

# DOCKET

09-AFC-9

DATE MAR 26 2010

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March 26, 2010

Eric Solorio  
Project Manager  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814

RE: Ridgecrest Solar Power Project (RSPP), Docket No. 09-AFC-9, Draft Biological Assessment

Dear Mr. Solorio:

Ridgecrest Solar I, LLC's filed its Draft Biological Assessment with the Bureau of Land Management Ridgecrest on March 25, 2010. A copy is enclosed for your review and comment. The Draft Biological Assessment (BA) will be updated following completion of spring 2010 surveys, with survey results and analysis of project effects based on these additional survey efforts incorporated into a revised BA.

If you have any questions on the Draft Biological Assessment, please feel free to contact me at 510-809-4662 (office) or 949-433-4049 (cell).

Sincerely,



Billy Owens  
Director, Project Development



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA  
1516 NINTH STREET, SACRAMENTO, CA 95814  
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**APPLICATION FOR CERTIFICATION  
For the *RIDGECREST SOLAR  
POWER PROJECT***

**Docket No. 09-AFC-9**

**PROOF OF SERVICE  
(Revised 3/2/2010)**

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**DECLARATION OF SERVICE**

I, Elizabeth Copley, declare that on March 26, 2010, I served and filed copies of the attached Ridgecrest Solar Power Project (Docket No. 09-AFC-9) Draft Biological Assessment. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[\[http://www.energy.ca.gov/sitingcases/solar\\_millennium\\_ridgecrest\]](http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest).

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

***(Check all that Apply)***

**For service to all other parties:**

- sent electronically to all email addresses on the Proof of Service list;
- by personal delivery;
- by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

**AND**

**For filing with the Energy Commission:**

- sending an original paper copy and one electronic copy, mailed and emailed Respectively, to the address below (preferred method);

**OR**

- depositing in the mail an original and 12 paper copies, as follows:

**CALIFORNIA ENERGY COMMISSION**

Attn: Docket No. 09-AFC-9  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512  
[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

I declare under penalty of perjury that the foregoing is true and correct.

  
\_\_\_\_\_

# Draft Biological Assessment



## RIDGECREST SOLAR POWER PROJECT

Applicant:  
Solar Millennium, LLC  
1625 Shattuck Avenue  
Berkeley, California

March 2010

# **RIDGECREST SOLAR POWER PROJECT**

## **DRAFT BIOLOGICAL ASSESSMENT**

**KERN COUNTY, CALIFORNIA**



***Prepared for:***

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Berkeley, California 94709

***Prepared by:***

AECOM  
Contact: Leo Edson  
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March 2010

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- 1 Figures
- 2 U.S. Fish and Wildlife Service Correspondence Regarding Species to be Evaluated for the Ridgecrest Solar Power Project

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- 1 Regional Location
- 2 Proposed Project Elements and Action Area
- 3 Vegetation Communities within the Action Area
- 4 Regional and Local Desert Tortoise Connectivity
- 5 Recorded Occurrences of Federally Listed Species near the Action Area
- 6 Desert Tortoise Surveys and Suitable Habitat within the Action area

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## **1.0 INTRODUCTION**

This Biological Assessment (BA) evaluates the potential effects of the Ridgecrest Solar Power Project (Project or RSPP) on species protected under the Federal Endangered Species Act (ESA). The Project is proposed on public lands managed by the Bureau of Land Management (BLM) in Kern County, California. The Applicant, Solar Millennium, LLC, has submitted an application to BLM for a right-of-way (ROW) grant. The Project will be a 250-megawatt (MW) nominal solar thermal electricity-generating facility using parabolic trough technology. The Project includes installation of two solar fields within an approximately 3,995-acre BLM ROW near the town of Ridgecrest, California (Figure 1; see Attachment 1 for all figures). The Project also proposes associated office and maintenance buildings, a laydown area, drainage channels, a land treatment unit, leach fields, a transmission line, a water pipeline, and onsite access roads. Additional site access features, including alternative site access points with acceleration/deceleration zones along U.S. Highway 395 and Brown Road widening, are currently being surveyed and evaluated. Results of these surveys will be used to update the 2009 Ridgecrest Solar Power Project Desert Tortoise Technical Report (EDAW AECOM 2009c), which will be provided as a supplement to this BA. Survey results and analysis of project effects based on these additional survey efforts will also be incorporated into a revised BA once the data have been collected and analyzed.

The purpose of this BA is to review the RSPP in sufficient detail to determine the extent to which implementation of the Project may affect any federally listed threatened or endangered species, or designated critical habitats, under the jurisdiction of U.S. Fish and Wildlife Service (USFWS) listed below. This BA is prepared in accordance with legal requirements set forth under Section 7(a)(2) of the ESA (16 U.S.C. 1536(c)).

## **2.0 SPECIES CONSIDERED IN THIS DOCUMENT**

This document evaluates threatened, endangered, proposed threatened, proposed endangered, or candidate species, as well as any designated or proposed critical habitat, under the jurisdiction of USFWS that have potential to be affected by the proposed action (see Section 6.0, Description of the Proposed Action). A list of species for consideration was compiled based on a memo received on March 13, 2009 from USFWS identifying listed species or critical habitats to be considered in the evaluation of the RSPP (Attachment 2); and a database search of the California Natural Diversity Database (CNDDB) maintained by the California Department of Fish and Game (CDFG) within a 10-mile radius of the RSPP site (CDFG 2009; Figure 5).

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The species considered in this document is

- Desert tortoise (DT) (*Gopherus agassizii*), Threatened

Other species considered for evaluation in this BA include the Mohave tui chub (*Gila bicolor mohavensis*), known to occur in the region of the RSPP site. However, the Project does not have the potential to affect this species or its supporting habitat. The nearest known occurrence of the Mojave tui chub is on the China Lake Naval Air Weapons Station approximately 9 miles to the northeast of the Project action area (refer to Section 7.0, Action Area, for a definition) (CDFG 2009). Mohave tui chub is an aquatic species requiring permanent year-round water, which is not present within or adjacent to the proposed RSPP.

### 3.0 CRITICAL HABITAT

The action area addressed within this BA does not occur within critical habitat for the Mojave population of the DT or any other species. The closest designated DT critical habitat (Fremont-Kramer critical habitat unit) occurs approximately 7 miles south of the action area.

### 4.0 CONSULTATION TO DATE

Listed below, in chronological order, are the consultations held to date with USFWS, CDFG, BLM, and/or the U.S. Army Corps of Engineers (USACE) for the RSPP.

- **January 30, 2009:** Meeting at BLM office in Ridgecrest to discuss biological survey program with BLM staff. Ray Bransfield of USFWS participated by phone.
- **February 11, 2009:** Conference call with CDFG, USFWS, BLM, and Project representatives to discuss the Project, survey methods, potential effects, and mitigation options for the Ridgecrest Solar Millennium solar site.
- **February 20, 2009:** Based on the February 11, 2009, conference call, the proposed biological survey program was revised and submitted via email by Bill Graham of AECOM, on behalf of the Project Applicant, to Julie Vance of CDFG for final review and concurrence by agency (USFWS, BLM, and CDFG) staff.
- **March 2, 2009:** Bill Graham of AECOM, on behalf of the Project Applicant, sent a letter to agency (USFWS, BLM, and CDFG) staff requesting a list of listed or proposed

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species, designated or proposed critical habitats, and other sensitive species to be considered in the evaluation of the proposed Solar Millennium solar sites, including the RSPP.

- **March 10, 2009:** Bill Graham of AECOM, representing the Project Applicant, received a joint agency (USFWS, BLM, and CDFG) response to the February 20 request for agency review and concurrence regarding the proposed biological survey program via email from Kimberly Nicol of CDFG. The response indicated that surveys for DT shall conform to the 1992 USFWS protocol, excluding the zone of influence (ZOI) transects, and including California Energy Commission (CEC) required survey buffers (1 mile from nonlinear Project elements, and 1,000 feet from linear Project features) as well as adult tortoise density estimates according to the revised USFWS DT protocol (USFWS 2009).
- **March 13, 2009:** Bill Graham of AECOM, representing the Project Applicant, received an email from Dianne Dillard of USFWS confirming that the DT was the only listed species of concern to USFWS for the RSPP.
- **April 29, 2009:** RSPP site visit with CDFG, BLM, Dr. Phil Leitner, and Project representatives to discuss the potential effects of the Project to Mohave ground squirrel (MGS) (*Spermophilus mohavensis*) and other sensitive biological resources under CDFG jurisdiction.
- **November 4, 2009:** RSPP site visit with CDFG, USFWS, BLM, the CEC, Solar Millennium, and AECOM to discuss current Project design and effects on biological resources.
- **November 30, 2009:** Meeting at the CDFG office in Sacramento with Kevin Hunting, CDFG Deputy Director, to discuss impacts to biological resources protected under the California Fish and Game Code, including DT. A number of potential mitigation options for the RSPP were also discussed.
- **January 27, 2010:** Meeting at the CDFG office in San Luis Obispo with David Hacker, CDFG Environmental Scientist, to discuss the RSPP impacts and mitigation on biological resources, including DT.
- **March 10, 2010:** Meeting at the CDFG office in Sacramento with Scott Flint, Environmental Program Manager, to discuss the RSPP impacts on biological resources,

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including DT, and mitigation. David Hacker and Julie Vance, CDFG Senior Environmental Scientist, participated by phone.

## **5.0 CURRENT MANAGEMENT DIRECTION**

In addition to the Federal ESA, the following management direction applies to the evaluation of the Project. This section describes BLM policies, plans, and programs regarding management of listed wildlife species and their habitats in the West Mojave Desert, where the Project is proposed.

### **5.1 Desert Tortoise Recovery Plan**

The Mojave population of the DT, including all tortoises occurring north and west of the Colorado River in Arizona, Utah, Nevada, and California, was listed as federally threatened in 1990. A recovery plan was subsequently developed in 1994 that identified proposed Desert Wildlife Management Areas (DWMAs) (USFWS 1994a). Critical habitat was also designated in 1994 for the entire Mojave population (USFWS 1994b). A revised recovery plan was drafted in 2008 in order to reevaluate the status of the population, threats on the population, and identify measures to reduce uncertainties about species threats and management and improve recovery potential (USFWS 2008). Elements of critical importance identified for DT recovery and persistence include adult survivorship, maintenance of genetic and ecological variability within and among populations, and the long-term persistence of extensive, unfragmented habitat. The Draft Revised Recovery Plan identifies an approach to recovery that is based on the following six strategic elements:

- Develop, support, and build partnerships to facilitate recovery.
- Protect existing populations and habitat, instituting habitat restoration where necessary.
- Augment depleted populations in a strategic manner.
- Monitor progress toward recovery.
- Conduct applied research and modeling in support of recovery efforts within a strategic framework.
- Implement a formal adaptive management program.

The Draft Revised Recovery Plan (USFWS 2008) also provides a list of habitat enhancement and management activities that would support recovery of DT, including the following actions:

- 
- Protect intact DT habitat.
  - Restore DT habitat.
  - Secure lands/habitat for conservation.
  - Connect functional habitat.
  - Reduce excessive predation.
  - Contribute to the DT head-starting program or translocation programs.
  - Monitor DT distribution in each recovery unit.
  - Track changes in quantity and quality of DT habitat.
  - Determine factors that influence the distribution of DT.
  - Conduct research on the restoration of DT habitat.
  - Conduct research on DT diseases and their effects on populations.

## **5.2 West Mojave Plan**

The Federal Land Policy and Management Act (FLPMA) of 1976 requires BLM to develop land use plans (i.e., Resource Management Plans) to guide BLM's management of public land. BLM is required to determine conformity of the Project's developments with the California Desert Conservation Area (CDCA) Plan, including the West Mojave Plan (WEMO) (BLM 2005). The WEMO is the result of a multiagency Federal, State, and local planning effort. This plan was prepared under the regulations implementing the FLPMA of 1976. The WEMO is a multispecies landscape-scale conservation plan developed to protect and conserve the DT, MGS, and numerous other sensitive species and their habitats; prevent future species listing; and provide a consistent, cost-effective, streamlined process for complying with threatened and endangered species law. The WEMO designates Areas of Critical Environmental Concern and other special management areas, designates off-road travel routes on public lands, and classifies various land use categories for appropriate uses. The WEMO also establishes regional standards and guidelines for grazing; mineral exploration; and development, recreation, and other public land uses to meet the goals and objectives of the plan.

A key component of the WEMO designed to promote DT conservation includes the establishment of four DT conservation areas, designated by WEMO as DWMA's. The RSPP is not located within or near any WEMO-designated DT DWMA's. The WEMO identifies goals and objectives for the protection and conservation of DT in addition to several other sensitive species occurring in the planning area. The WEMO includes compensatory mitigation requirements for

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covered projects, including solar developments, proposed in the Plan area, with mitigation fees required for all new ground-disturbing activities located on public lands.

The WEMO requires fee-based compensation at the ratio of 5 acres of compensation for every 1 acre of impact (5:1) within Habitat Conservation Areas (HCAs) (e.g., MGS conservation area), at a ratio of 0.5:1 in areas outside HCAs that fall within WEMO-designated disturbed habitat, and at a ratio of 1:1 elsewhere. The portion of the RSPP that occurs south of Brown Road (approximately 805.5 acres) occurs within the MGS conservation area.

### **5.3 California Desert Conservation Area Plan**

Per Title 43 Code of Federal Regulations (CFR) Section 1610.5-3, BLM must manage the land within its jurisdiction in compliance with a Resource Management Plan. The entire action area (including transmission line route) will be located on lands under BLM jurisdiction and managed pursuant to the CDCA Plan (BLM 1980, as amended in 1999). The CDCA Plan serves as a guide for the management of all BLM-administered lands in three desert areas: the Mojave Desert, the Sonoran Desert, and a small portion of the Great Basin. The CDCA Plan covers approximately 25 million acres, of which 12 million acres are public lands. The primary goal of the CDCA Plan is to provide overall maintenance of the land while planning for multiple uses and balancing the needs of people with the protection of the natural environment. The WEMO is an amendment to the CDCA Plan, identifying specific management direction on BLM lands within the western Mojave Desert.

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

The State of California Governor's office recently signed a Memorandum of Understanding (MOU) with the U.S. Department of Interior to cooperatively develop long-term renewable energy plans and to streamline eligible projects through State and Federal permitting processes. The MOU establishes the Desert Renewable Energy Conservation Plan (DRECP) process, which is a science-based process for reviewing, approving, and permitting renewable energy applications in California. Once the plan is complete (anticipated in late 2010), it will present a regional road map that will provide a greater level of certainty for renewable energy developers on how and where to site their projects. The DRECP will also create a government-organized habitat mitigation program that consolidates habitat purchases for compensatory mitigation. Depending on when the DRECP mitigation program, or any interim mitigation strategy developed by CDFG, becomes established, the RSPP Applicant may be eligible to participate in this program.

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## **6.0 DESCRIPTION OF THE PROPOSED ACTION**

Solar Millennium (the Applicant) is proposing to construct the RSPP, a nominal 250-MW commercial solar thermal electric power generating project using parabolic trough technology. The Project location, proposed action (i.e., project description), and avoidance and minimization measures proposed to avoid, reduce, or compensate for residual Project effects on DT are described in the following sections.

### **6.1 Project Location**

The RSPP would be located in the high northern Mojave Desert in northeastern Kern County, California, approximately 5 miles southwest of the City of Ridgecrest, approximately 6 miles southeast of the town of Inyokern, and southwest of U.S. Highway 395 (Figure 1). The Project would be located within a 3,995-acre ROW owned by the Federal government and leased by the Applicant from BLM. The Project also includes a water pipeline proposed to be installed within existing county road ROWs along China Lake Boulevard and Brown Road south and west of Ridgecrest. The RSPP would occur within the following parcels:

- 34109108
- 34109109
- 34109110
- 34109111
- 34111001
- 34111002
- 34111003
- 34111005
- 34111006
- 51102003
- 51108207
- 51108213
- 51108214

### **6.2 Project Description**

The proposed action includes installation of a commercial solar thermal electric-power-generating station, composed of two solar fields (i.e., units), and support facilities including a main power-generating facility (power block), associated office and maintenance buildings, a laydown area, drainage channels (i.e., rerouted drainages), a land treatment unit, leach field, a transmission line, a tie-in switchyard, a water pipeline, and onsite access roads (Figure 2). Site access alternatives including acceleration/deceleration zones along U.S. Highway 395 and widening of Brown Road are also proposed.

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The Applicant has applied for a ROW grant for approximately 3,995 acres of land owned by the Federal government and managed by BLM. The Project site is composed of undeveloped desert with naturally vegetated areas. There are no existing structures on site that would need to be demolished, but existing 115- and 230-kilovolt (kV) Southern California Edison (SCE) transmission lines that traverse the southwestern portion of the site will require relocation. Construction and operation of the RSPP would disturb a total of approximately 1,944 acres (including approximately 16.3 acres associated with the entire water pipeline) plus approximately 87 acres from construction of alternative site access features (acceleration/deceleration zones along U.S. Highway 395 and widening of Brown Road).

The Applicant proposes to develop a 250-megawatt (MW) solar energy facility on approximately 1,448 acres. The Project will utilize solar parabolic trough technology to generate electricity. Arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. Heat transfer fluid (HTF) is heated to high temperatures (750 degrees Fahrenheit [°F]) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The power plant will have two solar fields. The north solar field, located north of Brown Road, would be 894 acres and the south field, located south of Brown Road, would be 554 acres.

The power block would be located north of Brown Road, immediately southwest of the northern solar field. The power block would be composed of its own administration, control, warehouse, maintenance, and lab buildings; the HTF pumping and freeze protection system; solar steam generator; a propane-fired auxiliary boiler; one steam turbine generator; an air-cooled condenser; generator, step-up transformer, transmission lines and related electrical system; potable and treated water tanks; and auxiliary equipment (i.e., water treatment system, diesel-powered emergency generator, and firewater system).

The proposed Project site is entirely on Federal land, including BLM ROW # CACA 49016, in Township 27 South, Range 39 East, and 28 South, Range 39 East. The proposed water pipeline is located on Federal land or Kern County ROW and is located in Township 27 South Range 40E. The Applicant is considering two alternatives for providing access to the Project site. The first site access alternative is from Brown Road. Access to the northern portion of the Project site would be provided by a new 24-foot-wide paved access road from Brown Road, approximately 1.6 miles west of the intersection of Brown Road with U.S. Highway 395. This access road runs

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about 450 feet from Brown Road to the location of the new office building and continues for approximately another 3000 feet to the entrance of the power block. Access to the southern portion of the Project site would also be provided by a new 24-foot-wide paved access road from Brown Road, approximately 2.25 miles west of the intersection of Brown Road with U.S. Highway 395. This access road would run about 600 feet from Brown Road to the security gate for the south solar field. The second site access alternative is from U.S. Highway 395 at a minimum of 1 mile north of Brown Road and includes acceleration/deceleration lanes along U.S. Highway 395.

In addition to the main power generating facility, the site would include a main office building and parking lot, a main warehouse with laydown area, onsite access roads, a tie-in switchyard, and a land treatment unit for land farming of any HTF-contaminated soil.

The Project would generate electric power solely via solar energy. Propane will be used to fire an auxiliary boiler overnight to support startup operations until the HTF system is up to operating temperature, at which time the generation of electricity can commence. A second fired heater will be used as needed, mostly during the winter, to prevent freezing of the HTF. A new, approximately 5-mile-long water pipeline would be installed within the Brown Road and China Lake Boulevard ROWs to connect the Project with the Indian Wells Valley Water District supply. (The diameter of the pipe would be 16-inch diameter or smaller depending on the Water District's determination.) A new 230-kV transmission line from the turbine generator to a new nearby switchyard will interconnect with SCE's existing 230-kV Inyo Kern/Kramer Junction transmission line located west of the Project site.

Pending receipt of necessary permits and approvals, Project construction is scheduled to begin in late 2010 and continue into 2013. Project construction is expected to occur over a total of 28 months. Project construction would require an average of 405 employees, with manpower requirements peaking at approximately 633 workers in Month 11 of construction. Temporary construction laydown and parking areas would be located within areas proposed for installation of Project facilities.

Commercial operation is expected to begin in mid-2013. While electrical power is to be generated only during daylight hours, the RSPP would be staffed 24 hours a day, 7 days a week. A total estimated workforce of 84 full-time employees would be needed to staff the Project. The projected operating lifespan of the Project is 30 years.

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### 6.3 Avoidance and Minimization Measures

This section describes avoidance and minimization (i.e., biological resource protection) measures applicable to this BA that would be implemented as part of the RSPP. Implementation of these measures is expected to reduce potential adverse effects of the RSPP to DT. The RSPP application for certification (AFC) (AECOM 2009a) submitted to CEC includes 51 biological resource protection measures; 38 of these address potential effects on DT and are applicable to this BA. Consistent with the requirements of CEC, the Applicant is required to implement mitigation measures as Conditions of Certification. (Note: The CEC licensing process is legally a California Environmental Quality Act [CEQA]-equivalent process). One of the expected Biological Resources Conditions of Certification requires that a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) be submitted for review and approval by CEC. The BRMIMP would comprehensively describe avoidance and minimization measures and provides a matrix to document their implementation and monitor their effectiveness.

Biological resource protection measures from the RSPP AFC are provided in their entirety in the AFC (AECOM 2009a). Because many of the measures are applicable to this BA, they are also reproduced below in their entirety except where refinements (i.e., revisions) were necessary to address specific effects of the RSPP to DT as Project planning has progressed. Revisions have been made to five AFC measures (BIO-17, BIO-19, BIO-20, BIO-46, and BIO-51) subsequent to the submittal of the RSPP AFC in September 2009; these revisions are reflected in measures as written below. Four measures have been added (BIO-52 through BIO-55) to address potential common raven effects during Project construction, to clarify DT reporting requirements during Project construction, to establish vehicle speed limits during operations, and to address monitoring and maintenance of DT-proof fencing during Project operation. One measure (BIO-18) has been removed due to redundancy. The numbering and general organization of avoidance and minimization measures shown below follows those presented in the RSPP AFC (AECOM 2009a) for ease of cross-referencing. In a few cases, the ordering of measures has been rearranged relative to the AFC to improve overall organization of topics addressed; however, the AFC numbering has been retained. A definition of terms and acronyms associated with measures reproduced from the AFC document are presented below:

- BRSA: Biological Resources Survey Area. This area is equivalent to the Project action area (see Section 7.0, Action Area, below)
- Project disturbance area: The area of anticipated ground disturbance associated with implementation of the Project.

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- BO: Biological Opinion.
  - ITP: Incidental Take Permit.
  - MGS: Mohave ground squirrel (*Spermophilus mohavensis*).
  - WBO: western burrowing owl (*Athene cunicularia hypugaea*).
  - Facility footprint: The area within the facilities' perimeter fence line, including solar fields, office and maintenance buildings, laydown area, land treatment unit, leach fields, and switchyard

### **6.3.1 General Avoidance and Minimization Measures during Construction**

The following is a list of general avoidance and minimization measures from the AFC that are applicable to Project construction activities and the DT. These measures are standard practices designed to prevent environmental degradation, and the Project Applicant shall be responsible for implementation of these measures to avoid and minimize effects on the greatest extent feasible. Those measures include the following:

- BIO-1 The Project proponent shall identify a Designated Biologist(s) approved by BLM, USFWS, and CDFG. The Designated Biologist shall be responsible for overseeing monitoring and verifying compliance with biological resource protective measures. A Section 10(a)(1)(A) permit shall be required for the monitoring or handling of federally listed species. The Designated Biologist shall maintain communications with the appropriate personnel (project manager, resident engineer) to ensure that issues relating to biological resources are appropriately and lawfully managed. The Designated Biologist shall also be present to verify compliance with all conservation measures. The Designated Biologist shall submit reports that document compliance with these measures to BLM, USFWS, and CDFG upon request or, at a minimum, included in the end-of-the-year report. In addition, the Designated Biologist shall perform the following duties:
- a. Oversee the proper installation of desert tortoise exclusion fencing around the perimeter of the Project disturbance area prior to conducting pre-construction clearance surveys.
  - b. Conduct pre-construction surveys for listed species within 30 days prior to commencement of construction activities in the Project disturbance area.

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- c. Be on site during all vegetation clearing and grubbing, and weekly during project construction in upland and riparian habitat to be impacted.
  - d. A Storm Water Pollution Prevention Plan (SWPPP) and a Drainage, Erosion, and Sedimentation Control Plan (DESCP) shall be prepared to comply with Regional Water Quality Control Board (RWQCB) and CEC requirements; a preliminary DESCP (equivalent to a SWPPP but covering both construction and operation phases) is provided as Appendix L to the AFC. The DESCP and SWPPP identify the design features and Best Management Practices (BMPs) that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during construction. Erosion control measures shall be regularly checked by inspectors, the Designated Biologist, and/or resident engineer. Specific BMP plans shall be reviewed by a Designated Biologist and modified, if necessary, prior to implementation. Fencing and erosion control measures of all Project areas shall be inspected a minimum of once per week.
  - e. Inform construction contractor(s)/crews about the biological constraints of the Project. All construction personnel who work in the BRSA shall attend a contractor education program (i.e., training/awareness program), developed and presented by a Designated Biologist prior to the commencement of construction activity. Construction crews and contractor(s) shall be responsible for unauthorized effects from construction activities to sensitive biological resources that are outside the areas defined as subject to effects by CEC and other agencies that issue approvals for the Project.
  - f. Ensure proper implementation of protective measures developed in coordination with USFWS and CDFG to avoid or minimize effects on all encountered sensitive species and nesting birds.
  - g. Immediately notify the resident engineer to halt work, if necessary, and coordinate with USFWS and CDFG to ensure the proper implementation of species and habitat protection measures. The Designated Biologist shall report any breach of protection measures to appropriate agencies within 24 hours of occurrence.

BIO-2 Anticipated impact zones, including areas for staging, materials and equipment storage; equipment access; and the disposal, stockpiling, or temporary placement of spoils, shall be delineated with stakes and flagging prior to construction to avoid

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- natural resources where possible. Spoils shall be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas should be marked to define the limits where stockpiling can occur. No construction-related activities shall occur outside of the designated impact area (i.e., Project disturbance area).
- BIO-3 The Project proponent shall ensure that all construction materials, staging, storage, dispensing, fueling, and maintenance activities are located in upland areas outside of sensitive habitat, and that adequate measures are taken to prevent any potential runoff from entering waters of the U.S. Staging areas shall be located within permanent impact areas or previously disturbed sites within the Project disturbance area.
- BIO-4 New and existing roads that are planned for either construction or widening shall not extend beyond the Project disturbance area. All vehicles passing or turning around shall do so within the Project disturbance area. Where new access is required outside of existing roads or previously disturbed areas within the Project disturbance area, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.
- BIO-5 Underground pipeline construction shall involve nearly simultaneous trenching, laying of pipe, and backfilling so that no open trenches shall be left unattended during daylight hours. Any open trenches that cannot be backfilled shall be covered with steel plates, or other similar approved structure, at night. The Designated Biologist(s) shall be present during pipeline construction to verify that special-status resources are avoided or moved to a safe location when necessary.
- BIO-6 The solar units shall be graded generally following the existing contours of the site to minimize the amount of ground disturbance.
- BIO-7 Spoils, trash, or any debris shall be removed to an approved disposal facility off site. A trash abatement program shall be established. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.
- BIO-8 Workers shall be prohibited from bringing pets and firearms to the site.
- BIO-9 If construction activities occur at night, all project lighting (e.g., staging areas, equipment storage sites, roadway) shall be directed onto the roadway or construction

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site and away from sensitive habitat. Light glare shields shall be used, when necessary, to reduce the extent of illumination into adjoining areas.

- BIO-10 BMPs shall be employed to prevent loss of habitat due to erosion caused by Project-related effects (i.e., grading or clearing for new roads). The Project inspector shall periodically monitor the work area to ensure that construction-related activities do not generate erosion or excessive amounts of fugitive dust. All detected erosion shall be remedied within 2 days of discovery.
- BIO-11 Fueling of equipment shall take place within existing paved roads and not within 300 feet of, or adjacent to, drainages or native desert habitats. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.
- BIO-12 Wildfires shall be prevented to the greatest extent possible by exercising care when driving and by not parking vehicles where catalytic converters could ignite dry vegetation. In times of high-fire hazard (e.g., high wind or drought conditions), trucks shall carry water and shovels or fire extinguishers in the field, and high-fire-risk installations (e.g., electric lines) may need to be delayed. The use of shields, protective mats, or other fire-prevention equipment shall be used during grinding and welding to prevent or minimize the potential for fire. No smoking or disposal of cigarette butts shall take place within vegetated areas.
- BIO-13 A Weed Management Plan (AECOM 2010a) shall be developed and implemented to minimize the introduction of exotic plant species. The introduction of exotic plant species shall be avoided and controlled wherever possible through prevention strategies and physical or chemical removal. Preventing exotic plants from entering the site via vehicular sources shall include measures such as implementing Trackclean or other similarly effective methods of vehicle cleaning for vehicles entering and leaving the site. Earth-moving equipment shall be cleaned prior to transport to the Project site. Preventing exotic weeds from entering the site via materials sources shall require that weed-free rice straw or other certified weed-free straw be used for erosion control. Weed populations inadvertently introduced into the site during construction shall be eliminated promptly by chemical and/or mechanical means approved by CEC, BLM, CDFG, USFWS, and the California Invasive Plant Council (Cal-IPC).
- BIO-14 In addition to the avoidance and minimization measures outlined in this section, the Project proponent shall implement measures stipulated in the permits and approvals

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issued by CEC, BLM, USFWS, and CDFG as a condition of Project certification, including CEC Certification, Final Environmental Impact Statement, USFWS BO, and CDFG 2081 ITP.

- BIO-52 Project design features (PDFs) shall be employed as detailed in the Common Raven Monitoring, Management, and Control Plan (AECOM 2010b) to prevent raven occurrence on site. PDFs shall include, but are not limited to, the following:
- a. potential use of perch-deterrent devices and locations of their installation,
  - b. measures that might reduce raven presence and nesting activities (e.g., removing food items, garbage, no standing water on site, removal of unoccupied raven nests), and
  - c. adaptive management measures (e.g., hazing, lethal removal) if raven monitoring suggests current PDFs are ineffective.

### **6.3.2 Resource-Specific Avoidance, Minimization, and Mitigation Measures**

Resource-specific avoidance and minimization measures from the AFC that are applicable to Project construction, including those specific to DT, are presented below.

#### **6.3.2.1 Special-Status Wildlife**

- BIO-17 In addition to the measures discussed above, the Project Applicant shall compensate for effects on DT habitat in the Project disturbance area during construction activities. Direct permanent effects on 1,944.1 acres of occupied DT habitat occurring outside of designated critical habitat, of which 1,936.2 acres are moderate- to high-quality for DT, shall be mitigated at a ratio developed in consultation with the resource agencies (CDFG, BLM, and USFWS). Compensatory mitigation would be achieved through a combination of offsite land acquisition, offsite habitat enhancement, and funding programs that would promote the recovery of DT. A Preliminary Habitat Mitigation and Monitoring Plan (HMP) has been prepared for the RSPP (AECOM 2010c). The Preliminary HMP describes the proposed approach to compensatory mitigation planning and design, including proposed minimum compensation ratios and criteria for identifying mitigation lands; an implementation plan; monitoring, adaptive management, and contingency measures; and enhancement and long-term management of mitigation lands. The compensatory mitigation approach will be further developed and refined in the Conceptual HMP to be provided once mitigation

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lands, and funding programs as appropriate, are selected. The following summarizes the Preliminary HMP's approach to compensatory mitigation of effects on DT.

The proposed total acreage of compensatory mitigation would be based on the following proposed overall ratios, intended to serve as a guideline for evaluation of offsite land acquisition opportunities. These ratios are based on the quality of onsite habitats that will be affected by the Project and ratios that have been negotiated on similar projects. A fee-based equivalent (e.g., in-lieu fee program) may be used to satisfy compensatory mitigation requirements or to augment offsite land acquisition to fully satisfy anticipated mitigation requirements (see "2. Fee Programs," below).

- *Moderate- to high-quality habitat.* For acres of moderate- to high-quality habitat impacted (1,936.2 acres), mitigation would be at 3 acres compensation for each 1 acre impacted (i.e., 3:1 ratio).
- *Low-quality habitat.* For acres of low-quality (highly disturbed, adjacent to roads) habitat impacted (7.9 acres), mitigation would be at 1 acre compensation for each 1 acre impacted (i.e., 1:1 ratio).

Because opportunities for onsite compensatory mitigation are limited, one or more of the following offsite mitigation options shall be implemented.

#### *1. Land Acquisition, Enhancement, and Management*

Land acquisition involves securing and preserving unprotected lands via a Conservation Easement to facilitate the conservation of the resource (i.e., wildlife, vegetation, or jurisdictional waters) in perpetuity. The ultimate goal is to acquire compensatory lands that would offset the loss of the biological values associated with construction and operation of the RSPP that cannot be avoided. Land acquisition may occur through two primary mechanisms: 1) purchase of private lands or 2) payment of a fee to a third party for the purchase of lands. In either approach, the costs associated with land acquisition would be the responsibility of the Applicant (i.e., Project owner) and would include not only the cost of the land parcels to be acquired, but also fees for the initial enhancement and continued long-term management and monitoring (via a nonwasting endowment) of those lands by a third party in perpetuity. Acquired land would be preserved and managed for the biological resource or species habitat values in perpetuity. The location of acquired lands would

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be determined based on consultation with the resource agencies (CDFG, USFWS, CEC, and BLM). Priority lands for acquisition would be identified using one or more of the following criteria:

- *Species occurrences and habitat quality.* Acquisition efforts shall focus on protecting habitat of adequate quality for special-status species impacted by the Project (refer to the Preliminary RSPP HMP for DT-specific habitat quality criteria, AECOM 2010c) that, at minimum, provides functions and values equal to that present on the Project site. Where possible, preservation of high-quality occupied habitat that satisfies the mitigation requirements for DT, MGS, and WBO will be given highest priority.
- *Location and landscape position.* Priorities for acquisition shall include 1) lands within the same or adjacent watershed of the Project site that are within the West Mojave recovery unit; 2) lands that preserve key movement corridors; and/or 2) areas that build linkages between other preserved or high-value sites for DT (e.g., critical habitat, known population sites, and/or other preserve lands).
- *Maximize size.* Acquisition parcels shall be as large as possible to maximize ecosystem functions on site, population sizes of DT, and protection of species from adjacent land uses and edge effects. Opportunities for augmentation of existing preserved land would be considered a high priority. Also, consideration of the future potential for consolidation of acquisitions within a larger management framework would be considered. Larger preserves allow for greater efficiency and effectiveness in implementing large-scale enhancement or restoration actions, and preserve management.
- *Land designation.* Acquisition efforts shall focus on protecting important areas identified in the DT recovery plan (e.g., critical habitat), or occupied or high-quality DT habitat (e.g., lands where PCEs are present).
- *Vegetation community composition.* Vegetation community composition on potential mitigation lands, including the presence of desert washes, should be representative of communities present on the Project site, if possible.
- *Enhancement opportunities.* Lands that are presently limited in habitat value for DT may be considered priorities for acquisition if they can be feasibly enhanced

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or restored to functional, high-quality DT habitat, and would contribute to regional connectivity of populations or important habitats.

- *Other property constraints.* Acquisition efforts would avoid lands with lease rights or other liens that would be contradictory to the purpose of using the property for special-status species protection (e.g., mineral leases, water rights, natural gas drilling easements) or with the presence of cultural or other resources on site that would limit potential options for special-status species protection. Additionally, invasive species that are likely to jeopardize habitat functions and values must not be present at a sufficient density to affect site quality as it pertains to use of the site for compensatory mitigation. There may be a workable solution around these constraints on some lands.
- *Long-term management feasibility.* Priority acquisition lands would occur under the purview of a reputable land management entity that is solvent, and with strict assurances that the property would be preserved in perpetuity (e.g., conservation easements).
- *Goals of the DRECP.* The State of California and the U.S. Department of Interior are cooperatively developing the DRECP. The DRECP will establish a science-based process for reviewing, approving, and permitting renewable energy applications in California. Once the plan is complete (anticipated in late 2010), it will present a regional road map that will provide a greater level of certainty for renewable energy developers on how and where to site their projects. The DRECP will also create a government-organized habitat mitigation program that consolidates habitat purchases for compensatory mitigation. Land acquisition to mitigate for effects of the RSPP shall focus on parcels that would contribute to DRECP goal attainment, where feasible.

As potential compensatory lands are identified, the RSPP team would coordinate closely with CEC, CDFG, USFWS, and BLM in an attempt to obtain consensus that the targeted lands are suitable. During the mitigation site selection process, close collaboration would also occur with nonprofit entities known to participate in mitigation planning within the Mojave Desert. Specific opportunities that could be considered for land acquisition in reasonable proximity to the RSPP site include private lands that would augment the DT Natural Area preserve (located

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approximately 25 miles south of the RSPP site), and private lands adjacent to CDFG-owned parcels on Little Dixie Wash (located just west of the RSPP site).

The process for approval of offsite land acquisition would generally involve the following steps:

- a. Identification of suitable offsite mitigation properties, based on the criteria identified above.
- b. Due diligence of selected mitigation properties, including completion of biological resources assessments and other technical studies.
- c. Consultation with resource agencies and mitigation plan approvals.
- d. Resource agency final approvals, final transfers, and recordation of conservation easement.

Measures for the management and enhancement of DT habitat will be implemented, as appropriate, depending on the site conditions at the chosen mitigation areas. Such measures may include the following:

- control of raven populations to reduce predation of DT;
- control or elimination of grazing by domestic animals to prevent soil compaction, erosion, and the loss of DT forage plants;
- control of wild horse and burro populations within mitigation areas;
- control of off-road-vehicle (ORV) use and other human disturbance through fencing, signage, and patrolling;
- prohibition of any new road construction, paved or otherwise, within mitigation areas;
- installation of DT-friendly barrier fencing, culverts, and/or undercrossings at existing highways;
- prevention of poaching and illegal collection of DT;
- control of invasive species such as Saharan mustard (*Brassica tournefortii*), Mediterranean grass (*Schismus* sp.), and other exotic annual grasses and forbs;

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- restoration of mitigation areas with native vegetation;
  - development and implementation of a fire management plan for mitigation areas where DT habitat may be impacted by fire;
  - prohibition of the release of captive DT into mitigation areas to prevent the spread of disease, genetic contamination, and competition with the resident population of DT (agency-authorized relocations may be permitted);
  - control and cleanup of illegal dumping;
  - removal and remediation of toxicants and unexploded ordnance; and
  - control of unleashed and feral dogs that may cause mortality or disturbance to DT.

## 2. *Fee Programs*

In addition to, or possibly as a substitute for, land acquisition, described above, the proposed compensatory mitigation approach for impacts to special-status species would include the payment of a fee on a per-acre basis equating to the value of the remaining compensatory mitigation acreage required. The fees may be paid to an existing or planned (e.g., DRECP) in-lieu fee program (or possibly the proposed in-lieu fee program). Or, in the absence of a State in-lieu fee program, fees may be donated to a nongovernmental organization (NGO) (e.g., Desert Tortoise Council) and would be designated for specific activities that would promote the recovery and/or preservation of DT in the region. Donating funds to a private organization will be subject to prior approval by CDFG and USFWS and shall be supported by a contract or agreement detailing the amount and specific purpose of the funds being donated. Funded activities could include, but are not limited to, the following:

- Habitat enhancement of existing preserved lands (e.g., revegetation, invasive plant control),
- Exclusion or reduction of key disturbance sources (e.g., livestock grazing, predators, off-road vehicles),
- Reduction of mortality sinks (e.g., roadways and linear barriers),
- Research studies and monitoring,
- Captive breeding and release programs, and
- Public information and education programs.

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Some potential specific opportunities for the RSPP identified to date to benefit DT are summarized below.

- a. Install fencing along major roadways bordering important population areas in Kern County (e.g., U.S. Highway 395).
- b. Construct and monitor effectiveness of wildlife crossings under Brown Road and U.S. Highway 395 in the vicinity of the Project site. Crossings would be designed to facilitate safe passage of DT (and other targeted species) across roads in the vicinity of the Project site.
- c. Designate funds to facilitate and enhance raven monitoring, management, and control through the regional raven management program in development by USFWS and supporting agencies. This fee may be directed to USFWS to be applied as part of a new in-lieu fee program being developed. BLM may also be able to use funds to support raven management at recreational areas that attract ravens and could affect surrounding mitigation lands.
- d. The revised draft Desert Tortoise Recovery Plan (USFWS 2008) identifies several “Recovery Actions” to facilitate the protection and recovery of the species. The cost of the recovery across the entire Mohave population of DT (including portions of Arizona, Utah, Nevada, and California) is estimated to be a couple of hundred million dollars (USFWS 2008); however, no firm source of funding has been identified for these actions. Recovery actions outlined in the recovery plan are as follows:
  - Increasing law enforcement,
  - Closing roads that provide access to DT habitat through fencing,
  - Excluding and eliminating burros and horses from DT habitat,
  - Funding monitoring programs (i.e., establish a grant for monitoring), and
  - Funding applied research that contributes to the long-term viability and conservation of DT (e.g., setting up a grant for graduate students to do research on the species).

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Funds from the fee-based portion of the proposed mitigation strategy could be used to establish or contribute to funding in perpetuity for any of the above actions. The funds would be earmarked for support of the Desert Tortoise Recovery Plan and specific recovery actions, and provided to a third party (e.g., Wildlands, Inc., or other NGO) for management as appropriate.

#### 6.3.2.2 Desert Tortoise

BIO-21 USFWS assigns a single designation for biologists who are approved to handle tortoises ([http://www.fws.gov/ventura/speciesinfo/protocols\\_guidelines/](http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/)): “Authorized Biologist” (AB). Such biologists have demonstrated to USFWS that they possess sufficient DT knowledge and experience to handle and move tortoises appropriately. The AB shall oversee compliance with the protection measures for DT and other species. The AB is permitted to then approve monitors to conduct specific activities based on the monitor’s demonstrated skills, knowledge, and qualifications. Biological monitors shall ensure compliance with the protection measures but shall not be allowed to survey for or handle DT. CDFG must also approve the AB, including individual approvals for monitors approved by the AB. The AB shall:

- a) Be on site during fencing activities;
- b) Have the right to halt all activities that are in violation of the DT protection measures;
- c) Monitor DTs during construction activity to avoid direct effects on individuals in areas outside of where DTs have been excluded from construction zones in accordance with an approved DT Clearance and Relocation/Translocation Plan (see BIO-20 below);
- d) Allow work to proceed only after hazards to the DT are removed and the species is no longer at risk, or the individual has been moved from harm’s way;
- e) Have in his/her possession a copy of all the compliance measures while work is being conducted on site;
- f) Be responsible for awareness trainings, surveys, compliance monitoring, and reporting related to the DT;

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- g) Distribute an educational brochure, as necessary, to onsite personnel that outlines the steps to be taken if a DT is encountered on the construction site after all Designated Biologist(s) have left the site;
  - h) Maintain records of all DTs and other listed species encountered during Project activities, including any capture and release dates, if applicable; locations of all DT found; general conditions and health of individual DTs found, including whether animals voided their bladder, and any diagnostic markings; and amount of habitat lost (e.g., cleared of vegetation) as a result of the construction activity; and
  - i) Prepare a report to document the clearance survey and results (see BIO-53). This report shall be submitted in a timely manner to agency representatives.

BIO-23 The proponent shall submit the names and statement of qualifications of all proposed ABs to CEC, BLM, USFWS, and CDFG for review and approval at least 30 days prior to initiation of any DT handling, clearance, and preactivity surveys. Project activities shall not begin until the AB is approved by the aforementioned agencies. Only ABs shall be allowed to handle and relocate DT when necessary. Qualifications of Designated Biologist(s) shall meet the minimum standards set forth in the WEMO (BLM 2005). Workers shall notify the AB of all DT observations.

BIO-19 Prior to the onset of construction, the boundary of the facility footprint would be permanently fenced with an 8-foot-high chain link fence for security purposes. Permanent DT-proof fencing shall either be attached to the base of the security fence or installed immediately outside the security fence. Temporary DT-proof fencing shall be installed prior to clearance surveys around the initial construction startup/primary staging areas, in portions of linear utilities, and in any other areas outside permanent DT-proof fencing where ground disturbance will occur within the Project disturbance area. Temporary DT-proof fencing shall follow guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity. The fencing type shall be 1- by 2-inch vertical mesh galvanized fence material, extending at least 2 feet above the ground and buried at least 1 foot. Where burial is impossible, the mesh shall be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent DT from digging under the fence. Permanent and temporary fencing shall be consistent with guidelines outlined in Appendix I of the WEMO (BLM 2005), or as modified and approved by agency representatives. DT-proof gates shall be established at all Project site entry points. All

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- fence construction shall be monitored by the AB to verify that no DTs are harmed. Following installation, the fencing shall be inspected monthly and during all major rainfall events, or more often, as necessary. Damage to the fencing shall be repaired immediately.
- BIO-20 A clearance for any DTs shall be conducted throughout the Project disturbance area and shall be consistent with specifications in Appendix I of the WEMO (BLM 2005), or as modified and approved by agency representatives. A minimum of two clearance passes shall be completed after DT-proof fencing is installed. Clearance surveys shall be conducted during periods that USFWS and CDFG approve. It is anticipated that DTs will be found during the clearance survey. Excavation of all potential DT burrows encountered shall occur as a part of clearance surveys. Any DT found shall be moved by an AB to a location outside of DT-proof fencing using the approach and techniques described in the DT Clearance and Relocation/Translocation Plan (AECOM 2010d) and that are approved by agency representatives. DT shall be moved out of harm's way the minimum distance possible within appropriate habitat to ensure its safety from death, injury, or collection, or to a specified translocation site approved by agency representatives. The DT Clearance and Relocation/Translocation plan includes an analysis to determine whether relocation or translocation is an appropriate action; the identification and prioritization of potentially suitable locations for translocation; DT handling and transport considerations (including temperature); animal health considerations; a description of translocation scheduling, site preparation, and management; and specification of monitoring and reporting activities for evaluating success of translocation. Once the site is deemed free of DTs after two consecutive clearance passes, then heavy equipment shall be allowed to enter the site to perform construction activities.
- BIO-53 Following site clearance, a report shall be prepared by the AB to document the clearance surveys, the capture and release locations of all DT found, individual DT data, and other relevant data. Information for each individual shall include, at minimum, the location and dates of observations; burrow data; animal gender, carapace length, mass, general conditions, and health; any apparent injuries and state of healing; and diagnostic markings (i.e., identification numbers). This report shall be submitted to agency representatives.
- BIO-22 During construction activities, monthly and final compliance reports shall be provided by the AB to USFWS, CDFG and other applicable resource agencies to

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- document the effectiveness and practicality of the protection measures that are in place and make recommendations for modifying the measures to enhance species protection, as needed. The report shall additionally provide information on the overall biological resources-related activities conducted, including the worker awareness training, clearance/preactivity surveys, monitoring activities, and any observed DTs including injuries and fatalities.
- BIO-24 Proposed channels that reroute the washes along the perimeter of the Project site shall be constructed in a manner that avoids creating additional impacts (e.g., injury or mortality) to DT outside the facility footprint once Project construction is complete.
- BIO-25 Personnel shall use established roadways (paved or unpaved) in traveling to and from the site and existing tracks on site whenever possible. Cross-country vehicle and equipment use outside designated work areas shall be prohibited. To minimize the likelihood for vehicle strikes of DTs, a speed limit of 15 miles per hour shall be established for travel within the Project disturbance area outside areas cleared through DT clearance surveys (see BIO-20) and along off-highway access roads to the site.
- BIO-26 To the greatest extent feasible, parking and storage shall occur within the DT exclusion fencing, following the completion of the pre-construction surveys and site grubbing and grading. Anytime a vehicle or construction equipment is parked in unfenced DT habitat, the ground under the vehicle shall be inspected for the presence of DT before the vehicle is moved. If a DT is observed, it shall be left to move on its own. If it does not move within 15 minutes, the AB shall remove and relocate the DT to a safe location according to the techniques established in Guidelines for Handling Tortoises during Construction Projects (Desert Tortoise Council 1999).
- BIO-27 All vehicles and equipment shall be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB shall be informed of any hazardous spills immediately (i.e., within 24 hours). Hazardous spills shall be immediately cleaned up and the contaminated soil shall be properly disposed of at a licensed facility.
- BIO-28 Intentional killing or collection of DT in the survey area and surrounding areas is prohibited. The AB shall be notified of any such occurrences immediately and USFWS and CDFG shall be notified of any such occurrences within 24 hours.

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- BIO-29 For emergency response situations, the AB shall notify appropriate agency representatives (e.g., USFWS, CDFG) immediately. As a part of this response, USFWS and CDFG may require additional measures to protect DT. During any responses related to human health, fire, hazardous waste, or repairs requiring off-road vehicle and equipment use, USFWS and CDFG may also require measures to recover damaged habitat; these additional measures shall be implemented.
- BIO-30 Water shall be applied to the construction ROW, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions. During the DT active season, an AB shall patrol these areas to ensure water does not puddle for long periods of time and attract DTs, common ravens, or other wildlife to the site that may prey on sensitive species.
- BIO-31 Standing water shall be minimized on site to the extent feasible to minimize the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.
- BIO-32 Upon locating a dead or injured DT, the AB shall make initial notification to the USFWS and CDFG within 24 hours of its finding. The notification shall be made by telephone and writing to the USFWS Field Office with jurisdiction over the project. The report shall include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. Additionally, the AB shall take prompt appropriate action as outlined in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (Gopherus agassizii)* (Berry 2003). DT with fewer major injuries shall be transported to a nearby qualified veterinarian for treatment at the expense of the proponent. If an injured DT recovers, the agency representatives shall be contacted for final disposition of the DT.

#### 6.3.2.3 Wildlife Movement

- BIO-44 Prioritize and acquire land that contributes to the preservation of adequate wildlife habitat connectivity.

### **6.3.3 General Avoidance and Minimization Measures during Operation**

General avoidance and minimization measures from the AFC that are applicable to Project operation and the DT are presented below.

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- BIO-45 All vehicles passing or turning around shall do so within the planned impact area (i.e., Project disturbance area).
- BIO-46 Project design features (PDFs) shall be employed, including a monitoring program to document potential nesting ravens, as detailed in the draft Common Raven Monitoring, Management, and Control Plan (AECOM 2010b). The details of the funding mechanism and monitoring shall be coordinated with USFWS prior to initiation of the Project. PDFs shall include, but are not limited to, the following:
- a. potential use of perch-deterrent devices and locations of their installation,
  - b. measures that might reduce raven presence and nesting activities (e.g., removing food items, garbage, no standing water on site, removal of unoccupied raven nests), and
  - c. adaptive management measures (e.g., hazing, lethal removal) if raven monitoring suggests current PDFs are ineffective.
- BIO-47 Fueling of equipment shall take place within existing paved roads and not within 300 feet of, or adjacent to, drainages or native desert habitats. Maintenance equipment shall be checked for leaks prior to operation and repaired as necessary.
- BIO-48 The Project shall employ a comprehensive system of management controls, including site-specific BMPs, to minimize erosion and stormwater contact with contaminants and thereby reduce exposure of wildlife and plants to pollutants in the stormwater. These management controls shall include erosion and sediment control BMPs; an employee training program; good housekeeping and preventive maintenance programs; structural BMPs, including temporary containment during maintenance activities and permanent secondary containment structures at chemical storage and process areas; materials, equipment, and vehicle management practices; spill prevention and response programs; and inspection programs. A SWPPP and a DESCOP shall be prepared to comply with RWQCB and CEC requirements; a preliminary combined SWPPP and DESCOP (equivalent to a SWPPP but covering both construction and operation phases) has been prepared.
- BIO-49 The Project's lighting system shall provide the minimum illumination required to meet safety and security objectives and shall be oriented to minimize additional

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- illumination in areas not pertinent to the facility. If lighting is adjacent to habitat for special-status species (e.g., DT, WBO, American badger, etc.), it shall be directed or shielded away from the habitat. No permanent lights shall be installed within habitat for special-status species. All facility lighting shall be directed onto the roadway or Project site and away from habitat for special-status species. Light glare shields shall be used, if necessary, to reduce the extent of illumination into adjoining areas.
- BIO-50 During Project operation, the Project disturbance area, including the water pipeline and transmission corridors, shall be maintained free from nonnative invasive plant species. This can be accomplished through physical or chemical removal and prevention. If necessary, application of an approved herbicide (not toxic to wildlife) shall be performed or directly supervised by a State licensed applicator following the label instructions, including application rates and protective equipment.
- BIO-51 Decommissioning of the facility shall include the removal of all improvements within the Project disturbance area. All surface improvements shall be removed, and all ground-level penetrations and subsurface storage tanks (if any) shall be removed and filled/capped to prevent the access and entrapment of wildlife. The channel realignments may remain in place or be filled and restored to preexisting hydrology. Funding for long-term maintenance or filling and restoration of the realigned channels, whether it is needed at the anticipated facility closure date or it is needed earlier due to untimely closure (i.e., bankruptcy), shall be pursued once a comprehensive decommissioning plan is established. A draft Conceptual Decommissioning Plan will be developed prior to Project Certification to describe how the Project and its component structures will be properly removed, if necessary, at the end of the Project's useful lifespan, and that the Project site is reclaimed in accordance with the requirements of the BLM, the land owner. BLM currently is developing reclamation requirements for utility-scale solar projects. The Conceptual Decommissioning Plan provides an initial approach to reclamation that will be modified to ensure compliance with those reclamation requirements once BLM adopts them.
- BIO-54 To minimize the likelihood for vehicle strikes of DTs, a speed limit of 15 miles per hour shall be established for travel along off-highway access roads to the site. Access roads shall be posted with DT awareness signs. DT-proof gates that roll open and close behind vehicles shall be installed at the entrance of the perimeter fence.

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BIO-55 All DT-proof fencing, or other similar structures intended to exclude DT (e.g., around the facility) shall be inspected monthly and during all major rainfall events, or more often if necessary. Damage to the fencing, or similar structure, shall be repaired immediately (same day) and a clearance survey for any DTs that may have entered the excluded area shall be conducted in all areas by the AB within 24 hours of the time the fence is damaged. A minimum of two clearance passes shall be completed by the AB after the fencing, or similar structure, is repaired to ensure that no DTs that may have entered the excluded area become trapped inside. Any DTs found will be moved by the AB to a location immediately outside of the DT-proof fencing, or similar structure, using agency-approved techniques.

## **7.0 ACTION AREA**

The action area, or Project action area, is defined as all areas to be affected directly or indirectly by full implementation of the Federal action (i.e., the Project) evaluated in this BA, and not merely the immediate area involved in the action (50 CFR Section 402.02). The action area (Figure 2) is composed of the Project disturbance area (i.e., area of anticipated ground disturbance associated with the Project), totaling approximately 1,944 acres (plus the approximately 87 acres associated with acceleration/deceleration zones along U.S. Highway 395 and the widening of Brown Road), and a buffer area (1-mile buffer of nonlinear Project elements including solar fields and power block, and a 1,000-foot buffer of linear Project elements including transmission line and water pipeline). The action area is the equivalent of the BRSA for the Project, as previously referenced in the Ridgecrest Solar Power Project Application for Certification (AECOM 2009a) and supporting documents, including the RSPP Biological Resources Technical Report (BRTR) (EDAW AECOM 2009a) and the RSPP Supplemental BRTR (AECOM 2009b).

### **7.1 General Description of the Action Area**

The action area is nearly completely vacant and undeveloped and is entirely owned by BLM. There are no existing structures on site that would need to be demolished, but existing transmission lines that traverse the southwestern portion of the site will require relocation. The action area is located on lands designated as BLM Multiple Use Class “Limited” or “Unclassified.” Public lands designated as Multiple Use Class Limited are “managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.” Historic and current uses of the site (both approved and unapproved) include grazing allotments, off-road vehicle use, wildlife viewing,

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horseback riding, target practice, and illegal trash dumping. The El Paso Mountains Wilderness Area is located to the southwest of the Project site, just beyond the 1-mile buffer. The China Lake Naval Air Weapons Station occurs approximately 6 miles to the north and over 15 miles to the east.

Topography within the action area is generally flat with elevations ranging from approximately 2,580 feet in the north to 2,800 feet in the south. The action area is located on an alluvial fan that slopes northward from the El Paso Mountains in the southwest; it consists primarily of undeveloped open space. The most notable topographic features include an ephemeral drainage (El Paso Wash) passing generally from south to north, and a series of rock outcrops located in the eastern portion of the action area near the intersection of Brown Road and U.S. Highway 395. Brown Road crosses the middle of the action area generally from east to west. China Lake Boulevard runs generally north to south within the easternmost portion of the action area. U.S. Highway 395 crosses the action area in a north to south direction to the west of China Lake Boulevard (Figure 2).

## **7.2 Vegetation Communities and Land Cover in the Action Area**

Vegetation mapping was conducted within the action area between February 18 and May 8, 2009, and between October 6 and 7, 2009, by Project botanists Charles Battaglia, Joseph Betzler, Richard Dwerlkotte, Shirley Innecken, Fred Sproul, Scott McMillan, and Lance Woolley (EDAW AECOM 2009a, 2009b; AECOM 2009b). Additional surveys to map vegetation communities within unsurveyed portions of the action area (approximately 325 acres of the Project site, and 1,025 acres of the buffer area) resulting from the recent Project site reconfiguration (Figure 3) will be conducted in spring 2010. (Vegetation mapping results and analysis of project effects based on these additional survey efforts will also be incorporated into a revised BA once the data have been collected and analyzed.) Vegetation communities were classified based on Holland (1986). Sawyer and Keeler-Wolf (1995) and CDFG (2003) classifications were used to provide additional detail when needed. Project botanists utilized 200-foot scale ortho-topographic maps for vegetation mapping. The minimum vegetation mapping unit was 0.01 acre for riparian areas and 1.0 acre for all other cover types within the Project disturbance area. Within the buffer area, the minimum mapping unit for all land cover types was 1.0 acre. Vegetation communities were characterized based on the dominant plant species, according to the 50/20 dominance rule (USACE 2008).

Five vegetation communities and other land cover types have been identified within the action area during Project surveys (Figure 3) and are described in detail below. The acreages of each

vegetation community and cover type within the Project disturbance area, surrounding buffer, and totals for the entire action area (prior to Project site reconfiguration) are provided in Table 1. Acreages of each vegetation community or land cover type will be updated to represent that of the reconfigured Project disturbance area and buffer once surveys have been completed in spring 2010.

**Table 1**  
**Vegetation Communities and Cover Types (Acres<sup>1</sup>)**

<b>Vegetation Communities and Other Cover Types</b>	<b>Project Disturbance Area</b>	<b>Buffer Area</b>	<b>Action Area</b>
<b>Riparian</b>			
Mojave Desert Wash Scrub	8.1	64.3	72.6
Unvegetated Ephemeral Dry Wash	7.9	35.6 <sup>2</sup>	43.5
<i>Subtotal Riparian</i>	<i>16.0</i>	<i>100.0</i>	<i>116.0</i>
<b>Upland</b>			
Mojave Creosote Bush Scrub	1,708.7	7,797.8	9,506.9
<i>Subtotal Upland</i>	<i>1,708.7</i>	<i>7,797.8</i>	<i>9,506.9</i>
<b>Other Cover Types</b>			
Disturbed Habitat	0.0	10.6	10.6
Developed Areas	9.6	140.7	150.3
<i>Subtotal Other Cover Types</i>	<i>9.6</i>	<i>151.2</i>	<i>160.8</i>
<b>Total Acres</b>	<b><i>1,734.1</i></b>	<b><i>8,049.0</i></b>	<b><i>9,783.8</i></b>

<sup>1</sup> Acreages are based on the Project design prior to site reconfiguration, as reported in the revised Project Supplemental Biological Resources Technical Report (AECOM 2009b). As a result of rounding error, the sum of individual acreage values may not exactly match acreage subtotals or totals.

<sup>2</sup> Unvegetated channels are potentially jurisdictional aquatic features and were not mapped within the buffer because these surveys were conducted at a minimum mapping unit of 1.0 acre, as opposed to 0.01 of an acre for riparian vegetation communities within the Project disturbance area. This approach is consistent with the AECOM Jurisdictional Delineation methodology and is pursuant to Appendix B, Section (g), Subsection (13), Paragraph (B), Clause (iii) of the CEC Siting Regulations, which does not require detailed mapping of aquatic features beyond 250 feet of the disturbance limits (CEC 2007). However, due to Project disturbance area alterations, 35.6 acres of unvegetated ephemeral dry wash are currently known to occur within the buffer area (according to the Project design prior to site reconfiguration).

### **Mojave Desert Wash Scrub**

Mojave Desert wash scrub is designated by Holland (1986) as Code 63700. It also approximates Sawyer and Keeler-Wolf's (1995) Catclaw Acacia Series 129. This vegetation community consists of an open to moderately dense evergreen scrub that attains a height of 3 to 6 feet. This community consists of three primary components: wash-dependent vegetation, vegetated ephemeral dry wash, and islands of Mojave creosote bush scrub. The dominant wash-dependent species and indicator plant of this community within the action area is scale-broom (*Lepidospartum squamatum*), which occurs in patches throughout the dry washes scattered

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amongst creosote bush (*Larrea tridentata*), spiny senna (*Senna armata*), cheesebush (*Hymenoclea salsola*), burroweed (*Ambrosia dumosa*), Virgin River brittlebush (*Encelia virginensis*), and rayless goldenhead (*Acamptopappus sphaerocephalus*). Common herbaceous plants include California desert dandelion (*Malacothrix californica*), Fremont pincushion (*Chaenactis fremontii*), distant phacelia (*Phacelia distans*), and Wallace eriophyllum (*Eriophyllum wallacei*). Mojave Desert wash scrub is concentrated among the northern portion of the dry wash that traverses the central portion of the action area from south to northwest. A representative photograph of this vegetation community within the action area is shown in Attachment 3.

### **Unvegetated Ephemeral Dry Wash**

This land cover type consists of unvegetated washes that are dominated by sandy substrate and little to no perennial vegetation. Unvegetated ephemeral dry wash, which approximates nonvegetated channel, Holland (1986) Code 64200, predominately occurs within the transition zone of desert wash scrub, in locations where the washes transition to sheet flow. No dominant perennial plant species, specifically scale-broom, which is the dominant indicator of Mojave Desert wash scrub, were observed in association with nonvegetated channel as these areas are primarily devoid of vegetation. A representative photograph of this vegetation community within the action area is shown in Attachment 3.

### **Mojave Creosote Bush Scrub**

Mojave creosote bush scrub is designated by Holland (1986) as Code 34100 and by Sawyer and Keeler-Wolf (1995) as the Catclaw Acacia Series 129. This community type occurs on well-drained decomposed granite and volcanic soils, and consists of widely spaced shrubs up to 9 feet tall. This is the most common plant community within the action area, dominated by creosote bush, burroweed, cheesebush, and Virgin River brittlebush. Common herbaceous species include redstem stork's bill (*Erodium cicutarium*), Mediterranean grass (*Schismus* sp.), needle goldfields (*Lasthenia gracilis*), and blue dicks (*Dichelostemma capitatum*). A representative photograph of this vegetation community within the action area is shown in Attachment 3.

A large volcanic outcrop occurs southwest of the action area, where the Mojave creosote bush scrub becomes sparser and the herbaceous layer becomes more diverse. Vegetation associated with this outcrop includes such species as Parish's larkspur (*Delphinium parishii* ssp. *parishii*), snake's head (*Malacothrix coulteri*), and dwarf cottonrose (*Logfia depressa*). East of the central portion of the action area, large granite boulder outcrops occur within the Mojave creosote bush

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scrub. In this area, sub-shrubs such as desert brickellbush (*Brickellia desertorum*), Eastern Mojave buckwheat (*Eriogonum fasciculatum* var. *polifolium*), and Cooper's goldenbush (*Ericameria cooperi*) become more common.

### **Disturbed Habitat**

Disturbed areas within the action area include areas where vegetation has been removed or otherwise degraded as part of routine road maintenance, off-highway vehicle (OHV) use, and other anthropogenic disturbances associated with single-family residences and a high density of unpaved dirt roads (e.g., domestic predators, habitat fragmentation etc.). While anthropogenic disturbances do occur in some other locations within the action area, they were not as severe as in areas adjacent to the waterline. These other disturbances include general OHV use on dirt roads throughout the action area, heavy OHV use and trash dumping in association with the rocky outcroppings in the central eastern portion of the action area, and target shooting and trash dumping in the southwest portion of the action area.

### **Developed Areas**

Developed areas within the action area consist of roadways and adjacent residential lots. Brown Road is a two-lane paved roadway that traverses the entire central portion of the action area from east to west. China Lake Boulevard, also a two-lane paved roadway, parallels the proposed waterline route. In addition, numerous unpaved dirt roads (over approximately 10 miles) traverse the action area. U.S. Highway 395, a two-lane fenced freeway, is located just north of the action area and crosses the proposed waterline route where it intersects with Brown Road and China Lake Boulevard. Borders of paved roadways are highly managed and many of these areas are devoid of vegetation. Vegetation is also very limited on dirt roads; plants only occasionally grow along the center-line and are indicative of surrounding vegetation. A few residential lots occur adjacent to the action area to the northwest and more extensively to the northeast of the action area in association with Ridgecrest, California. Plant composition on residential lots is primarily nonnative, especially within the residential development in the northeast portion of the action area.

## **8.0 STATUS OF DESERT TORTOISE IN THE ACTION AREA**

This section summarizes the distribution, biological requirements, and population status of federally listed species evaluated in this BA.

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## 8.1 Species Background

The DT is federally listed as threatened under the ESA (USFWS 1980 and 1990), with critical habitat designated by USFWS (USFWS 1994b). This listing status applies to the entire population of DT, except in Arizona south and east of the Colorado River, and in Mexico. An approved recovery plan has been published by USFWS (1994a). However, USFWS formed the Desert Tortoise Recovery Office, and published a draft revision to the Recovery Plan (USFWS 2008). The DT was also listed as threatened under the California Endangered Species Act on June 22, 1989 (California Fish and Game Commission 1989). The species is also covered under the WEMO (BLM 2005).

DTs are widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. Suitable landscapes for DT are generally defined as alluvial fans and plains and rocky slopes at elevations of 1,969 to 3,937 feet above sea level; but DT are known to range from below sea level to 7,300 feet in elevation (USFWS 2008). Presence of ephemeral plant species is an indicator of habitat suitability for the DT because these species are the primary components of the tortoise diet (Esque 1994; Jennings 1997; Avery 1998). Generally DTs prefer creosote bush scrub habitat with a high diversity and cover of perennial plant species and high productivity of ephemeral plants. Less commonly, DT will occur in blackbrush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*), and juniper (*Juniperus* sp.) at higher elevations, and saltbush (*Atriplex* sp.) at lower elevations (Nussear et al. 2009). DTs require soils that are firm enough to support burrows but also friable enough to allow for burrow excavation (Andersen et al. 2000). In some cases, DTs take advantage of existing natural shelters such as rock formations or exposed calcic soils horizons (Nussear et al. 2009).

DTs are most active when plants are available for forage or when pooled water is available for drinking; they are usually most active in early March through early June and again between September and early November. They typically have home ranges from under 25 to 200 acres (USFWS 2008). Individuals commonly traverse 1,500 to 2,600 feet per day within their home range and males have been recorded to travel 0.6 mile within their home range (Berry 1986). DTs are also known to disperse extended distances such as 2 miles in 16 days and 4.5 miles in 15 months (Berry 1986). DTs require 13 to 20 years to reach sexual maturity and have low reproductive rates (USFWS 2008); individuals can live 50 to 100 years and have a long period of reproductive potential.

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This once widespread and common species is rapidly declining in numbers due to various factors, including the spread of a fatal respiratory disease; increases in raven populations that prey on juvenile tortoises; mortality associated with roads and off-highway vehicle use; and habitat destruction, degradation, and fragmentation. Populations have declined precipitously in some parts of the range; in one location within the western Mojave Desert north of California City (in the Desert Tortoise Natural Area) a 76% population decline was estimated from 1979 to 1992 (Berry 1997, as cited in BLM 2005). The Western Mojave Recovery Unit is considered to be one of the most threatened recovery units for DT (USFWS 1994b). Adult DT population densities have shown a significant downward trend throughout the western Mojave Desert in the last several decades (Tracy et al. 2004).

## **8.2 Mojave Desert Tortoise Habitat and Occurrence in the Action Area**

The action area occurs in the northern portion of the West Mojave recovery unit, but does not occur within designated DT critical habitat (USFWS 2008) or within any DWMA (BLM 2005). The nearest designated DT critical habitat occurs approximately 7 miles south of the action area (Figure 4). Four subpopulations within this recovery unit (associated with the four designated DT DWMAAs) occur south of the action area (USFWS 2008; Figure 4). Within these subpopulations DT populations have been characterized as variable and patchy with some areas containing high densities of DT while others contain low densities (BLM 2005). Outside of these subpopulations, DT population densities are generally very low (BLM 2005). Recent density estimates for DT within the four critical habitat units (associated with the four DWMAAs) indicated that as many as 20,420 to 41,224 adult DTs occur in the western Mojave Desert (Heaton et al. 2004, as cited in USFWS 2006).

Historic occurrences of DT occur within and in proximity to the action area; the CNDDDB reports seven records within 10 miles of the action area (CDFG 2009). Of the nearest DT records, one from 2004 overlaps with the southern portion of the action area; three records from 1988, and one from 2006, occur approximately 1 mile northwest of the action area; and one record from 1990 occurs approximately 1 mile east of the water pipeline (Figure 5). CNDDDB record data are largely incomplete; these data may not provide an accurate depiction of the actual population size and distribution within the area, but can provide some insight into the occupancy and distribution of DT in the vicinity of the action area.

As a result of a DT habitat assessment and all Project-related DT surveys conducted during spring and fall 2009 (see discussion below), it was determined that suitable and occupied DT habitat occurs within the action area (Figure 6). DTs were observed throughout much of the

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Project disturbance area and in portions of the buffer (Figure 5). Therefore, the majority of the Project disturbance area, with the exception of developed lands, is considered occupied DT habitat (1,994.1 acres), including 1,936.2 acres of moderate- to high-quality habitat and 7.9 acres of low-quality habitat due to disturbed habitat adjacent to roadways along the proposed water pipeline.

A DT habitat assessment was conducted for the entire action area on February 14, October 6 and 7, 2009, and on February 20, 2010, by Project biologists Arthur Davenport, Shelly Dayman, Charles German, Katie Hall, Gregg Lukasek, and Milo Rivera (EDAW AECOM 2009a, 2009c; AECOM 2009b; Figure 6). It was determined that the majority of the Project disturbance area and buffer contain suitable habitat for DT, with the exception of developed areas (i.e., single-family residences and roads) (Figure 6). In total 1,944.1 acres of suitable habitat for DT occur within the Project disturbance area. Suitable DT habitat also occurs throughout most of the adjacent buffer. Suitable DT habitat occurring in the disturbance area along the water pipeline (approximately 7.9 acres) is of lower quality for DT than habitat elsewhere in the action area as a result of generally higher levels of fragmentation and disturbance observed there (EDAW AECOM 2009a, 2009c; AECOM 2009b).

In addition, protocol surveys to determine DT presence/absence in the action area were conducted between March 7 and May 28, 2009, and on October 26, 2009, by Project biologists Arthur Davenport, Shelly Dayman, Kim Duncan, Elias Elias, Michael Gallagher, Charles German, Katie Hall, James Huelsman, James Jennings, Gregg Lukasek, James Luttrell, Milo Rivera, Ellen Schafhauser, and Rob Wolfson (EDAW AECOM 2009c). The 2009 DT protocol survey area does not exactly match the boundary of the current reconfigured Project disturbance area (Figure 6) as a result of changes in the Project design after surveys were completed. DT protocol surveys were conducted throughout the majority of the Project disturbance area, including the water pipeline; surveys were not conducted in approximately 325 acres of the reconfigured Project disturbance area, or areas associated with site access alternatives (acceleration/deceleration zones along U.S. Highway 395 and the widening of Brown Road). The area surveyed in 2009 was based on the Project site plan as described in the November supplemental BRTR (AECOM 2009b). (Additional DT protocol surveys within unsurveyed portions of the reconfigured Project disturbance area and associated 1-mile buffer will be conducted in spring 2010. Results of the 2010 surveys will be used to update the 2009 Ridgecrest Solar Power Project Desert Tortoise Technical Report [EDAW AECOM 2009c], which will be provided as a supplement to this BA. Survey results and analysis of project effects based on these additional survey efforts will also be incorporated into a revised BA once the data have been collected and analyzed.) DT protocol surveys were conducted according to the 1992

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USFWS protocol with the exception of the zone of influence (ZOI) surveys.<sup>1</sup> The 1992 protocol requires surveys to be conducted from March 25 to May 31; however, the protocol was revised in 2009 (USFWS 2009), and the period of September through October was added to the protocol survey period. Therefore, Project-related surveys that were conducted on October 26, 2009, met the USFWS protocol standards and were approved by the resource agencies. In addition, to comply with the recommendations of the CEC Draft Guidelines for Large Solar Projects (dated May 8, 2007; CEC 2007), transects at 3,960 feet (0.75 mile) and 5,280 feet (1 mile) out from and parallel to non-linear elements of the Project disturbance area, and at 1,000 feet out from and parallel to linear Project elements (e.g., transmission line and water pipeline) were surveyed for presence/absence of DT concurrently with DT protocol surveys described above (Figure 6).

During 2009 protocol surveys, DT, or their sign, was observed throughout the majority of surveyed portions of the reconfigured Project disturbance area, and in portions of the buffer (Figure 5). No evidence of DT was detected within the offsite portion of the water pipeline disturbance area; however, one adult DT within a burrow and two additional DT burrows were detected along the 1,000-foot buffer transect (Figure 5). A total of 51 DTs were observed within the action area, 33 of which (21 adults, 8 juveniles, and 4 of unknown age) were detected within the Project disturbance area alone (Figure 5). Over 200 tortoise burrows and 33 pallets were also observed throughout the action area. Twenty-two burrows were occupied by DT and 48 burrows were noted as active (showing recent evidence of use by DT). Twenty-three of the active burrows and 17 of the occupied burrows were recorded within the Project disturbance area. The following additional DT sign was detected within the action area: five active pallets (four in the Project disturbance area), 27 additional pallets (18 in the Project disturbance area), 124 observations of scat (12 of which were fresh and within the Project disturbance area), 13 observations of bone fragments (eight in the Project disturbance area), and 13 carcasses (five in the Project disturbance area; 2 of which were adults) (Figure 5).

Based on 2009 survey results, an estimated 57 adult DTs occur within the Project disturbance area prior to redesign (i.e., reconfiguration). This population estimate was derived using the formula described in “Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*)” survey methodology (USFWS 2009). Tortoise abundance could not be estimated in the buffer due to the limited survey coverage in this area.

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<sup>1</sup> Protocol surveys for presence/absence of DT were conducted according to the 1992 USFWS protocol (USFWS 1992) with the following exception: no surveys were conducted of the five zone of influence (ZOI) transects that are typically required outside of and parallel to the disturbance area at 100, 300, 600, 1,200, and 2,400 feet. This modification to the survey protocol was agreed upon prior to survey initiation by the USFWS, CDFG, and BLM (see “Consultation to Date” Section in this document). Additionally, adult DT abundance was estimated within the Project disturbance area according to the methodology described in the recently revised USFWS DT protocol (USFWS 2009).

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The above-estimated DT abundance corresponds to a density of 0.033 adult tortoises per acre, or 8.1 per square kilometer (km<sup>2</sup>) (EDAW AECOM 2009c).

Dr. Alice Karl, an expert on DT life history, compared DT densities for three available recent (within the last 10 years) datasets from the western Mojave Desert as part of an evaluation of the regional importance of the RSPP DT population (Karl *in prep.*). The data used in this comparison indicate that the observed DT density at the RSPP site (8.1 per km<sup>2</sup>) is somewhere between the lowest and highest reported DT densities. The following summary is based on information presented in Dr. Karl's analysis (Karl *in prep.*).

1. In a comparison with other current documented DT densities on 19 similar-sized sites within DT habitat, DT density on the RSPP site is slightly higher than the median but slightly lower than the mean DT density, 7.7 and 8.5 DT per km<sup>2</sup>, respectively.
2. A comparison to DT survey results throughout the WEMO planning area in 1999 suggest that the RSPP site might have a relatively low DT density; many transects surveyed throughout the WEMO planning area had higher to substantially higher sign counts in 1999 than transects in the vicinity of the RSPP site in 2009 (Karl *in prep.*). However, none of these transects were located within the RSPP site; therefore, while results suggest low DT densities throughout the Project vicinity, it remains unclear whether the DT density on the RSPP site is similarly low because sign counts are not directly comparable to DT densities.
3. In a comparison to results of the line-distance sampling (LDS) program implemented by USFWS to determine regional and rangewide trends in DT densities, the estimated DT density at the RSPP site was greater than average densities for most recovery units, and was near the high end of the range of density estimates for individual strata sampled within each recovery unit. However, the comparability of sampling methods between the RSPP site and the LDS program may not be valid (Karl *in prep.*).

Although DT recruitment has not been estimated for the action area, multiple size-classes of tortoises (including small tortoises) were observed, confirming that some recruitment is occurring on the RSPP site.

Analysis by Dr. Karl (Karl *in prep.*) concluded that the action area does not appear to be located in an area important for DT population connectivity or persistence. There are no known important population segments (i.e., those required for species and population persistence and

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recovery) to connect (Figure 4), and the action area is in a location that is already affected by anthropogenic factors. Known or likely existing anthropogenic effects on the DT population include habitat loss and fragmentation by urban development; disturbances by humans, off-highway vehicle (OHV) use, and domestic pets, due to the Project area's location adjacent to Ridgecrest; mortality as a result of U.S. Highway 395 and Brown Road; and predation by ravens and the associated effects on DT recruitment (Karl *in prep.*).

Additionally, the action area and surrounding area have not been identified by USFWS (1994a and 1994b) or the BLM (2005) as an important area for DT recovery and population persistence (Figure 4). All DWMA's and designated DT critical habitat are located approximately seven miles or more south of the action area. With the reconfigured Project site plan (Figure 2), a connection to the El Paso Mountains Pass to the south would be maintained by minimizing impacts to the El Paso Wash, assuming that Project mitigation also ensures that (a) DT are not funneled onto the highway and Brown Road along these corridors, and (b) OHV traffic does not increase in these washes.

## **9.0 EFFECTS**

This section describes the potential effects of the proposed action on DT as a result of Project construction and operations and maintenance.

### **9.1 Construction Effects**

#### **9.1.1 Direct Effects**

Project implementation would result in permanent, direct effects on DT. During 2009 surveys, 33 individuals (21 adults), 17 occupied burrows, and an additional 23 active burrows (with signs of recent use) were documented in the Project disturbance area; 57 adult DTs are estimated to occur in the Project disturbance area (based on the estimate for the RSPP prior to site reconfiguration). These individuals and associated burrows would be affected by construction of the RSPP. Burrows and live tortoise observations were widely distributed throughout the Project disturbance area. Site grading and installation of Project facilities (i.e., Project disturbance area) would permanently and directly affect approximately 1,944.1 acres of occupied DT habitat, including 1,936.2 acres of moderate- to high- quality DT habitat, and 7.9 acres of low-quality disturbed habitat located adjacent to roadways. Project construction would destroy DT burrows and remove foraging habitat. DT could also be killed or injured during construction, as individuals could be entombed or crushed in their burrows. DTs are not expected to depart the

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Project disturbance area on their own after construction begins. However, as part of clearance surveys to minimize or avoid construction-related mortality or injury of DTs, individuals would be removed from impact areas and relocated if they are found during clearance surveys. Although DTs would be handled and disturbed during relocation activities, a potential loss of DT individuals as a direct result of construction-related mortality or injury is expected to be avoided or small, and would be limited to any DTs not found and removed from affected areas as part of DT clearance surveys. Proposed DT clearance surveys are described in Section 6.3, Avoidance and Minimization Measures, above.

The Project could also result in direct effects on local DT movement, and could reduce regional habitat connectivity and gene flow. These effects could result from construction of the perimeter fence that would surround the Project site and habitat loss (i.e., land conversion) due to construction of Project facilities. Although DT is not a migratory animal, opportunities for local movements within their home ranges and dispersal are important for maintaining viable populations. The fence would create a permanent barrier and prevent movement across portions of the site. However, as a result of recent Project redesign, opportunities for DT movement around the perimeter of and through the middle of (e.g., El Paso Wash) the Project disturbance area would remain after Project construction, as would suitable habitat in those areas. Therefore, it is reasonable to assume that RSPP effects on local DT movement and habitat connectivity would be relatively minor in the context of population viability. Regional DT habitat connectivity and gene flow would also be reduced because habitat loss within the large Project footprint would contribute to existing fragmentation. According to Dr. Alice Karl, a DT species expert, while construction of the RSPP would further fragment occupied DT habitat, it is not likely to substantially affect regional connectivity or gene flow (Karl *in prep.*). The threshold at which fragmented habitat in the vicinity of the Project area would become undesirable or unusable by DT is unknown. Analysis of aerial photographs suggests there is sufficient habitat in the surrounding area to support the use of the area by DT should the RSPP be built, despite existing anthropogenic effects in the area (Karl *in prep.*).

Temporary effects on DT could also occur. Temporary direct effects on DT could result from an increase in vehicle traffic while the Project is under construction. The increased vehicular traffic volumes could lead to an increase in vehicular strikes on roads near the action area. The potential for this effect to occur would be minimized through pre-construction DT clearance surveys, subsequent installation of DT-exclusionary fencing around Project facilities prior to construction, and implementation of speed limits outside of fenced portions of the Project site (see Section 6.3, Avoidance and Minimization Measures).

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### 9.1.2 Indirect Effects

Potential indirect effects of the Project could occur as a result of edge effects and include the potential for DT to be deterred from using habitat adjacent to the Project disturbance area for movements due to increased artificial light, noise, human activity, and unnatural structures.

Indirect effects could also result from a potential increase in the population of common raven (*Corvus corax*) resulting from the construction of new elevated perching and nesting sites (e.g., new transmission line towers, perimeter fencing, facility structures). Additionally, garbage from increased human presence may attract common ravens; however, daily trash removal would occur as a result of proposed biological resource protection measures (see Section 6.3, Avoidance and Minimization Measures). Temporary ponding of water from construction (e.g., dust suppression during construction), which could attract common ravens, is not expected to occur. Currently, common ravens are not common within the action area; however they are common in the Project vicinity (e.g., Ridgecrest). New features as a result of Project construction could increase raven numbers in the action area and result in increased predation on DT. The potential for indirect effects on DT from increased raven numbers as a result of the Project would also be minimized by the implementation of a raven management plan (see Section 6.3, Avoidance and Minimization Measures).

Indirect effects could also result from construction-related introduction and/or spreading of invasive plants that outcompete native plants, or from increased incidence of accidental wildfires (potentially caused by construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed as part of the Project), both of which could reduce adjacent habitat quality for DT. Potential deposition of sediment loads during heavy rain events and flooding downstream of the Project disturbance area could affect existing DT burrows in the action area. However, the avoidance of El Paso Wash and rerouting of ancillary desert washes in the Project disturbance area as part of the proposed Project would contribute to the reduction of such effects. Because the proposed water pipeline runs predominantly through disturbed habitat adjacent to existing roads, substantial indirect effects related to habitat fragmentation, edge effects, and dust pollution as a result of water pipeline construction, in particular, are not anticipated.

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## **9.2 Operation and Maintenance Effects**

### **9.2.1 Direct Effects**

Direct effects on DT could occur during Project operation and maintenance from mortality of individuals by crushing or vehicle collisions. However, these effects are not anticipated within the Project disturbance area because of implementation of Project avoidance and minimization measures described under Section 6.3, Avoidance and Minimization Measures. These measures include installation of permanent perimeter fencing that would restrict DT from entering the Project site during operations and maintenance. Also, it is assumed that the Project site would not provide suitable habitat for DT after construction is complete. Operation of the Project would not result in any additional direct effects on DT movement beyond those already described during construction (see Section 9.1, Construction Effects, above).

### **9.2.2 Indirect Effects**

Operation and maintenance of the Project may result in permanent, indirect effects on DT. These include edge effects where Project facilities could lead to increased noise and lighting, the further introduction and/or spread of invasive plant species as a result of vehicular traffic associated with Project operations and maintenance, and increased incidence of accidental wildfire. Nighttime lighting could result in increased predation within adjacent habitat. However, proposed lighting will be shielded and directed to selected service areas rather than throughout the Project area. New transmission wires could increase the frequency of accidental wildfires (potentially from downed wires) that could damage or destroy adjacent DT habitat, but the potential for this is low due to the relatively small length of transmission lines proposed as part of the Project. The accumulation of water on or off site as a result of Project operations and maintenance is not expected to occur for any appreciable length of time. For example, rinse water from mirror washing operations would be expected to evaporate on the mirror surface with no appreciable runoff, and the power block detention basin is not expected to regularly retain standing water. Therefore water accumulation as a result of the Project would not be expected to attract common ravens or other opportunistic predators that could prey on DT. Operation of the Project would not result in any additional indirect effects on DT movement beyond those already described during construction (see Section 9.1, Construction Effects, above).

No direct or indirect effects associated with water pipeline operation or maintenance are anticipated. The proposed water pipeline runs along existing roads, would be situated entirely within the existing county road right-of-way, and would be buried following construction.

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Additionally speed limits will be imposed during operations on roads within the Project site that are outside DT-exclusionary fencing (see Section 6.3, Avoidance and Minimization Measures)

## **10.0 CUMULATIVE EFFECTS**

This section addresses the potential additive effects of implementing the RSPP in combination with other future State, Tribal, local, and private activities (i.e., nonfederal activities) that are reasonably certain to occur within the Project action area. The RSPP involves the development of land that is currently owned and managed by the BLM. Currently, no other projects unrelated to the proposed action are reasonably certain to occur within the Project action area. Therefore, no cumulative effects of the RSPP in combination with other non-federal projects in the action area are anticipated.

Although there are no anticipated cumulative effects as defined under ESA, a number of solar, wind, and transmission line projects have been proposed on Federal lands in the vicinity of the RSPP. These projects are not evaluated in this BA because they will be subject to separate ESA consultation. Solar and wind development projects are currently proposed on over 1 million acres of BLM lands in California and Nevada according to the BLM website as of June 2009; 260,000 acres of which would be reasonably foreseeable, and probable to occur in the WEMO plan area (AECOM 2009a). Additionally, a number of transmission line projects are proposed, and the West-Wide Energy Corridor Programmatic Environmental Impact Statement (PEIS) has delineated energy corridors running through the region.

Several solar and non-renewable energy projects are proposed on private lands in the vicinity of the RSPP. As of August 2009, there were seven solar thermal project applications covering approximately 14,434 acres with a capacity of 2,806 MW on non-BLM lands under CEC jurisdiction (AECOM 2009a). Three of these proposed solar thermal projects (13,642 acres) occur within the WEMO plan area: Beacon Solar Energy Project, Ivanpah Solar Electric Generating System, and Calico Solar One Project. Additionally, there are a number of nonrenewable or hybrid combined-cycle/solar thermal power plants on private land that come under CEC jurisdiction. These include the Victorville2 (275 acres) and Palmdale Hybrid Power (600 acres) projects, which are also located within the WEMO plan area. Several solar photovoltaic projects are also being proposed on private lands that are not under the jurisdiction of either the CEC or BLM. Although it is likely that not all of the future solar and wind development projects and transmission lines that are currently proposed will be constructed, it is reasonable to assume that many of them will.

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Additionally, continued urban expansion (e.g., commercial and residential development) in and around Ridgecrest is expected to occur (from projected population growth), including proposed military base expansion at the China Lake Naval Air Weapons Station, Landmark residential development, and infrastructure enhancement projects such as the Inyokern Four-Lane highway expansion and the Wal-Mart superstore. However, none of these would occur within the Project action area and would not contribute to cumulative effects of the proposed action.

## **11.0 CONCLUSION AND DETERMINATION**

Based on the analysis of the proposed action, this BA concludes that the Project is likely to adversely affect DT individuals and occupied habitat. However, these effects are not expected to threaten the species as a whole or its recovery. Furthermore, the proposed action would not affect critical habitat of DT because no critical habitat occurs in or adjacent to the action area. These conclusions are based on the anticipated successful implementation of the avoidance and minimization measures described herein (see Section 6.3, Avoidance and Minimization Measures, above). These measures would reduce effects of the proposed action on DT based on the following rationale:

- Direct effects on DT would be reduced by:
  - Requiring compliance monitoring by a qualified biologist to ensure DT protection measures are being implemented effectively, and
  - Limiting ground-disturbing activities to within the defined Project disturbance area boundaries.
- Direct injury and mortality of DT would be minimized as a result of:
  - Pre-construction clearance surveys and subsequent installation, monitoring, and maintenance of DT-proof fencing to enclose the Project disturbance area that would remove DT from affected areas prior to and during Project construction, operations, and maintenance; and
  - Requiring vehicle speed limits and routine DT inspections beneath parked vehicles when accessing the Project site outside of DT exclusionary fencing to reduce the potential for vehicle strikes.
- Indirect effects on DT and their habitat would be reduced by:
  - The implementation of standard construction BMPs, and establishing equipment operations standards that would minimize the likelihood of offsite sedimentation

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and hazardous fluid spills that could otherwise degrade or destroy adjacent habitat;

- Requiring Project lighting to be directed away from adjacent DT habitat that could cause decreased DT activity or increased predation in neighboring habitats;
  - Requiring fire-safe and weed-prevention practices to reduce the potential for invasive weed introductions and increased incidence of wildfire that could degrade or destroy adjacent habitat; and
  - Requiring trash management, minimal standing water on site, and implementation of a raven monitoring, management, and control plan to reduce the potential for the Project to attract opportunistic predators that prey on DT.
- Compensation for the loss of occupied DT habitat would be achieved through a combination of offsite land acquisition, funding of offsite habitat enhancement, and funding programs that would promote the recovery of DT. Combined mitigation would be based on a 3:1 mitigation ratio for acres of moderate- to high- quality habitat impacted and at a ratio of 1:1 for acres of low-quality habitat impacted throughout the Project disturbance area.
  - The action area is located outside designated DWMA's and DT critical habitat units that are essential for the continued existence of the species.
  - The Project would not adversely affect attainment of the goals and objectives of the DT Recovery Plan (USFWS 2008).
  - The Project is consistent with the WEMO, acknowledged by USFWS in the associated Biological Opinion (USFWS 2006) as a plan that incorporates numerous "measures to avoid or reduce adverse effects on the DT and to further its conservation."

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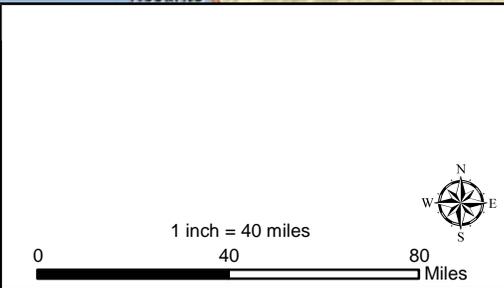
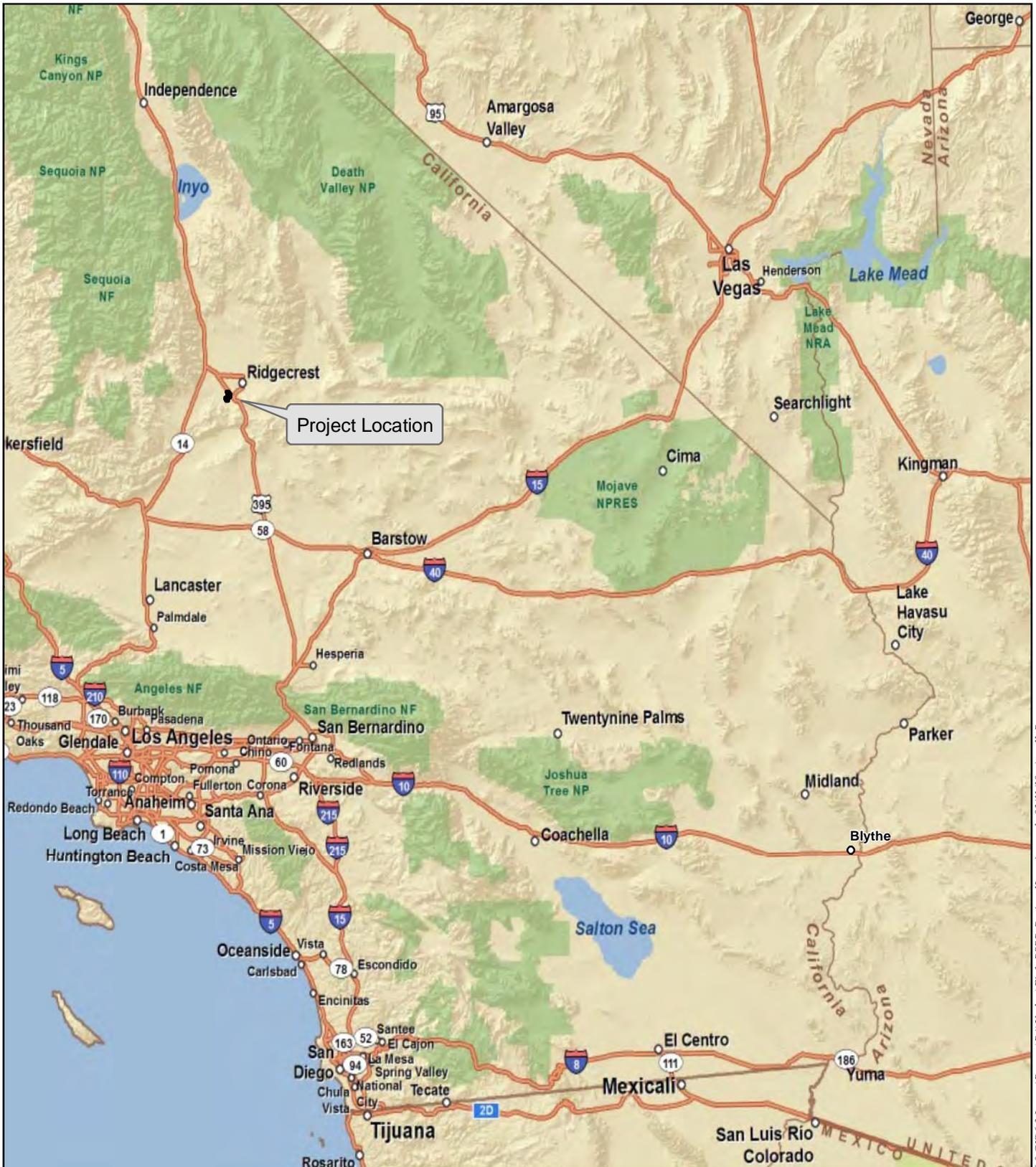
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# **ATTACHMENT 1**

## **FIGURES**



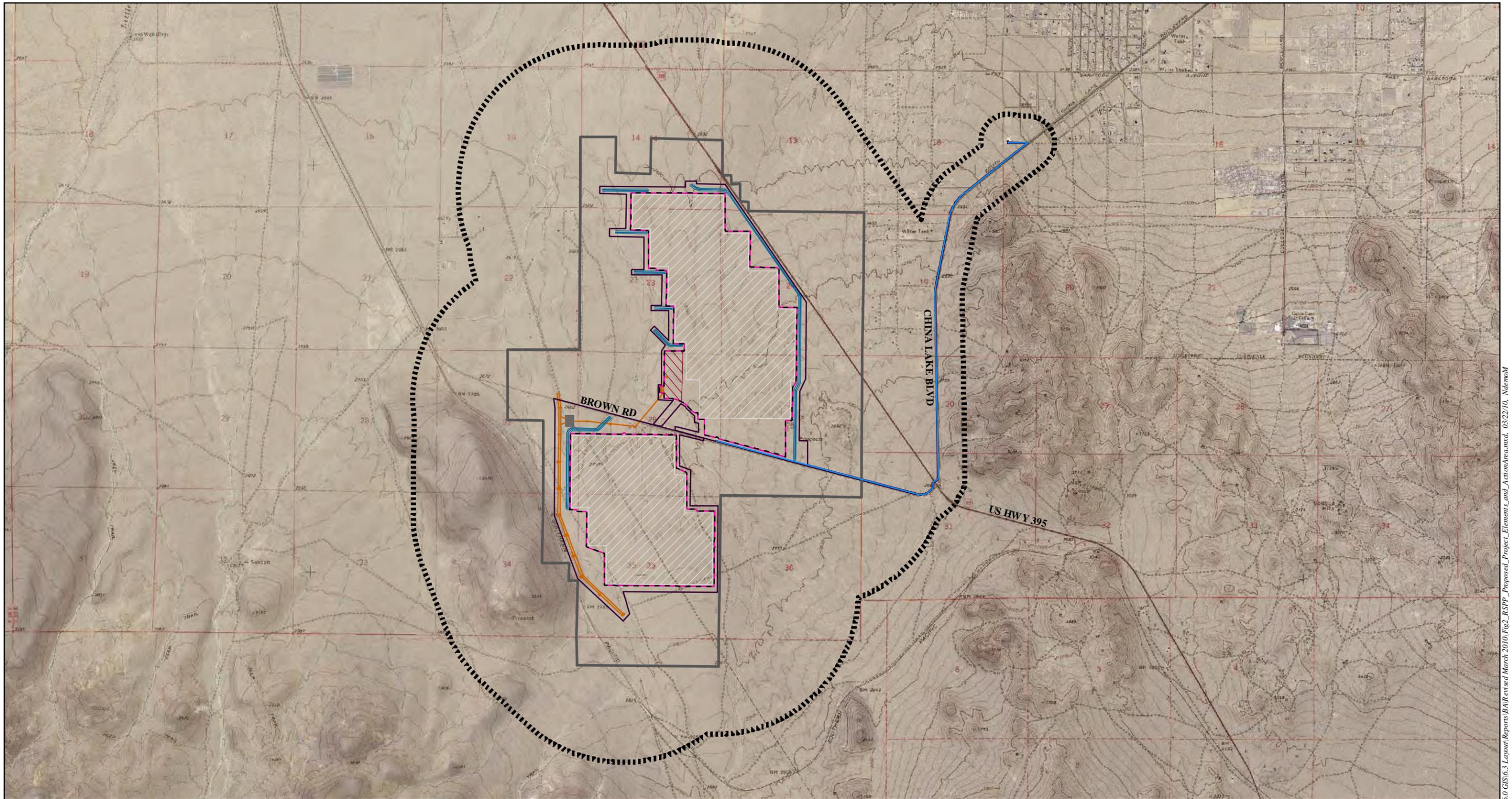
**Ridgecrest  
Solar Power Project  
Biological Assessment**

**Figure 1  
Regional Location**

Source: ESRI; AECOM 2009

**AECOM**

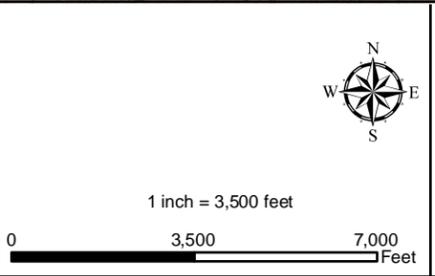
Date: March 2010



Legend	
	Action Area
	ROW
	Reconfigured Project Disturbance Area <sup>1</sup>
	Facility Footprint

Proposed Project Elements	
	Solar Unit
	Power Block Area
	Water Line
	Rerouted Drainages
	Transmission Line
	Switchyard
	Perimeter Security Fence

<sup>1</sup>Note: Based on the reconfigured Project Design as of January 2010

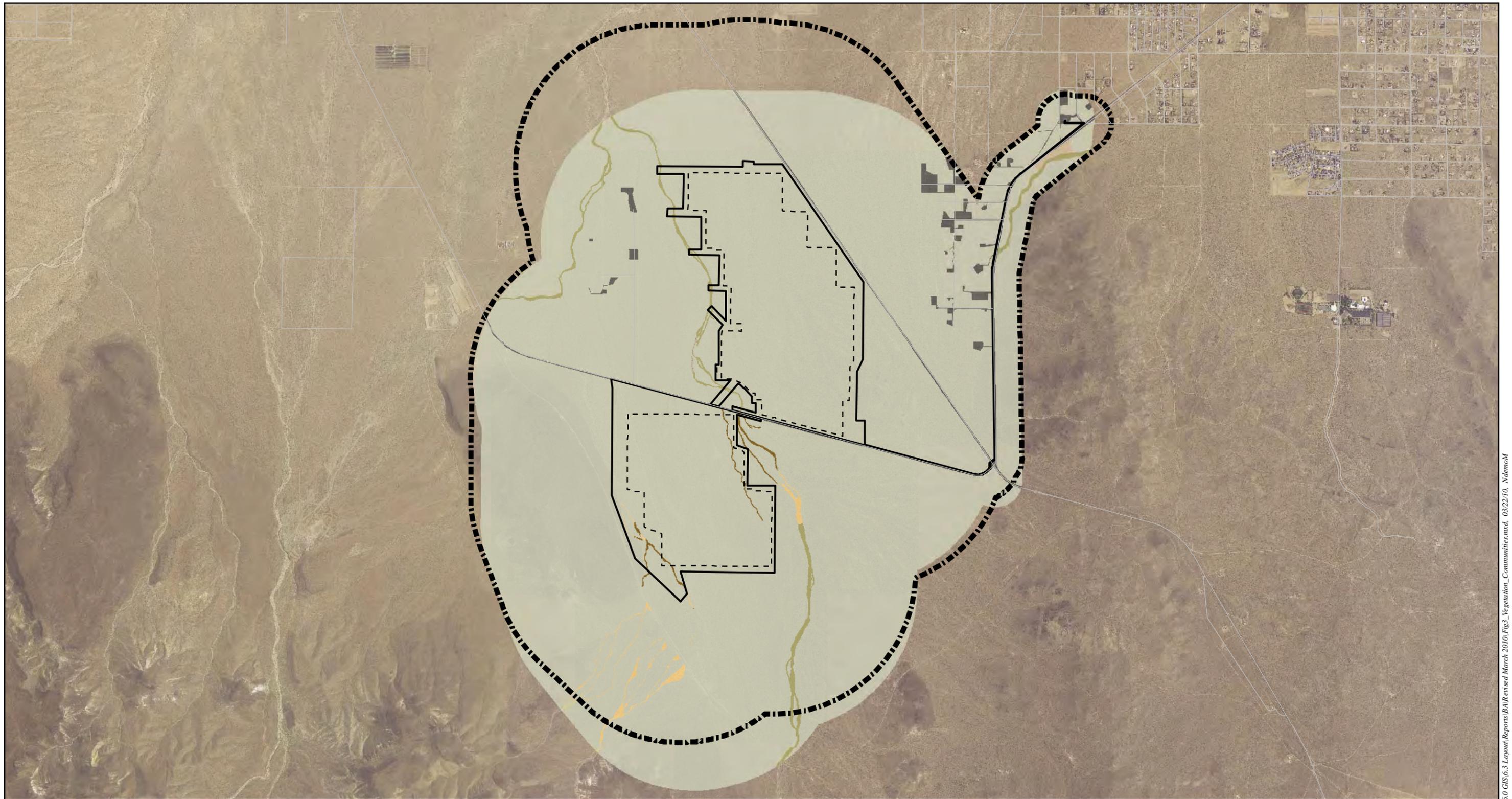


**Ridgecrest Solar Power Project  
Biological Assessment**

**Figure 2  
Proposed Project Elements  
and Action Area**



Date: March 2010



**Legend**

- Action Area
- Facility Footprint
- Reconfigured Project Disturbance Area
- Paved Roads

**Vegetation Communities**

**Riparian**

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash
- Unvegetated Ephemeral Dry Wash (Presumed)<sup>1</sup>

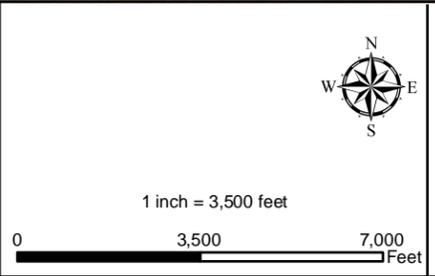
**Upland**

- Mojave Creosote Bush Scrub
- Disturbed Habitat

**Other**

- Developed

<sup>1</sup>NOTE: Due to minimum mapping unit within buffer (1.0 mile), these areas are presumed to be unvegetated

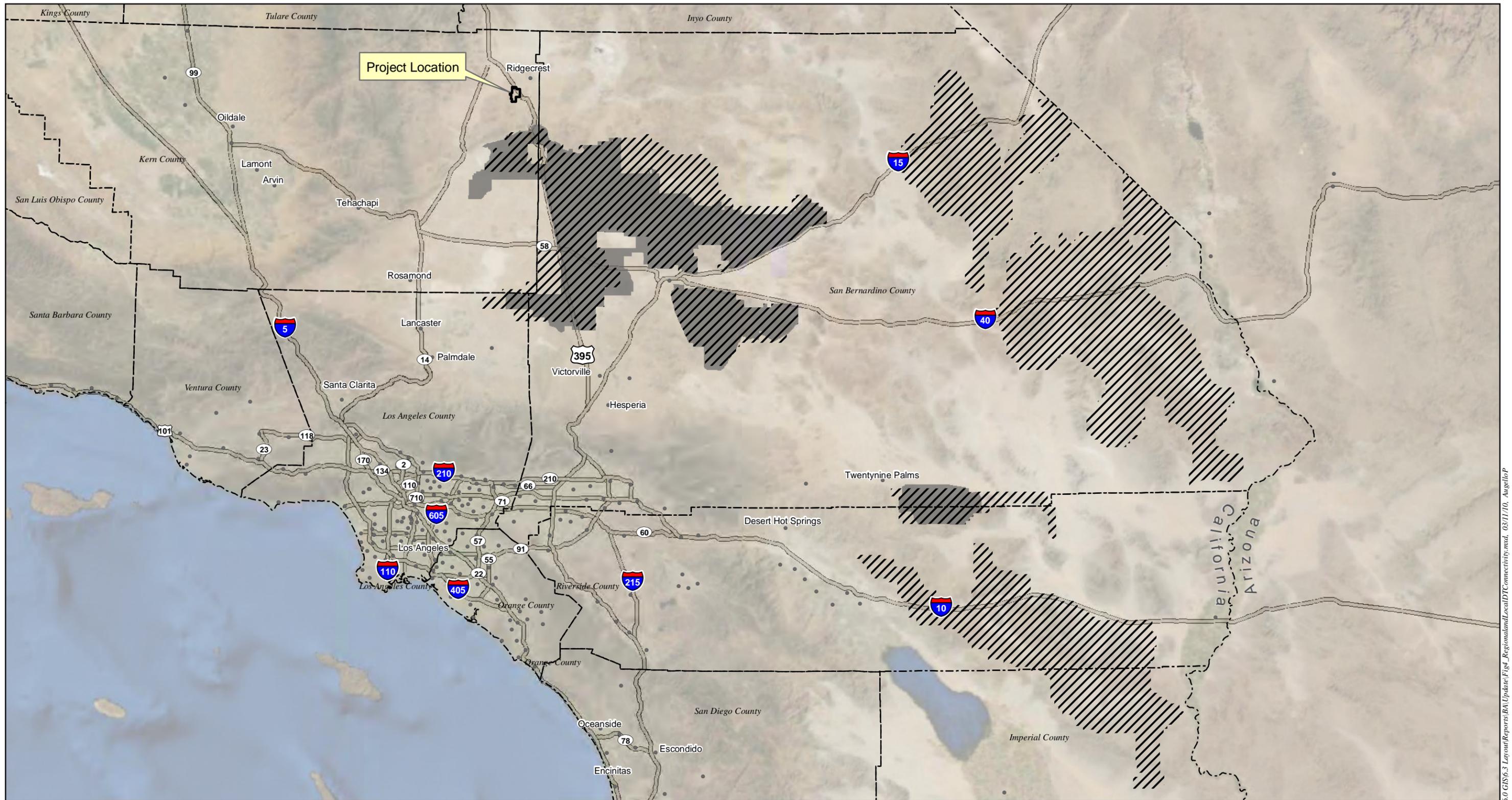


**Ridgecrest Solar Power  
Project Biological Assessment**

**Figure 3  
Vegetation Communities  
within the Action Area**

**AECOM**

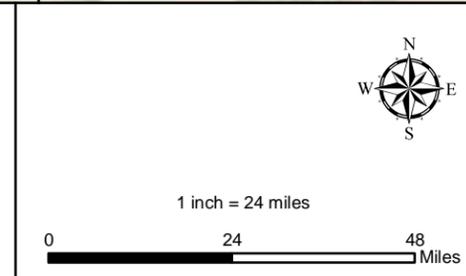
Date: March 2010



**Legend**

- Project Area
- Desert Tortoise Critical Habitat (USFWS)
- WEMO DWMA

Source: ESRI; USFWS; BLM; AECOM

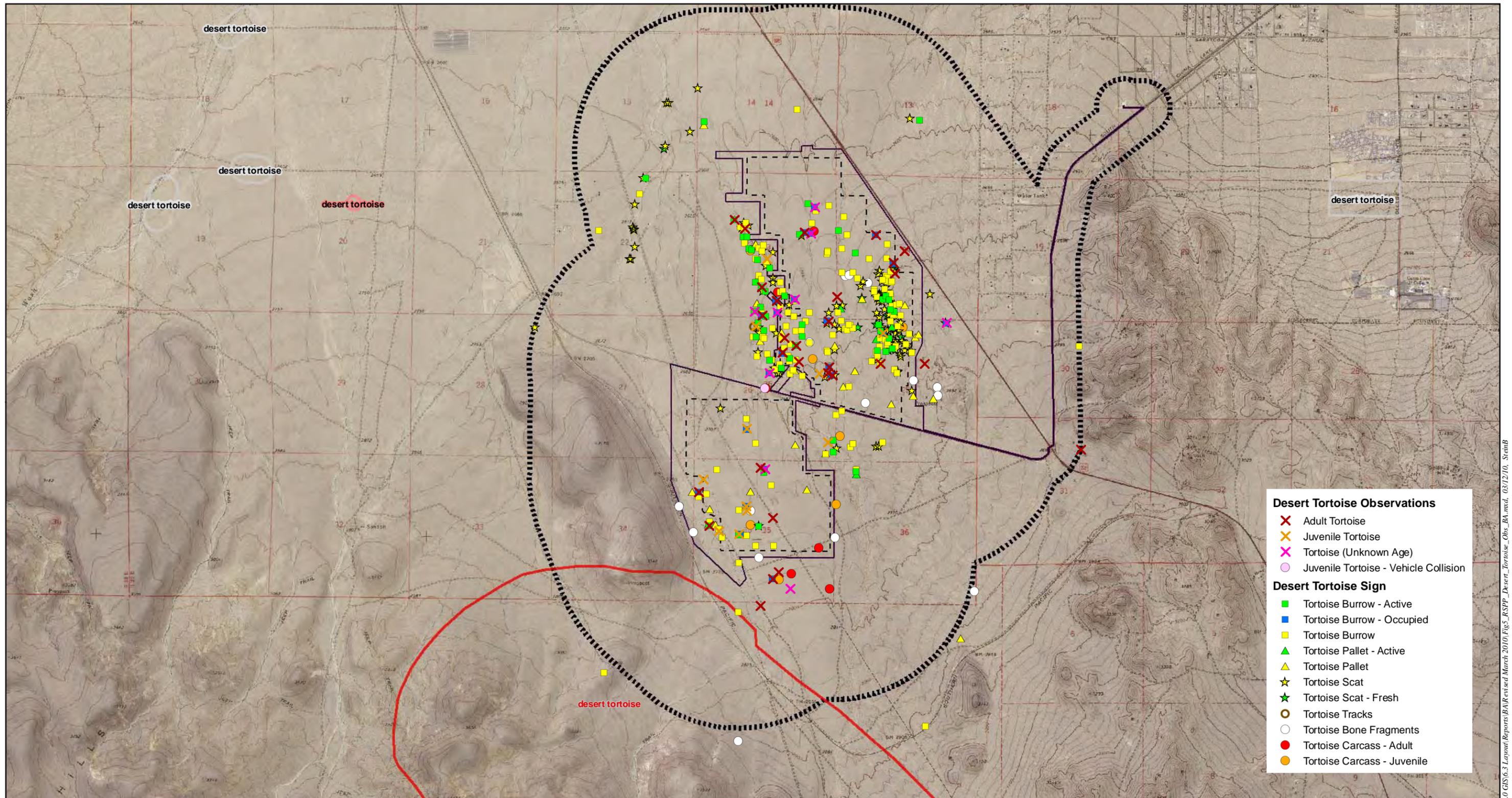


**Ridgecrest Solar Power Project  
Biological Assessment**

**Figure 4  
Regional and Local Desert Tortoise  
Connectivity**



Date: March 2010



- Desert Tortoise Observations**
- ✕ Adult Tortoise
  - ✕ Juvenile Tortoise
  - ✕ Tortoise (Unknown Age)
  - Juvenile Tortoise - Vehicle Collision
- Desert Tortoise Sign**
- Tortoise Burrow - Active
  - Tortoise Burrow - Occupied
  - Tortoise Burrow
  - ▲ Tortoise Pallet - Active
  - ▲ Tortoise Pallet
  - ★ Tortoise Scat
  - ★ Tortoise Scat - Fresh
  - Tortoise Tracks
  - Tortoise Bone Fragments
  - Tortoise Carcass - Adult
  - Tortoise Carcass - Juvenile



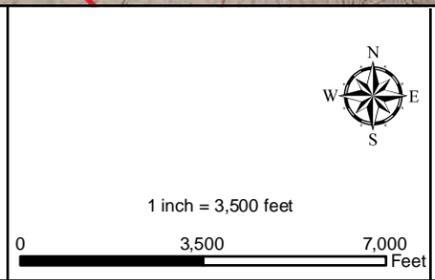
**Legend**

- ▬ Action Area
- ▬ Reconfigured Project Disturbance Area
- ▬ Facility Footprint

**CNDDB Species Inventory - Desert Tortoise Accuracy**

- ▬ Specific bounded area
- ▬ Specific bounded area with 1/20-mile radius
- ▬ Non-specific area

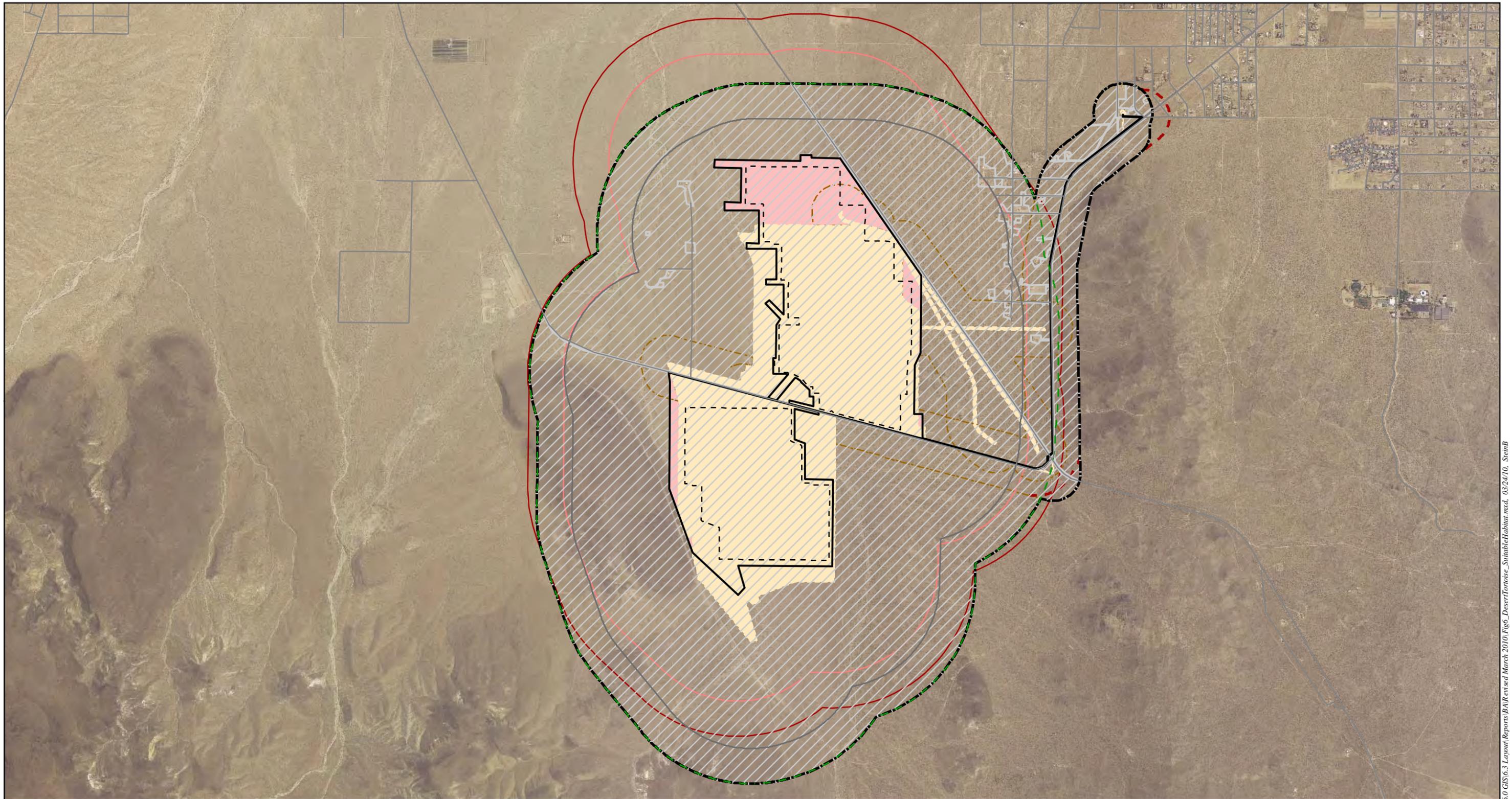
Source: NAIP 2005; AECOM 2010; CNDDB 2009



**Ridgecrest Solar Power Project  
Biological Assessment**

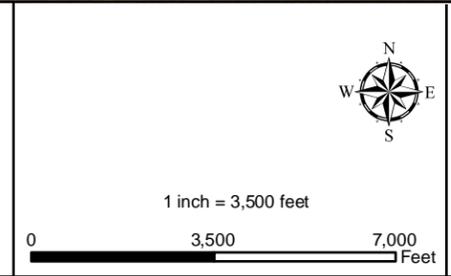
**Figure 5  
Recorded Occurrences of  
Federally Listed Species  
near the Action Area**

Date: March 2010



Legend		Desert Tortoise Survey Areas 2009	Desert Tortoise Survey Areas Spring 2010
	Action Area		
	Reconfigured Project Disturbance Area		
	Facility Footprint		
	Suitable Habitat for Desert Tortoise		
	Paved Roads		

Source: NAIP 2005; AECOM 2009



**Ridgecrest Solar Power Project  
Biological Assessment**

**Figure 6  
Desert Tortoise Surveys and Suitable  
Habitat within the Action Area**

**AECOM**

Date: March 2010

**ATTACHMENT 2**

**U.S. FISH AND WILDLIFE SERVICE  
CORRESPONDENCE REGARDING  
SPECIES TO BE EVALUATED FOR THE  
RIDGECREST SOLAR POWER PROJECT**

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**From:** Graham, Bill  
**Sent:** Friday, March 13, 2009 12:56 PM  
**To:** 'Danielle\_Dillard@fws.gov'  
**Subject:** RE: species list for Ridgecrest Solar Millennium project

Danielle-

No, your previous communication will suffice. We were just creating a paper trail. Thanks for the communication.

Regards,

Bill Graham

**William Graham**  
Principal, Planning & Environment  
EDAW  
D 619.764.6806 C 619.302.7426  
[bill.graham@edaw.com](mailto:bill.graham@edaw.com)

**EDAW**  
1401 Kettner Blvd., Ste. 500  
San Diego, CA 92101  
T 619.233.1454 F 619.233.0952

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**From:** Danielle\_Dillard@fws.gov [mailto:[Danielle\\_Dillard@fws.gov](mailto:Danielle_Dillard@fws.gov)]  
**Sent:** Friday, March 13, 2009 12:53 PM  
**To:** Graham, Bill  
**Subject:** species list for Ridgecrest Solar Millennium project

Hi Bill,

We had received a species list request on March 5 for the Solar Millennium, Ridgecrest Solar Plant Project. We had pointed out the listed species we were concerned about (desert tortoise) in the joint agency response email that was sent addressing the survey protocols. There are no additional species or habitat that need to be addressed. Do you still need a species list response letter from USFWS?

Thank you,  
Danielle Dillard

From: Kimberly Nicol [mailto:KNICOL@dfg.ca.gov]  
Sent: Tue 3/10/2009 9:32 AM  
To: Julie Vance; Graham, Bill  
Cc: shelley\_ellis@ca.blm.gov; David Hacker; Ryork@energy.state.ca.us; Luttrell, Mark; Ray\_Bransfield@fws.gov; Tannika\_Engelhard@fws.gov; Jessie Audette  
Subject: Re: Solar Millennium Projects Biological Survey Protocols Bill,

This email serves as a joint agency response to Solar Millennium's request for review of their proposed biological survey protocols. The proposed survey protocol document, "Proposed Survey Protocols for the Solar Millennium Parabolic Trough Solar Thermal Power Projects, 2009" was provided to representatives of the following agencies via email on February 20, 2009, for review and concurrence: California Department of Fish and Game (CDFG), California Energy Commission (CEC), U.S. Bureau of Land Management (BLM), and U.S. Fish and Wildlife Service (FWS). The following agency review and concurrence applies to Solar Millennium's Ridgecrest, Palen, and Blythe project sites only.

#### DESERT TORTOISE

CDFG, BLM, and FWS concur with the proposed protocol for this species. CEC also concurs with the proposed protocol with the addition of the following requirement:

□ CEC Data Adequacy Regulations require project applicants to ". . . include a list of species actually observed and those with a potential to occur within 1 mile of the project site and 1000 feet from the outer edge of linear facility corridors".

Please note the FWS' concurrence on the survey protocol design does not authorize the take of desert tortoises. Take, as described in section 9 of the Endangered Species Act of 1973 (ESA), as amended, and the FWS' regulations is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harassment is defined by the FWS as intentional or negligent action that creates the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is further defined by the FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). Also note that, pursuant to the ESA and its implementing regulations, desert tortoises may not be handled in any manner without prior ESA authorization.

## Re Solar Millennium Projects Biological Survey Protocols.txt

To ensure the quality of the protocol survey, we recommend that you provide the names and qualifications of the surveyors to FWS, CDFG, and BLM for review prior to initiating surveys.

### BURROWING OWL

CEC, BLM, and FWS defer to CDFG regarding survey protocol for this species. CDFG has the following comments on the proposed survey protocol:

- The survey protocol should describe what criteria will be used to determine suitable burrowing owl habitat. This should be presented to CDFG, CEC, and BLM, prior to initiating the surveys.

- The proposed survey protocol states "The burrow survey will consist of pedestrian transects spaced at a maximum of 10 meters apart within suitable desert tortoise habitat and in any areas not suitable for tortoise may extend up to 30 meters." Should this say within suitable burrowing owl habitat? It is not clear why Phase II surveys would only occur in suitable tortoise habitat and not burrowing owl habitat.

Solar Millennium should contact Kim Nicol of CDFG for additional discussion on the survey protocol for burrowing owl.

### MOHAVE GROUND SQUIRREL

CEC, BLM, and FWS defer to CDFG regarding survey protocols for this species. Solar Millennium should contact Dave Hacker of CDFG Region 4 for additional discussion on the survey protocol for this species at the Ridgecrest project site.

### BOTANICAL SURVEYS

CDFG, CEC, and FWS concur with the proposed botanical survey protocols. BLM also concurs with the proposed protocols with the addition of the following:

- Solar Millennium should abide by BLM guidance/requirements regarding mapping/surveying for succulents/yucca/barrel cactus. If solar development of any of the sites is approved, BLM will require salvage and transplantation of the succulents. A count of the number of barrel cacti, Joshua trees, or Mojave yuccas should be compiled.

- BLM requests photographic documentation of any BLM sensitive species found.

### GENERAL BIOLOGICAL SURVEY DETAILS

CDFG, CEC, BLM, and FWS concur with the proposed survey protocols/actions outlined in this section with the following clarifications/additions:

Desert Tortoise Training: please ensure that all surveyors attending Desert Tortoise Awareness training are aware that handling of desert tortoise during protocol surveys is not authorized and implementation of the survey protocol, as described by Solar Millennium does not require handling of desert tortoises in any manner.

Other Special Status wildlife Species: BLM requires point count bird surveys on all solar development sites on their lands using the following protocol:

- one point count transect per square mile
- eight point count locations per transect
- point counts must be 250 meters apart
- one day a week for four consecutive weeks between March and April (breeding)

Re Solar Millennium Projects Biological Survey Protocols.txt

- one day a week for four consecutive weeks between November and January (wintering)
  - each point count will be twenty minutes long with a 100 meter radius
  - concentrate on areas where there will be birds (washes, high vegetation areas, ect)
  - point counts will be conducted between 5-9 am
- Solar Millennium should contact the local BLM office for additional discussion on the bird survey protocol.

If you have any questions, please feel free to contact the above people.

Kim

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