use Plans, Regulations and Policies**

Based on information in the EA and consultation with my staff, I conclude that this decision is consistent with the following Land Use Plans: California Desert Conservation Area Plan, 1980 (as amended), Western Colorado Desert Routes of Travel Designations, 2003; and the Flat-tailed Horned Lizard Rangewide Management Strategy, 2003 Revision.

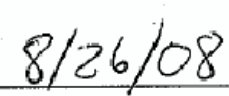
The Proposed Action is consistent with the National Energy Policy Act of 2005 and the BLM's National Energy Policy Implementation Plan; the Endangered Species Act; the Native American Religious Freedom Act; other cultural resource management laws and regulations; Executive Order 12898 regarding Environmental Justice; and Executive Order 13212 regarding potential adverse impacts to energy development, production, supply and/or distribution.

## 6.0 Administrative Remedies

Administrative remedies may be available to those who believe they will be adversely affected by this decision. Appeals may be made to the Office of Hearings and Appeals, Office of the Secretary, U.S. Department of Interior, Board of Land Appeals (Board) in accordance with the regulations in 43 CFR Part 4, and the enclosed form 1842-1. Notices of appeal must be filed in this office within 30 days after publication of this decision. If a notice of appeal does not include a statement of reasons, such statement must be filed with this office and the Board within 30 days after the notice of appeal is filed. The notice of appeal and any statement of reasons, written arguments, or briefs must also be served upon the Regional Solicitor, Pacific Southwest Region, U.S. Department of Interior, 2800 Cottage Way, E-1712, Sacramento, CA 95825.

The effective date of this decision (and the date initiating the appeal period) will be the date this notice of decision is posted on BLM's (El Centro Field Office) internet website.

  
\_\_\_\_\_  
Vicki L. Wood, Field Manager  
El Centro Field Office

  
\_\_\_\_\_  
Date



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**INFORMATION ON TAKING APPEALS TO THE BOARD OF LAND APPEALS**

**DO NOT APPEAL UNLESS**

1. This decision is adverse to you,  
AND
2. You believe it is incorrect

**IF YOU APPEAL, THE FOLLOWING PROCEDURES MUST BE FOLLOWED**

1. NOTICE OF APPEAL . . . . . Within 30 days file a *Notice of Appeal* in the office which issued this decision (see 43 CFR Secs. 4.411 and 4.413). You may state your reasons for appealing, if you desire.
  
2. WHERE TO FILE  
NOTICE OF APPEAL. . . . . BUREAU OF LAND MANAGEMENT  
EL CENTRO FIELD OFFICE  
1661 SO. 4<sup>TH</sup> ST.  
EL CENTRO, CA 92243  
  
SOLICITOR  
ALSO COPY TO . . . . . OFFICE OF REGIONAL SOLICITOR  
2800 COTTAGE WAY, RM. E-1712  
SACRAMENTO, CA 95825-1890
  
3. STATEMENT OF REASONS . . . . . Within 30 days after filling the *Notice of Appeal*, file a complete statement of the reasons why you are appealing. This must be filed with the United States Department of the Interior, Office of the Secretary, Board of Land Appeals, 4015 Wilson Blvd., Arlington, Virginia 22203 (see 43 CFR Sec. 4.412 and 4.413). If you fully stated your reasons for appealing when filing the *Notice of Appeal*, no additional statement is necessary.  
  
SOLICITOR  
ALSO COPY TO . . . . . OFFICE OF REGIONAL SOLICITOR  
2800 COTTAGE WAY, RM. E-1712  
SACRAMENTO, CA 95825-1890
  
4. ADVERSE PARTIES . . . . . Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor or field Solicitor having jurisdiction over the State in which the appeal arose must be served with a copy of: (a) the *Notice of Appeal*, (b) the Statement of Reasons, and (c) any other documents filed (see 43 CFR Sec. 4.413). Service will be made upon the Associate Solicitor, Division of Energy and Resources, Washington, D.C. 20240, instead of the Field or Regional Solicitor when appeals are taken from decisions of the director (WO-100).
  
5. PROOF OF SERVICE . . . . . Within 15 days after any document is served on an adverse party, file proof of that service with the United States Department of the Interior, Office of the Secretary, Board of Land Appeals, 4015 Wilson Blvd., Arlington, Virginia 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the adverse party (see 43 CFR Sec. 4.401(c)(2)).

Unless these procedures are followed your appeal will be subject to dismissal (see 43 CFR sec. 4.402). Be certain that all communications are identified by serial number of the case being appealed.

**NOTE:** A document is not filed until it is actually received in the proper office (see 43 CFR Sec. 4.401(a))

SUBPART 1812.2--OFFICE HOURS; TIME AND PLACE FOR FILING

<p>Sec. 1821.2-1 <i>Office hours of State Offices.</i> (a) State Offices and the Washington Office of the Bureau of Land Management are open to the public for the filing of documents and inspection of records during the hours specified in this paragraph on Monday through Friday of each week, with the exception of those days where the office may be closed because of a national holiday or Presidential or other administrative order. The hours during which the State Offices and the Washington Office are open to the public for the filing of documents and inspection of records are from 10 a.m. to 4 p.m., standard time or daylight saving time, whichever is in effect at the city in which each office is located.</p>	<p>Sec. 1821.2-2(d) Any document required or permitted to be filed under the regulations of this chapter, which is received in the State Office or the Washington Office, either in the mail or by personal delivery when the office is not open to the public shall be deemed to be filed as of the day and hour the office next opens to the public.</p> <p>(e) Any document required by law, regulation, or decision to be filed within a stated period, the last day of which falls on a day the State Office or the Washington Office is officially closed, shall be deemed to be timely filed if it is received in the appropriate office on the next day the office is open to the public.</p>

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See 43 CFR Sec. 4.21 for appeal general provisions.

\*U.S. GOVERNMENT PRINTING OFFICE; 1999-773-004/41163

# ENVIRONMENTAL ASSESSMENT

CA-670-2007-93/CACA 47740-01

## PROPOSED GEOTECHNICAL INVESTIGATION FOR THE STIRLING ENERGY SYSTEMS SOLAR TWO SITE IMPERIAL COUNTY, CALIFORNIA

*Prepared for:*

El Centro Field Office  
Bureau of Land Management  
1661 South Fourth Street  
El Centro, CA 92243

*Prepared by:*

**URS**

8181 East Tufts Avenue  
Denver, CO 80237

July 2008



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## 1.1 INTRODUCTION

Stirling Energy Systems (SES) has submitted an application to the Bureau of Land Management (BLM) for development of the proposed SES Solar Two Project, a concentrated solar electrical generating facility capable of generating 750 megawatts (MW) of renewable power. SES is also preparing an Application for Certification (AFC) with the California Energy Commission. As part of this process, SES proposes to conduct certain geotechnical investigations to collect subsurface data and information about the soils and foundation conditions encountered on, and appropriate for, the site in order to demonstrate the adequacy of project design for foundations and structures. This information would additionally be used to provide the tools to design erosion control and soil resistivity. A variety of investigations techniques would be used including geologic field mapping, air photo interpretation, and subsurface exploration at representative soil and rock locations. The installation and testing of dish foundations is also planned.

The BLM has determined that an Environmental Assessment (EA) is required to determine the potential environmental and social consequences of conducting the proposed geotechnical investigations. This EA has been prepared pursuant to the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality (CEQ) implementing regulations (40 CFR 1500-1508), and the BLM NEPA Handbook (BLM Handbook H-1790-1). The actual work involved in the geotechnical investigation is described in this EA as the Proposed Action.

The Solar Two project boundary was recently amended so as to avoid sensitive cultural resources that were discovered during project surveys. Given the emphasis placed on minimizing impacts to sensitive resources, SES determined that it would be best to avoid this area and modified the project boundary accordingly.

### **Location**

The proposed SES Solar Two site is located in Imperial County in southern California. Solar Two would be located on approximately 6,150 acres of federal land that requires authorization under a right-of-way (ROW) permit from the BLM to SES Solar Two LLC. Approximately 360 acres of additional private land may possibly be purchased or leased by SES Solar Two LLC. The proposed Solar Two site is located approximately 14 miles west of El Centro, with a population of approximately 40,000 people.

The proposed Solar Two site boundary to the north is generally located south of the Union Pacific Railroad south of Evan Hewes Highway (County S-80), Interstate Highway 8 to the south, one-half mile to the east of Dunaway Road to the east, and to the west by the westerly section line in Section 22 in Township 16 south, Range 12 East (Figure 1). North of the proposed Solar Two site is the USG Corporation (Plaster City). The main access to the site would be from Dunaway Road with a second north access from Evan Hewes Highway just east of the SDG&E Southwest Powerlink transmission line. This transmission line traverses the site from the northwest to the southeast as shown in Figure 1.

The proposed Solar Two site is located in an area with a history of mining operations and claim filings dating back to 1908. This historic activity has resulted in creation of several maps, Fractional Townships, unsurveyed sections, and Government Tracts. There are no known current mining claims within the boundary of the proposed Solar Two site.

Figure 1 illustrates the various land ownership within the proposed Solar Two site, most of which is managed by the BLM, with some tracts of private ownership.

### Legal Description

The following sections or portions of sections in Township 16 identify the site and planned boundary for development of the proposed Solar Two project.

Within Township 16 South, Range 11 East defined by:

- Those portions of Sections 7, 9 and 10 south of the Union Pacific railroad ROW located south of Evan Hewes Highway
- The portion of Section 11 south of the Union Pacific railroad ROW and west of Dunaway Road
- The portion of Section 14 north of Interstate 8
- All of Section 15
- The northwest quarter, northeast quarter and southeast quarter of Section 16
- All of Section 17
- Section 18 excluding privately held lands
- The northwest quarter and the west half of the southwest quarter of Section 19
- The north half of Section 20
- The portion of the north half of Section 21 north of Interstate 8
- The portion of Section 22 east of the SDG&E Southwest Powerlink Transmission corridor and north of Interstate 8
- The portion of Section 23 north of Interstate 8 and west of Dunaway Road

Within Township 16 South, Range 10 East defined by:

- Those portions of Sections 12, 13 and 14 south of the Union Pacific railroad ROW located south of Evan Hewes Highway
- The eastern half of Section 22 south of the Union Pacific railroad ROW
- All of Sections 23 and 24
- Those portions of Sections 25 and 26 north of Interstate 8

- The eastern half of Section 27 north of Interstate 8

### 1.2 PURPOSE AND NEED

With a growing population, California's demand for electricity is growing and is expected to be under greater demand for the foreseeable future. Solar energy and other renewable energy sources can play a leading role in providing for these important demands. New requirements for utility companies to provide renewable energy options are driving the promotion of solar development.

The Proposed Action in this EA is a first step in developing a large scale renewable solar energy project. The Proposed Action would result in the issuance of a Temporary Use Permit (2920 Permit) for geotechnical investigation to collect subsurface data and information about the soils and geotechnical challenges on the site. The results of this investigation would be used to demonstrate the adequacy of project design for foundations and structures and for the filing of an Application for Certification with the California Energy Commission. This information would additionally be used by engineers to determine the proper placement of solar dishes on the proposed Solar Two site.

The proposed Solar Two project is needed for compliance with California's growing electric power demand, especially for energy from renewable sources. It is of high importance to investigate the feasibility of using this portion of BLM land for the proposed solar project as soon as possible.

The BLM is committed to promoting the National Energy Policy Act of 2005 and allowing for renewable energy projects on public BLM lands where possible and appropriate. Therefore, the opportunity for innovative collaboration that this project provides is a promising step towards meeting future energy demands with renewable energy sources.

#### **Scope of this Environmental Analysis**

This EA examines the resources and locations that the geotechnical investigation could impact. As described in the Proposed Action, the geotechnical investigation would include drilling for samples of soil and rock, excavating test pits and installing and testing dish foundations.

The geotechnical site assessment is independent from any ROW application for solar energy development. The holder of a site testing Temporary Use Permit (2920 Permit) establishes no right to development as a result of that action. SES has submitted a separate ROW application to the BLM for the use of the land for future solar energy development, which will be the subject of a separate environmental analysis.

The geotechnical investigation and project development are not connected actions under the CEQ NEPA regulations (40 CFR 1508.25) because the authorization of site testing and monitoring does not automatically activate any energy development project.



### **Conformance with Land Use Plans**

This Proposed Action is subject to the following Land Use Plans:

- California Desert Conservation Area Plan 1980 as Amended
- Western Colorado Desert Routes of Travel Designations 2003

The Proposed Action has been reviewed for conformance with these plans. The Project Area is entirely located on BLM administered lands in Imperial County, and is managed under the California Desert Conservation Area Plan (CDCA Plan), as amended (BLM 1980). Most of the lands administered under the CDCA Plan have been designated as one of four “multiple-use classes” Controlled (C), Limited (L), Moderate (M) and Intensive (I). The class designations govern the type and degree of development or management activities allowed within the boundaries of the classes, and must meet the guidelines given for that class.

The entire Project Area is Multiple Use Class L. Class L “protects sensitive, natural, scenic, ecological, and cultural resource values”, and are “managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.” Most land use activities, including solar projects, are allowed in Class L after National Environmental Policy Act (NEPA) requirements are met.

Due to higher levels of resource sensitivity in Class L, vehicle access is restricted to “limited” or “open” routes of travel. The Western Colorado OHV Routes of Travel Designation Plan (WECO) amended the CDCA Plan for Imperial County and assigned a designation where none existed in the CDCA Plan. Most of the routes proposed for use in conjunction with the proposed geotechnical investigations were designated as “open”. The proposed access road from Dunaway Road was designated as closed. However, site specific authorization to use this route is a BLM discretionary action.

### **Applicable Regulatory and Policy Requirements**

43 CFR 2920.1-1 (b) authorizes the BLM to issue permits for uses on the public lands for not to exceed 3 years that involve either little or no land improvement, construction, or investment, or investment which can be amortized within the term of the permit.

The Proposed Action is consistent with the National Energy Policy Act of 2005 and the BLM’s National Energy Policy Implementation Plan. It is the BLM’s general policy to encourage research into the development of renewable energy in acceptable areas on federal lands.

## **2.1 ALTERNATIVE 1 – PROPOSED ACTION – GEOTECHNICAL INVESTIGATION**

The purpose of geotechnical studies is to provide preliminary information to assist with permitting, site development, planning, and preliminary engineering design for the proposed Solar Two site. Specifically, the potential seismic and geologic hazards would be evaluated with respect to the engineering design of structures, foundations, site grading, and other design elements. The geotechnical team would also conduct preliminary evaluations of the conditions and availability of groundwater and assess subsurface information. In addition, this evaluation would be used by engineers to determine the proper placement of solar dishes on the proposed Solar Two site and to provide the project team with the tools to design erosion control and soil resistivity. A variety of investigation techniques would be used, including geologic field mapping, air photo interpretation, and subsurface exploration at representative soil and rock locations. The installation and testing of dish foundations would be performed to validate the geotechnical and structural design. Figure 2 shows the location of the proposed explorations and test foundations.

The proposed geotechnical investigation can be divided into the five following tasks.

### **Task 1 – Coordination/Mobilization and Desk Study**

Project research efforts would include reviewing published geologic maps, aerial photos, and topographic maps of the site area. Information would also be obtained from previous geotechnical investigations adjacent to the site. After compiling the information, the geotechnical team would prepare engineering geologic soil/rock zone maps of the site to assist with initial evaluations of subsurface conditions and geotechnical considerations.

### **Task 2 – Geologic Reconnaissance**

Field reconnaissance and geologic mapping would be performed to refine the preliminary soil/rock zone maps and evaluate areas of identified potential geologic hazards. Detailed surface mapping would also be prepared to identify general fault locations and evaluate fault-related hazards. During the final design, the geotechnical team may need to pinpoint faults to assess activity and possible setback scenarios for major structures and dish foundations. Fault trenching may be required during final design to verify the existence of faults. Fault trenching is not a part of this geotechnical investigation; should it be required, a separate Environmental Assessment would be performed. Experienced engineering geologists would perform the geologic reconnaissance and mapping. In consultation with biology and cultural resource experts, the geotechnical team would stake the locations of the planned subsurface explorations on the site during the reconnaissance. Exploration locations would be selected to assess general coverage of the proposed site area within the various geologic units and specifically target the proposed Solar Two building complexes and electrical substations while utilizing the existing access roads to the maximum extent possible.

**Task 3 – Subsurface Explorations and Geotechnical Laboratory Testing**

The subsurface investigation would include advancing a combination of borings, cone penetration tests (CPTs), and test pits across the site. Exploration locations would be selected to assess general coverage of the proposed site area within the various geologic units and specifically target the proposed Solar Two proposed complexes and electrical substations. Spacing of exploration points 2,000 to 3,000 feet apart is appropriate and planned for this preliminary investigation. CPTs are appropriate in soft/loose soil, such as alluvial and lake deposits, and are expected to be an efficient way to cover the eastern end of the site. Borings would be deployed in all soil/rock types and physical samples would be tested in a laboratory. Shallow depth excavations (test pits) would be utilized to test near-surface conditions to support the engineering design. Given that in some areas the deposits are more random in structure, it may be necessary to interchange the type of testing to collect necessary data for the geotechnical survey.

Tests that will occur outside of the proposed project boundary are in areas that will be utilized for linear components for access and a water line. It is important to understand the geology of these regions to assure that linear components are correctly designed. Given that in some areas the deposits are more random in structure, it may be necessary to interchange the type of testing to collect necessary data for the geotechnical survey. Also, the results of the borings may require that fin pipe foundation tests be moved to areas previously inventoried for other tests so that necessary data can be collected for the geotechnical survey.

During the advancement of the borings, CPTs and test pits it is expected that the following vehicles would be present: the rig required for the actual work, a support vehicle, the geologist's vehicle, and vehicles for the biological and cultural monitors. The field program has been designed to utilize the existing roads at the site. The vehicles would approach the exploration location from a single direction, perform the work on the existing road, and continue in the same direction on the road to the next location. It is not expected that vehicles would be required to turn around, however, should it be required, an appropriate previously disturbed turn-around area would be selected.

A total of 17 borings are planned to be drilled within the proposed project area during a six-day period. The boring locations would be accessible by an all-terrain truck-mounted drill rig eliminating the need to grade access roads and/or pads. The borings would be deployed with 8-inch diameter hollow- and solid-stem augers to depths ranging from 15 to 50 feet below the ground surface. If encountered in the boring, groundwater levels would be monitored. The soil that is removed from the 8-inch diameter hole would be stockpiled (estimated 4-foot diameter stockpile) on the road adjacent to the hole during drilling. The borings would be backfilled by hand with the soil removed from the holes.

An engineering geologist would supervise the drilling, log the borings, and collect representative soil samples. Disturbed and undisturbed soil and sedimentary rock samples collected would be returned to a laboratory for testing and evaluation by the project geotechnical engineer. A testing

program is planned to include evaluation of moisture, density, plasticity (Atterberg Limits), grain size, compressibility, compaction, road subgrade characteristics, and shear strength.

Approximately 26 test pits would be excavated on the site using a backhoe during a one-week period to evaluate shallow subsurface conditions and help characterize material types within the site area. Some of the test pits would target the material in and along the banks of washes to collect samples for scour and sediment transport analyses. Hand sampling may be required on the banks. The test pits would be approximately 2 feet wide, 15 feet long and 10 feet deep and would be excavated within the existing roads and tracks. The removed soil would be stockpiled (estimate 6-foot diameter stockpile) on the road near the test pit. Upon completion of each excavation, the excavated soil would be placed back into the hole in approximately 2-foot lifts. Each lift would be compacted using the backhoe bucket. The ground surface would be smoothed to match adjacent surfaces. An engineering geologist would supervise, log, and sample the test pits. Samples would be returned to a laboratory for evaluation and testing.

Approximately 11 locations would be used for CPT testing to depths ranging from 30 to 50 feet below the ground surface. The CPTs would be deployed into the subsurface to interpret soil stratigraphy, relative density, strength, and hydrogeology. A number of the deeper CPTs would include monitoring pore pressure data to help identify groundwater levels if present. The CPTs would be deployed using either a 6-wheel drive rig or a tracked rig that can also be used to advance borings, depending upon availability. The holes created by the CPTs are 1.5 inches in diameter. Because the CPTs are pushed into the soil, no spoils are created. The pushing of the CPT can be expected to affect the soil within a few inches of the sides of the hole. Upon removal of the CPT probe, the hole is expected to cave, and therefore backfilling of the hole should not be necessary.

#### **Task 4 – Electrical, Thermal Resistivity and Shear Wave Velocity Testing**

Resistivity data would be recorded for the design of underground utilities. Electrical and thermal resistivity studies would be performed on materials from representative locations within the soil/rock units and in areas of proposed development.

Soil resistivity measurements would be collected at approximately 15 locations using a 4-pin Wenner array. To perform this testing, four stainless steel electrodes, each about 6 inches long and less than one inch in diameter, are placed into the ground in a line. The electrodes are placed at equal distances 1.5 feet apart. The placement is repeated about 10 additional times by moving the electrodes further apart, to a maximum distance of 150 feet (total length of 4-electrode array 450 feet). At each spacing, a current is applied to the outer electrodes and the voltage is measured across the inner electrodes, using handheld equipment. The equipment can be transported in a single 4 wheel drive vehicle. All testing is expected to be performed on the road. This testing activity is planned to take approximately two or three days.

Shear wave velocity measurements for seismic design would also be taken. Shear wave velocity data would be collected using SASW (Spectral Analysis of Surface Waves) technology at four

locations across the site. This method uses two shallow probes (approximately 3 inches in length) inserted into the ground to analyze vibrations created by a small truck-mounted hammer up to 300 feet away. This testing is expected to take two days.

Subsurface samples collected from the borings and test pits (Task 3) would also be analyzed in the laboratory for electrical resistivity, corrosivity and thermal resistivity.

### **Task 5 – Foundation Installation and Testing**

As part of the geotechnical investigation, SES plans to install and test three (3) fin pipe foundations for the purpose of determining their suitability for use on the proposed Solar Two site. Issues related to seismic activity are of particular importance. The test foundations would be installed at a maximum of three locations across the site that represent the full range of subsurface conditions at Solar Two.

Two test pit foundations would be installed at each of the three test locations, for a maximum of six test piles. The piles consist of 24-inch diameter pipe piles with fins that extend an additional 12 inches, for a total maximum diameter of 48 inches. The foundations are planned to be installed using a vibratory method in which equipment mounted on top of a crane applies both a vertical pressure and a vibration to the pile until it is advanced into the soil or rock to the desired depth. If the rock at the test location is hard, the foundation would be installed into a 24-inch diameter hole drilled using a drilling rig similar to that used for the borings discussed in Task 3. It is expected that test foundations would be less than 25 feet in length. In addition to the test piles, up to four reaction piles or anchors would be installed adjacent to one of the test piles at each of the three locations, using similar methods. The reaction piles or anchors would be the same size or smaller than the test piles.

At each of the three locations, SES proposes to conduct up to four types of tests, as described below.

- Static overturning test – 1) Install the foundation, 2) Attach one end of a cable to the top of the pedestal horizontally or nearly horizontally, and the other to a hydraulic jack and load cell, or install two foundations near each other and connect the cable and jack between the two, 3) Install strain gauges to the base of the pedestal, 4) Apply a static load of approximately 10,000 pounds (lb), 5) Measure the deflection at the base of the pedestal and top of the pedestal, 6) Repeat the load and measurement at least twice to evaluate soil hysteresis.
- Static torsional test – Similar to above, except 2) Install a 6 feet long horizontal lever arm at the top of the foundation and connect the cable and jack to the adjacent pedestal, 5) Measure the lateral and torsional deflections, 6) Repeat at least twice.
- Vertical capacity test – 1) Install the foundation and up to four anchors evenly distributed about the foundation, 2) Connect a frame with a jack and load cell, 3) Push down on the foundation and measure deformation.

- Dynamic response test or “Bump Test” – 1) Install a large mass (TBD) of approximately 12,000 lb at the top of the pedestal, 2) Connect a cable and load cell to the top of the foundation with a quick release mechanism, 3) Apply a lateral load of approx. 10,000 lb, 4) Release the load, 5) Measure the response of the system to evaluate the damping coefficient of the soil.

The area required for the pile installation and testing should be contained within a 200-foot diameter of each of the test foundations. With the exception of the test piles and reaction piles or anchors, which would extend to depths up to 25 feet, soil disturbance is expected to be surficial. The lateral loads required for the static overturning and dynamic response tests may be exerted by a large 200,000 lb tractor positioned a distance of up to 200 feet from the test foundation; to minimize disturbance, the tractor would be positioned on an access road. A parking area measuring 40 feet by 80 feet would be established near the test location for support vehicles and observers. Two designated turn-around areas, each 20 feet wide and 40 feet long, would be established along the dirt road nearest each test location.

At the completion of the testing, all piles and anchors would be pulled out of the ground using the crane used to install the piles. The surficial soil would be smoothed to match adjacent grades.

### **Task 6 – Geotechnical Analysis and Reporting**

The results of the geotechnical investigation would be presented in a preliminary geotechnical report. The report will present a summary of field investigation and laboratory test results, preliminary conclusions regarding geologic hazards and preliminary engineering discussions and recommendations.

### **Expected Equipment and Personnel Details**

Table 2-1 provides a summary of equipment needed and the number of staff at the proposed Solar Two site, and Table 2-2 presents the proposed schedule of activities.

## **2.2 ALTERNATIVE 2 – NO ACTION**

Under the No Action Alternative, no Temporary Use Permit (2920 Permit) would be issued to SES for geotechnical investigation. Therefore, no research would be conducted to determine the applicability of the development of solar energy by use of SunCatchers in this area and no permit could be filed with the California Energy Commission. BLM’s policy for the potential development of renewable resources on federal lands and with the National Energy Policy Act of 2005 would not be implemented at this site.

**Table 2-1  
Equipment Required for Geotechnical Investigations**

<b>Task</b>	<b>Equipment</b>	<b>Number of Geotechnical and Geological Personnel</b>	<b>Number of Subcontractor Personnel</b>
Borings	<ul style="list-style-type: none"> <li>• Dietrich all-terrain hollow stem auger truck-mounted drilling rig.</li> <li>• Augers and rods</li> <li>• Flat-bed support truck</li> </ul>	1	2
CPTs	<ul style="list-style-type: none"> <li>• 25-ton 6x6 all wheel drive CPT</li> <li>• Flat-bed support truck</li> </ul>	1	2
Alternate Combined Boring/CPT Rig	<ul style="list-style-type: none"> <li>• Marl M5-T (Rhino) Limited Access hollow stem auger track-mounted Drill Rig with CPT capabilities</li> <li>• 4-wheel drive fork lift support vehicle</li> <li>• Support truck</li> <li>• Flat bed carrier truck (Low-Boy) for equipment transport to site (to remain near site entrance)</li> </ul>	1	2
Test Pits	<ul style="list-style-type: none"> <li>• Rubber tired 4-wheel drive backhoe with 10-foot reach</li> </ul>	1	1
Electrical Resistivity Testing	<ul style="list-style-type: none"> <li>• 4-wheel drive vehicle</li> <li>• 4 electrodes (thin pins approximately 12 inches long) inserted into ground</li> <li>• Electrical current (car battery)</li> </ul>	0*	1
Shear Wave Velocity Testing	<ul style="list-style-type: none"> <li>• 4-wheel drive vehicle with a drop hammer mounted on the back</li> <li>• Handheld equipment with 3-inch probes inserted into the ground</li> </ul>	0*	2
Test Foundation Installation	<ul style="list-style-type: none"> <li>• CAT crawler crane/pile driving rig with 60-foot mast</li> <li>• Flat bed truck</li> <li>• 4-wheel drive vehicle (2 estimated)</li> <li>• Service Truck</li> <li>• Tractor Trailer Flat Bed (2)</li> <li>• Tractor with Low Boy</li> <li>• Rental Sky Track</li> <li>• Tooling Trailer</li> <li>• Push-It Head (10,000 lb)</li> <li>• Auger Rock Head and Knuckle</li> <li>• 100 Ton Vibro with Sled</li> <li>• 14/17v ABI</li> </ul>	1	10 (est)

Notes:

1. Depending upon rig availability, the boring and CPT tasks may be combined into one task using a single rig (Rhino).
2. On-site personnel would have one 4-wheel drive vehicle.
3. Electrical Resistivity testing would be performed concurrent with the test pit excavation adjacent to the test pits. Shear wave velocity testing would also be performed concurrent with the borings or test pits, and therefore additional personnel would not be required on-site.
4. Personnel estimate does not include cultural/biological monitors or observers from SES or other parties.

**Table 2-2  
Estimated Schedule**

	<b>Week 1</b>	<b>Week 2</b>	<b>Week 3</b>
<b>Borings</b>			
<b>CPTs</b>			
<b>Test Pits</b>			
<b>Elec. Resist.</b>			
<b>Shear Wave</b>			

Note:

1. If boring and CPT tasks are combined (using one rig), the approximate total duration should be approximately the same as shown above.
2. The test foundation installation and testing is expected to take three to five days and would be performed approximately four weeks after completion of the geotechnical investigation.



Discussion of the existing or affected environment is necessary to serve as the basis of comparison when analyzing the impacts of a project. The following is a brief description of the affected environment by resource topic.

### **3.1 GEOLOGY**

There is a known fault (Yuha Wells Fault) traversing a portion of the site from the southwest to the northeast (approximately 32.8 degrees North and 115.9 degrees West).

Site soils are generally of three different types. The upland (western) area is comprised of relatively dense, older sediments (sandstone, siltstone and claystone) with a variable veneer of loose sands and gravels. In some areas, bedrock outcrops have been observed. In the central zone, alluvial fan deposits overlying the sedimentary deposits are present. The east part of the site is low-lying with anticipated subsurface conditions consisting of interbedded loose, alluvial deposits, and soft lake deposits with potentially shallow groundwater. Within wash areas, soils vary from silts to fine sands exhibiting no cohesion. Soils in these areas are fluvial deposits of uniform grades. In higher areas, which are not subject to concentrated water flows, surficial soils are more densely compacted and often contain larger gravels and cobbles.

#### **Topography**

The geomorphic surfaces in this portion of the Imperial Valley are characterized by typical gently sloping topography. The ground surface at the proposed Solar Two site slopes from the southwest to the east from an elevation of approximately 300 feet above mean sea level (msl) to an elevation at about sea level on the eastern side of the site.

The western portion of the site west of the SDG&E Southwest Powerlink transmission line is characterized by rolling terrain with well-defined washes. East of the transmission line, the terrain is described as having uniform, gentle slopes.

### **3.2 BIOLOGY**

#### **Vegetation**

The project site is located in gently rolling, open desert scrub with several sandy washes passing through the site. As depicted in Figure 3, vegetation is comprised of a single vegetation community, Sonoran creosote bush scrub as mapped according to the Holland Code (1986).

Sonoran creosote bush scrub (Holland Code 33100) is a low-growing desert habitat dominated by creosote bush (*Larrea tridentata*), bursage (*Ambrosia dumosa*), brittlebrush (*Encelia farinosa*), and several species of cactus. Creosote bush is a drought-tolerant deciduous shrub frequently found on desert bajadas, alluvial fans, and well-drained desert soils. This vegetation type is common throughout the southern California desert areas and is similar to the creosote

scrub of the Colorado Desert (Holland 1986). Other plant species with subdominant abundance levels observed within this habitat onsite include: Tamarisk (*Tamarix* sp.), Ocotillo (*Fouquieria splendens*), Silver Cholla (*Opuntia echinocarpa*), and Mesquite (*Prosopis* sp.). This vegetation type occurs on substrates including desert pavement, coarse sand, and sandy wash. Sparse stands of *Tamarix* and *Prosopis* mixed with creosote scrub are primarily concentrated within several dry washes that transect the property. No other distinct vegetation communities occur on the proposed Solar Two project site.

A search of the California Natural Diversity Database (CNDDDB) revealed several previously documented special-status species occurring within the project vicinity, including plants such as brown turbans (*Malperia tenuis*), Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*), and flat-seeded spurge (*Chamaesyce platysperma*).

No sensitive plant species were observed during 2007 general and focused surveys, possibly due to low rainfall conditions in the area. Due to the sparse vegetation and moderate level of disturbance displayed on the proposed Solar Two project site, there is only a low to moderate chance of special status plant species to occur onsite.

### **Wildlife**

The project site supports a diversity of common desert wildlife. Reptiles observed included common side-blotched lizard (*Uta stansburiana*), Colorado Desert sidewinder (*Crotalus cerastes*), zebra-tailed lizard (*Callisaurus draconoides*), desert iguana (*Dipsosaurus dorsalis*), Great Basin whiptail (*Cnemidophorus tigris tigris*), and desert horned lizard.

Bird species detected included common raven (*Corvus corax*), California horned lark (*Eremophila alpestris actia*; CA Species of Special Concern [CSSC]), black-tailed gnatcatcher (*Polioptila melanura*), and three raptor species: turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), and red-tailed hawk (*Buteo jamaicensis*).

Mammals observed or indirectly detected from scat or tracks included black-tailed jackrabbit (*Lepus californicus*), kit fox (*Vulpes macrotis arsipus*), coyote (*Canis latrans*), and California ground squirrel (*Spermophilus beecheyi*); rodent tracks and burrows were commonly observed throughout the site.

A search of the CNDDDB revealed several previously documented special-status wildlife species occurring within the project vicinity, including the flat-tailed horned lizard, burrowing owl, Le Conte's thrasher, and American badger (*Taxidea taxus*).

Five special-status wildlife species were identified during 2007 biological surveys, including the flat-tailed horned lizard, burrowing owl, loggerhead shrike, Le Conte's thrasher, and California horned lark (*Eremophila alpestris actia*) (Figure 3). The flat-tailed horned lizard had been proposed for listing in 1993 as threatened by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act of 1973, as amended. The proposal for listing was withdrawn by

USFWS in June 2006 (USFWS 2006). However, litigation is still ongoing regarding the status of the FTHL. The flat-tailed horned lizard and burrowing owl are considered sensitive by the BLM. In addition, all five sensitive wildlife species observed onsite have been identified as Species of Special Concern by the California Department of Fish and Game (CDFG).

These five species are described below.

Flat-tailed horned lizard (*Phrynosoma mcallii*). The flat-tailed horned lizard inhabits areas of fine sand in desert washes and flats in the desert areas of San Diego, Imperial and Riverside counties in California, southwestern Arizona and northern Baja California, and Sonora in Mexico. This lizard typically occurs in flat sparse desert scrub habitats dominated by creosote bush and bursage on fine, sandy, alkaline soils. Turner and Medica (1982) found that over 97 percent of total food intake was composed of ants in specimens studied. Flat-tailed horned lizards are suffering habitat loss from development and off-road vehicle use. It is estimated that up to 90 percent of the lizard's original geographic range is subject to or potentially subject to some form of human disturbance (Turner and Medica 1982). Two flat-tailed horned lizards and four desert horned lizards were detected in the project area during 2007 surveys (Figure 3). Active harvester ant mounds and horned lizard scat were observed throughout the site. Because the desert horned lizard also inhabits the area, it is impossible to determine which species of horned lizard produced the scat. The flat-tailed horned lizard has the potential to occur throughout the site.

Burrowing owl (*Athene cunicularia*). The western burrowing owl is a small, ground dwelling bird that inhabits grasslands, agricultural fields, and disturbed areas in the western half of the United States down into Baja California and central Mexico (Johnsgard 1988). Burrowing owls use rodent burrows throughout the year for shelter from weather and predators and for nesting during the breeding season (February 1 to August 31). In Southern California, the most commonly used rodent burrow is that of the California ground squirrel (*Spermophilus beecheyi*), and nesting distribution is strongly correlated to local burrow distribution (Collins 1979). Burrowing owls form short term pair bonds with male territoriality peaking during pair formation and declining after egg laying. Not all individuals capable of breeding do so every year. Burrowing owls have declined through much of their range because of habitat loss due to urbanization, agricultural conversion, and destruction of ground squirrel colonies (Remsen 1978). Burrowing owls are relatively tolerant of lower levels of human activity, but have been negatively impacted by high levels of human related disturbances such as shooting and the introduction of non-native predators (Zarn 1974). This species often nests and perches near roads where they are vulnerable to roadside shooting, being hit by cars, road maintenance operations, and general harassment (Remsen 1978).

The Imperial Valley is regarded as a population stronghold for the burrowing owl, and currently has the largest and most stable population of burrowing owls in the state of California. It is estimated that 70-80 percent of burrowing owls found in California reside in Imperial County (CDFG 2007). Recent studies in the Imperial Valley estimated owl density of 8.3

pairs/kilometers (km<sup>2</sup>), with a majority of owls nesting in burrows along irrigation canals (Rosenberg and Haley 2004). The agricultural areas of the Imperial Valley provide important foraging areas for burrowing owl food sources including invertebrates from the orders Orthoptera, Araneida, Isopoda, Lepidoptera, Solpugida, and mammals such as rodents (York et al. 2002). Burrowing owls were detected at two locations in the project area (Figure 3).

Loggerhead shrike (*Lanius ludovicianus*). The loggerhead shrike is an uncommon year-round resident of grassland and desert scrub. It is known as the “butcher bird” for its habit of preying on large arthropods or small invertebrates, then skewering them on small twigs or barbed wire before consuming them (Unitt 2004). Populations of the loggerhead shrike have been in decline since the 1980s, partially due to increase urbanization and human disturbance in its habitat. Surveys for the San Diego Bird Atlas project detected high numbers of nesting loggerhead shrike near the proposed Solar Two project area in the Anza-Borrego Desert State Park (Unitt 2004). In addition, a loggerhead shrike was observed on the proposed Solar Two project site during 2007 surveys (Figure 3).

Le Conte’s thrasher (*Toxostoma lecontei*). Le Conte’s thrasher is an uncommon resident of desert scrub, desert wash, and alkali desert scrub habitats from Inyo County to the Mexican border. This species is especially wary of humans and is susceptible to human disturbance (Remsen 1978). Breeding season for this species extends from late January to June. One Le Conte’s thrasher was detected in the project area (Figure 3).

California horned lark (*Eremophila alpestris actia*). This species is generally uncommon and with patchy distribution, and occurs in deserts, grasslands, and possibly any open flat area. Horned larks are known to colonize areas graded for development, disappearing when construction begins. Nests are placed on the ground, and nesting occurs in April with fledglings arriving May – July. California horned larks were observed throughout the project site during the 2007 surveys.

### **3.3 HYDROLOGY**

#### **Hydrological Setting**

The proposed Solar Two site lies within the Yuha Desert, which is part of the Sonoran Desert. The Yuha Desert lies within the Lower Colorado River Valley region of the desert. This region is one of the most arid parts of the Sonoran Desert with an average annual precipitation of approximately 3 inches. Average annual maximum and minimum temperatures are 71°F and 45°F. Daily maximum and minimum temperatures are 122°F and 18°F. Average annual evapotranspiration is over 140 inches.

#### **Surface Water**

There are no perennial streams within the proposed Solar Two site. The nearest perennial stream is the New River that is approximately 8 miles east from the eastern end of the site and does not

pose a flooding hazard to the project. The site is traversed by a number of ephemeral washes, which only flow after significant rainfall. Washes fill up quickly during rainfall events, with torrential waterflows occurring during monsoon seasons. A floodplain exists on the site.

### **Groundwater**

The proposed Solar Two site lies within the Ocotillo/Coyote Wells Valley Groundwater Basin. The basin is bounded on the north by impermeable meta-sedimentary rocks of the Coyote Mountains and the Elsinore fault zone. Impermeable rocks of the Jacumba Mountains bound the basin to the west and southwest. The United States-Mexico border forms the southeastern boundary. The eastern boundary is a roughly north-south line from Superstition Mountain through the Yuha Buttes to the international border. A surface drainage divide connecting the Coyote Mountains with Superstition Mountain forms part of the northeastern boundary. Palm Coyote Wash and Coyote Wash provide the main surface drainages for the basin.

Unconfined shallow groundwater exists in parts of the basin, but the quality of water is poor. Well logs indicate confined groundwater conditions for several wells drilled near Ocotillo and Coyote Wells. A search of well data did not indicate any wells existing within the project limits, so the depth to groundwater on the site is unknown. However, a number of existing wells are located near the site and indicate that the depth to groundwater is in the range of 50 to 200 feet below ground surface (bgs).

The principle recharge is derived from percolation of precipitation in the valley and ephemeral runoff from the surrounding mountains through many of the larger washes.

## **3.4 CULTURAL RESOURCES**

### **Records Search – Previously Recorded Cultural Resources**

A records search for the proposed Solar Two site, transmission line right-of-way, and the California Energy Commission (CEC) required buffer zones identified 512 previously recorded cultural resources (328 within the project area boundaries, 184 in the buffer zone). Of these sites in the buffer zone, 144 are part of the Yuha Basin Discontiguous Historic District along the south boundary of the project area. Most of the resources are “lithic workshops,” ceramic scatters, residential remains or related resources, but many other types of sites were also present.

The other types of resources found break down as follows in Table 3-1 (many sites contain more than one type of material listed below):

**Table 3-1  
Known Cultural Resources in and Adjacent to the Solar Two Site**

<b>Site Types</b>	<b>Quantity</b>	<b>Site Designation (for sites that may require special attention)</b>
Geoglyphs	2	IMP-4381, IMP-5225
Trails	24	IMP-2478, IMP-759, IMP-2180, IMP-1000, IMP-989, IMP-1724, IMP-963, IMP-961, IMP-1067, IMP-1744, IMP-1745, IMP-4380, IMP-3396H, IMP-2364, IMP-2373, IMP-3762, IMP-764, IMP-777, IMP-808, IMP-956, IMP-1014, IMP-1071, IMP-1746, IMP-3396H
Military Occupation Mounds	1	IMP-3505H
Cremations	4/5	IMP-997, IMP-112, IMP-993, IMP-321, possibly IMP-2440
Altars/Cricles/Cairns	6/7	IMP-990, IMP-4954, IMP-1072, IMP-2360, IMP-3505H, IMP-5698, IMP-735, IMP-737, IMP-741, IMP-958, IMP-959, IMP-964, possibly IMP-758 and IMP-776
Village Sites	2/3	IMP-1426, IMP-4348, possibly IMP-364
Hearth/Fire Pit/Roasting Pit	2	IMP-778, IMP-966
Lithic Site	215	
Isolated Artifact	195	
Ceramic Scatter	18	
Camp Site	20	
Historic Trash Dump	12	
Irrigation Canal	1	IMP-7834
Dixieland Town Remains	2	IMP-3191H, IMP-3192H
Railroad Stop	1	IMP-7816H

The previous surveys identified during the records search and conducted within one mile of the project boundary are shown in Table 3-2.

*Intensive Pedestrian Field Survey of Geotechnical Investigation Locations.* A cultural resource survey was conducted on each of the 57 geotechnical investigation/test foundation locations within the proposed Solar Two project area. The preliminary report and evaluation of cultural resources identified during the surveys conducted of the geotechnical sites was presented to BLM in a separate report.

A 2-acre area was surveyed at each of the proposed geotechnical investigation locations. Two acres provides enough room to shift geotechnical activities that have the potential to impact cultural or biological resources in order to avoid all impacts. Two acres also provides a reasonable area for the geotechnical crew to operate in.

**Table 3-2  
Previous Surveys In or Near Project Area**

<b>Within Project Area</b>	
<b>Project</b>	<b>Report</b>
Jade to Sand Hills Transmission Line	Walker (1981)
La Rosita 230KV Interconnection	Schaefer (1981)
Mountain Springs to Sand Hills 500KV Transmission Line	Shackley (1982)
Petty Rey Geophysical Transects	Von Werlhof (1983)
Southwest Powerlink	Townsend (1984a)
Southwest Powerlink	Townsend (1984b)
Southwest Powerlink	Shackley (1983)
Southwest Powerlink	Shackley (1984a)
Southwest Powerlink	Shackley (1984b)
Southwest Powerlink	Shackley (1984c)
Desert Material Sites: West Imperial County	Caltrans (1989)
<b>Outside Project Area</b>	
<b>Project</b>	<b>Report</b>
Hunter's Alien Waters	BLM (2001a)
Hunter's Alien Waters	BLM (2001b)
Rio-Tel Communications Site	BLM (2001c)
Clear Talk Cellular Site	AEI Consultants (2005)
Mt. Signal and Dixie Ranch Prison Alternatives	Pignolo et al. (1990)
Yuha Rehab 1	BLM (2003)
American Tower Corporation Cell Site CA7	American Tower Corporation (2000)
Phase One Cellular Phone Tower	Barros (2000)
AT&T Wireless Service Facility IM004	Duke (2002)
Archaeological Survey of Yuha Basin	Von Werlhof and Von Werlhof (1977)
BLM Asset Management Parcels	Welch (1983)
Surveys of 547 Acres - BLM	Schaefer (1985)
Alamosa PCS Site #82502-020	Environmental Biologists Inc. (2000)

A hand-held Trimble GeoXT GPS unit was used to determine the location of each geotechnical investigation location and the boundaries of the 2-acre parcel around it. Pedestrian survey was accomplished using 15-meter transect intervals as required by the BLM. The project area is open desert and vegetation and other ground cover is sparse to non-existent. Consequently, ground visibility is excellent.

When a crew encountered cultural resources during the survey, crew members marked the locations of artifacts and features using pin flags. The crew collected all the information required to complete DPR forms for the site. The crew then used the GPS unit to map the boundaries of the site and made a map of the site area. Photographs were taken of the site area, diagnostic artifacts, and any features found. No artifacts were collected during the course of the survey.

The crews observed prehistoric trails running through the project area and through a number of the two-acre study parcels. The course of each trail was followed to the maximum extent of 200

meters outside of the parcel boundaries. The crews mapped the course of each trail using the GPS unit and this information was saved in a separate GIS layer set up for trails. At the conclusion of the field phase of the project, this GIS information, along with high resolution air photos, will be used to reconstruct the trail network in the area and relate it to the locations of features and archaeological sites found there.

### **3.5 PALEONTOLOGY**

The Salton Trough and the Gulf of California were formed by oblique rifting and extension 10 to 15 million years ago (recent studies summarized by Dorsey et al. 2006). Paleontological resources of the area fall into four general categories. Fossils from the Imperial Formation and the Palm Springs Formation can be found reworked in the desert pavement that covers the ground surface of much of the area. Fossils from the Imperial Formation are typically marine bivalves. Because these reworked fossils are not in their original stratigraphic context, their importance as a paleontological resource is diminished. Exposures of the Palm Springs Group (Diablo Formation) within the study area can produce plant, invertebrate, and rare vertebrate fossils. This formation represents a Pliocene Colorado River Delta-plain (Dorsey et al. 2006). The Pleistocene Brawley Formation is developed in some parts of the Salton Trough, but has not been identified in the study area. Paleosols (fossil soils) are developed above some Diablo Formation exposures. These show abundant signs of plant roots, as evidenced by the caliche-encrusted root networks, but vertebrate body fossils or trace fossils are rare. These paleosols are thought to be of Pleistocene age, but could be of Holocene age. A lake perhaps four times the size of the Salton Sea covered part of the study area. This lake is known as Lake Cahuilla, and commonly produces fossils of Holocene age (Whistler et al. 1989), although some radiometric dates indicate that the older levels could be of Pleistocene age. Abundant snails, freshwater mussels, fish, and other vertebrate fossils have been found in these deposits.

### **3.6 RECREATION**

The proposed Solar Two site is situated on public land administered by the BLM. The site is located entirely within an area designated “limited use” for vehicular activity (Figure 4), meaning off-route travel is prohibited. Vehicle travel is allowed on designated travel routes within limited use areas. Routes can be designated as “open” or “limited”. All types of vehicles are allowed on “open” routes. All routes shown within the project area are “open” routes, except for the “closed” Route 350 west of Dunaway. Off-highway vehicle (OHV) activity is not permitted within the proposed Solar Two site. Recreational uses permitted within the Solar Two site include bird and wildlife watching, camping, hunting, scenic driving, hiking, biking, backpacking, and horseback riding.



### 4.1 ELEMENTS OF THE ENVIRONMENT

All elements of the environment have been reviewed to determine if they would be affected by either of the alternatives. In addition, “critical elements” are subject to requirements specified in statute, regulation, or executive order and have been considered in the development of this EA.

The “critical” elements are: Air Quality, Areas of Critical Concern, Cultural Resources, Paleontology, Farmlands- Prime/Unique, Floodplains, Native American Religious Concern, Threatened or Endangered Species of Plants and Wildlife, Invasive Species, Wastes- Hazardous or solid, Water Quality, (Surface or Ground), Wetlands,/Riparian Zones, Wild and Scenic Rivers, Wilderness and Environment Justice.

The analyses of impacts for all elements of the environment, including the critical elements, are addressed under three categories:

- Resources that are **not** present in the project area and **not affected** by one of the alternatives.
- Resources that **are** present in the project area but would **not be affected** by one of the alternatives.
- Resources that **are** present and that **may be affected** by one of the alternatives.

#### **Uses or Resources That Would Not Be Affected by the Proposed Action**

Area of Critical Environmental Concern. Because the Proposed Action would not take place in any designated or proposed ACECs, this element will not be considered further. This project has no impact on ACECs.

Farmlands- Prime/Unique. The Proposed Action would not take place in any designated or proposed Prime or Unique Farmlands. This element will not be considered further. This project has no impact on Prime or Unique Farmlands.

Wild and Scenic Rivers. There are no waterways designated under Federal Wild and Scenic Rivers Act 1968 in or near the proposed project. This element will not be considered further. This project has no impact on Wild and Scenic Rivers.

Wilderness. This project is not in or near a designated Wilderness Area or Wilderness Study area. This element will not be considered further. This project has no impact on Wilderness areas.

Wetlands/Riparian Zones. There are no wetland or riparian zones at the proposed Solar Two site. The location of the proposed borings and test pits would not be in wetland or riparian areas. Therefore, this element will not be considered further. The Proposed Action will not impact wetlands or riparian zones.

**Uses or Resources That Are Present in the Project Area But Would Not Be Affected by Either Alternative**

Wastes - Hazardous or Solid. The proposed Solar Two site is located on undeveloped land in Imperial County. There would be no hazardous or solid waste generated by the geotechnical investigation. The machinery would be operated using fuels and oils; however, fuels and oils would not be added to the machinery on the Solar Two site. Rather, any fueling or maintenance of vehicles and machinery would be done off-site. No spills or leaks of hazardous materials or fuels are expected. No hazardous or solid wastes would be stored on the proposed Solar Two site, therefore this element will not be considered further. This project would not introduce hazardous wastes to the Solar Two site.

Floodplains. The washes in the proposed Solar Two site represent the greatest hazard areas for flooding. However, there are no proposed drilling boring and test pit locations in floodplain areas. Therefore, this item will not be considered further. This project would not impact floodplains in the project area.

Environmental Justice. The Proposed Action would not detrimentally affect minority or low-income populations in or near El Centro. There are no residents on the Solar Two site. This project would not have disproportionate effects on low-income or minority populations.

Water Quality (Surface or Ground). Small amounts of water would be used during the drilling operations. This water would be discharged to the ground surface where it would rapidly evaporate. No water is expected to reach surface water streams or groundwater levels. Therefore this element will not be considered further. There would be no impacts to surface water or ground water quality from this Proposed Action.

Visual Resources. The geotechnical investigation would be temporary and completed within a few weeks. A few trucks and drilling rigs would be seen for a short period of time. Nothing would physically remain on the Solar Two site after the investigation is completed.

An analysis using BLM's Visual Resource Management (VRM) guidelines would not be necessary for this temporary and short-term activity. This project would not result in any type of visual impairment and therefore this element will not be considered further.

## **4.2 RESOURCES WITH THE POTENTIAL FOR IMPACTS**

### **Air Quality**

As vehicles and machinery travel across the project area, there would be some disturbance of soils, creating some dust or particulate matter (PM<sub>10</sub>). Testing activity would generate low levels of emissions associated with usage of gasoline equipment (trucks, vehicles and machinery.) Fugitive PM<sub>10</sub>s would be controlled by the latest approved Imperial County Air Pollution Control District methods. Guidelines include:

- Mobile equipment would meet California standards.
- Dust would be controlled during all operations.

Following these guidelines, the project would have negligible effects on air quality. This project is a precursor to a larger solar project being proposed. The geotechnical work is necessary to establish the applicability of solar energy in the area. It has the potential to have a beneficial effect on energy production and a positive effect on air quality by reducing the burning of fossil fuels.

### **Biological Resources**

Due to the nature of the geological testing, long-term adverse impacts to vegetation and wildlife within the project area from the Proposed Action should be negligible. The Proposed Action would result in short-term temporary adverse impacts to wildlife at the 17 boring locations, 26 test pits, and 11 locations for CPT testing. All of these testing locations would be positioned in previously disturbed areas along existing dirt roads maintained by the BLM (Figure 5). Impacts to vegetation at these locations would be minimal.

An area of approximately 60 square meters would be temporarily impacted at each of the 17 boring test locations from the transportation, staging, and drilling by an all-terrain truck mounted drill rig. Total temporary impacts from boring testing are anticipated to be 900 to 1,200 square meters.

Approximately 12 square meters of land would be temporarily impacted at each of the 26 test pits in the project area from the use of a backhoe, trenching, and filling at each of the excavation sites. Total temporary impacts from test pits are anticipated to be 372 square meters.

Approximately 18 square meters of land would be temporarily impacted at each of the 11 CPT locations from the transportation, staging and drilling using a 6 wheel drive rig or a tracked rig. Total temporary impacts from the CPT locations are anticipated to be 306 square meters.

*Sensitive Species.* The Proposed Action could result in potential impacts to the flat-tail horned lizard and its habitat. Flat-tailed horned lizards have been detected in the project area and may inhabit lands proposed for geological testing. Mortality due to roadkill is the most likely potential impact to horned lizards.

Disturbance to the Le Conte's thrasher, loggerhead shrike, and horned lark are also possible as a result of the Proposed Action. These species were detected within the project area in habitat similar to the proposed geotechnical investigation sites, but the proposed activities would be conducted during the non-breeding season (July – January) within limited areas that would constitute only a very small portion of a bird territory or home range. Potential impacts to sensitive bird species would be negligible. No impacts to sensitive vegetation are expected due to the siting of the geotechnical activity in previously disturbed areas.

*Best Management Practices.* All excavated test locations will be backfilled with native soils and should result in minimal areas of ground disturbance. Avoidance of disturbing existing vegetation and habitat during the geotechnical testing process will be a priority. The following Best Management Practices (BMP) will be implemented to minimize impacts on habitat for the flat-tailed horned lizard and other sensitive species.

- Drilling locations will be selected in areas previously disturbed to minimize impacts to flood channels, vegetation, and wildlife.
- Access routes and staging areas will be restricted to existing dirt roads and other disturbed areas onsite.
- The speed limit of vehicles on dirt roads within the project site will be limited to 20 miles per hour.
- A qualified project biologist (qualified as per FTHL Rangewide Management Strategy) will monitor the geotechnical testing process daily and provide recommendations where appropriate to minimize biological impacts.
- A qualified project biologist will be onsite during all ground-disturbing activities. The area will be cleared the day of disturbance and any horned lizards detected will be moved to an adjacent area of suitable habitat.

After completion of the geotechnical testing effort, seed of dominant plant species will be distributed within areas of disturbance.

### **Cultural Resources**

A field inventory was conducted for each of the geotechnical investigation locations. Eight new sites were identified during this survey. None of the previously recorded sites were found near the geotechnical investigation locations. All resources identified can be avoided and there will be no affect.

*Recommendations.* Cultural resources monitoring is recommended during the testing and boring activity at all 57 geotechnical investigation locations. Special care will be required at the eight locations where cultural resources were identified during the survey. Moving the geotechnical investigation locations within each 2-acre parcel as recommended in Chapter 3.0 will assure that all resources are avoided. In addition, monitors should flag exclusion areas along site boundaries to keep geotechnical crews and equipment away from them. Flags will be removed immediately upon finishing work at each geotechnical investigation location.

Any new resources discovered in the course of the monitoring activity should be defined and recorded and disturbance from geotechnical investigations kept away from them.

For the geotechnical investigation, a cultural resources monitor will be required at all locations to ensure that disturbance and construction stays within the cleared area. The monitor will flag off exclusion areas within each two-acre location and be present during the construction to observe

activity. Proposed borings and test pits that constitute the Proposed Action for this EA can be relocated as actual site condition dictate with regard to potential impacts on cultural resources.

### **Paleontological Resources**

It is possible that cone penetration tests and borings could have a minor impact on paleontological resources, but there is no practical way to mitigate those effects. The digging of test pits, however, could be monitored to identify and recover any paleontological resources encountered.

### **Recreation**

Geotechnical investigations within the proposed Solar Two site would be temporary and completed within a few weeks. As a result, closures required to conduct the investigations would not have a significant impact on recreational uses. Furthermore, nearby OHV recreation areas and other limited use areas would be accessible to recreational users during any temporary closures. An OHV recreation area is located just north of the site and additional limited use areas are located immediately south and west of the proposed Solar Two site, as well as approximately six miles northwest of the site.

### **Mitigation Measures for Geotechnical Investigation Activities**

- Test areas will be clearly staked prior to commencement of geotechnical investigations.
- A qualified biological monitor will accompany geotechnical crews and will conduct a pre-activity survey at all locations to be accessed prior to beginning work on each location.
- Clearing or damage to vegetation will be avoided or minimized to the extent possible. Any disturbance to vegetation will be revegetated as necessary using native material.
- A cultural resources monitor will accompany geotechnical crews and will conduct a pre-activity survey at all locations to be accessed during the geotechnical investigation prior to beginning work on each location.
- Where ground disturbing activities are conducted, the cultural resources monitor will examine backdirt or drilling spoils for the presence of subsurface cultural resources.
- Existing roads or tracks will be used to the maximum extent possible. New tracks or routes will be minimized. If turn-around areas are required for vehicles, the biological and cultural monitors will assist with selecting a previously disturbed location adjacent to the road.
- All trash and materials from testing will be removed.
- No pets or dogs will be allowed on site.
- Vehicle speeds will be kept to 20 mph or below on site.

**Cumulative Impacts**

There would be no cumulative effects on ACEC areas, Prime or Unique Farmland, Wild or Scenic Rivers, Wilderness areas or Wetland/Riparian areas because these elements do not occur on this project.

The analysis of effects of the Proposed Action on hazardous or solid wastes, floodplains, environmental justice, and hydrology (surface/ground) indicated that these elements would not be affected by the Proposed Action. As a result, implementation of the Proposed Action would have no cumulative effects on these elements.

The analysis of effects of the Proposed Action on air quality indicated a minor, negligible adverse direct effect as the result of vehicles moving across dirt roads. However, the Proposed Action is in an area designated as non-attainment for state and federal ozone and PM<sub>10</sub> standards according to Imperial County Air Pollution Control District. The Proposed Action would follow ICAPB guidelines; therefore this effect is very small and would be considered insignificant.

The analysis of the effects from past, present and reasonably foreseeable future actions on all biological resources and cultural resources indicated that effects on these elements would not cause cumulative impacts.

**5.1 PERSONS, GROUPS AND AGENCIES CONSULTED**

For this temporary work effort, consultation has been limited to the BLM El Centro field office. A biological evaluation is being prepared and will be shared with the USFWS. It is expected that BLM will advise SES if further consultation with other agencies is desired.

It is further expected that a public meeting will not be required for this project; however BLM may list the EA on a public website in the event the public would like to obtain a copy of the EA to review.

BLM notified SES that the following Native American tribes were contacted about the project:

Leroy J. Elliott, Chairman  
Manzanita Band of Mission Indians  
PO Box 1302  
Boulevard, CA 91905  
cc: Keith Adkins, EPA Director  
Nick Elliott

Carmen Lucas  
Kwaaymii Laguna Band of Mission Indians  
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President Mike Jackson, Sr.  
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PO Box 1899  
Yuma, AZ 85366  
cc: Mrs. Bridget Nash-Chrabasz  
Historic Preservation Officer

Mr. Robert Pinto, Sr., Chairman  
Ewiiapaayp Band of Kumeyaay Indians  
P.O. Box 2250  
Alpine, CA 91903-2250  
cc: Mr. Michael Garcia, Vice Chairman  
Mr. Willie Micklin, Executive Director

Mr. Raymond Torres, Chairman  
Torres-Martinez Desert Cahuilla Indians  
P.O. Box 1160  
Thermal, CA 92274  
cc: William J. Contreras

Ms. Sherry Cordova, Chairwoman  
Cocopah Indian Tribe  
Avenue G and County 15th Street  
Somerton, AZ 85350  
cc: Mrs. Jill McCormick, Cultural Resources

Mr. H. Paul Cuero, Jr., Chairman  
Campo Kumeyaay Nation  
36190 Church Road, Suite 1  
Campo, CA 91906  
cc: Mr. Fidel Hyde, EPA Supervisor

Ms. Gwendolyn Parada, Chairperson  
La Posta Band of Kumeyaay Indians  
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## 5.2 LIST OF PREPARERS

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Pat Mock/URS/Biological Resources

Kelly Giesing/URS/Geotechnical Investigation

Kristen Walker/URS/Recreation Resources

Reid Farmer/URS/ Cultural Resources

Joseph Stewart/URS/Paleontological Resources



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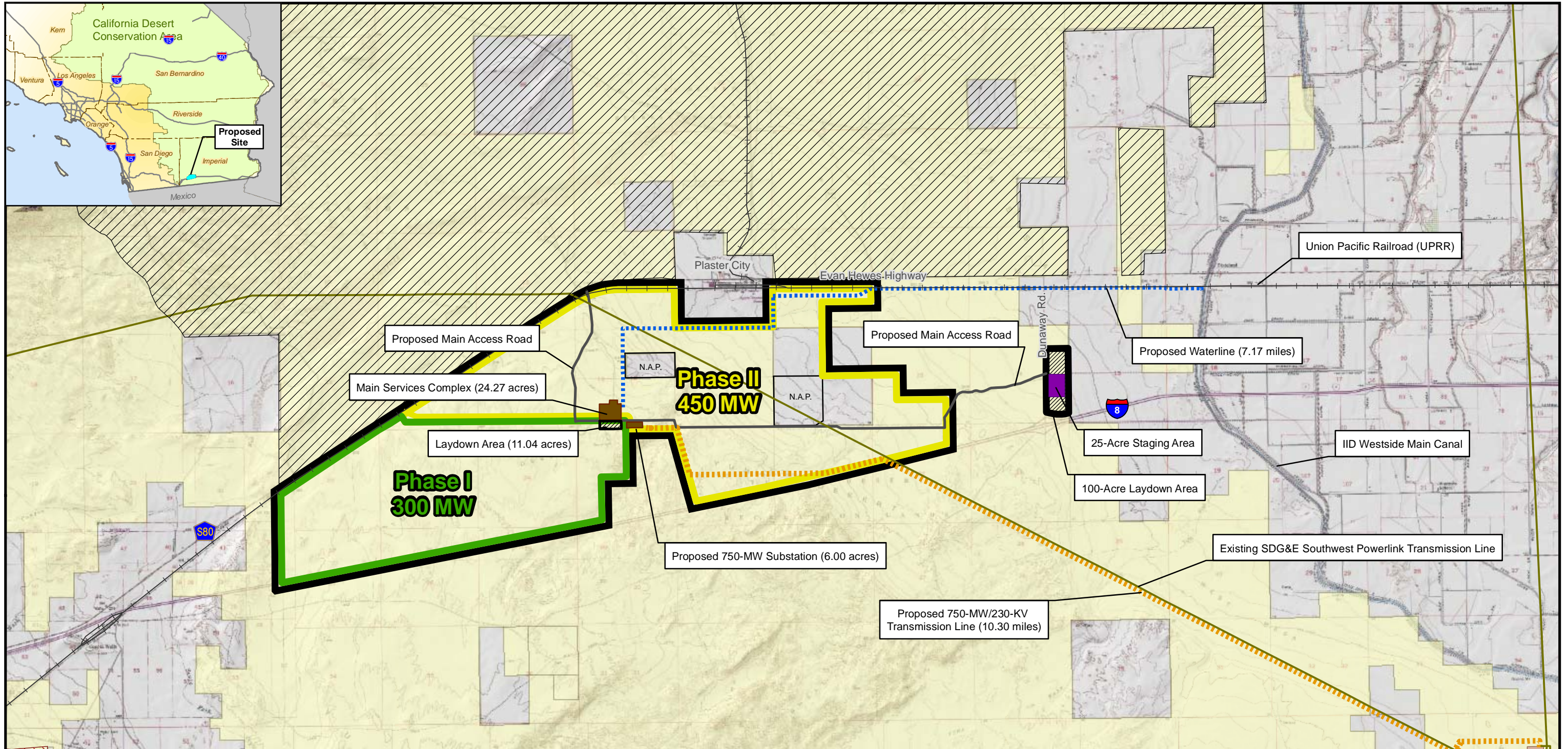
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**LEGEND**

- Project Boundary (6,176.65 acres)
- N.A.P. Not A Part (Owned by Others)
- 300-MW Solar Field (2,577.00 acres)
- 450-MW Solar Field (3,497.47 acres)
- Staging Area
- Laydown Area
- Proposed Substation and Main Services Complex
- Existing SDG&E Imperial Valley Substation
- Existing Transmission Line
- Proposed 750-MW/230-KV Transmission Line (10.30 miles)
- Proposed Waterline (7.17 miles)
- Proposed Main Access Road
- Union Pacific Railroad (UPRR)
- Bureau of Land Management**
- Off-Highway Vehicle (OHV) Area - closed
- Off-Highway Vehicle (OHV) Area - open
- BLM Administered Public Lands



SOURCES: SDG&E (existing t-line 2006); Stantec (proposed project features, BLM-managed lands 2008); USGS TOPO! (24K topo, various dates).

**SITE PLAN & LAND OWNERS  
SOLAR TWO PROJECT**














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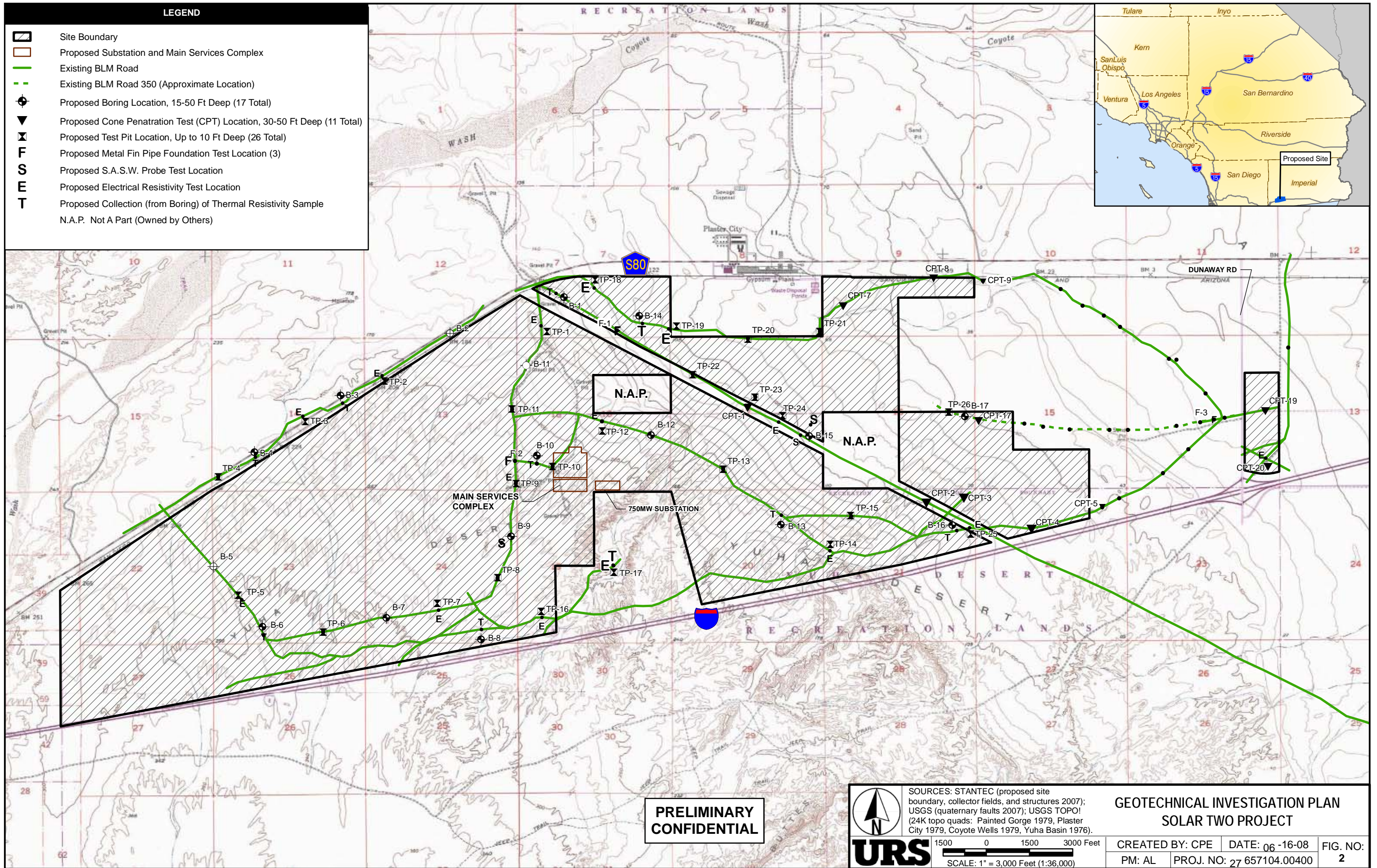
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**LEGEND**

-  Site Boundary
-  Proposed Substation and Main Services Complex
-  Existing BLM Road
-  Existing BLM Road 350 (Approximate Location)
-  Proposed Boring Location, 15-50 Ft Deep (17 Total)
-  Proposed Cone Penetration Test (CPT) Location, 30-50 Ft Deep (11 Total)
-  Proposed Test Pit Location, Up to 10 Ft Deep (26 Total)
-  Proposed Metal Fin Pipe Foundation Test Location (3)
-  Proposed S.A.S.W. Probe Test Location
-  Proposed Electrical Resistivity Test Location
-  Proposed Collection (from Boring) of Thermal Resistivity Sample
- N.A.P. Not A Part (Owned by Others)

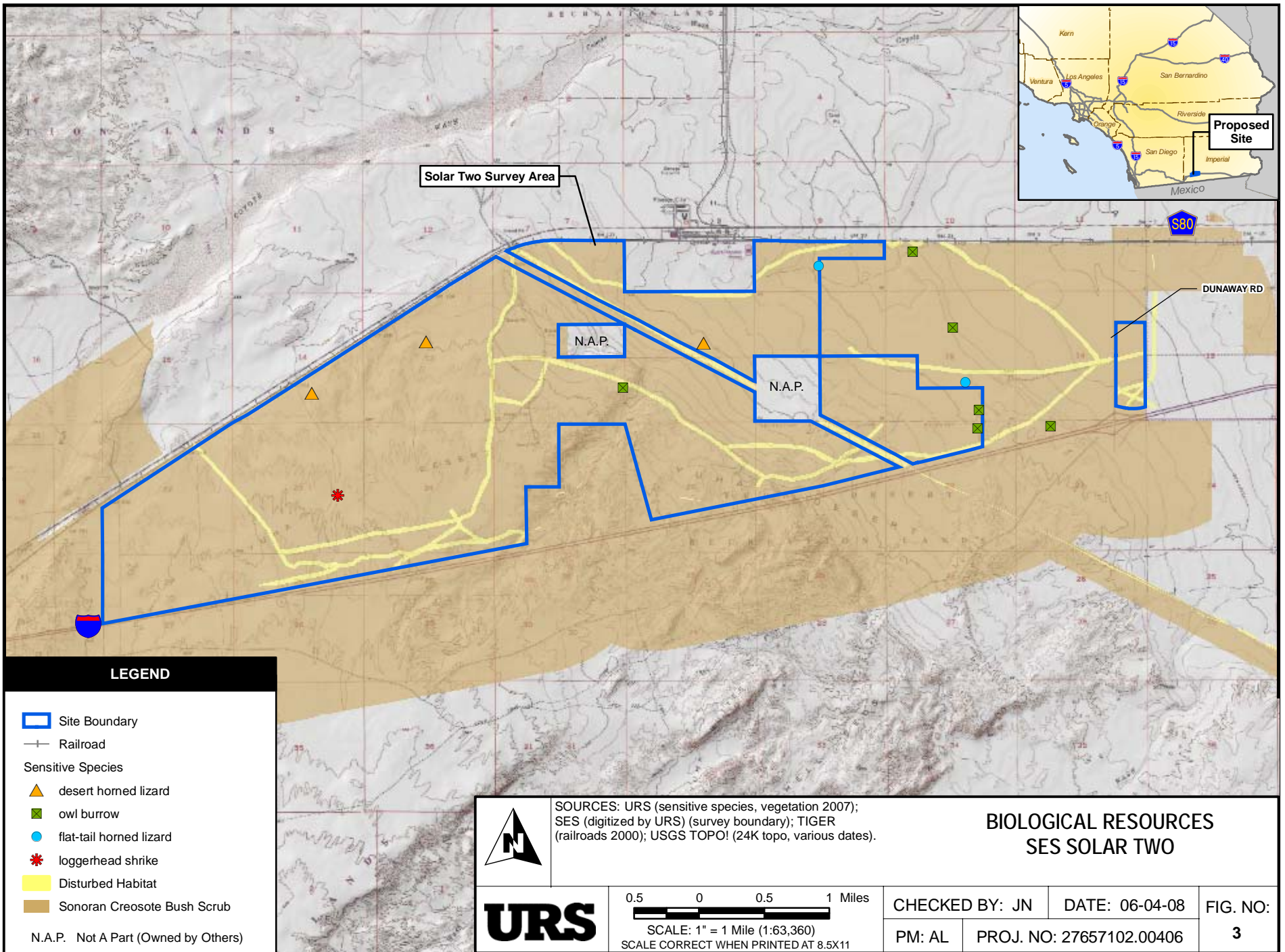


**PRELIMINARY  
CONFIDENTIAL**

	SOURCES: STANTEC (proposed site boundary, collector fields, and structures 2007); USGS (quaternary faults 2007); USGS TOPO! (24K topo quads: Painted Gorge 1979, Plaster City 1979, Coyote Wells 1979, Yuha Basin 1976).		<b>GEOTECHNICAL INVESTIGATION PLAN SOLAR TWO PROJECT</b>	
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**LEGEND**

- Site Boundary
- Railroad
- Sensitive Species
- ▲ desert horned lizard
- owl burrow
- flat-tail horned lizard
- ✱ loggerhead shrike
- Disturbed Habitat
- Sonoran Creosote Bush Scrub
- N.A.P. Not A Part (Owned by Others)



SOURCES: URS (sensitive species, vegetation 2007);  
 SES (digitized by URS) (survey boundary); TIGER  
 (railroads 2000); USGS TOPO! (24K topo, various dates).

**BIOLOGICAL RESOURCES  
 SES SOLAR TWO**



0.5 0 0.5 1 Miles  
 SCALE: 1" = 1 Mile (1:63,360)  
 SCALE CORRECT WHEN PRINTED AT 8.5X11

CHECKED BY: JN

DATE: 06-04-08

FIG. NO:




















PM: AL

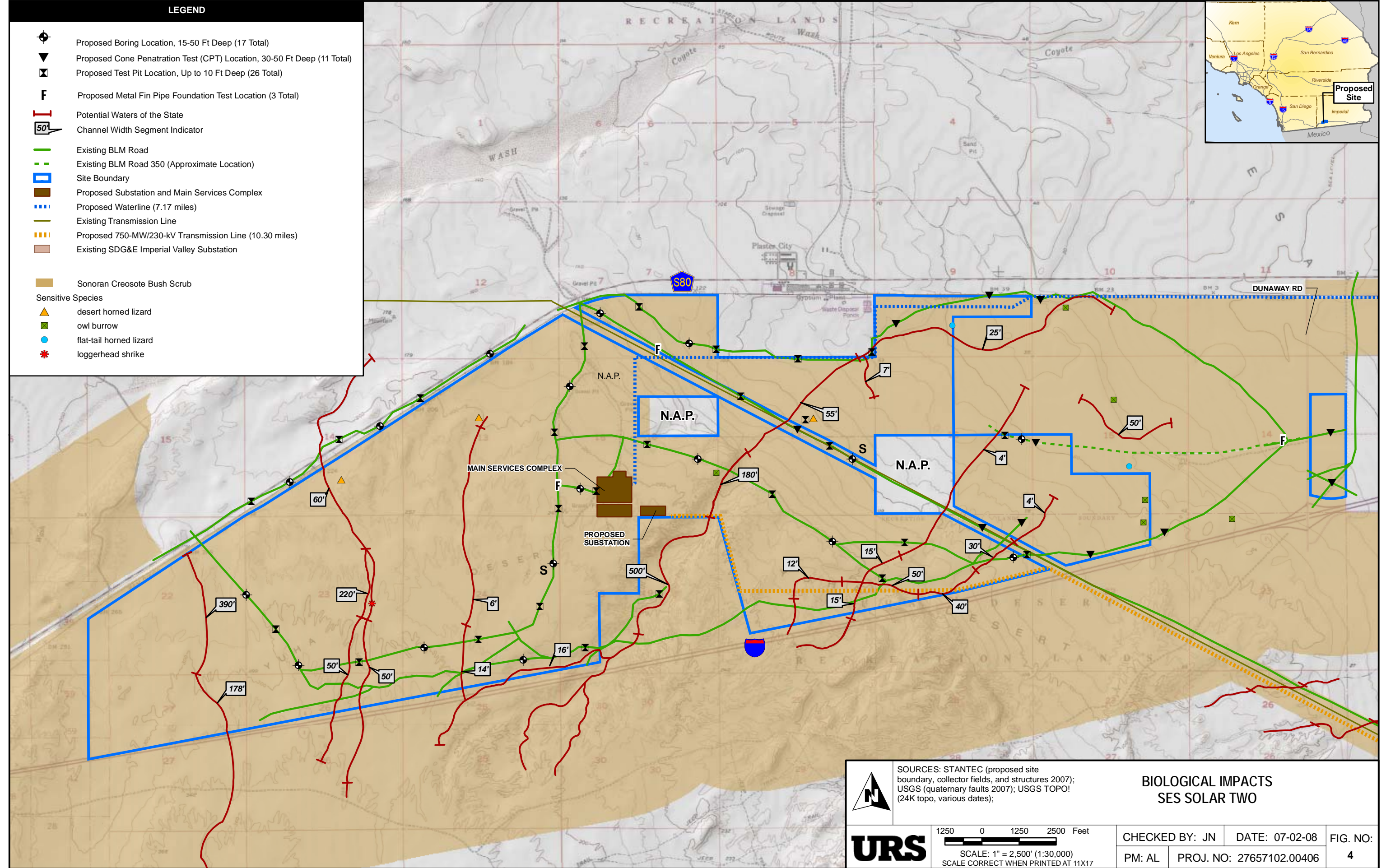
PROJ. NO: 27657102.00406

**3**




**LEGEND**

-  Proposed Boring Location, 15-50 Ft Deep (17 Total)
-  Proposed Cone Penetration Test (CPT) Location, 30-50 Ft Deep (11 Total)
-  Proposed Test Pit Location, Up to 10 Ft Deep (26 Total)
-  Proposed Metal Fin Pipe Foundation Test Location (3 Total)
-  Potential Waters of the State
-  Channel Width Segment Indicator
-  Existing BLM Road
-  Existing BLM Road 350 (Approximate Location)
-  Site Boundary
-  Proposed Substation and Main Services Complex
-  Proposed Waterline (7.17 miles)
-  Existing Transmission Line
-  Proposed 750-MW/230-kV Transmission Line (10.30 miles)
-  Existing SDG&E Imperial Valley Substation
  
-  Sonoran Creosote Bush Scrub
- Sensitive Species**
-  desert horned lizard
-  owl burrow
-  flat-tail horned lizard
-  loggerhead shrike



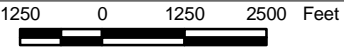
**SOURCES:** STANTEC (proposed site boundary, collector fields, and structures 2007); USGS (quaternary faults 2007); USGS TOPO! (24K topo, various dates);



**BIOLOGICAL IMPACTS  
SES SOLAR TWO**

CHECKED BY: JN    DATE: 07-02-08    FIG. NO: 4

PM: AL    PROJ. NO: 27657102.00406



SCALE: 1" = 2,500' (1:30,000)  
SCALE CORRECT WHEN PRINTED AT 11X17

