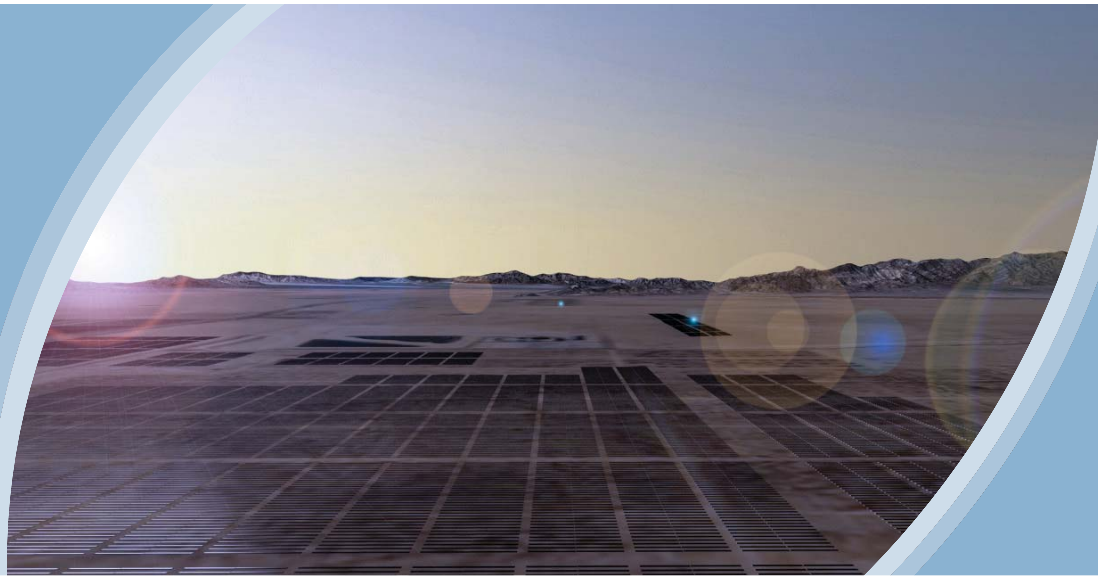
BLYTHE MESA SOLAR PROJECT



Draft Environmental Impact Report/Environmental Assessment

Volume III: Technical Appendices

EIR No. 529
EA No. 0021
SCH No. 2011111056

June 2014

CEQA/NEPA Lead Agencies:

RIVERSIDE COUNTY
PLANNING DEPARTMENT

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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Draft
Environmental Impact Report/
Environmental Assessment

Blythe Mesa Solar Project

EIR No. 529
EA No. 0021
SCH No. 2011111056

Volume III

Technical Appendices A – C

Project Proponent:

Renewable Resources Group
113 S. La Brea Ave., 3rd Floor
Los Angeles, CA 90036

Prepared by:

POWER Engineers, Inc.
731 East Ball Road, Suite 100
Anaheim, CA 92805

June 2014

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February 2012

RIVERSIDE COUNTY PLANNING DEPARTMENT

Blythe Mesa I Solar Project

Scoping Report

PROJECT NUMBER:
122512

PROJECT CONTACT:
Karen Cadavona
EMAIL:
karen.cadavonat@powereng.com
PHONE:
(714) 507-2700

POWER ENGINEERS

Blythe Mesa I Solar Project Scoping Report

PREPARED FOR:

RIVERSIDE COUNTY PLANNING DEPARTMENT
P.O. BOX 1409
RIVERSIDE, CA 92502-1409

RENEWABLE RESOURCES GROUP
5700 WILSHIRE BOULEVARD, SUITE 330
LOS ANGELES, CA 90036

PREPARED BY:

POWER ENGINEERS
731 E. BALL ROAD, SUITE 100
ANAHEIM, CA 92805

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TABLES

APPENDICES

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1.0 PROJECT BACKGROUND

Renewable Resources Group (RRG or Applicant) is proposing the Blythe Mesa I Solar Project (Proposed Project) that would involve the construction and operation of a 485 megawatt (MW) alternating current solar photovoltaic (PV) electrical generating facility and associated infrastructure to provide site access and connection to the statewide electricity transmission grid. The Project would produce enough energy to power approximately 180,000 households and progress the goals of the California Renewable Portfolio Standard (RPS) and other similar renewable programs in the state.

In compliance with the California Environmental Quality Act (CEQA), the County of Riverside is the Lead Agency responsible for preparation of an Environmental Impact Report (EIR). POWER Engineers, Inc. has been hired by the Applicant to assist with the environmental studies and preparation of the EIR.

This Scoping Report for the Proposed Project documents the public outreach efforts by the County of Riverside and Applicant, and summarizes the issues and concerns expressed by agencies, organizations, members of the public, and Native American tribes during the public scoping period.

Scoping is an early and open process for determining the scope of issues to be addressed, and identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in the EIR.

2.0 NOTICE OF PREPARATION OF EIR

In compliance with Title 14 of the California Code of Regulations (CCR) Section 15082, Riverside County prepared a Notice of Preparation (NOP) of an EIR that described the proposed project and location, environmental review process, the potential environmental effects, and contact information; as well as announced the time and location of the public scoping meeting. On November 16, 2011, the NOP was filed with the State Clearinghouse (SCH) [SCH No. 2011111056]. The NOP was also filed with the County of Riverside's County Clerk on November 21, 2011 and commenced the public review period. Agencies, elected officials, and Native American Tribes listed in Table 1 were sent a copy of the NOP via certified mail. A copy of the NOP and mailing labels may be found in Appendix A.

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TABLE 1. AGENCIES, ELECTED OFFICIALS, AND NATIVE AMERICAN TRIBES THAT RECEIVED THE NOP

AFFILIATION	DEPARTMENT	NAME	TITLE
Federal Agencies			
Bureau of Land Management			
U.S. Fish and Wildlife Service		Cleary-Rose, Karin	Monitoring Program Coordinator
U.S. Department of the Interior	National Park Service, Joshua Tree National Park		
U.S. Department of the Interior	Bureau of Indian Affairs		
Federal Aviation Administration	Western Pacific Region		
Marine Corps Air/Ground Combat Ctr.			Commanding General
Bureau of Indian Affairs	Southern California Agency		
State Agencies			
California Air Resources Board			
California Energy Commission			
California State Department of Parks & Recreation			
California Department of Water Resources			
Caltrans	District #8	Kopulsky, Dan	
Caltrans	Division of Aeronautics		
California State Department of Corrections	Cuckwalla Valley State Prison		
Colorado River Board of California			
California Geological Survey	Department of Conservation		State Geologist
California Department of Conservation			
California Department of Conservation	Mining & Geology Board		
California Department of Fish & Game	Inland Deserts		
California Department of Fish and Game	Eastern Sierra Inland Deserts Region	MacNair, Leslie	Staff Environmental Scientist
Mojave Desert Air Quality Management District			
Native American Heritage Commission			
Regional Water Quality Control Board #7	Colorado River Basin		
Southern California Association of Governments		Roth, Erik H.	Manager
Riverside County	Building & Safety Department	Laura, Mike	Director of Building & Safety
Riverside County Planning Commission		Zuppardo, Jan	c/o Desiree Bowie, Planning Commission Secretary
Riverside County	Environmental Health		Senior Public Health Engineer
Riverside County	Environmental Health		Hazardous Materials
Riverside County	Environmental Programs Department	Bond, Jared	
Riverside County	Executive Office		
Riverside County	Flood Control District	Degaga, Mekbif	
Riverside County	Regional Parks & Open Space District	Brewer, Marc	

AFFILIATION	DEPARTMENT	NAME	TITLE
Riverside County	Economic Development Agency		
Riverside County	Water Resources Management		
Desert Permit Assistance Center			
Riverside County Fire Department	Desert Office		
Riverside County Assessor			
Los Angeles County	Planning Department		
Western Riverside County Regional Conservation Authority		Landry, Charles	Executive Director
Orange County	Environmental & Project Planning Service Division		
Imperial County	Planning Department	Heuberger, Jurg	
La Paz County	Planning Department	Baker, Mike	Acting Planning & Zone Director
San Bernardino County	Planning Department		
San Diego County	Planning Department		
City/Local Agencies			
Airport Land Use Commission		Guerin, John	Principal Planner
Coachella Valley Association of Government			
City of Blythe	Community Services District		Development Services Director
City of Blythe	Development Services Department		
Blythe City Council	East Blythe Water District		
Palo Verde Irrigation District			
Palo Verde Resource Conservation District			
Elected Officials			
County of Riverside	4th Supervisor District, Board of Supervisors	Benoit, John	Supervisor
County of Riverside	5th Supervisor District, Board of Supervisors	Ashley, Marion	Supervisor
Native American Tribes			
Agua Caliente Band of Cahuilla Indians		Tuck, Patricia	THPO
AhaMaKav Cultural Society, Fort Mojave Indian Tribe		Otero, Linda	Director
Ah-Mut-Pipa Foundation (Quechan Kumeyaay)		Arrow-weed, Preston, J.	
Augustine Band of Cahuilla Mission Indians (Cahuilla)		Green, Mary Ann	Chairperson
Augustine Band of Cahuilla Mission Indians (Cahuilla)		Kupcha, Karen	
Cabazon Band of Mission Indians		Roosevelt, David	Chairperson
Cahuilla Band of Indians		Salgado, Luther	Sr. Chairperson
Chemehuevi		Joseph R. Benitez (Mike)	
Chemehuevi Reservation		Wood, Charles	Chairperson
Cocopah Museum/Cultural resources Dept. (Cocopah)		McCormick, Jill	Tribal Archaeologist
Colorado River Indian Tribe (Mojave, Chemehuevi)		Scott, Ginger	Museum Curator
Colorado River Indian Tribe (Mojave, Chemehuevi)		Ray, George	Coordinator

AFFILIATION	DEPARTMENT	NAME	TITLE
Fort Mojave Indian Tribe (Mojave)		McDowell, Nora	Cultural Resources Coordinator
Fort Yuma Quechan Indian Nation (Quechan)		Jackson, Michael	President
Morongo Band of Mission Indians (Cahuilla, Serrano)		Contreras, Michael	Cultural Heritage Prog.
Quechan Indian Nation		Nash-Chrabascz	THPO
Ramona Band of Cahuilla Mission Indians (Cahuilla)		Hamilton, Joseph	Chairman
San Manuel Band of Mission Indians (Serrano)		Brierty, Ann	Policy/Cultural Resources Dept.
Santa Rosa Band of Mission Indians (Cahuilla)		Estrada, Mayme	Chairwoman
Torres-Martinez Desert Cahuilla Indians (Cahuilla)		Chihuahua, Diana L.	Vice Chairperson, Cultural
Torres-Martinez Desert Cahuilla Indians (Cahuilla)		Resvaloso, Mary	
Twenty-nine Palms Band of Mission Indians (Chemehuevi)		Mike, Darrell	Chairperson

THPO = Tribal Historic Preservation Officer

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3.0 PUBLIC SCOPING MEETINGS

In compliance with CCR Section 15082(c), Riverside County conducted a public scoping meeting to inform the public about the project; describe the purpose and need of the project; provide information regarding the environmental review process; and gather public input regarding the scope and content of the EIR. The public scoping meeting was held on the following date and location:

December 12, 2011; 5:30 to 7 pm
Blythe City Council Chambers
235 N. Broadway
Blythe, CA 92225

The scoping meeting was announced in the NOP. The meeting was also advertised in the Desert Sun and Palo Verde Times on December 2, 2011. A copy of the newspaper advertisement may be found in Appendix B.

The copies of the PowerPoint presentation, display boards, comment form, and meeting transcript are located in Appendix C.

Project team members were available to answer questions about the displays and other project-related topics. The team members listed in Table 2 also listened to feedback, concerns and issues raised by the public.

TABLE 2. PROJECT TEAM MEMBERS ATTENDING THE PUBLIC SCOPING MEETING

Personnel	Role	Affiliation
Ken Baez	Principal Planner	Riverside County Planning Department
Jay Olivas	Planner	Riverside County Planning Department
Barbara Burrow	Planner	City of Blythe
Rupal Patel	Project Manager	Renewable Resources Group, Inc.
Jim James	Regulatory Affairs Manager	Renewable Resources Group, Inc.
Thomas Ryan	Project Manager	POWER Engineers, Inc.
Karen Cadavona	Project Coordinator	POWER Engineers, Inc.

A total of 6 people signed in at the scoping meeting (December 12, 2011). Attendees were encouraged to comment by filling out a comment form.

4.0 OUTREACH

4.1 NOTIFICATION TO SCOPING SESSION

A Notice of a Scoping Session was mailed to 120 property owners within 2,400 feet of the Project boundary (Appendix D). The notice briefly discussed the Proposed Project and date, time, and location of the scoping meeting.

4.2 NATIVE AMERICAN CONSULTATION

Tribal consultation under CEQA, Public Resources Code Section 21000 -21177, is “advisory” rather than mandated. However, the 2006 Senate Bill 1059 (Transmission Corridor Designation and Implementation) mandates tribal consultation for “electric transmission corridors.” This is codified in the California Public Resources Code, Chapter 4.3, and Section 25330 to Division 15, which require consultation with

California Native American tribes, and identifies both federally recognized and non-federally recognized tribes on a list maintained by the Native American Heritage Commission (NAHC).

In April 2011, a letter was submitted to the NAHC requesting information regarding Native American groups that may have historic ties to, and interest in, the proposed Blythe Mesa I Solar Project area. In May 2011, 20 CEQA scoping letters were sent to the tribes identified by the NAHC. A representative letter to the tribes may be found in Appendix E. Responses were received from the Aqua Caliente Band of Cahuilla Indians Tribal Historic Preservation Officer and Augustine Band of Cahuilla Indians

Tribal consultation required under Section 106 for the portion of the Project on public land will be performed by the U.S. Department of the Interior, Bureau of Land Management (BLM) on a government-to-government basis.

5.0 SCOPING COMMENTS SUMMARY

This section summarizes the comments received from the public and agencies during the scoping period for the Proposed Project from November 21, 2011 to December 21, 2011. A total of ten comments were received during the scoping period. All ten comments were received from agencies (one of the ten comments was a courtesy notice from the State Clearinghouse to comment in a timely manner).

Appendix F includes copies of the original comments as received during the NOP scoping period.

Below is a summary of the issues and comments that were raised by the commenters. The comments are organized by issue topic.

5.1 HUMAN ENVIRONMENT ISSUES

5.1.1 Air Quality

The Mojave Desert Air Quality Management District (MDAQMD) had no comment regarding the analysis of potential air quality impacts from the Proposed Project that would be included in the Draft EIR. The MDAQMD made mention of where to locate attainment plans.

5.1.2 Public Services and Utilities

The Riverside County Waste Management Department (RCWMD) was concerned that the quantity of waste generated during construction and demolition could have the potential to exceed a given landfill's daily permitted capacity. The RCWMD requested that the Draft EIR analyze the potential solid waste impact and specified that Project-generated waste would be disposed of at the Blythe Landfill (permitted to receive a maximum of 400 tons per day of refuse). In addition, the RCWMD requested the following measure for waste recycling: a Waste Recycling Plan (WRP), identifying the materials generated, their amounts, and recycling measures and reduction rates, to be submitted to the RCWMD for approval. The RCWMD also commented in acknowledgement of the Blythe Airport Dumpsite for use within the vicinity of the Proposed Project. Xeriscaping was also recommended, as well as the use of drought tolerant/low maintenance vegetation for landscaped Project areas.

Southern California Edison (SCE) commented that if the interconnection facilities to be constructed/relocated are over 200 kV, SCE is required to obtain a Certificate of Public Convenience and Necessity (CPCN) from the California Public Utilities Commission (CPUC). Early coordination with SCE is recommended to obtain certain permits for SCE facilities and scope of work necessary to interconnect the Proposed Project. SCE also requested that the foreseeable SCE scope of work and associated impacts be submitted to the Lead Agency early in the environmental review process.

The Sheriff's Department, Colorado River Station commented on the location of the Project in relation to the Sheriff's Department Shooting Range in Parcel #824-080-004. 24-hour access is required and live fire activities could occur between 5:00 a.m. and 11:00 p.m. any day of the week.

5.1.3 Socioeconomics

The Southern California Association of Governments (SCAG) commented that the Draft EIR should reflect the most current SCAG forecasts, which is the 2008 Regional Transportation Plan (RTP), May 2008, Population, Household and Employment forecasts. SCAG also recommended referencing the 2008 RTP as well as SCAG's Regional Growth Principals. SCAG's List of Mitigation Measures should be reviewed and followed where applicable to the Project.

5.2 NATURAL ENVIRONMENT ISSUES

5.2.1 Hazardous Materials/Soils

The Department of Toxic Substances Control (DTSC) requests that the Draft EIR evaluate whether conditions within the Project area would pose a threat to human health or the environment using regulatory agency databases. DTSC also recommended that the Draft EIR identify the mechanism to initiate a required investigation and/or remediation for a site within the Proposed Project area that may be contaminated. Subsequently, any environmental investigation, sampling and/or remediation should be conducted under a regulatory agency approved work plan; any findings must be summarized in the document.

DTSC requested investigations for the presence of hazardous chemicals, mercury, and asbestos in buildings, structures, or paved surface areas to be demolished. If any soil excavation or filling is required, soil sampling may be necessary; if contaminated, it must be properly disposed of. Human health and sensitive receptors should be protected, and a health risk assessment may be necessary to determine if there are, have been, or will be, any hazardous materials releases. DTSC also recommended proper investigation and remedial actions, as on-site soils or groundwater could contain pesticides, agricultural chemical or organic waste. Any hazardous wastes generated must be managed under California Hazardous Waste Control Law. DTSC can provide cleanup oversight through an Environmental Oversight Agreement or Voluntary Cleanup Agreement if needed.

RCWMD commented regarding potential hazardous waste generated from Project activities. As hazardous materials are not accepted at Riverside County landfills, any hazardous waste generated must be disposed of at a permitted hazardous waste facility.

5.2.2 Cultural Resources

The Agua Caliente Band of Cahuilla Indians (ACBCI) commented that the Project is not located on lands managed by the ACBCI, but the Project is within the ACBCI's Traditional Trade Network Area. The ACBCI Tribal Historic Preservation Office (THPO) recommended a 100% cultural resources inventory of the Project area by a qualified archaeologist prior to any development activities (all documentation generated should be forwarded to the THPO for review). THPO also recommended the presence of an approved Native American Cultural Resource Monitor(s) during any ground disturbing activities.

Comments regarding cultural resources were also submitted by the NAHC. The NAHC's Sacred Lands File (SLF) search identified no Native American cultural resources within the Project area. However, the absence of archaeological resources does not preclude their existence; the area is known to the NAHC to be culturally sensitive. Early consultation with Native American Tribes in the area is recommended and required. Tribes must be provided with all pertinent Project information. The NAHC recommended avoidance and resource documentation, as defined by CEQA Guidelines 15370(a) and 2183.2 respectively, for a project that would damage and/or destroy Native American cultural resources. In addition, the historic context of the Proposed Project and the cultural landscape must be considered. Any potential cultural resources discovered in the Project area may not be disclosed to keep historic properties of religious and cultural significance confidential.

5.2.3 Water Resources

The Riverside County Flood Control and Water Conservation District (District) commented regarding the watercourse and drainage patterns of the Project area. The District recommended that the Draft EIR describe the drainage of the general area, the Project site, and the site's tributary drainage. In addition, the Draft EIR should include a description of how on-site storm runoff would be collected and adequately conveyed, a description of how the Project collects and protects against off-site storm runoff, the identification and description of an existing drainage facility in the area, and detail regarding the impacts and mitigation for water quality caused by development. Hydrology/hydraulic study, exhibits, and other pertinent information should also be included. As a natural watercourse bisects the low southern portion of the Project, the Draft EIR should also address how the Project would mitigate impacts to floodplain(s) or watercourses. Lastly, the District recommends that a grading and drainage plan should be included in the Draft EIR; the maintenance access and site grading should be designed to maintain the existing natural drainage patterns with respect to tributary drainage areas, outlet points, and outlet conditions.

6.0 NEXT STEPS IN THE EIR PROCESS

Comments received during the public scoping period will be considered during the preparation of the Draft EIR. The Draft EIR is anticipated for public review in Summer 2012 and agencies, organizations, and Native American Tribes will have an opportunities to provide additional input on the Draft EIR. The Final EIR is expected in late summer 2012. The Project is expected to be considered by the County of Riverside Board of Supervisors in late summer 2012.

APPENDIX A: NOTICE OF PREPARATION AND MAILING LIST

Carolyn Syms Luna
Director

Agency Notice of Preparation of an Draft Environmental Impact Report

DATE: November 16, 2011

TO: ____________________
____
____

PROJECT CASE NO./TITLE: Environmental Impact Report No. 529 / Conditional Use Permit No. 3670 / Public Use Permit No. 913 / Blythe Mesa I Solar Project

PROJECT LOCATION: East Riverside County - Palo Verde Area Plan, the Blythe Mesa I Solar Project is located approximately 5 miles west of central Blythe and 40 miles east of Desert Center; more specifically, the project is located north and south of Interstate 10, west of Neighbors Boulevard and Arrowhead Boulevard, south and east of the Blythe Airport. The site consists primarily of agricultural land located south and east of the community of Nicholls Warm Springs/Mesa Verde. APNs 821-110-004, 821-120-025, 821-120-026, 821-120-027, etc. (see attached sheet entitled "Blythe Mesa Solar Project" "Assessor's Parcels for Solar Field (CUP03670)". Also, as shown on the exhibits entitled "Blythe Mesa Solar Project - Topographic Quadrangle Map", "Public Use Permit", "Blythe Mesa Solar Project Conditional Use Permit #3670 Pages 1 & 2", Exhibits "A1", "Notice of Preparation Attachment A", "Figure 1: Regional Area Map", "Figure 2: Site Plan & Solar Module", and "Figure 3: Typical Tiled Tracker Panels".

PROJECT DESCRIPTION: The proposed project consists of the construction and operation of a 485 megawatt solar photovoltaic (PV) electric generating facility and associated infrastructure on a total of approximately 3,660 acres. The proposed project would consist of a solar array field utilizing single-axis solar PV trackers and panels with a combined maximum height of 8 feet. Supporting facilities on-site would include three electrical substations, two operation and maintenance buildings, inverters, transformers, and associated switchgear. Since most of the site has nearly level to gently sloping topography, no mass grading would be required and the natural drainage patterns of the site would not be significantly altered. The Project site would be secured 24 hours per day by onsite private security personnel or remote services with motion-detection cameras. An equestrian-wire, wildlife-friendly and drainage-compaitble security fence that meets National Electric Safety Code would be placed around the perimeter of the site. The proposed lighting for the site would be consistent with County building code. A new 8.4 mile long, 230 kilovolt (kV) double-circuit generation-tie transmission line would connect the proposed project with the approved Colorado River Substation located west of the project site subject to Public Use Permit (3.6 miles of the gen-tie line are located within the project site, and 4.8 miles are located off-site between the project site and the Colorado River Substation). A majority of the project is within the County of Riverside jurisdiction. An approximate 330-acre portion of the 3,660-acre project site is located within the City of Blythe jurisdiction. A Development Agreement between the County of Riverside and the applicant will be established setting forth the rights and responsibilities of each party with respect to project development and operation.

LEAD AGENCY:
Riverside County Planning Department
4080 Lemon Street, 12th Floor
P.O. Box 1409
Riverside, CA 92502-1409
Attn: Jay Olivas, Project Planner

PROJECT SPONSOR:
Applicant: Renewable Resources Group
Address: 5700 Wilshire Blvd., Ste. 330
Los Angeles, CA 90036

Pursuant to Riverside County Rules to Implement the California Environmental Quality Act ("CEQA"), notice is given to responsible and interested agencies that the Riverside County Planning Department plans to oversee the preparation on an Environmental Impact Report for the above-described project. Given that the above-described project is subject to both CEQA and the National Environmental Policy Act ("NEPA"), a combined Environmental Impact Report – Environmental Impact Statement will be prepared. The purpose of this notice is to solicit guidance from your agency as to the scope and content of the environmental information to be included in the EIR. In accordance with the time limits mandated by State law, information in that regard should be submitted to this office as soon as possible, but **not later than thirty (30) days** after receiving this notice.

In addition to offering the opportunity to submit written comments, the County of Riverside will hold a scoping meeting to discuss the proposed project, environmental process, and provide agency representation, individuals, and other interested parties the opportunity to make oral comments regarding the scope of the EIR. The scoping meeting will be held at the time a place indicated below.

Blythe Mesa I Solar Project Scoping Meeting
Date: December 12, 2011
Time: 6:00 p.m.
Location: Blythe City Council Chambers
235 North Broadway
Blythe, CA 92225

Attached is a copy of the issues to be included in the draft EIR. If you have any questions please contact Jay Olivas, Project Planner at (951) 955-1195 or E-mail at jolivas@rctlma.org.

Sincerely,

RIVERSIDE COUNTY PLANNING DEPARTMENT
Carolyn Syms Luna, Director

Jay Olivas

Jay Olivas, Project Planner

Y:\Planning Master Forms\CEQA Forms\NOP Forms\Notice of Preparation-Agency.doc

Blythe Mesa Solar Project

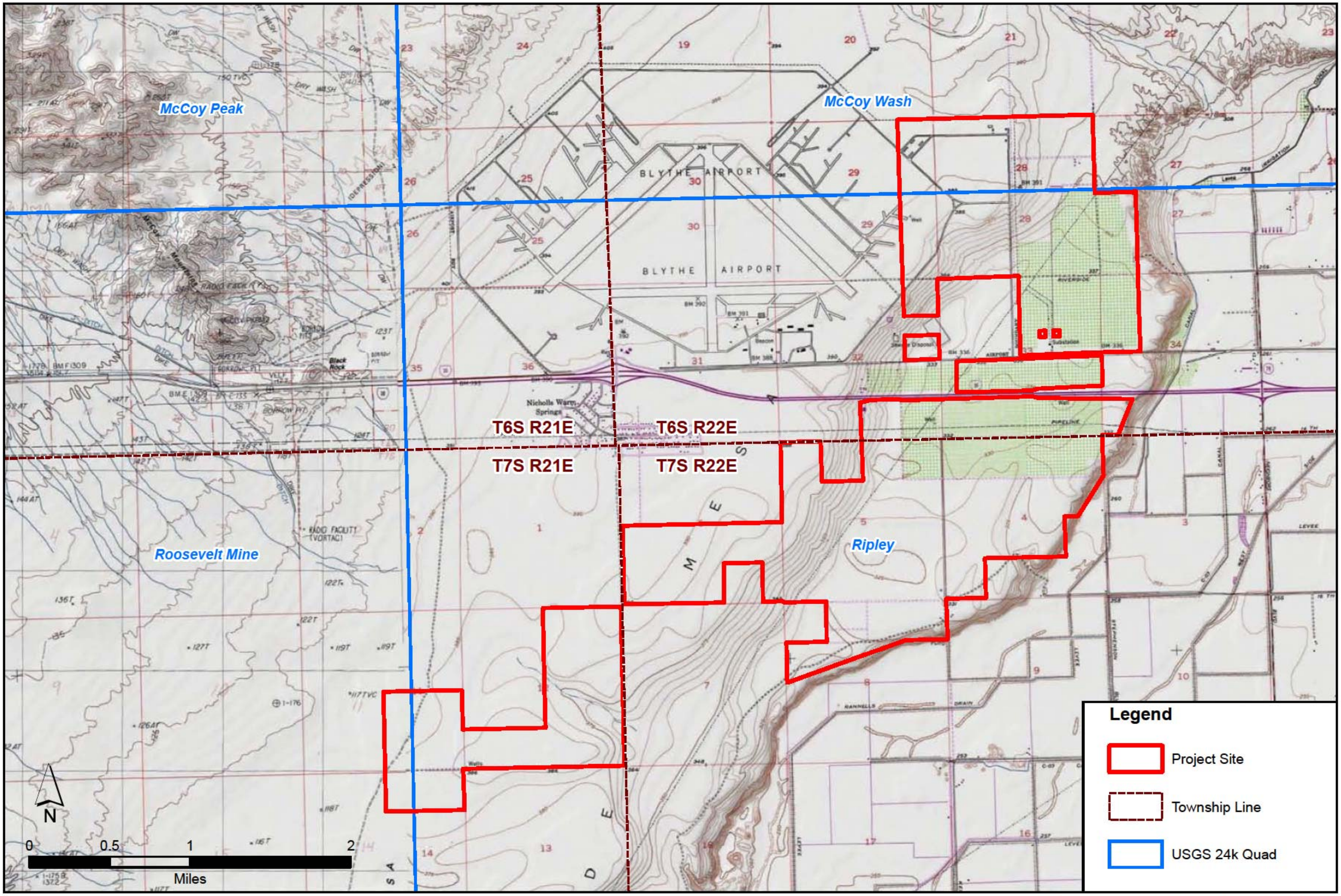
Assessor's Parcels for Solar Field (CUP03670)

Riverside County				City of Blythe
821110004	824102015	863040015	863100010	824101014
821120025	824102016	863040017	863100011	824101015
821120026	824130006	863040020	863100012	824101016
821120027	824130007	863040021	863100016	824101017
821120028	863030002	863050004	879090036	824102020
821120029	863030003	863050007	879090037	824102023
821120038	863030004	863050008	879090038	824102024
821120039	863030005	863050009	879090039	824102026
821120040	863030006	863060015	879090040	824102027
821120042	863030007	863060016	879090041	824110035
821120043	863030008	863060017	879090042	824110036
821120044	863030009	863060018	879090043	824110037
821120048	863030010	863070018	879090044	824110038
824080003	863030013	863070019	879090045	824122013
824080005	863030014	863070022	879090048	
824090009	863030015	863100005	879090049	
824090024	863030016	863100006	879090050	
824102013	863030017	863100008	879090051	
824102014	863040001	863100009	879110013	
			879110014	

Assessor's Parcels for Transmission Line

Riverside County	BLM
879080013	879080020
879080014	879080021
879080028	879080022
879080032	879080024
879090048	879080026
	879080027
	879090033
	879090034
	879090035

Blythe Mesa Solar Project



Topographic Quadrangle Map
Ripley, Roosevelt Mine, McCoy Wash & McCoy Peak, CA
7.5 Min Series

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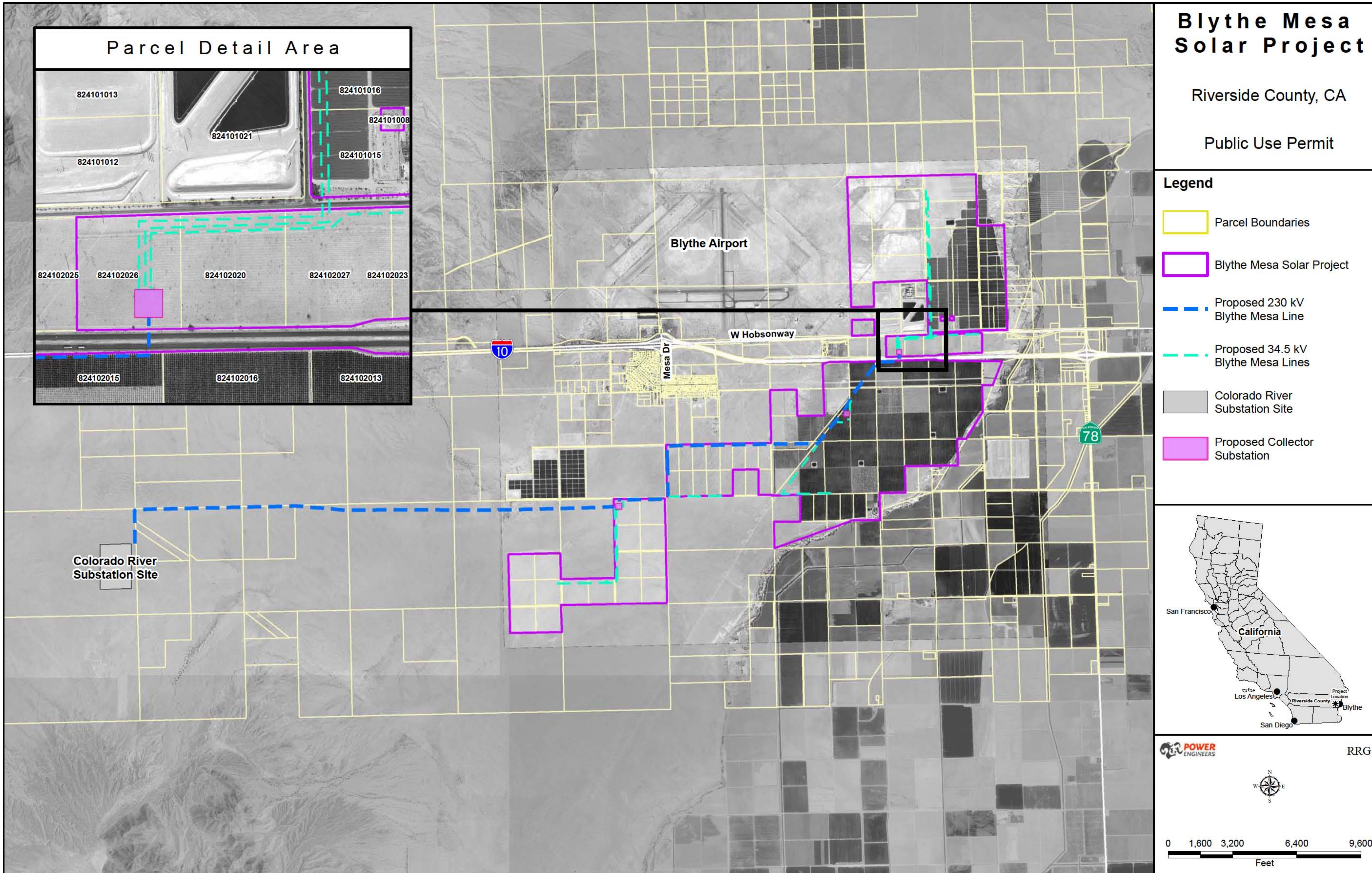

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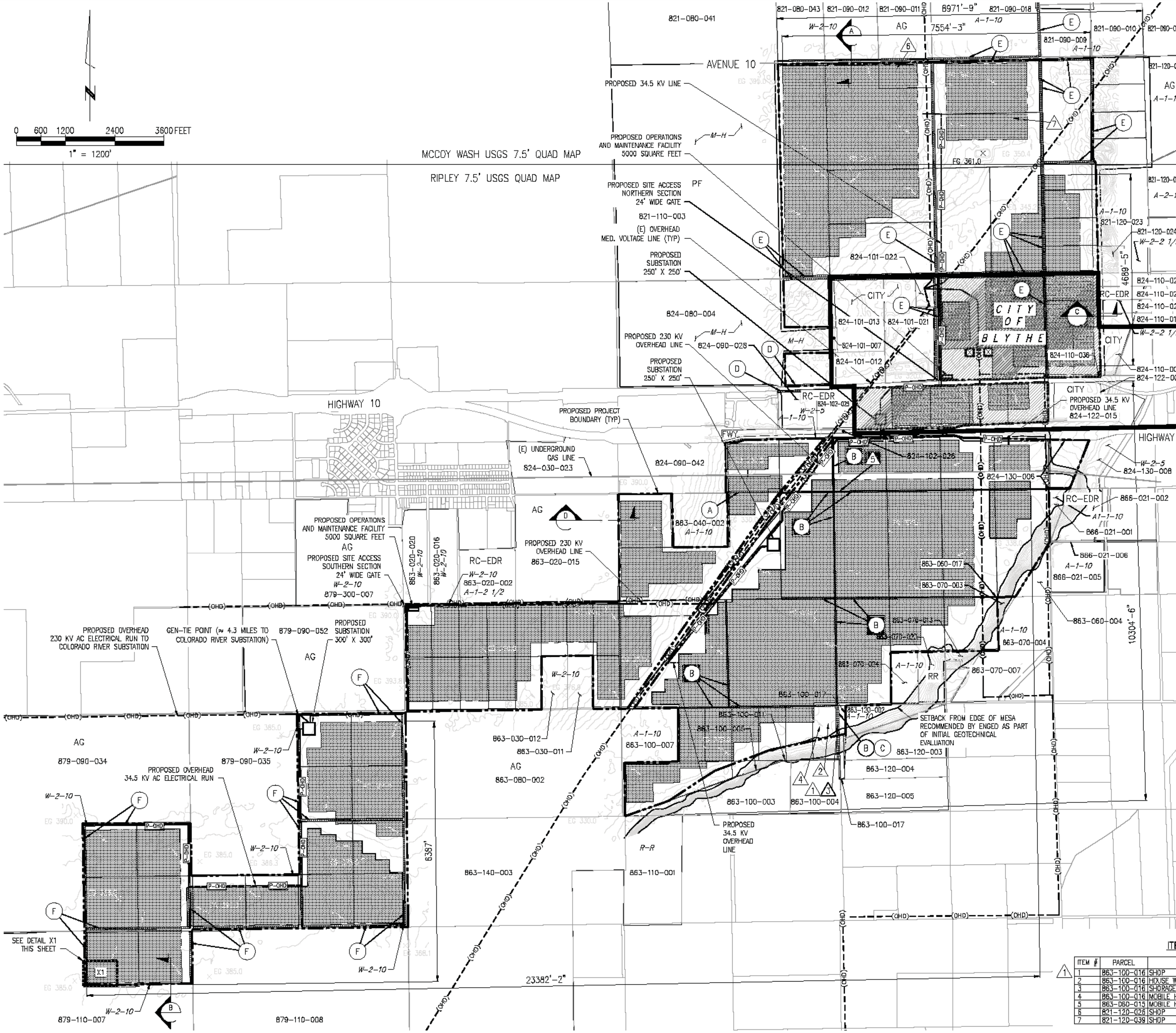
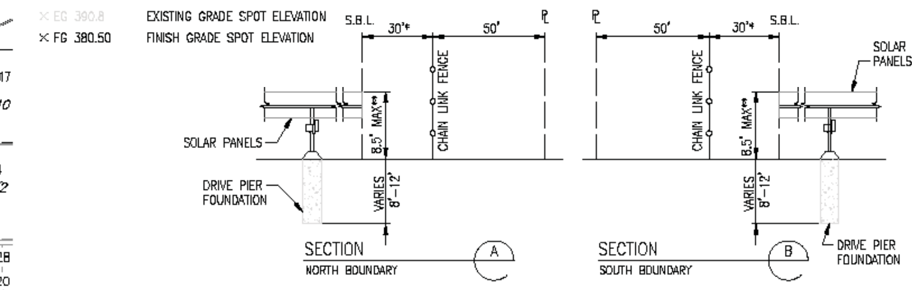


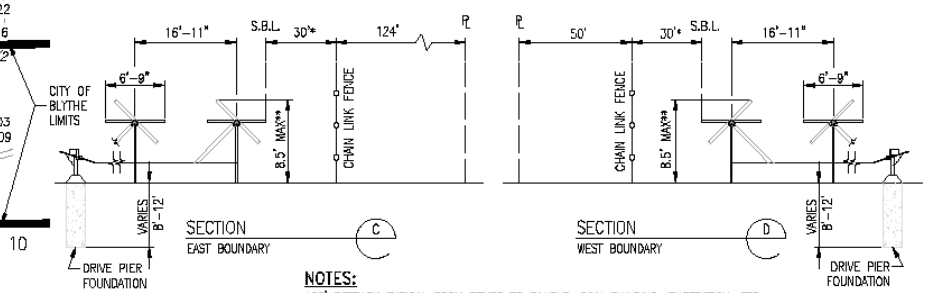
LEGEND:

(hatched)	NOT A PART OF COUNTY CUP
	PROPOSED PROJECT BOUNDARY
P-OHD	PROJECT GEN-TIE LINES
(OHD)	EXISTING OVERHEAD LINES
	EXISTING EASEMENT
W-2-10	INDICATES ZONING
	DIRECTIONAL FLOW ARROW
× EG 390.8	EXISTING GRADE SPOT ELEVATION
× FG 380.50	FINISH GRADE SPOT ELEVATION

NOTES:

1. THIS DESIGN ASSUMES THAT THE SITE WILL BE GRADED AND OTHERWISE PREPARED BY THE OWNER AS REQUIRED TO MEET ALL TOLERANCES OF THE PROPOSED TRACKER ARRAY (SLOPE <9%). REQUIRED GRADING IS NOT SHOWN ON THIS PLAN
2. 90 MPH WIND ZONE, EXPOSURE C
3. TOPO-MAP SHOWN WITH 5' INTERVAL; ARRAY SHOWN ON AERIAL IMAGE
4. ALL STRUCTURES WILL BE REMOVED BY THE DEVELOPER PRIOR TO CONSTRUCTION
5. PROPOSED PROJECT WILL HAVE 6' CHAIN LINK FENCE WITH 2' BARBED WIRE
6. MAIN ACCESS POINTS TO HAVE 24' ROADS EACH, WITH 24' WIDE GATE
7. THIS DESIGN INCORPORATES OPEN SPACE REQUIREMENTS PER THE AIRPORT LAND USE GUIDELINES, AND INCORPORATES APPROPRIATE SETBACKS AS DESIGNATED BY THE ZONING ORDINANCE





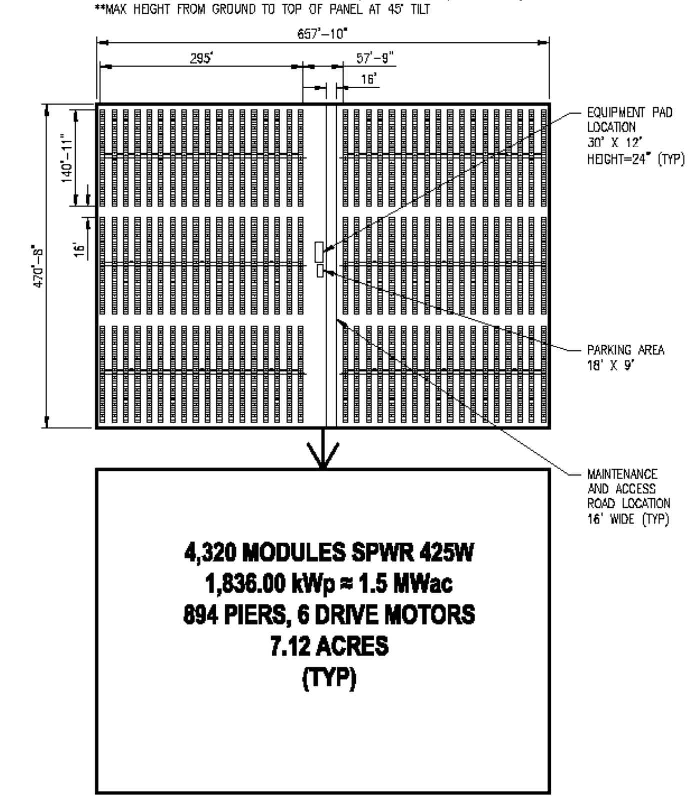
NOTES:

*30' SETBACK TYPICAL FROM FENCE TO PANELS, O&M BUILDING, SUBSTATION, ETC.
**MAX HEIGHT FROM GROUND TO TOP OF PANEL AT 45° TILT

EASEMENT LEGEND:

- (A) COCOPAH #27
- (B) COCOPAH #41
- (C) COCOPAH #45
- (D) SUNWORLD #61
- (E) SUNWORLD #70
- (F) SUNWORLD #73

NOTE: SEE SHEET 1 FOR EASEMENT INFORMATION



4,320 MODULES SPWR 425W
1,836.00 kWp ≈ 1.5 MWac
894 PIERS, 6 DRIVE MOTORS
7.12 ACRES
(TYP)

DETAIL X1
OASIS BLOCK
SCALE 1" = 128'

ITEMS TO BE REMOVED:

ITEM #	PARCEL	STRUCTURE	SIZE
1	863-100-016	SHOP	58' X 25'
2	863-100-016	HOUSE W/ POOL AND DETACHED 4 CAR GARAGE	2300 SQ FT
3	863-100-016	SHORAGE SHED	12' X 28'
4	863-100-016	MOBILE HOME	24' X 40'
5	863-060-015	MOBILE HOME	24' X 45'
6	821-120-026	SHOP	75' X 150'
7	821-120-039	SHOP	30' X 45'

PROPOSED SYSTEM SPECIFICATIONS:

605,880.00 kWp ≈ 495 MWac
(1,425,600) HIGH EFF. (425W) MODULES
10 MODULES/STRING, 142,560 STRINGS
1,980 DRIVE MOTORS, 295,020 PIERS
330 EQUIPMENT PADS, 3 SUBSTATIONS
GCR=0.4, AZIMUTH ANGLE: -1°

NOTE: THE PROPOSED ARRAY LAYOUT SHOWN IS DESIGNED TO FIT EXISTING CONDITIONS AS THEY ARE DESCRIBED ON THIS DRAWING. kWp AND MODULE QUANTITY, TYPE AND LAYOUT ARE SUBJECT TO CHANGE BASED ON SUNPOWER VERIFICATION OF ACTUAL SITE CONDITIONS, AS WELL AS ON MODULE AVAILABILITY AT THE DATE OF ORDER.

123128_CUP_1.DWG

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD	REFERENCE DRAWINGS

DSGN		
DRN	MNR	6/14/11
CKD		
SCALE:	AS SHOWN	

FOR 22x34 DWG ONLY

POWER ENGINEERS

RENEWABLE RESOURCES GROUP, INC.
COLORADO RIVER
BLYTHE, CALIFORNIA
BLYTHE MESA SOLAR PROJECT SITE PLAN FOR CONDITIONAL USE PERMIT NO. 3670

JOB NUMBER 123128
REV
DRAWING NUMBER

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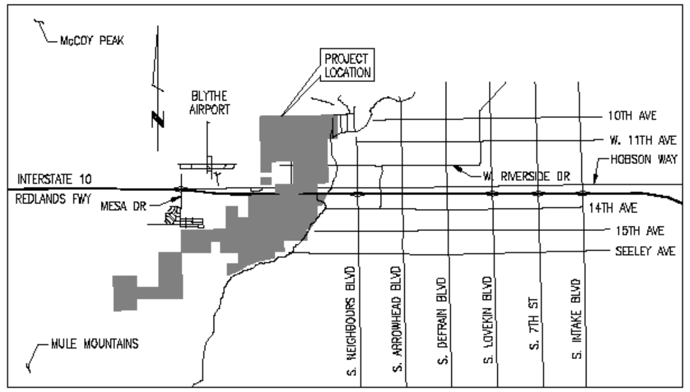

Vicinity Map

Project Site Area Breakdown:

Facility/Structure	Total Square Feet
Piles	35,183
Drive Motors (0.5hp)	10,494
Equipment Pads	128,275
Switchyards	0
Project Substations	291,534
Paved Roads	0
O&M Buildings & Parking	183,992
TOTAL	649,478

Gross/Net Area:

3,428.15 acres

Zoning and Land Use:

Zoning: A-1-10, W-2-5, W-2-10, N-A
Land Use: Agriculture, RC-EDR (Project Site); OS-RUR (Gen-tie Line ROW)

Applicant:

Renewable Resources Group
5700 Wilshire Blvd., Suite 330
Los Angeles, CA 90036
Contact: Rupal Patel
Phone: 323-936-9303

Land Owner:

Gila Farm Land, LLC
5700 Wilshire Blvd., Suite 330
Los Angeles, CA 90036
Contact: Rupal Patel
Phone: 323-936-9303

Exhibit Preparer:

POWER Engineers
19820 N. 7th St.
Phoenix, Arizona 85024
Phone: 623-582-1006

Thomas Bros. Page:

Pages 5549 and 5550 – Generation Site
Page 86, Grid F4 – Gen-Tie Line ROW

Project Description:

Blythe Mesa Solar is a 485 megawatt (MW) photovoltaic solar power plant on approximately 84 parcels totaling 3,428.15 acres. A total of 330 power blocks will be constructed, each will be constructed containing an equipment pad and a 9'X18' parking area. The proposed panels will have a maximum height of 8'. The site will be secured with a 6 foot chain-linked fence topped with 2' of barbed wire and all construction staging and temporary facilities will be on site within the project area. Three new project substations will consist of a 34.5 to 230kV transformer and will interconnect to the new Southern California Edison (SCE) Colorado River Substation 230 kV switchyard.

County Water Quality Management Plan:

Project is not located in the Santa Ana, Santa Margarita, San Jacinto and Whitewater River Watersheds. The project will not alter the existing natural drainage pattern of the site.

Utilities:

School District: Palo Verde Valley Unified School District
Water: Palo Verde Irrigation District and City of Blythe
Sewer: City of Blythe (Project will provide it's own private septic system)
Gas: Southern California Gas Company
Electricity: Southern California Edison
Telephone: Verizon
Cable Television: NPG Cable, Inc. (a.k.a. Blythe Cable)

Community Services District:

None

Dwelling Units/Lots and Recreational Vehicle Spaces:

None

Occupancy Classification:

U

Specific Plan:

None

Typical street improvement cross-sections:

None proposed.

Existing or Proposed Common, Open Space, Landscaped, Planting or Recreational Areas:

None

Easement Notes:

Rivera #11. An easement shown or dedicated on the map of Parcel Map No. 14907 on file recorded January 29, 1981 in Book 87, Page 96, of Parcel Maps. For: Public roads and incidental purposes. The location of the easement cannot be determined from record information. (Not plottable).

Cocopah #27. An easement for pipeline for conveyance of water and incidental purposes, recorded December 5, 1985 as Instrument No 85-274269 of Official Records. (See sheet 2 for Location)

Cocopah #40/41/112. The effect of a Declaration of Dedication as show by the Owners Certificate on Parcel Map Book 100 pages 52 to 58 of Parcel Maps, purporting to irrevocably dedicate in perpetuity for public road purposes, public utility and public services, the property described therein. (See sheet 2 for Location)

The effect of a Resolution, on said Map, by the Riverside County Board of Supervisors accepting said offer of Dedication for the purpose of vesting title in the County of Riverside on behalf of the public, but not as part of the county-maintained road system.

Cocopah #45. An easement for road and incidental purposes, recorded October 10, 1922 in Book 544 of Deeds, Page 168. (See sheet 2 for Location)

Cocopah #64. An easement for road and incidental purposes, recorded October 3, 1922 in Book 544 of Deeds, Page 168.

Cocopah #111. The effect of a Declaration of Dedication as show by the Owners Certificate on said Parcel Map No. 14453, purporting to irrevocably dedicate in perpetuity for public road purposes, public utility and public services, the property described therein.

The effect of a Resolution, on said Map, by the Riverside County Board of Supervisors accepting said offer of dedication for the purpose of vesting title in the County of Riverside on behalf of the public, but not as part of the county-maintained road system. (Not plottable).

SunWorld #61. An easement for existing public utilities and/or public service facilities and incidental purposes, recorded May 29, 1975 as Instrument No. 62197 of Official Records. (See sheet 2 for Location)

SunWorld #70. An easement shown or dedicated on the map filed or recorded as Parcel Map 14093 in Book 105, Pages 78 through 87 of Parcel Maps. For: Road and public utilities and incidental purposes. (See sheet 2 for Location)

SunWorld #73. An easement shown or dedicated on the map filed or recorded as Parcel Map No. 16920 in Book 112, Pages 44 through 49 of Parcel Maps. For: Road and public utilities and incidental purposes. (See sheet 2 for Location)

Other Easements of Record have been provided by Applicant and can be obtained by contacting the Planner and requesting List of Exceptions and Plotted Easement Maps.

Drainage and Grading Notes:

See attached Preliminary Grading and Drainage Plan. The proposed improvements do not include significant alternation of the land or the existing drainage patterns. No significant hardscape is proposed that would warrant need for onsite retention or detention facilities.

No mass grading is required for site, which is nearly level to gently sloping topography. Light grubbing and minimal grading and trenching would be required where facilities and tracker arrays are proposed. The Project proposes balanced cut/fill grading of 600,000 cubic yards, to grade the 1,000-acre citrus orchard to a depth of 3 inches. In order to aim for balanced cut-and-fill quantities, grading activities may include placement and compaction of excess materials in low-elevation areas of site. Fine grading would be required for development of site access roads.

Installation of the electrical collection system within the arrays would require excavations to a depth of about three feet for underground electrical circuits, inverter and switchgear enclosure foundations, and transformer foundations. The O&M building foundation would be excavated to a depth of about three feet. Foundations for substation structures and gen-tie towers or poles would be augured to depths of 10 feet for medium-voltage overhead lines to 45 feet for high-voltage overhead lines, depending on structural loads and soil conditions.

Flood Notes:

Land is not subject to overflow, inundation, flood hazard, liquefaction, geologic hazard, or a Special Studies Zone. FEMA maps are not available for subject area. Centerline curve radii and typical sections of open channels are not applicable to project site.

Assessor Parcel Numbers

821-110-004; 821-120-025; 821-120-026; 821-120-027; 821-120-028; 821-120-029; 821-120-030; 821-120-038; 821-120-039; 821-120-040; 821-120-042; 821-120-043; 821-120-044; 821-120-048; 824-080-003; 824-080-005; 879-090-036; 879-090-037; 879-090-038; 879-090-039; 879-090-040; 879-090-041; 879-090-042; 879-090-043; 879-090-044; 879-090-045; 879-090-048; 879-090-049; 879-090-050; 879-090-051; 879-110-013; 879-110-014; 824-090-009; 824-090-024; 824-102-013; 824-102-014; 824-102-015; 824-102-016; 824-130-006; 824-130-007; 863-040-001; 863-040-015; 863-040-017; 863-040-020; 863-040-021; 863-050-004; 863-050-007; 863-050-008; 863-050-009; 863-060-015; 863-060-016; 863-060-017; 863-060-018; 863-070-018; 863-070-019; 863-070-022; 863-100-005; 863-100-006; 863-100-008; 863-100-009; 863-100-010; 863-100-011; 863-100-012; 863-100-016; 863-100-017; 866-021-007; 866-022-002; 863-030-015; 863-030-007; 863-030-010; 863-030-009; 863-030-003; 863-030-004; 863-030-016; 863-030-017; 863-030-005; 863-030-006; 863-030-014; 863-030-002; 863-030-013; 863-030-008

LEGAL DESCRIPTION

PARCEL A: (APN: 824-130-007)
THAT PART OF THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 34, TOWNSHIP 6 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO UNITED STATES GOVERNMENT SURVEY APPROVED OCTOBER 6, 1856, AS SAID PORTION WAS CONVEYED TO THE STATE OF CALIFORNIA BY DEED RECORDED AUGUST 10, 1967, SOUTHERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE SOUTHWESTERLY TERMINATION OF THAT COURSE DESCRIBED AS SOUTH 32°32'19" WEST, 241.29 FEET TO THE SOUTH LINE OF THE NORTHEAST QUARTER OF SAID SOUTHWEST QUARTER IN SAID DEED TO THE STATE OF CALIFORNIA, SAID POINT OF BEGINNING BEING A POINT ON THE RIGHT OF WAY OF HIGHWAY INTERSTATE 10 AND 71.76 FEET RIGHT OF ENGINEERS STATION 298 PLUS 16.59 OF THE ER LINE OF SAID HIGHWAY; THENCE SOUTH 89°12'33" WEST, 224.65 FEET; THENCE SOUTH 75°14'20" WEST, 610.16 FEET; THENCE NORTH 89°05'18" WEST, 1400.57 FEET TO A POINT 180 FEET RIGHT OF ENGINEERS STATION 276 PLUS 00 OF SAID ER LINE.

EXCEPT THAT PORTION LYING EAST OF THE FOLLOWING DESCRIBED LINE OF THE PALO VERDES IRRIGATION DISTRICT; BEGINNING AT A POINT ON THE SOUTH LINE OF SECTION 34, WHICH POINT IS EAST 509.08 FEET FROM THE SOUTHWEST CORNER THEREOF; THENCE NORTH 20°31'45" EAST 1408.97 FEET, MORE OR LESS TO THE NORTH LINE OF THE SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 34, TOWNSHIP 6 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

PARCEL B: (APN: 863-040-001-2)
THE NORTHWEST 1/4 OF TRACT NO. 57, SECTION 5, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, SHOWN BY INDEPENDENT RESURVEY OF SAID TOWNSHIP, ACCEPTED BY THE UNITED STATES LAND OFFICE, IN MAY 1919.

PARCEL C: (APN: 863-040-017-7)

PARCEL 1:
THE SOUTH HALF OF TRACT NO. 57, IN SECTION 5, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY INDEPENDENT RESURVEY OF SAID TOWNSHIP, ACCEPTED BY THE UNITED STATES LAND OFFICE, IN MAY, 1919;
EXCEPTING THEREFROM THAT PORTION LYING WITHIN THE FOLLOWING DESCRIBED PROPERTY:

LOTS 4 AND 5, IN SECTION 5, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES INDEPENDENT RESURVEY, APPROVED DECEMBER 16, 1919, TOGETHER WITH THAT PORTION OF THE SOUTH HALF OF TRACT NO. 57, IN SECTION 5, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY INDEPENDENT RESURVEY OF SAID TOWNSHIP, ACCEPTED BY THE UNITED STATES LAND OFFICE, IN MAY, 1919, SAID PORTION LYING SOUTHEASTERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE INTERSECTION OF THE SOUTHERLY LINE OF SAID TRACT NO. 57, WITH THE CENTER LINE OF THAT CERTAIN STRIP OF LAND, 50 FEET IN WIDTH, AS IN THE RIGHT OF WAY EASEMENT TO THE IMPERIAL IRRIGATION DISTRICT, RECORDED FEBRUARY 11, 1954 AS INSTRUMENT NO. 8893 IN BOOK 1553 PAGES 574, 575 AND 576, ALL OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, SAID POINT OF INTERSECTION BEING WEST, 429.76 FEET FROM THE SOUTHEAST CORNER OF SAID TRACT NO. 57, THEN ALONG SAID CENTER LINE, AND IN NORTHEASTERLY PROLONGATIONS THEREOF, NORTH 37° 55' EAST, TO THE EASTERLY LINE OF SAID GOVERNMENT LOT 4.

PARCEL 2:
THAT PORTION OF GOVERNMENT LOTS 4 AND 5, IN SECTION 5, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES INDEPENDENT RESURVEY, APPROVED DECEMBER 16, 1919, LYING NORTHWESTERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT THE INTERSECTION OF THE SOUTHERLY LINE OF SAID TRACT NO. 57, WITH THE CENTER LINE OF THAT CERTAIN STRIP OF LAND, 50 FEET IN WIDTH, AS IN THE RIGHT OF WAY EASEMENT TO THE IMPERIAL IRRIGATION DISTRICT, RECORDED FEBRUARY 11, 1954 AS INSTRUMENT NO. 8893, IN BOOK 1553 PAGES 574, 575 AND 576, ALL OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, SAID POINT OF INTERSECTION BEING WEST, 429.76 FEET FROM THE SOUTHEAST CORNER OF SAID TRACT NO. 57, THEN ALONG SAID CENTER LINE, AND IN NORTHEASTERLY PROLONGATIONS THEREOF, NORTH 37° 55' EAST, TO THE EASTERLY LINE OF SAID GOVERNMENT LOT 4.

PARCEL 3:
INTENTIONALLY DELETED

PARCEL 4:
INTENTIONALLY DELETED

PARCEL D: (APN: 824-090-009-0)
THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 32, TOWNSHIP 6 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO UNITED STATES GOVERNMENT SURVEY. EXCEPTING THEREFROM PORTION DESIGNATED FOR STATE HIGHWAY PURPOSES, AS SET FORTH IN THAT CERTAIN FINAL ORDER OF CONDEMNATION RECORDED MARCH 27, 1969 AS INSTRUMENT NO. 29939, OFFICIAL RECORDS OF SAID RIVERSIDE COUNTY.

PARCEL D1:
INTENTIONALLY DELETED

PARCEL D2:
INTENTIONALLY DELETED

PARCEL E: (APN: 863-050-009-1)
THAT PORTION OF PARCEL 11, INCLUSIVE, OF PARCEL MAP 14453, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY PARCEL MAP ON FILE IN BOOK 100, PAGES 52 THROUGH 58, INCLUSIVE, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF PARCEL 11 OF PARCEL MAP NUMBER 14453 AS RECORDED IN BOOK 100 AT PAGES 52 THROUGH 58 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA; THENCE NORTH 89° 14' 22" EAST, 2242.89 FEET; THENCE SOUTH 36° 58' 48" WEST, 477.84 FEET; THENCE SOUTH 89° 14' 22" WEST, 1802.31 FEET TO THE WESTERLY LINE OF PARCEL 11; THENCE NORTH 0° 48' 33" WEST ALONG THE WEST LINE OF PARCEL 11, 377.87 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION FOR PUBLIC STREET AND UTILITY PURPOSES OVER THAT PORTION OF THE LAND WITHIN LAND EASEMENTS SHOWN AS 15TH AVENUE, AS SHOWN OR DEDICATED UPON THE MAP OF PARCEL MAP 14453 ON FILE IN BOOK 100, PAGES 52 THROUGH 58 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL F: (APN: 863-100-016-1)
PARCEL 18 OF PARCEL MAP NO. 14,453 FILED JANUARY 21, 1982 IN BOOK 100 PAGES 52 THROUGH 58, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, EXCEPTING THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:
BEGINNING AT THE CENTERLINE OF THE INTERSECTION OF 16TH AVENUE AND KEIM BOULEVARD AS SHOWN ON SAID PARCEL MAP 14,453;
THENCE NORTH 89° 06' 19" EAST ALONG THE CENTERLINE OF 16TH AVENUE A DISTANCE OF 218.56 FEET TO THE NORTHEAST CORNER OF SAID PARCEL 18;
THENCE SOUTH 01° 32' 20" EAST ALONG THE EASTERLY LINE OF SAID PARCEL 18 A DISTANCE OF 750.00 FEET;
THENCE SOUTH 89° 06' 19" WEST CONTINUING ON THE LOT LINE OF SAID PARCEL 18, A DISTANCE OF 75.00 FEET;
THENCE SOUTH 01° 32' 20" EAST ALONG THE EASTERLY LINE OF SAID PARCEL 18 A DISTANCE OF 1068.56 FEET TO THE SOUTHEASTERLY CORNER OF SAID PARCEL 18;
THENCE SOUTH 88° 56' 54" WEST ALONG THE SOUTHERLY LINE OF SAID PARCEL 18 A DISTANCE OF 100.00 FEET TO A POINT ON THE CENTERLINE OF SAID KEIM BOULEVARD;
THENCE NORTH 01° 32' 20" WEST ALONG THE CENTERLINE OF SAID KEIM BOULEVARD A DISTANCE OF 498.51 FEET;
THENCE NORTH 03° 25' 40" WEST CONTINUING ALONG THE CENTERLINE OF SAID KEIM BOULEVARD A DISTANCE OF 1321.54 FEET TO THE POINT OF BEGINNING.
THIS DEED IS GIVEN PURSUANT TO LOT LINE ADJUSTMENT NO. 1747 APPROVED BY THE RIVERSIDE COUNTY PLANNING DEPARTMENT DATED AUGUST 24, 1983 WHEREIN THAT PORTION OF PARCEL 18 EXCEPTED FROM PARCEL "F" ABOVE BECOMES A PART OF PARCEL 14.

PARCEL F1:
AN EASEMENT FOR PUBLIC STREET AND UTILITY PURPOSES OVER THAT PORTION OF THE LAND WITHIN ROAD EASEMENTS SHOWN AS BUTCH AVENUE, 14TH AVENUE, 15TH AVENUE, 16TH AVENUE, AND KEIM BOULEVARD, AS SHOWN OR DEDICATED UPON THE MAP OF PARCEL MAP 14,453 RECORDED IN BOOK 100 PAGES 52 THROUGH 58 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;
EXCEPTING THEREFROM THOSE ROAD EASEMENTS LYING WITHIN PARCEL "F" ABOVE.

PARCEL G: (APN'S: 863-100-005-1 AND 863-100-006-2)
THAT PORTION OF GOVERNMENT TRACT NO. 67, IN SECTION 8, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN ON THE SUPPLEMENTAL DIAGRAM OF THE SURVEY OF ENTRIES, INDEPENDENT RESURVEY ACCEPTED MAY 10, 1919, BY THE GOVERNMENT LAND OFFICE, LYING OUTSIDE OF THE PALO VERDE IRRIGATION DISTRICT BOUNDARY, AS THAT BOUNDARY EXISTED ON FEBRUARY 12, 1948;
EXCEPTING THAT PORTION, IF ANY, LOCATED IN THE EASTERLY 1192.6 FEET OF TRACT NO. 67.

PARCEL H: (APN'S: 824-090-024; 824-102-013 THROUGH 824-102-016; 863-060-015 THROUGH 863-060-018; 863-040-015; 863-050-004; 863-050-007; 863-050-008; 863-070-018; 863-070-019; 863-070-022; 863-100-008 THROUGH 863-100-012)
PARCELS 1 THROUGH 16, INCLUSIVE, AND PARCELS 19 THROUGH 23, INCLUSIVE, OF PARCEL MAP 14453, AS SHOWN BY MAP ON FILE IN BOOK 100 PAGE(S) 52 THROUGH 58, INCLUSIVE, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;
EXCEPTING THEREFROM THAT PORTION OF LOT 11 OF PARCEL MAP 14453, AS DEEDED TO KARIN HESSELNBERG, GEE. SEIDL, A MARRIED WOMAN AS TO AN UNDIVIDED 1/6 INTEREST; WALTER LUCAS, A SINGLE MAN AS TO AN UNDIVIDED 1/6 INTEREST; HEINZ NORDMANN, A MARRIED MAN AS TO AN UNDIVIDED 1/6 INTEREST; HENNER DITTMANN, A MARRIED MAN AS TO AN UNDIVIDED 1/6 INTEREST; HERMANN CLASEN, A MARRIED MAN AS TO AN UNDIVIDED 1/6 INTEREST; AND STEFFEN DITTMANN, A MARRIED MAN AS TO AN UNDIVIDED 1/6 INTEREST, ALL AS TENANTS IN COMMON, BY DEED RECORDED OCTOBER 11, 1986 AS INSTRUMENT NO. 293738 OF OFFICIAL RECORDS, PURSUANT TO LOT LINE ADJUSTMENT CASE NO. 2184 APPROVED BY THE RIVERSIDE COUNTY PLANNING DEPARTMENT ON AUGUST 19, 1985.

PARCEL H1:
A NON-EXCLUSIVE EASEMENT FOR THE PURPOSE OF INGRESS AND EGRESS AND IRRIGATION INCLUDING THE RIGHT TO USE, MAINTAIN, REPAIR, RECONSTRUCT, ENLARGE AND OR INSTALL ROADS, IRRIGATION DITCHES, UTILITY SERVICES AND OR PIPELINES WITHIN SAID WESTERLY 100 FEET OF THE FOLLOWING DESCRIBED PROPERTY:
THE SOUTH HALF OF TRACT 69 IN SECTION 9, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES INDEPENDENT RESURVEY APPROVED DECEMBER 16, 1919 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;
EXCEPTING THEREFROM THE NORTHERLY 30 ACRES.

PARCEL H2:
A NON-EXCLUSIVE EASEMENT FOR CONVEYANCE OF WATER THROUGH EXISTING CANAL, PIPES, AND PUMPING SYSTEM FOR IRRIGATION OVER AND ACROSS THE SOUTHERLY PORTION OF THE FOLLOWING SAID PROPERTY:
THAT PORTION OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 3, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, BEING ALSO SHOWN AS THE WEST TWO-THIRDS OF TRACT 48 OF SECTION 3, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY ACCEPTED MAY 10, 1919, LYING WEST OF THE MID-LINE OF THE PALO VERDE IRRIGATION DISTRICT'S DRAINAGE CANAL, DESIGNATED AS RUNNELL'S DRAIN ON RECORD OF SURVEY ON FILE IN BOOK 17 PAGE 48 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, AS CONVEYED TO G. B. INVESTMENT CO., AN ARIZONA CORPORATION, BY DEED FROM J. E. MASON AND WIFE, RECORDED MAY 3, 1967 AS INSTRUMENT NO. 37728 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL H3:
AN EASEMENT FOR PUBLIC STREET AND UTILITY PURPOSES OVER THAT PORTION OF THE LAND WITHIN ROAD EASEMENTS SHOWN AS BUTCH AVENUE, 14TH AVENUE, 15TH AVENUE, 16TH AVENUE AND KEIM BOULEVARD, AS SHOWN OR DEDICATED UPON THE MAP OF PARCEL MAP 14,453 ON FILE IN BOOK 100 PAGES 52 THROUGH 58 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;
EXCEPTING THEREFROM THOSE ROAD EASEMENTS LYING WITHIN PARCEL H AND PARCEL L.
SAID PARCEL MAP 14,453 BEING A DIVISION OF A PORTION OF SECTIONS 32 AND 33, TOWNSHIP 6 SOUTH, RANGE 22 EAST AND A PORTION OF SECTIONS 4, 5, 8 AND 9, TOWNSHIP 7 SOUTH, RANGE 22 EAST SAN BERNARDINO BASE AND MERIDIAN.

PARCEL I: (APN: 824-130-006-0)
THE WEST 30 FEET OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 34, TOWNSHIP 6 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN. EXCEPTING THEREFROM THAT PORTION DESCRIBED BY FINAL ORDER OF CONDEMNATION RECORDED SEPTEMBER 4, 1968 AS INSTRUMENT NO. 85666 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL J: (APN'S: 863-040-020-9 AND 863-040-021-0)
THAT PORTION OF THE NORTH HALF OF SECTION 5, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN DESCRIBED AS FOLLOWS:

COMMENCING AT THE WESTERLY COMMON PARCEL CORNER OF PARCEL 1 AND PARCEL 10 OF PARCEL MAP NO. 14453 AS RECORDED IN BOOK 100 AT PAGE 52 THROUGH 58 RECORDS OF RIVERSIDE COUNTY CALIFORNIA; THENCE SOUTH 0° 50' 48" EAST ALONG THE WEST LINE OF PARCEL 10 A DISTANCE OF 394.20 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING SOUTH 0° 50' 48" EAST ALONG THE WEST LINE OF PARCEL 10 A DISTANCE OF 258.00 FEET TO THE NORTH CORNER OF PARCEL 17; THENCE SOUTH 0° 50' 48" EAST 1980.07 FEET TO THE SOUTHEAST CORNER OF PARCEL 17; THENCE SOUTH 88° 56' 16" WEST ALONG THE SOUTH LINE OF PARCEL 17 A DISTANCE OF 1321.48 FEET; THENCE SOUTH 89° 14' 22" WEST ALONG THE SOUTH LINE OF PARCEL 17, A DISTANCE OF 258.09 FEET TO THE WEST CORNER OF PARCEL 17; THENCE CONTINUING SOUTH 89° 14' 22" WEST ALONG THE NORTH LINE OF PARCEL 11, A DISTANCE OF 148.00 FEET; THENCE NORTH 36° 58' 48" EAST 2813.88 FEET TO THE TRUE POINT OF BEGINNING. SAID PROPERTY INCLUDES ALL OF PARCEL 17 OF PARCEL NO. 14453 AS SHOWN ON MAP ON FILE IN BOOK 100 PAGES 52 THROUGH 58 INCLUSIVE, OF PARCEL MAPS, RIVERSIDE COUNTY RECORDS.
A CERTIFICATE OF LOT LINE ADJUSTMENT NO. 2183 WAS APPROVED AUGUST 19, 1985.

PARCEL J1:
A NON EXCLUSIVE EASEMENT FOR THE PURPOSE OF INGRESS AND EGRESS AND IRRIGATION INCLUDING THE RIGHT TO USE, MAINTAIN, REPAIR, RECONSTRUCT, ENLARGE AND OR INSTALL ROADS, IRRIGATION DITCHES, UTILITY SERVICES AND OR PIPELINES WITHIN SAID WESTERLY 100 FEET OF THE FOLLOWING DESCRIBED PROPERTY:
THE SOUTH HALF OF TRACT 69 IN SECTION 9 TOWNSHIP 7 SOUTH RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN AS SHOWN BY UNITED STATES INDEPENDENT RESURVEY APPROVED DECEMBER 16, 1919 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
EXCEPTING THEREFROM THE NORTHERLY 30 ACRES.

PARCEL J2:
A NON EXCLUSIVE EASEMENT FOR CONVENIENCE OF WATER THROUGH EXISTING CANAL, PIPES, AND PUMPING SYSTEM FOR IRRIGATION OVER AND ACROSS THE SOUTHERLY PORTION OF THE FOLLOWING SAID PROPERTY:
THAT PORTION OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 3, TOWNSHIP 7, SOUTH RANGE 22 EAST SAN BERNARDINO BASE AND MERIDIAN BEGIN ALSO SHOWN AS THE WEST TWO-THIRDS OF TRACT 48 OF SECTION 3 TOWNSHIP 7 SOUTH RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN AS SHOWN BY UNITED STATES GOVERNMENT SURVEY ACCEPTED MAY 10, 1919, LYING WEST OF THE MID-LINE OF THE PALO VERDE IRRIGATION DISTRICT'S DRAINAGE CANAL, DESIGNATED AS RUNNELL'S DRAIN ON RECORD OF SURVEY ON FILE IN BOOK 17 PAGE 48 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, AS CONVEYED TO G.B. INVESTMENT CO., AN ARIZONA CORPORATION, BY DEED FROM J.E. HASON AND WIFE, RECORDED MAY 3, 1967, AS INSTRUMENT NO. 37728 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL J3:
AN EASEMENT FOR PUBLIC STREET AND UTILITY PURPOSE OVER THAT PORTION OF THE LAND WITHIN ROAD EASEMENTS SHOWN AS BUTCH AVENUE, 14TH AVENUE, 15TH AVENUE, 16TH AVENUE AND KEIM BOULEVARD, AS SHOWN OR DEDICATED UPON THE MAP OF PARCEL MAP 14453 ON FILE IN BOOK 100 PAGES 52 THROUGH 58 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.
EXCEPTING THEREFROM THOSE ROAD EASEMENTS LYING WITHIN PARCEL A ABOVE.

PARCEL K: (APN'S: 866-021-007-0 AND 866-022-002-8)
THE SOUTH 40 FEET OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 3, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY APPROVED MAY 10, 1919 THE NORTH HALF OF SAID NORTHWEST QUARTER BEING SHOWN AS THE WEST TWO-THIRDS OF TRACT 48 IN SAID SECTION 3;

EXCEPTING THEREFROM THE PORTION WHICH LIES WEST OF THE MID-LINE OF THE PALO VERDE IRRIGATION DISTRICT'S DRAINAGE CANAL, DESIGNATED AS RANNELL'S DRAIN BY RECORD OF SURVEY ON FILE IN BOOK 17 PAGE 48 OF RECORDS OF SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, THAT CROSSES SAID PROPERTY;
ALSO EXCEPTING THEREFROM THE EAST 30 FEET; ALSO EXCEPTING THEREFROM ANY PORTION LYING WITHIN STEPHENSON BOULEVARD.

PARCEL L: (APN: 863-100-017-2)
THAT PORTION OF PARCEL 18 OF PARCEL MAP 14,453, AS SHOWN BY MAP ON FILE IN BOOK 100 PAGE(S) 52 THROUGH 58, INCLUSIVE, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;

BEGINNING AT THE CENTERLINE OF THE INTERSECTION OF 16TH AVENUE AND KEIM BOULEVARD AS SHOWN ON SAID PARCEL MAP 14,453; THENCE NORTH 89° 06' 19" EAST ALONG THE CENTERLINE OF 16TH AVENUE, A DISTANCE OF 218.56 FEET TO THE NORTHEAST CORNER OF SAID PARCEL 18; THENCE SOUTH 01° 32' 20" EAST ALONG THE EASTERLY LINE OF SAID PARCEL 18, A DISTANCE OF 750.00 FEET; THENCE SOUTH 89° 06' 19" WEST CONTINUING ON THE LOT LINE OF SAID PARCEL 18, A DISTANCE OF 75.00 FEET; THENCE SOUTH 01° 32' 20" EAST ALONG THE EASTERLY LINE OF SAID PARCEL 18, A DISTANCE OF 1068.56 FEET TO THE SOUTHEASTERLY CORNER OF SAID PARCEL 18; THENCE SOUTH 88° 56' 54" WEST ALONG THE SOUTHERLY LINE OF SAID PARCEL 18, A DISTANCE OF 100.00 FEET TO A POINT ON THE CENTERLINE OF SAID KEIM BOULEVARD; THENCE NORTH 01° 32' 20" WEST ALONG THE CENTERLINE OF SAID KEIM BOULEVARD, A DISTANCE OF 498.51 FEET; THENCE NORTH 03° 25' 40" WEST CONTINUING ALONG THE CENTERLINE OF SAID KEIM BOULEVARD, A DISTANCE OF 1321.54 FEET TO THE POINT OF BEGINNING, AS PER LOT LINE ADJUSTMENT NO. 1747 DATED AUGUST 24, 1983.

PARCEL L1:
A NON-EXCLUSIVE EASEMENT OF CONVEYANCE OF WATER THROUGH EXISTING CANAL, PIPES, AND PUMPING SYSTEM FOR IRRIGATION OVER AND ACROSS THE SOUTHERLY PORTION OF THE FOLLOWING SAID PROPERTY;

THAT PORTION OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 3, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, BEING ALSO SHOWN AS THE WEST TWO-THIRDS OF TRACT 48 OF SECTION 3, TOWNSHIP 7 SOUTH, RANGE 22 EAST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY ACCEPTED MAY 10, 1919, LYING WEST OF THE MID-LINE OF THE PALO VERDE IRRIGATION DISTRICT'S DRAINAGE CANAL, DESIGNATED AS RUNNELL'S DRAIN ON RECORD OF SURVEY ON FILE IN BOOK 17 PAGE 48 OF RECORDS SURVEY, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA, AS CONVEYED TO G.B. INVESTMENT CO., AN ARIZONA CORPORATION, BY DEED FROM J.E. MASON AND WIFE, RECORDED MAY 3, 1967 AS INSTRUMENT NO. 37728 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCELS 1 THROUGH 9, 12 THROUGH 18, INCLUSIVE, AS SHOWN BY PARCEL MAP 14907 OF FILE IN BOOK 87 PAGES 96 TO 98 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA;
EXCEPT ALL OIL, GAS, OIL SHALE, COAL, PHOSPHATE, SODIUM, GOLD, SILVER, AND ALL OTHER MINERAL DEPOSITS CONTAINED IN SAID LAND (EXCEPT ALL URANIUM, THORIUM OR ANY OTHER MATERIAL WHICH IS OR MAY BE DETERMINED TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIALS, WHETHER OR NOT OF COMMERCIAL VALUE), AND FURTHER RESERVING TO THE STATE OF CALIFORNIA, AND PERSONS AUTHORIZED BY THE STATE, THE RIGHT TO DRILL FOR AND EXTRACT SUCH DEPOSITS OF OIL, AND GAS, OR GAS, AND TO PROSPECT FOR, MINE, AND REMOVE SUCH DEPOSITS OR OTHER MINERALS FROM SAID LAND (EXCEPT ALL URANIUM, THORIUM OR ANY OTHER MATERIAL WHICH IS OR MAY BE DETERMINED TO BE PERCULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIALS, WHETHER OR NOT OF COMMERCIAL VALUE), AND TO OCCUPY AND USE SO MUCH OF THE SURFACE OF SAID LAND AS MAY BE REQUIRED THEREFOR, UPON COMPLIANCE WITH THE CONDITIONS AND SUBJECT TO THE PROVISIONS AND LIMITATIONS OF CHAPTER 5, PART I, DIVISION 6 OF THE PUBLIC RESOURCES CODE, AS RESERVED IN THE PATENT FROM THE STATE OF CALIFORNIA, RECORDED AUGUST 31, 1951 IN BOOK 1299 PAGE 170 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA. THE SELECTION BY THE STATE OF CALIFORNIA OF THE ABOVE DESCRIBED LAND WAS APPROVED BY THE ASSOCIATE DIRECTOR OF THE BUREAU OF LAND MANAGEMENT JUNE 19, 1951, SUBJECT TO VALID RIGHTS AND EXISTING AT DATE OF SELECTION; BUT EXCEPT AND RESERVING TO THE UNITED STATES; ALSO EXCEPT ALL ALUMINA, SILICA, FOSSILS OF ALL GEOLOGICAL AGES, METALS AND THEIR COMPOUNDS, ALKALI, ALKALI EARTH, SAND, CLAY, GRAVEL, SALTS AND MINERAL WATERS, SUBJECT TO THE RESERVATION THAT THE STATE AND PERSONS AUTHORIZED BY IT MAY PROSPECT FOR AND REMOVE SUCH DEPOSITS AND OCCUPY THE SURFACE OF THE LAND FOR THAT PURPOSE, AS DESCRIBED IN SECTIONS 6402 AND 6403, OF PUBLIC RESOURCES CODE.

APN: 863-030-002-2 (Affects Parcel 1)
863-030-003-3 (Affects Parcel 2)
863-030-004-4 (Affects Parcel 3)
863-030-005-5 (Affects Parcel 4)
863-030-006-6 (Affects Parcel 5)
863-030-007-7 (Affects Parcel 6)
863-030-008-8 (Affects Parcel 7)
863-030-009-9 (Affects Parcel 8)
863-030-010-9 (Affects Parcel 9)
863-030-013-2 (Affects Parcel 12)
863-030-014-3 (Affects Parcel 13)
863-030-015-4 (Affects Parcel 14)
863-030-016-5 (Affects Parcel 15)
863-030-017-6 (Affects Parcel 16)

PARCEL 1:
THE WEST 30.00 FEET OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 34, TOWNSHIP 6 SOUTH, RANGE 22 EAST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, WHICH LIES NORTH OF THE NORTH LINE OF THE STATE HIGHWAY ACQUIRED BY ORDER OF CONDEMNATION, RECORDED MARCH 3, 1969 AS INSTRUMENT NO. 20981, OFFICIAL RECORDS.

EXCEPT THAT PORTION DESCRIBED BY DEED TO THE STATE OF CALIFORNIA RECORDED MAY 19,1946 AS INSTRUMENT NO. 2906, OFFICIAL RECORDS.

PARCEL 2:
PARCELS 1 THROUGH 18 OF PARCEL MAP 16920, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 112, PAGES 44 THROUGH 49 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.
EXCEPT ALL OIL, GAS, OILSHALE, COAL, PHOSPHATE, SODIUM, GOLD, SILVER AND ALL OTHER MINERAL DEPOSITS, AS RESERVED BY THE STATE OF CALIFORNIA IN PATENT RECORDED APRIL 8,1954 AS INSTRUMENT NO. 17583, OFFICIAL RECORDS.

PARCEL 5:
PARCELS 1 THROUGH 20,29 THROUGH 33, 38 THROUGH 41 OF PARCEL MAP 14093, IN THE UNINCORPORATED AREA OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND PARCELS 21 THROUGH 28, 42 THROUGH 46 OF PARCEL MAP 14093, IN THE CITY OF BLYTHE; COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 105, PAGES 78 THROUGH 87 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.
EXCEPTING THEREFROM THOSE PORTIONS OF PARCEL 28 CONVEYED TO THE UNITED STATES OF AMERICA BY DEED RECORDED NOVEMBER 1, 1988 AS INSTRUMENT NO. 105219 OF OFFICIAL RECORDS.

PARCEL 7:
A NON-EXCLUSIVE CONDITIONAL EASEMENT AND RIGHT OF WAY OVER THE EAST 30.00 FEET OF SECTIONS 16, 21, 28 AND THAT PORTION OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 22 EAST,SAN BERNARDINO MERIDIAN, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, WHICH LIES NORTH OF OLD CALIFORNIA HIGHWAY 60-70 KNOWN AS HOBSON WAY, UPON THE CONDITIONS AND AGREEMENTS CONTAINED IN THE DOCUMENTS RECORDED JANUARY 12,1977 AS INSTRUMENT NOS. 6140, 6141 AND 6142, ALL OF OFFICIAL RECORDS, RIVERSIDE COUNTY RECORDS.

PARCEL 10:
PARCELS 1 THROUGH 4 OF PARCEL MAP 14283, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 108, PAGES 11 THROUGH 20 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY

PARCEL 11:
PARCELS 5 THROUGH 34 OF PARCEL MAP 14393, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 108, PAGES 11 THROUGH 20 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

821-110-004; 821-120-025; 821-120-026; 821-120-027; 821-120-028; 821-120-029; 821-120-030; 821-120-038; 821-120-039; 821-120-040; 821-120-042; 821-120-043; 821-120-044; 821-120-048; 824-080-003; 824-080-005; 879-090-036; 879-090-037; 879-090-038; 879-090-039; 879-090-040; 879-090-041; 879-090-042; 879-090-043; 879-090-044; 879-090-045; 879-090-048; 879-090-049; 879-090-050; 879-090-051; 879-110-013; 879-110-014; 824-090-009; 824-090-024; 824-102-013; 824-102-014; 824-102-015; 824-102-016; 824-130-006; 824-130-007; 863-040-001; 863-040-015; 863-040-017; 863-040-020; 863-040-021; 863-050-004; 863-050-007; 863-050-008; 863-050-009; 863-060-015; 863-060-016; 863-060-017; 863-060-018; 863-070-018; 863-070-019; 863-070-022; 863-100-005; 863-100-006; 863-100-008; 863-100-009; 863-100-010; 863-100-011; 863-100-012; 863-100-016; 863-100-017; 866-021-007; 866-022-002; 863-030-015; 863-030-007; 863-030-010; 863-030-009; 863-030-003; 863-030-004; 863-030-016; 863-030-017; 863-030-005; 863-030-006; 863-030-014; 863-030-002; 863-030-013; 863-030-008

123128_CUP_2.DWG

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD	REFERENCE DRAWINGS
						*	

DSGN		
DRN	MNR	6/14/11
CKD		
SCALE:	AS SHOWN	

FOR 22x34 DWG ONLY

POWER ENGINEERS

RENEWABLE RESOURCES GROUP, INC.
COLORADO RIVER
BLYTHE, CALIFORNIA
BLYTHE MESA SOLAR PROJECT
FOR CONDITIONAL USE PERMIT NO. 3670

JOB NUMBER 123128
REV
DRAWING NUMBER 2 OF 2

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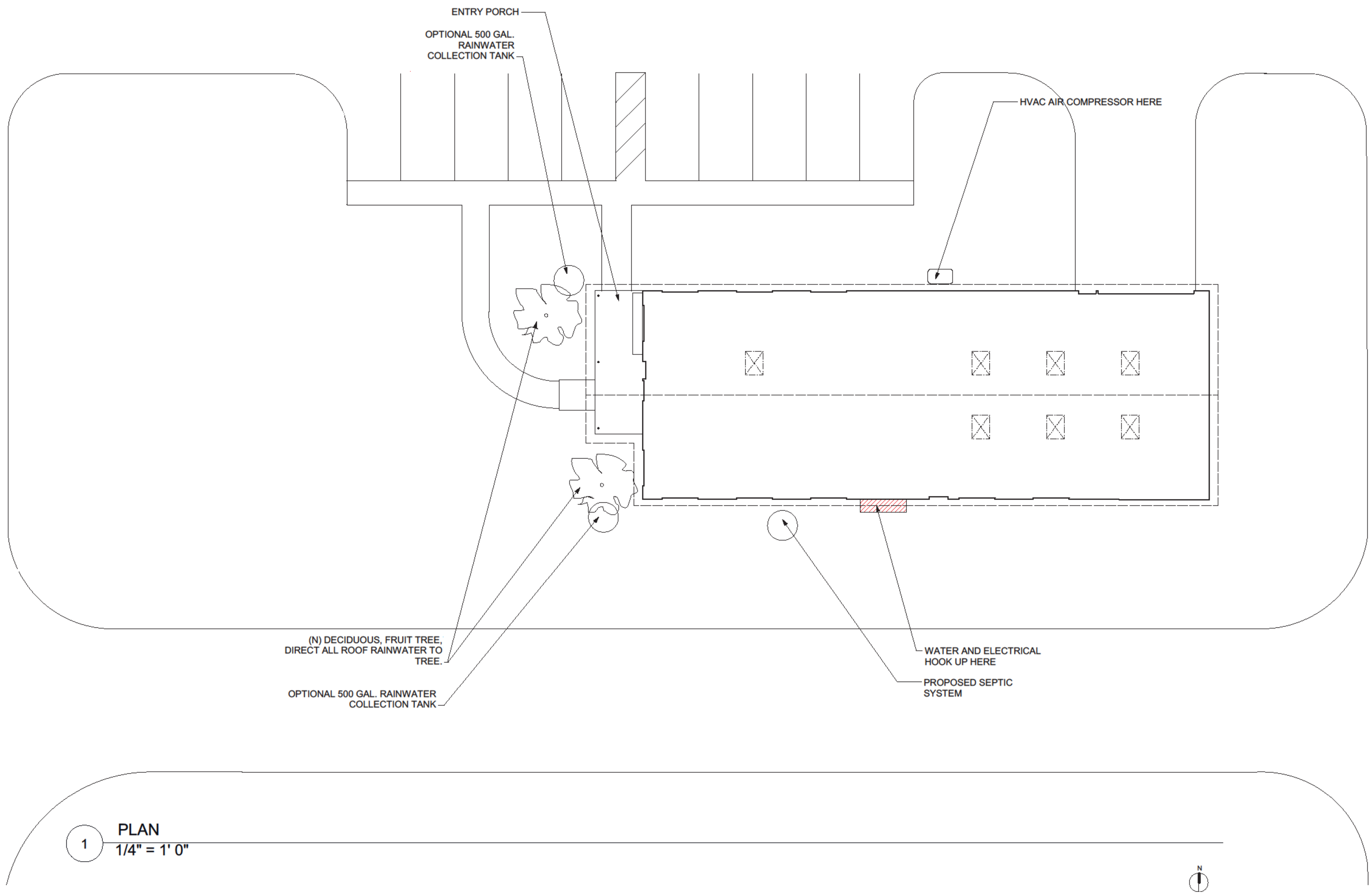

1 PLAN
1/4" = 1' 0"

ISSUE	DATE

LEGER WANASELJA ARCHITECTURE
2320 mcgee avenue berkeley, ca 94703
ph 510 . 848 . 8901 fax 510 . 848 . 8908
www.greendwellings.com

SunPower Corp.
O & M Building for
150 MWp Fields and Larger

SITEPLAN

Date 3.30.11

Sheet
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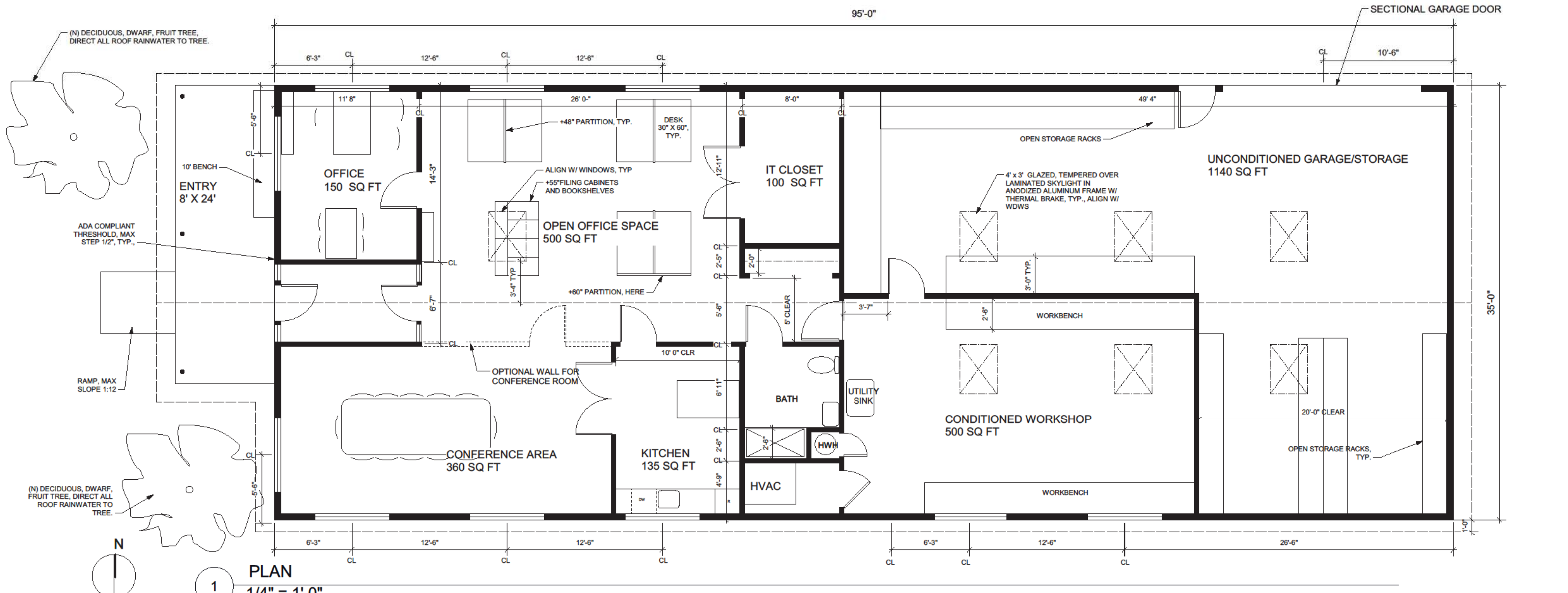
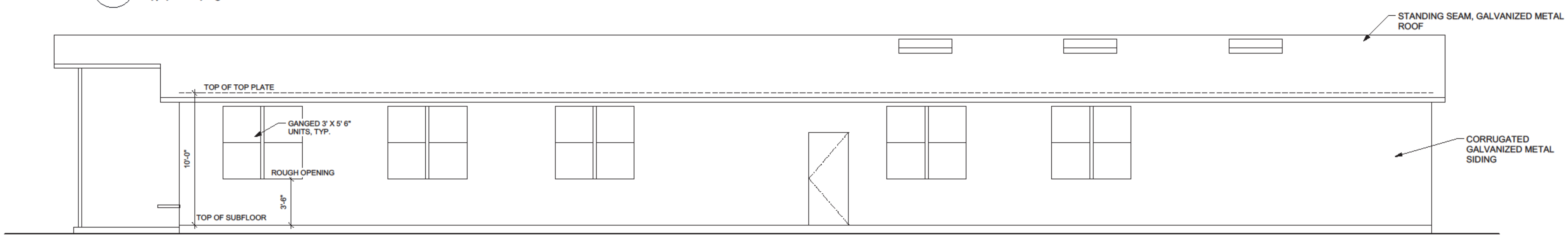
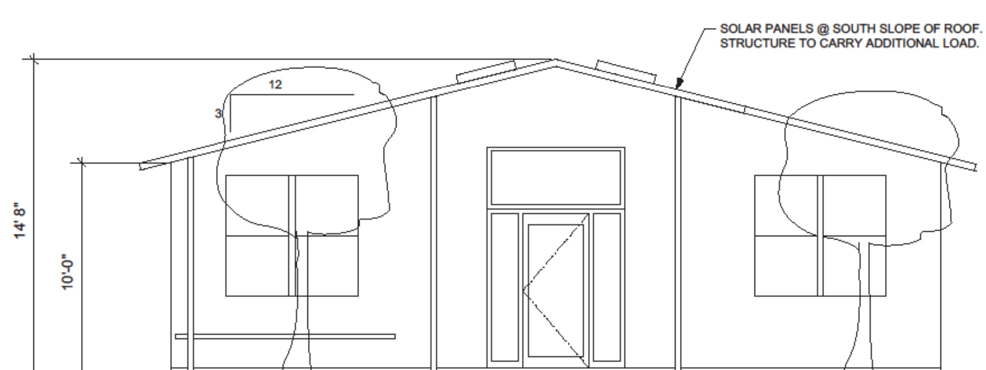


1 PLAN
1/4" = 1' 0"



2 SOUTH ELEVATION
1/4" = 1' 0"



3 WEST ELEVATION
1/4" = 1' 0"

ISSUE	DATE

LEGER WANASELJA ARCHITECTURE
2320 mcgee avenue berkeley, ca 94703
ph 510 . 848 . 8901 fax 510 . 848 . 8908
www.greendwellings.com

SunPower Corp.
O & M Building for
150 - 250 MWp Plant Capacity

PLAN and ELEVS

Date 4.12.11

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NOTICE OF PREPARATION
ATTACHMENT A

BLYTHE MESA SOLAR PROJECT

1.0 DESCRIPTION OF THE PROPOSED PROJECT

Project Location

The proposed Blythe Mesa Solar Project (Project) is located in the Palo Verde Valley area of eastern Riverside County, approximately 5 miles west of the City of Blythe and 40 miles east of Desert Center **(Figure 1).** The Project would be located north and south of Interstate 10, and west of State Route 89 and Highway 95. The site consists primarily of agricultural land located south and east of the community of Nicholls Warm Springs/Mesa Verde.

Project Description

The proposed 485 megawatt (MW) photovoltaic (PV) electrical generating facility and 8.4-mile transmission line would occupy a total of 3,660 acres. The proposed Project would produce enough energy to power approximately 180,000 households, and consist of the following components **(see Figure 2)**:

- Solar array field utilizing single-axis solar PV trackers
- System of interior collection power lines located between inverters and substations
- Three on-site substations (approximately 300 feet long by 300 feet wide each)
- Two operation and maintenance (O&M) buildings (approximately 3,500 square feet each)
- Two primary off-site access roads and several interior access roads
- 8.4 miles of 230 kilovolt (kV) double-circuit transmission line

The fenced-in solar field would occupy 3,587 acres of private land, 334 acres of which are within the City of Blythe. Within this area, a 230 kV transmission line would connect all three proposed substations, extending a distance of approximately 3.6 miles on site. The transmission line would extend another 4.8 miles within a 125-foot-wide right-of-way (or 73 acres) from the southernmost substation to the Colorado River Substation, traversing 3.8 miles of BLM managed lands (58 acres) and one mile of private land (15 acres).

Project Objectives

The objectives for the Blythe Mesa Solar Project are as follows:

- Construct a solar energy facility in order to help meet State and federal renewable energy standards and goals.
- Assist with Greenhouse Gas reduction objectives to the maximum extent possible.
- Locate the Project facilities as near as possible to electrical transmission facilities with anticipated capacity and a reserved California Independent System Operator (CAISO) interconnection position.
- Site the Project in an area with excellent solar energy resources in order to maximize energy productivity from the PV panels.
- To the extent feasible, site the Project on previously disturbed land with compatible topography and in a manner that minimizes environmental impacts.

- Use a proven and available solar PV technology.

Land Use Considerations

The proposed Project would be situated predominantly in the County of Riverside (as shown on **Figure 1**). The Riverside County General Plan (Palo Verde Area Plan) applies Agriculture and Rural Community land use designations to the proposed Project site. Parcels are currently zoned W-2-10 (Controlled Development Areas) (10 Acre Min.), W-2-5 (Controlled Development Areas), A-1-10 (Light Agriculture), and A-2-10 (Heavy Agriculture). The County of Riverside Planning Department has indicated that the proposed Project would be conditionally consistent with the agricultural land use designation, subject to issuance of a conditional use permit (CUP). A Development Agreement between the County of Riverside and the applicant will be established setting forth the rights and responsibilities of each party with respect to project development and operation.

A portion (334 acres) of the proposed Project site is located within the City of Blythe's incorporated boundary and Sphere of Influence. The City of Blythe designates the Project lands within the city as Service Industrial and Agricultural. The proposed Project would be a consistent use, subject to issuance of a CUP.

A portion (73 acres) of the proposed transmission line alignment between the Project site and the Colorado River Substation site is federal land under the jurisdiction of the U.S. Department of the Interior, Bureau of Land Management (BLM). A Right of Way Grant from BLM would be required for construction of the 230 kV transmission line on BLM-managed public land.

Project Components

Solar Array Field

The Project would utilize single-axis PV trackers with 1,425,600 high-efficiency, monocrystalline, silicon solar panels. The panels would be configured into trackers and the trackers configured into blocks (refer to the **Solar Module** inset in the right-hand corner of **Figure 2**). Each block would comprise six trackers with 18 north-south oriented rows of PV panels. The trackers would rotate up to 45 degrees from east to west to follow the daily motion of the sun, with the center of rotation being approximately four to eight feet above grade (refer to **Figure 3, Typical Tiled Tracker Panels**). Torque tubes would act as the horizontal support for the PV panels and would be in turn supported by micro-piles (15 to 20 feet long and having a 4.5-inch outer diameter), which would be driven directly into the ground and able to withstand high-wind conditions. The metal structural elements would be constructed of corrosion-resistant galvanized steel.

The support structure for panels would be constructed by first driving micro-piles into the ground to a depth of 8 to 12 feet using a vibration technology to reduce noise impacts. Torque tubes, electrical wire trays, and panels would then be installed on the piles. Concrete foundations for the drive motors (devices used to move drive struts back and forth) would be poured in place, and electrical equipment for the array would be set in place. A tracked backhoe would dive piles. No blasting or rock breaking is anticipated or proposed. Small truck-mounted cranes or grade-all forklifts would place trackers on support piles.

Combiners, Inverters, and Transformers

Individual PV panels would be connected together in series to create a "string" to carry direct current (DC) electricity. Multiple DC strings would be brought together into an above-ground combiner box to merge the strings into a single high-current cable and provide overcurrent protection. From the combiner boxes, the cabling would run in raceways and underground to electrical inverters, which take the DC output from the combiner boxes and convert it to alternating current (AC) electricity.

The AC electricity would be increased to medium voltage with a “step-up” transformer. The medium-voltage (34.5 kV) collection lines would begin at the inverter/transformer pads and would be located in trenches until the output from 10 to 15 blocks is gathered and transferred at risers to a system of overhead medium-voltage collection lines for transmission to the substation. The medium voltage collection circuits would be mounted above ground on poles (35 to 60 feet tall) with an average tower-to-tower span of 200 feet, and would carry 20 to 30 MW of electricity.

Substation and Switchgear Pads

The three Project substations (each approximately 300 feet long by 300 feet wide) would collect all the medium-voltage circuits and would contain metering equipment, switchgear, protective relays, and larger transformers to step up the voltage to match the voltage of the transmission grid at the interconnection point (the Colorado River Substation). The Project substations and the interconnection point would be linked by a 230 kV transmission line. This line would cross over Interstate 10 at a point approximately 2.6 miles east of the Mesa Drive/Interstate 10 interchange.

The construction of the substations would involve site preparation, clearing of the switchyard site, and installation of substructures and electrical equipment. The substation site would be initially cleared and graded. A security fence would be installed around the substation. Grading would establish the desired site grade, and minor excavation would provide concrete footings for the substation equipment. Gravel would be spread inside the fence of the substation sites.

Operation and Maintenance Buildings

The two O&M buildings (approximately 3,500 square feet each, enclosed, and no more than 20 feet tall) would provide work space for maintenance staff and storage space for spare parts. The building would include bathroom facilities serviced by a private septic system and would be designed for occupancy Classification U. The buildings would be made of prefabricated steel on a concrete slab foundation.

Site Security Fencing

The entire Project site would be enclosed with fencing that meets National Electrical Safety Code (NESC) for protective arrangements in electric supply stations, such as a seven-foot equestrian-type wire fence. The fence would typically be set 30 feet from the arrays or the property boundary.

Access Roads

Two primary access points to the Project site are planned on Seeley Avenue and Riverside Drive, both from the Neighbors Boulevard off-ramp at Interstate 10.

Within the solar field, dirt access roads 12 feet wide would be constructed approximately every 200 to 400 feet to allow access and maintenance of the solar panels.

230 kV Transmission Line Interconnect

An approximately 8.4-mile-long 230 kV double-circuit overhead electric transmission line would be constructed from the easternmost substation on the Project site to the approved Colorado River Substation. The 230 kV transmission line would connect all three proposed substations, extending a distance of approximately 3.6 miles within the solar field site. From the westernmost substation to the Colorado River Substation, the transmission line would extend another 4.8 miles within a 125-foot-wide right-of-way (or 73 acres) traversing 3.8 miles of BLM-managed lands (58 acres) and one mile of private land (15 acres).

The transmission line would run parallel and immediately south of the approved Desert Southwest Transmission Line corridor. The Project has secured an interconnection queue position sufficient for the size of the Project at the Colorado River substation and has made the necessary reservation deposits to CAISO.

The transmission line facilities would include a single set of tubular steel poles that would be 85 to 125 feet tall, with an average distance between poles of 500 to 800 feet. Structure heights and corresponding span lengths would be selected to meet Federal Aviation Administration (FAA) requirements for the nearby Blythe Airport. The poles would be directly embedded in the soil or set in concrete foundations approximately 20 to 30 feet deep. Temporary access roads to each structure would be 16 to 20 feet wide by 8 inches deep of gravel over compacted sub-grade and located within the proposed right-of-way.

General Construction Process

Site Preparation

The PV system proposed for the site can operate on slopes up to nine percent. Since most of the site has nearly level to gently sloping topography, no mass grading would be required. Some of the proposed parcels for facilities and arrays would require light grubbing for leveling and trenching. Access roads would require minimal grading. In order to aim for balanced cut-and-fill quantities, grading activities may include placement and compaction of excess materials in low-elevation areas of the site.

Minor demolition of existing site structures (e.g., storage buildings in the citrus grove) would be required; however, where possible, existing on-site buildings would be used for O&M facilities or for equipment storage.

Installation of the electrical collection system would require excavations to a depth of about three feet for underground electrical circuits, inverter and switchgear enclosure foundations, and transformer foundations. The O&M building foundation would be excavated to a depth of about three feet.

Construction Activities

The Project would be constructed in the following phases, which would occur simultaneously on different portions of the site:

- Development of staging areas and assembly areas, and grading of site access roads.
- Construction of arrays including the pile installation, the assembly of trackers, the mounting of PV panels, and the pile-driving of support piles, placement of trackers on support piles, and trenching and installation of electrical equipment for arrays.
- Construction of electrical transmission facilities, including the construction of three substations, the double-circuit transmission line, and two O&M buildings.

Construction staging and material lay-down would be distributed across the Project site to allow for efficient distribution of components to different parts of the Project. Typically, one staging and material lay-down area would be set up for every 100 acres of the Project site. These lay-down areas would be fenced and would cover approximately five acres each. Lay-down areas would be temporary and would be converted to solar arrays as work is completed in the general area. Within the solar field, grubbing and light grading of 12-foot-wide access roads would also be performed approximately every 200 to 400 feet to allow access to and maintenance of the solar panels.

Separate activities would be associated with transmission line construction, including: (1) construction of staging areas for trailers, office personnel, equipment, material staging, lay-down and employee parking on private land; (2) construction of access roads to the structure locations; (3) pole erection and installation of conductors and conductor hardware; (4) conductor installation; (5) construction of pulling sites to install conductors; and (6) installation of the overhead ground/fiber optic communications system.

Construction Sequence, Equipment, and Workforce
Construction is anticipated to occur over a three-year period with the construction phases (described above) occurring simultaneously. The solar field would be developed in six-month phases with six blocks constructed at a time (each block would be 100 acres, for a total of 600 acres at a time). As the arrays are being assembled, construction of the substations, transmission line, switchyard, and O&M buildings would also occur simultaneously. After the common facilities are completed in the earlier stages, the workforce would be devoted more to array construction in the later stages.

Approximately 300 to 500 daily workers would be present on site during construction over the construction period. Workers would gain primary access to the site using Seeley Avenue and Riverside Drive off of Neighbors Boulevard. Worker construction traffic would consist of approximately 150 to 250 daily vehicle roundtrips. It is anticipated that most workers would be drawn from the Blythe/Palo Verde Valley and the Desert Center regions, with a smaller portion drawn from the Imperial Valley or Eastern Riverside County regions. Anticipated average daily material deliveries would consist of about 40 truck deliveries per day for 24 months. Workers and delivery trucks would access site using the Neighbors Boulevard off ramp off Interstate 10. On-site work hours would be from 7:00 a.m. to 7:00 p.m. During the installation period, construction workers are projected to be on site five days per week, year round. Due to weather or other major types of delays, times may shift to start as early as 5:00 a.m. and end as late as 8:00 p.m., and work may continue on weekends. In extreme circumstances, work may be performed as many as 24 hours per day, although is not anticipated. Security would likely be onsite 24 hours per day.

Operation and Maintenance Activities
After the construction phase, the O&M building would serve as the Project's operations center for approximately 12 permanent full-time employees, which would include one plant manager, five engineers/technicians, and six security staff. The Project facilities would be monitored during operating (daylight) hours, even though the Project facilities would be capable of automatic start-up, shutdown, self-diagnosis, and fault detection.

The panels may be cleaned up to two times per year, if necessary to optimize output. Each cleaning would require a total of 5 acre-feet of water for a total usage of about 10 acre-feet of water per year (approximately 1.1 gallons per panel per year). No chemicals would be used during cleaning. The Project would work with Gila Farm Land, LLC (the landowner) and the Palo Verde Irrigation District for water services and supply during operation.

No heavy equipment would be used during normal operation. O&M vehicles would include trucks (pickup and flatbed), forklifts, and loaders for routine and scheduled maintenance and water trucks for solar panel washing. Large heavy-haul transport equipment may be brought to the Project site infrequently for equipment repair or replacement.

Long-term maintenance schedules would be developed to include periodic maintenance and equipment replacement in accordance with manufacturer recommendations. Solar panels are warranted for 25 years or longer and are expected to have a life of 30 or more years, with a degradation rate of 0.5% per year. Moving parts, such as motors and tracking module drive equipment, motorized circuit breakers and disconnects, and inverter ventilation equipment, would be serviced on a regular basis, and unscheduled maintenance would be performed as necessary.

The Project site would be secured 24 hours per day by onsite private security personnel or remote security services with motion-detection cameras.

2.0 ENVIRONMENTAL TOPICS TO BE ADDRESSED

Introduction
The County of Riverside has determined that an Environmental Impact Report (EIR) shall be prepared to address the potential significant impacts of the proposed BMSP. The EIR will involve research, analysis, and study of the following environmental topics:

- Aesthetics/Visual Resources
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Traffic and Circulation
- Utilities and Service Systems

The EIR will include all topical areas of content required by the California Environmental Quality Act (CEQA), including cumulative impacts, alternatives to the proposed Project, and growth-inducing impacts. For each resource topic, environmental impacts relating to construction, operations, and decommissioning phases of the Project will be identified; however, the level of analysis to be included may vary based on the complexity of the issues, public and agency input to this Notice of Preparation (NOP), and/or refinements to the Project description that may occur subsequent to the publication of this NOP. For impacts that are significant, mitigation measures will be proposed to alleviate or avoid the significant impact(s).

Aesthetics
Placement of PV solar panels, the transmission line, and other Project facilities may alter the views of the Project area. Potential visual impacts of this Project on sensitive receptors and scenic resources will be further evaluated in the EIR. Photo simulations of the proposed Project from key observation points will be provided to assist in the evaluation. The EIR will also analyze the possible impacts of reflection of the sun off the solar modules, and nighttime lighting of portions of the solar facility.

Agriculture and Forest Resources
The potential impact on prime and unique farmlands, forest lands, timberland, and lands zoned as such will be evaluated in the EIR, as will the potential impact of converting agricultural lands to non-agricultural uses.

Air Quality
The proposed Project site is located in the Mojave Desert Air Basin, and air emissions are regulated by the Mojave Desert Air Quality Management District (MDAQMD). The EIR will address consistency with regional and local air quality plans and evaluate and quantify the short-term and long-term sources of air pollutants generated by the Project, including mobile, stationary, and area source emissions.

Biological Resources
A biological resources assessment will be provided to evaluate the Project's effects on the area vegetation communities, wildlife habitats, wildlife movement, wetlands and waters, habitat conservation plans/protection ordinances, and sensitive and/or listed species.

Cultural Resources
Cultural resource effects will be analyzed in the EIR, including a query of the Northwest Information Center of the California Historical Resources Information System, analysis of sacred lands identified through consultation with the Native American Heritage Commission, and consultation with Native Americans and other interested parties (e.g., local historical societies). The evaluation will also address the potential impacts to historic resources and the occurrence of paleontological (fossil) resources.

Geology and Soils
The EIR will assess soil and geologic conditions of the Project area and address hazards related to seismic activity, including the potential for liquefaction, ground shaking, soil failure, soil stability and erosion potential.

Greenhouse Gas Emissions
The EIR will address the potential construction- and operation-related impacts relative to greenhouse gas emissions.

Hazards and Hazardous Materials
The EIR will evaluate the presence of hazards or hazardous conditions that could affect construction and operation of the Project, including the location of nearby or on-site hazardous waste sites included on State or federal databases, airport and airstrip hazard zones, emergency response routes, and wildfire hazards.

Hydrology and Water Quality
The EIR will include an analysis of existing drainage systems, and will evaluate potential impacts to water resources.

Land Use and Planning
The proposed Project may affect the use of the Project property. The EIR will evaluate potential environmental effects to land use that include compatibility with existing and proposed local zoning, and consistency with land use plans, policies or regulations of the applicable jurisdictions, which include the City of Blythe General Plan 2025, the Riverside County General Plan, and the BLM's Northern and Eastern Colorado Desert Coordinated Management Plan.

Mineral Resources
The Project's impact on mineral resource policies from local land use plans will be identified in the EIR. Project demand for mineral resources, including the need for sand and gravel, will be identified within the context of local supply.

Noise
The EIR will determine noise levels due to construction and operation of the proposed Project and will evaluate impacts for consistency with applicable laws, regulations, ordinances and guidelines.

Population and Housing
The EIR will address the short- and long-term population and housing impacts that would result from the construction workforce. These effects could include physical and service-related changes within area communities associated with demand for temporary housing.

Public Services
With the accommodation of the construction workforce, there may be a temporarily increased demand for public services, including community facilities and schools, and an increased need for police and fire protection services. The EIR will evaluate the potential for impacts on these public services.

Recreation
The temporary workforce may increase the demand for recreation facilities, including local and community parks in the Project area. The EIR will evaluate the changes to existing recreation services and parks that may result from Project implementation.

Traffic and Circulation
The EIR will include a traffic study that evaluates changes in circulation that could result from the proposed Project, focusing on effects during Project construction.

Utilities and Service Systems
Similar to the discussion under "Public Services," the proposed Project will be evaluated to determine the impact of any increases in the demand for public utilities, including demand for electricity and natural gas, increased demand for water, increased generation of wastewater requiring treatment, and increased generation of solid waste.

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Figure 1: Regional Area Map

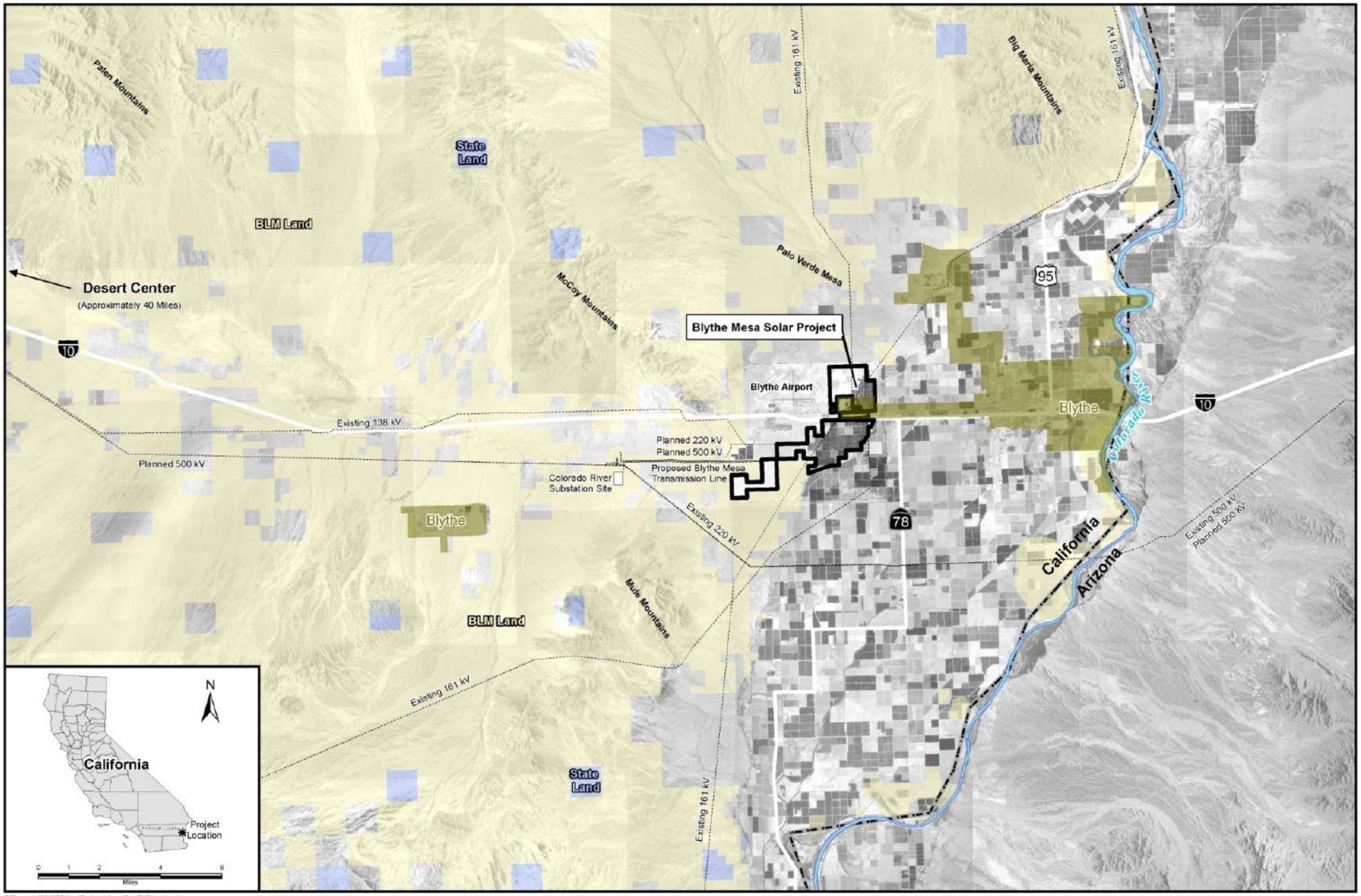


Figure 2: Site Plan & Solar Module

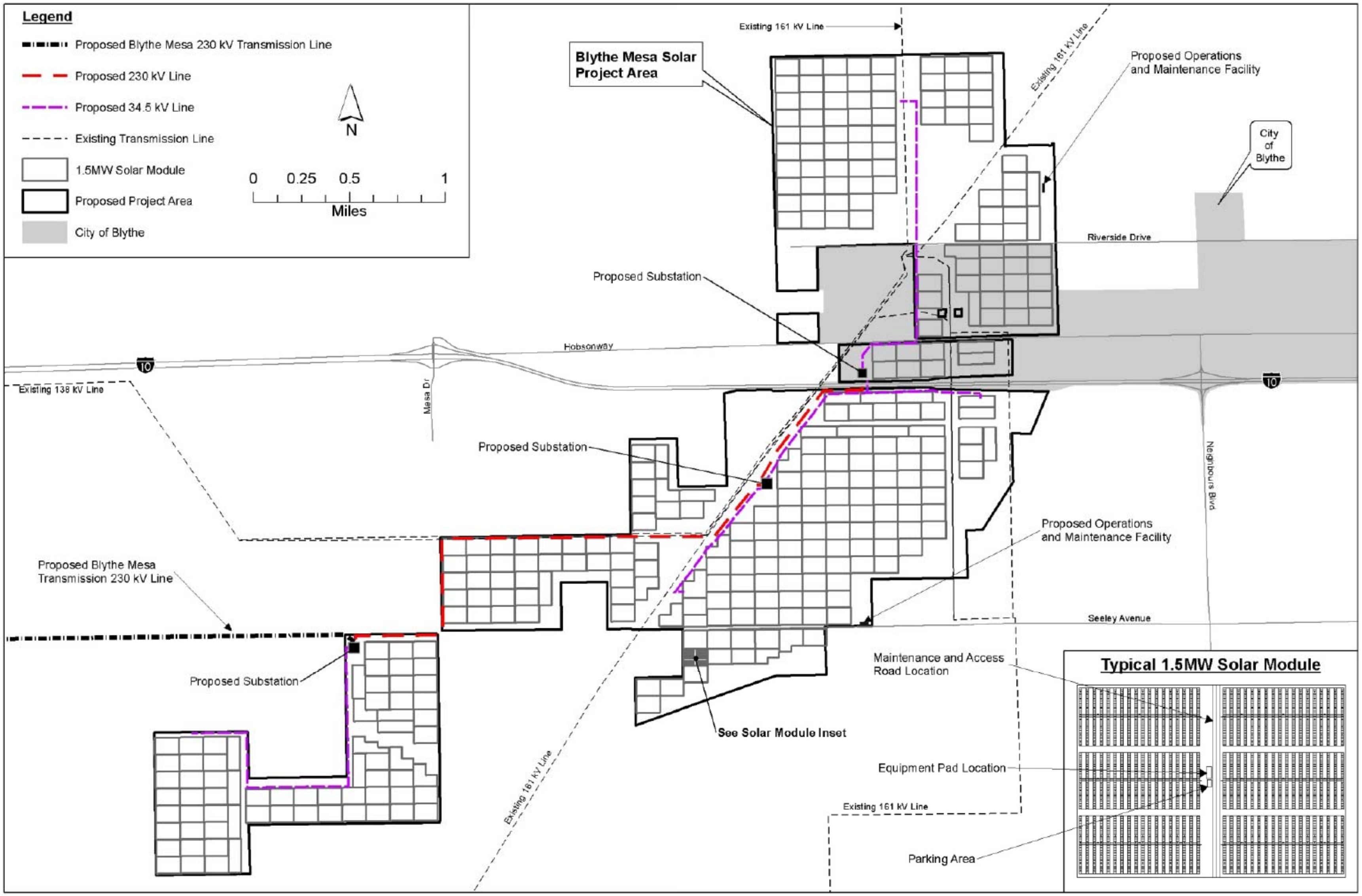
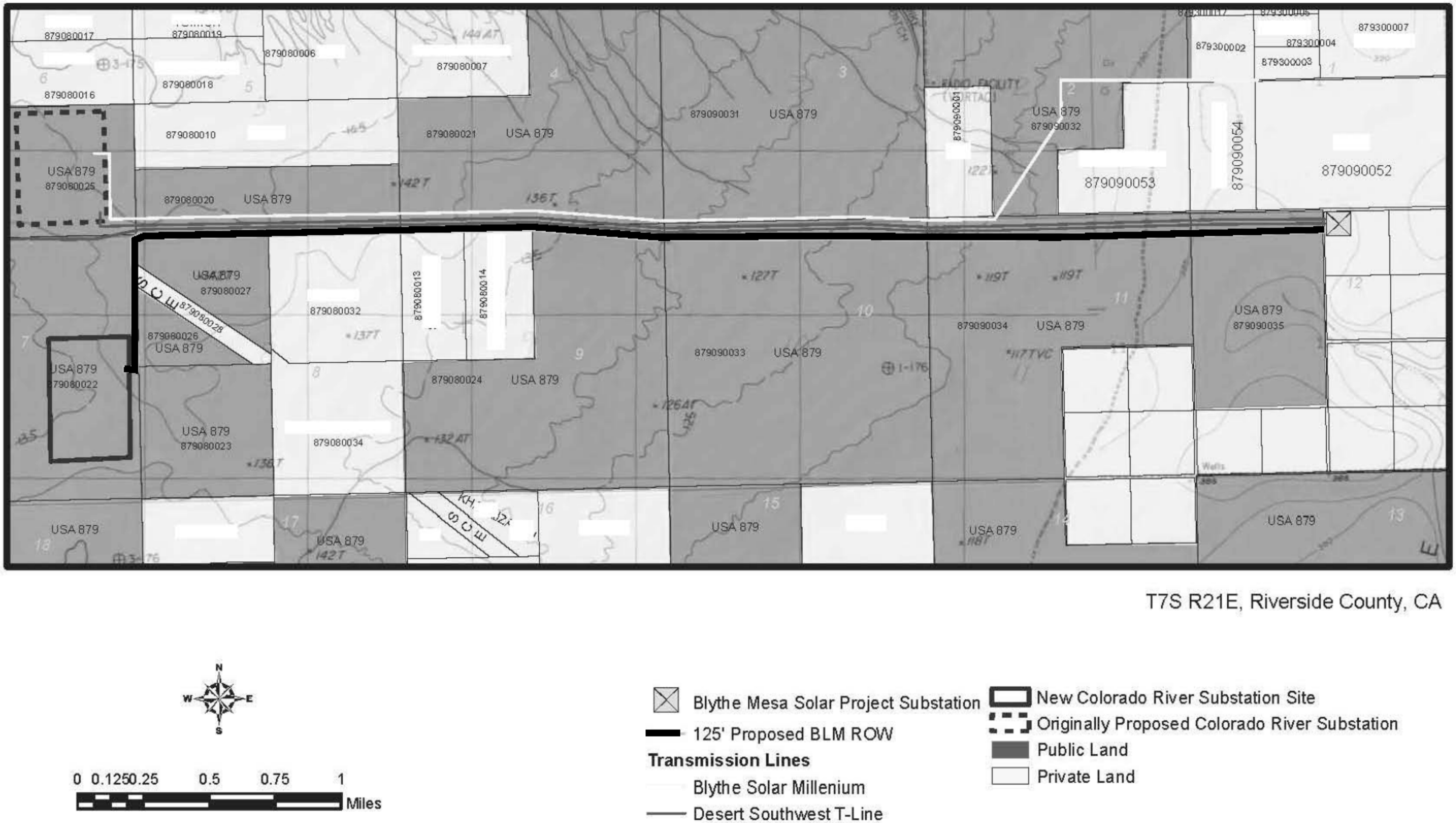


Figure 3: Typical Tiled Tracker Panels

BLYTHE MESA SOLAR I GEN-TIE EXHIBIT



ATTN: Division Manager
Ecological Service,
U.S. Fish & Wildlife Service
6010 Hidden Valley Rd.
Carlsbad, CA 92011

Environmental & Project Planning
Service Division, Orange County
300 N. Flower St.
P.O. Box 4048
Santa Ana, CA 92702-4048

ATTN: Senior Public Health Engineer
Environmental Health,
Riverside County
Mail Stop 3320

ATTN: Hazardous Materials
Environmental Health,
Riverside County
Mail Stop 3320

ATTN: Jared Bond
Environmental Programs Dept.,
Riverside County
Mail Stop 2715

Executive Office, Riverside County
Mail Stop 1020

ATTN: Mekbib Degaga
Flood Control District,
Riverside County
Mail Stop 2990

ATTN: David Jones
Geologist
Mail Stop 1070

Industrial Hygiene
Mail Stop 3320

Darrell Mike, Chairperson
Twenty-nine Palms Band of Mission
Indians
46-200 Harrison Place
Coachella, CA 92236

Joseph R. Benitez
Chemehuevi Reservation
P.O. Box 1829
Indio, CA 92201

Lake Tamarisk Branch Library
43880 Lake Tamarisk Drive
Desert Center, CA 92239

Attn: Janet Laurain
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Ste. 1000
South San Francisco, CA 94080-7037

California Department of Conservation
801 K Street MS 24-01
Sacramento, CA 95814-3530

Charles Wood, Chairperson
Chemehuevi Reservation
P.O. Box 1976
Havasu Lake CA 92363

Mojave Desert Air Quality Management
District
14306 Park Ave.
Victorville, CA 92392-2310

Native American Heritage Commission
915 Capitol Mall, Rm 364
Sacramento, CA 95814-4801

Palo Verde Irrigation District
180 W. 14th Ave.
Blythe, CA 92225-2714

Palo Verde
Resource Conservation District
P.O. Box 610
Blythe, CA 92225

Palo Verde Unified School District
295 N. First St.
Blythe, CA 92225-1824

Riverside County Assessor
Mail Stop 1110

ATTN: Jim Porras
c/o Desiree Bowie, Planning
Commission Secretary
Planning Commission, Riverside
County
Mail Stop 1070

ATTN: Jurg Heuberger
Planning Department, Imperial County
801 Main St.
El Centro, CA 92243-2843

Ginger Scott, Museum Curator
Colorado River Indian Tribe
26600 Mojave Road
Parker AZ 85344

Planning Department,
San Bernardino County
385 N. Arrowhead Ave.
San Bernardino, CA 92415-1002

Planning Department,
San Diego County
5201 Ruffin Rd., Suite B
San Diego, CA 92123

Reg. Water Quality Control Board #7
Colorado River Basin
73-720 Fred Waring Dr., Suite 100
Palm Desert, CA 92260-2564

ATTN: Marc Brewer
Regional Parks & Open Space District
Riverside County
4600 Crestmore Rd., MS2970
Riverside, CA 92509-6858

ATTN: Fast Track
Riverside County EDA
1325 Spruce St., Suite 400
Riverside, CA 92507

Riverside County Fire Department
Desert Office
Mail Stop 4009

ATTN: John Sarkasian
Riverside County Information Technology
Mail Stop 5567

San Gorgonio Chapter, Sierra Club
4079 Mission Inn Ave.
Riverside, CA 92501

ATTN: Stanley Sniff, Sheriff
Sheriff's Department, Riverside County
Mail Stop 1450

Southern California Agency,
Bureau of Indian Affairs
2038 Iowa Ave.
Riverside, CA 92507-2412

ATTN: Eric H. Roth, Manager
Southern California
Assoc. of Governments
818 W. 7th St., 12th Floor
Los Angeles, CA 90017-3407

Southern California Edison
2244 Walnut Grove Ave., Rm 312
P.O. Box 600
Rosemead, CA 91770

State Clearinghouse
(for certified or FedEx package delivery)
1400 Tenth St., Suite 222
Sacramento, CA 95814

ATTN: Transportation
Desert Permit Assistance Center
38686 El Cerrito Rd.
Palm Desert, CA 92211

Twenty Nine Palms
Band of Mission Indians
46-200 Harrison St.
Coachella, CA 92236

Union Pacific Railroad
1400 Douglas St.
Omaha, NE 68179

Verizon Engineering
9 South 4th St.,
Redlands, CA 92373

Waste Resources Management,
Riverside County
Mail Stop 5950

Western Pacific Region, F.A.A.
15000 Aviation Blvd.
Lawndale, CA 90261-1000

CA Department of Fish & Game
Inland Deserts
3602 Inland Empire Blvd.#C220
Ontario, CA 91764

George Ray, Coordinator
Colorado River Indian Tribe
26600 Mojave Road
Parker AZ 85344

Michael Jackson, President
Fort Yuma Quechan Indian Nation
P.O.Box 1899
Yuma AZ 85366

Linda Otero, Director
AhaMaKav Cultural Society,
Fort Mojave Indian Tribe
P.O. Box 5990
Mojave Valley, AZ 86440

Mayme Estrada, Chairwoman
Santa Rosa Band of Mission Indians
P.O. Box 609
Hemet, Ca 92546

Mary Ann Green, Chairperson
Augustine Band of Cahuilla Mission Indians
P.O. Box 846
Coachella, CA 92236

Michael Contreras, Cultural Heritage Programs
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Ann Brierty, Cultural Resources Dept.
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346

Diana L. Chihuahua, Vice Chairperson,
Torres-Martinez Desert Cahuilla Indians
P.O. Box 1160
Thermal, CA 92274

Nora McDowell, Cultural Resources Coordinator
Fort Mojave Indian Tribe
500 Merriman Ave
Needles, CA 92363

Jill McCormick, Tribal Archaeologist
Cocopah Museum/Cultural Resources Department
County 15th and Ave G
Sommerton, AZ 85350

Patricia Tuck, THPO
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, Ca 92264

Karen Kupcha
Augustine Band of Cahuilla Mission Indians
P.O.Box 846
Coachella, CA 92236

Bridget Nash-Chrabascz, THPO
Quechan Indian Nation
P.O.Box 1899
Yuma, AZ 85366

Preston J. Arrow-weed
Ah-Mut-Pipa Foundation
P.O. Box 160
Bard, CA 92222

Luther Salgado, Sr. Chairperson
Cahuilla Band of Indians
P.O. Box 391760
Anza, CA 92539

State Water Quality Control Board
P.O. Box 100
Sacramento, CA 95812-0100

CA Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

CA State Office of Historic Preservation
1725 23rd Street, Ste. 100
Sacramento, CA 95816

California ISO
POB 639014
Folsom, CA 95763-9014

Commander NAWCWD
1 Administration Circle Stop 1002
China Lake, CA 93555-6100

Torres Martinez Desert Cahuilla Indians
Attn: Mary Resvaloso
POB 1160
Thermal, CA 92274

Jody Fraser
U.S. Fish & Wildlife Service
6010 Hidden Valley Road, 101
Carlsbad, CA 92011

Community Development
Attn: Mike Baker, Acting Planning &
Zoning Director
La Paz County
1112 Joshua, #202
Parker, AZ 85344

APPENDIX B: NEWSPAPER AD

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NOTICE OF SCOPING SESSION

A SCOPING SESSION has been scheduled before the **RIVERSIDE COUNTY PLANNING DIRECTOR** in order to bring together and hear the concerns of affected federal, state and local agencies, the proponent of the proposed project, and other interested persons; as well as inform the public of the nature and extent of the proposed project described below, and to provide an opportunity to identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in the Environmental Impact Report and help eliminate from detailed study issues found not to be important.

The Scoping Session is **not** a public hearing on the merit of the proposed project and **NO DECISION** on the project will be made. **Public testimony is limited to identifying issues regarding the project and potential environmental impacts.** The project proponent will not be required to provide an immediate response to any concerns raised. The project proponent will be requested to address any concerns expressed at the Scoping Session, through revisions to the proposed project and/or completion of a Final Environmental Impact Report, prior to the formal public hearing on the proposed project. Mailed notice of the public hearing will be provided to anyone requesting such notification.

ENVIRONMENTAL IMPACT REPORT NO.: **529**

PROJECT CASE NO(S). / TITLE: **CONDITIONAL USE PERMIT NO. 3670 / PUBLIC USE PERMIT NO. 913 / BLYTHE MESA I SOLAR PROJECT**

PROJECT LOCATION: East Riverside County – Palo Verde Area Plan, the Blythe Mesa I Solar Project is located approximately 5 miles west of central Blythe and 40 miles east of Desert Center; more specifically, the project is located north and south of Interstate 10, west of Neighbors Boulevard and Arrowhead Boulevard, south and east of the Blythe Airport. The site consists primarily of agricultural land located south and east of the community of Nicholls Warm Springs/Mesa Verde.

PROJECT DESCRIPTION: The proposed project consists of the construction and operation of a 485 megawatt solar photovoltaic (PV) electric generating facility and associated infrastructure on a total of approximately 3,660 acres. The proposed project would consist of a solar array field utilizing single-axis solar PV trackers and panels with a combined maximum height of 8 feet. Supporting facilities on-site would include three electrical substations, two operation and maintenance buildings, inverters, transformers, and associated switchgear. Since most of the site has nearly level to gently sloping topography, no mass grading would be required and the natural drainage patterns of the site would not be significantly altered. The Project site would be secured 24 hours per day by onsite private security personnel or remote services with motion-detection cameras. An equestrian-wire, wildlife-friendly and drainage-compatible security fence that meets National Electric Safety Code would be placed around the perimeter of the site. The proposed lighting for the site would be consistent with County building code. A new 8.4 mile long, 230 kilovolt (kV) double-circuit generation-tie transmission line would connect the proposed project with the approved Colorado River Substation located west of the project site subject to Public Use Permit (3.6 miles of the gen-tie line are located within the project site, and 4.8 miles are located off-site between the project site and the Colorado River Substation). A majority of the project is within the County of Riverside jurisdiction. An approximate 330-acre portion of the 3,660-acre project site is located within the City of Blythe jurisdiction. A Development Agreement between the County of Riverside and the applicant will be established setting forth the rights and responsibilities of each party with respect to project development and operation.
APN's 821-110-004, 821-120-025, 821-120-026, 821-120-027, etc.

TIME OF SCOPING SESSION:	**6:00 p.m.** or as soon as possible thereafter.
DATE OF SCOPING SESSION:	**December 12, 2011**
PLACE OF SCOPING SESSION:	**Blythe City Council Chambers** **235 N. Broadway** **Blythe, CA 92225**

Please send all written correspondence to:
RIVERSIDE COUNTY PLANNING DEPARTMENT
Attn: Jay Olivas
P.O. Box 1409, Riverside, CA 92502-1409

For further information regarding this project, please contact Project Planner, Jay Olivas at 951-955-1195, or e-mail jolivas@rctlma.org.

APPENDIX C: SCOPING MEETING MATERIALS AND TRANSCRIPT

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BLYTHE MESA SOLAR PROJECT
Scoping Meeting

December 12, 2011

Applicant: RENEWABLE RESOURCES GROUP

RIVERSIDE COUNTY
PLANNING DEPARTMENT

Introductions

- CEQA Lead Agency — RIVERSIDE COUNTY PLANNING DEPARTMENT
- Responsible Agency — blythe City of Blythe
- Applicant — RENEWABLERESOURCESGROUP
- Environmental Consultant — POWER ENGINEERS

Purpose of Meeting

- Provide information about the Blythe Mesa Solar Project
- Communicate the California Environmental Quality Act (CEQA) review process
- Seek comments and input on the scope of the Environmental Impact Report

Riverside County's Role

- Conditional Use Permit approval
- Public Use Permit approval
- Development Agreement
- Lead Agency for the California Environmental Quality Act (CEQA)

California Environmental Quality Act (CEQA)

- Requires the preparation, review, and certification of an environmental review document prior to an action on any non-exempt discretionary projects proposed by public agency in State of California.

Environmental Impact Report (EIR)

- An informational document that provides public agencies and the public with detailed information about the proposed project's significant affects on the environment. It also lists ways to avoid or minimize impacts, and identifies alternatives to the project.

EIR Process

- Distribute Notice of Preparation (NOP)
- Prepare Draft EIR
  - Identify and analyze significant impacts
  - Recommend measures to avoid/reduce impacts
  - Evaluate a reasonable range of alternatives
- Circulate Draft EIR for public review
- Respond to comments and prepare Final EIR
- Notice of Determination

EIR Resource Topics

- Aesthetics/Visual Resources
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Public Services and Utilities
- Socioeconomics
- Traffic and Circulation

Proposed Project

- Construction and operation of a 485 megawatt (MW) solar photovoltaic electrical generating facility that would occupy approximately 3,660 acres.

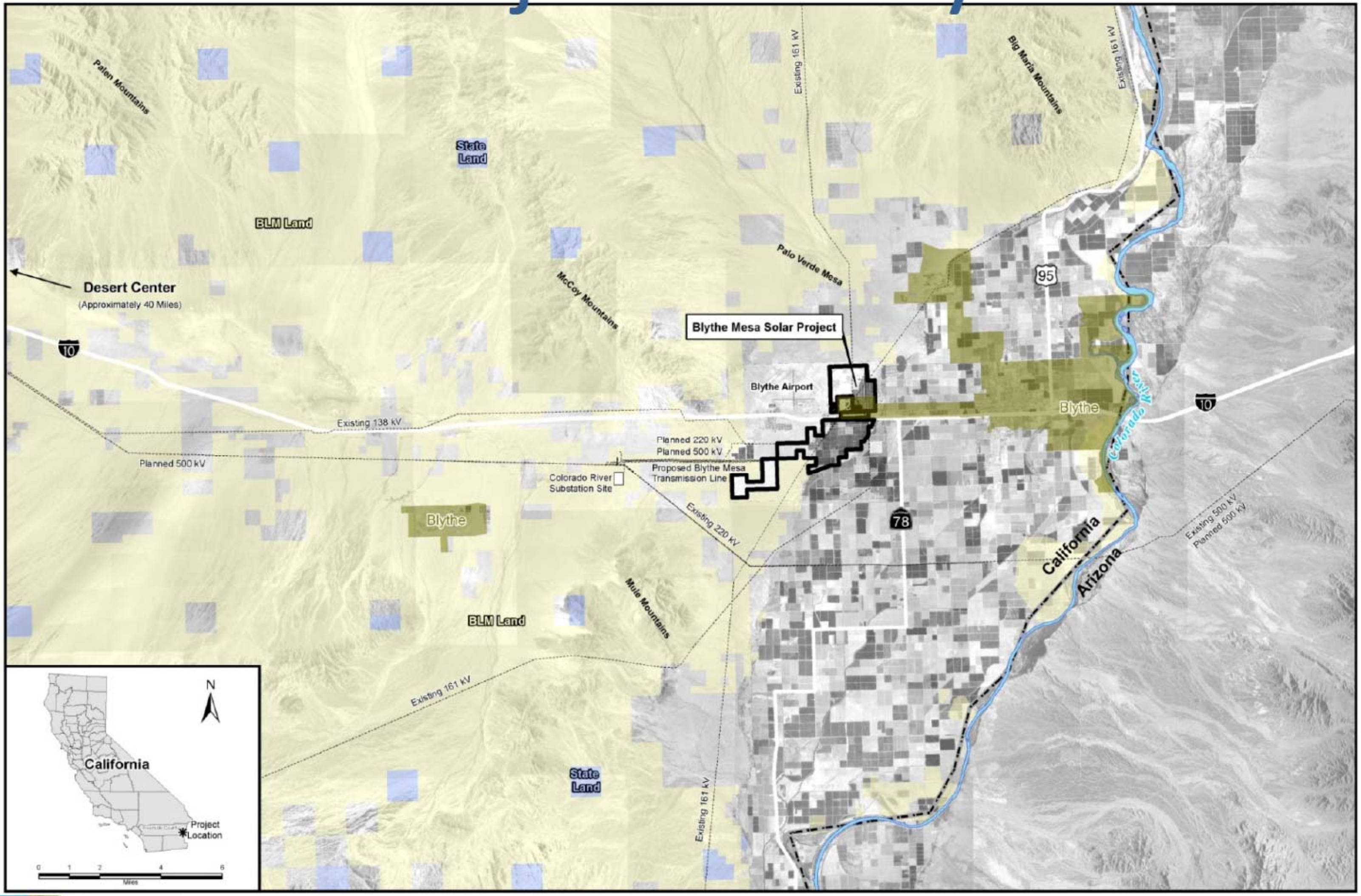
Project Objectives

- Assist with meeting California's Renewable Energy Standards and Goals
- Assist with greenhouse gas reduction
- Locate project facilities near electrical transmission facilities
- Site project in an area with excellent solar energy resources to maximize energy productivity from PV panels
- Site on disturbed land with compatible topography that minimizes environmental impacts
- Use a proven and available solar PV technology

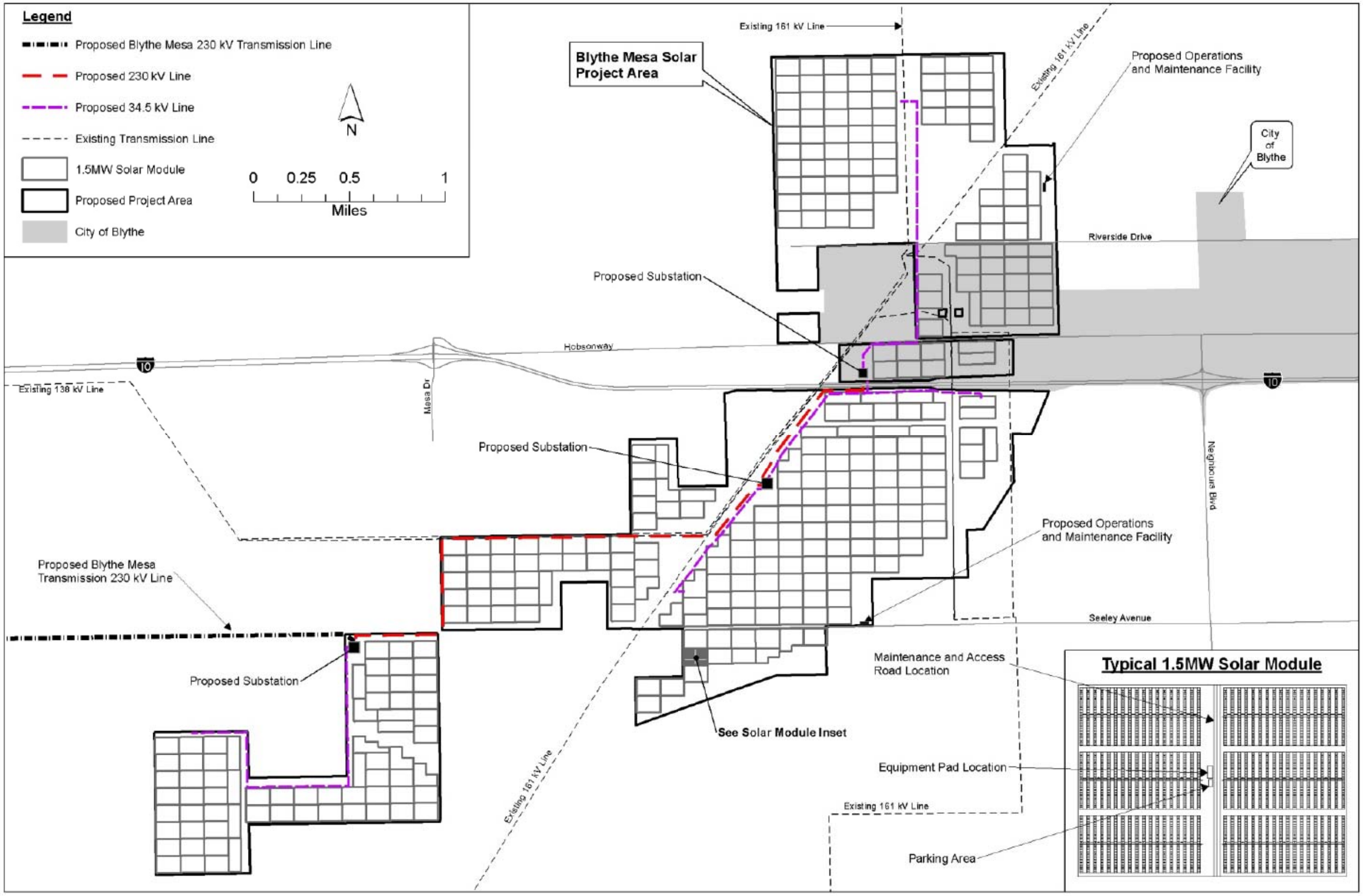
Key Project Components

- Solar array field
  - Interior collection power lines (34.5 kV)
  - Three substations (300 feet by 300 feet)
  - Two operation & maintenance buildings (approximately 3,500 square feet each)
  - Two primary access roads (Seeley Avenue & Riverside Drive)
- 8.4 mile 230 kV double-circuit transmission line

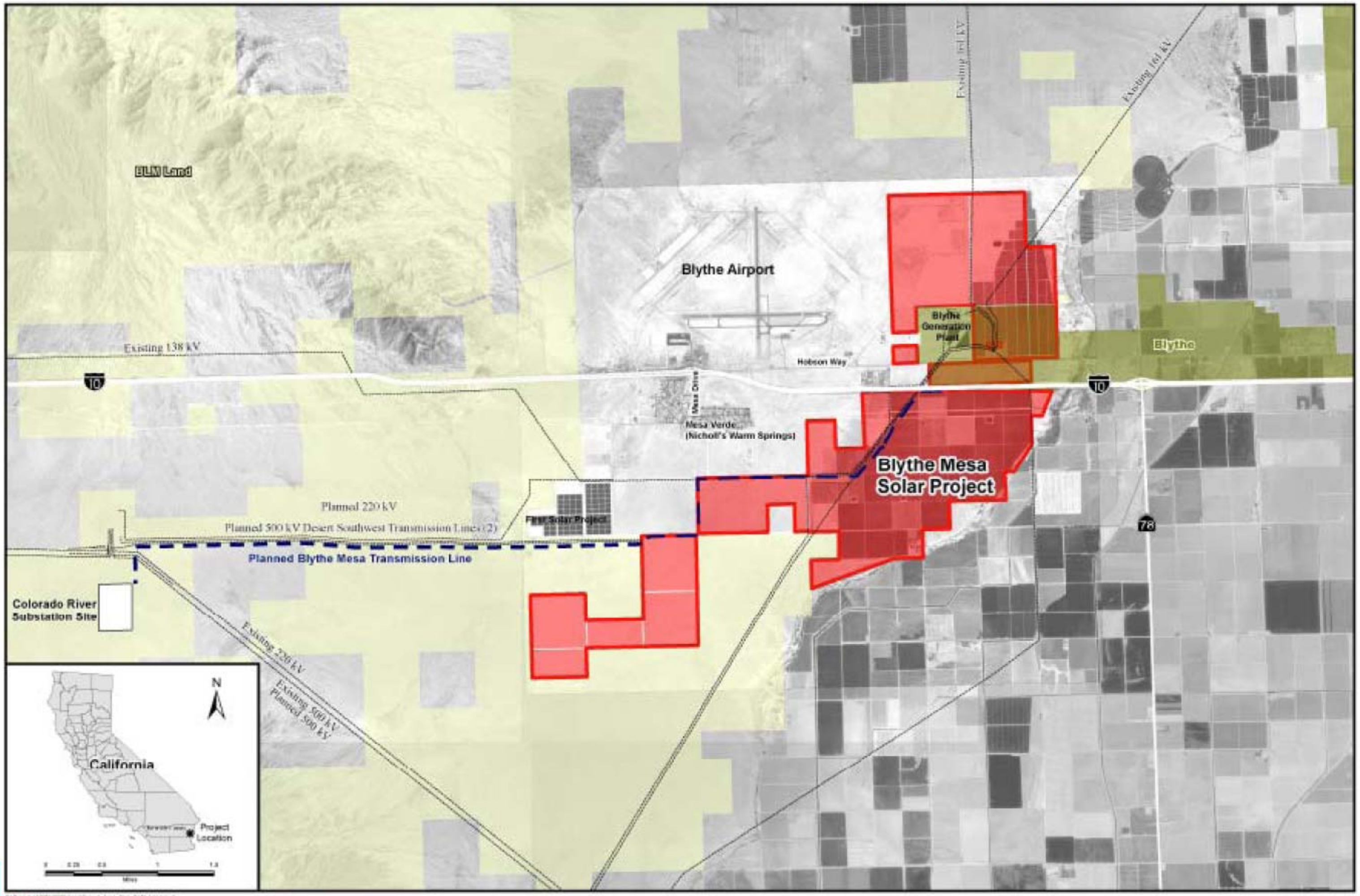
Project Vicinity



Site Plan


Legend
Proposed Blythe Mesa 230 kV Transmission Line
Proposed 230 kV Line
Proposed 34.5 kV Line
Existing Transmission Line
1.5MW Solar Module
Proposed Project Area
City of Blythe
N
0 0.25 0.5 1
Miles
Existing 161 kV Line
Blythe Mesa Solar Project Area
Existing 161 kV Line
Proposed Operations and Maintenance Facility
City of Blythe
Riverside Drive
Proposed Substation
Hobsonway
Existing 138 kV Line
Mesa Dr
Proposed Substation
Neighbours Blvd
Proposed Operations and Maintenance Facility
Proposed Blythe Mesa Transmission 230 kV Line
Seeley Avenue
Proposed Substation
Maintenance and Access Road Location
Typical 1.5MW Solar Module
See Solar Module Inset
Equipment Pad Location
Existing 161 kV Line
Existing 161 kV Line
Parking Area

Transmission Component



Opportunities for Public Involvement

Notice of Preparation (NOP) • Issue NOP for 30-day public review • Scoping Meeting	November – December 2011 December 12, 2011
Draft EIR Preparation • Compile Draft EIR • Draft EIR Public Review and Comment	Winter 2011 to Summer 2012 Summer 2012
Final EIR Preparation • Public Hearing – Board of Supervisors	Late-Summer 2012

NOP Public Review

Comments concerning the scope of the environmental analysis are requested by **December 22, 2011** so that technical studies reflect that input.

- Submit a comment form during the public scoping meeting
- Email jolivas@rctlma.org
- Phone (951) 955-1195
- Write to:

  Jay Olivas, Project Planner
  Riverside County Planning Department
  4080 Lemon Street, 12th Floor
  P.O. Box 1409
  Riverside, CA 92502-1409

  For additional project information please visit the County of Riverside's web page at http://www.tlma.co.riverside.ca.us/planning/

Oral Scoping Comments

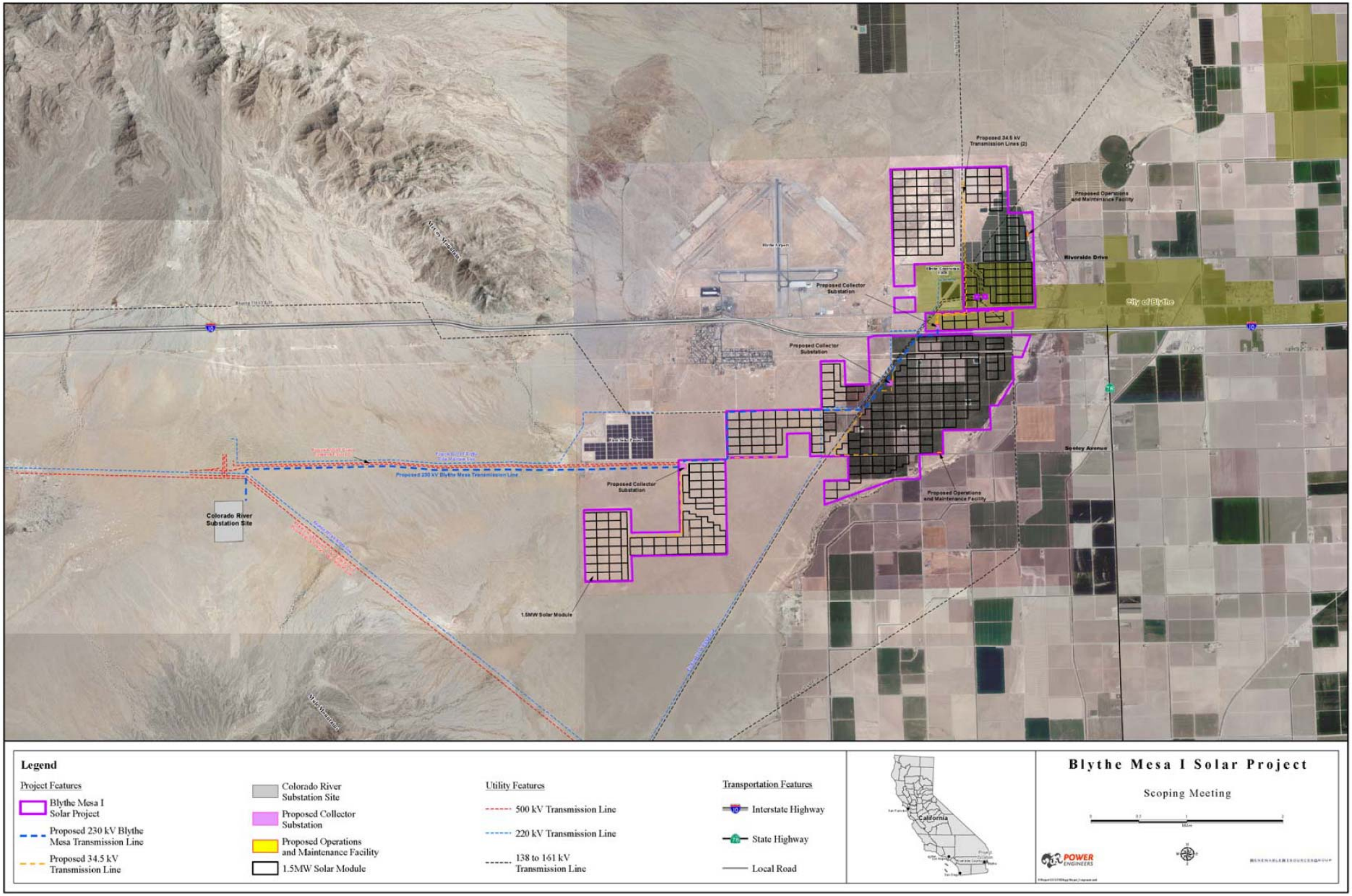
- Comment Cards

- Guidelines
  - State (and spell) your name clearly
  - Only one person shall speak at a time
  - Support everyone's participation
  - Respect others' opinions

Proposed Project

Construction and operation of a 485 megawatt (MW) solar photovoltaic electrical generating facility that would occupy approximately 3,660 acres.

- Solar array field
  - Interior collection power lines (34.5 kV)
  - Three substations (300 feet by 300 feet)
  - Two operation & maintenance buildings (approximately 3,500 square feet each)
  - Two primary access roads (Seeley Avenue & Riverside Drive)
- 8.4 mile 230 kV double-circuit transmission line



Proposed 34.5 kV Transmission Lines (2)
Proposed Operations and Maintenance Facility
Riverside Drive
Proposed Collector Substation
City of Blythe
Proposed Collector Substation
Seeley Avenue
Proposed 230 kV Blythe Mesa Transmission Line
Proposed Collector Substation
Proposed Operations and Maintenance Facility
Colorado River Substation Site
1.5MW Solar Module
Legend
Project Features
Blythe Mesa I Solar Project
Proposed 230 kV Blythe Mesa Transmission Line
Proposed 34.5 kV Transmission Line
Colorado River Substation Site
Proposed Collector Substation
Proposed Operations and Maintenance Facility
1.5MW Solar Module
Utility Features
500 kV Transmission Line
220 kV Transmission Line
138 to 161 kV Transmission Line
Transportation Features
Interstate Highway
State Highway
Local Road
California
Blythe Mesa I Solar Project
Scoping Meeting
POWER ENGINEERS

RIVERSIDE COUNTY

PLANNING DEPARTMENT

Comment Form

The County of Riverside thanks you for your interest in the Blythe Mesa I Solar Project. Scoping meetings are being conducted to share information regarding the project and decision-making process, and listen to the public views on the range of issues to be considered during the preparation of a Draft Environmental Impact Report. Please take a moment to answer the questions below and return this sheet to the comment table or mail to the address on the back of this form by **December 22, 2011.**

NAME: ______________________________ DATE: ______________

ADDRESS: ______________________________

CITY/STATE/ZIP: ______________________________

EMAIL (optional): ______________________________

Please describe any issues that should be considered during the resource studies and in environmental resource document preparation.

Fold Here

Fold Here

RIVERSIDE COUNTY
PLANNING DEPARTMENT

Riverside County Planning Department
4080 Lemon Street, 12th Floor
P.O. Box 1409
Riverside, CA 92502-1409
Attn: Jay Olivas, Project Planner

POSTAGE
REQUIRED

Riverside County Planning Department
4080 Lemon Street, 12th Floor
P.O. Box 1409
Riverside, CA 92502-1409
Attn: Jay Olivas, Project Planner

PUBLIC SCOPING MEETING FOR THE CONDITIONAL USE PERMIT NO. 3670/ PUBLIC USE PERMIT NO. 913/ BLYTHE MESA | SOLAR PROJECT

REPORTER'S TRANSCRIPT OF PROCEEDINGS

Taken on Monday, December 12, 2011

At 235 North Broadway
Blythe, California

At 6:00 p.m.

REPORTED BY: JULIETTE L. VIDAURRI CCR, RPR
AZ CR #50359/CA CSR #11081/NV CCR #748

APPEARANCES:

Ken Baez, Principal Planner for the Riverside County Planning Department

Thomas C. Ryan, Senior Project Manager, for Power Engineers

Rupal Patel for Renewable Resources Group, Inc.

MR. BAEZ: Well, good evening, everybody. How you doing? Glad you all can make it, and welcome to our Riverside County Director of Hearing Blythe Mesa Solar Project Scoping Meeting.

My name is Ken Baez, and I'm the Riverside County Planner assigned to the project, and with us here also we have the City of Blythe and some representatives from their planning department, as well as the applicant, and their engineer that will go over some of the details on the project.

The purpose of this meeting is pretty much to inform you and get feedback from you about the project, the solar project that's, um, by the name of Blythe Solar Management -- Blythe Solar Mesa. Sorry about that.

It is a project that entails 485 megawatts of power production and transmission line located on approximately 3,660 acres throughout unincorporated areas of Riverside County and also the City of Blythe. A small portion of that, um, located primarily on the southwesterly portion of the city.

And also we want to kind of go over the details of the California Environmental Quality Act, and the process in which allows the public to provide comments on the resources that we'll be analyzing.

We also will be requiring that the applicant get a

Conditional Use Permit approval as well as a Public Use Permit approval for the project.

Now, the two different permits are -- one is a Conditional Use Permit is for the generation facility where they will be generating and setting out the solar photovoltaic panels, and the transmission component is the transmission of power into the grid, which is the Public Use Component, and then we'll also be seeking to negotiate a development agreement as well as act on the Environmental Impact Report.

Now, the California Environmental -- Environmental Quality Act requires the preparation, review, and certification of an environmental review document prior to any action or any non-exempt discretionary projects proposed by the public agency of California, which essentially means that we're going to be analyzing this project for its environmental impact before we act on it, so... And the Environmental Impact Report essentially is a document that we will use to analyze those impacts.

MR. HOWARD: Excuse me. Can we ask questions or is it better just to save those?

MR. BAEZ: Yeah, save your questions until the end. And pretty much if you have any comments that you would like to provide to us, we'll have an opportunity at the end of the discussion to have you give us a comment card, which we have available here. If you would like to write down your questions or comments and concerns, that way we can have those addressed in the document.

It's a question-and-answer session, please note that, and we will do the best we can with the experts that we have here today, so...

And as I said, the EIR process is where we have distributed a Notice of Preparation, which is available here in a handout, and it basically identifies the resources that we're analyzing for the impact from the project.

And we primarily look at identifying and analyzing significant impacts. Those are things that need to be mitigated. Recommend measures to avoid or reduce those impacts, i.e., the mitigation measures, and evaluate a reasonable range of alternatives, so we're looking at this project as well as other alternatives.

And we will circulate the Draft Environmental Impact Report for review, and we'll respond to the comments and prepare those in the final EIR, in which case after that we'll be issuing a Notice of Determination, which is the findings that we have for the Environmental Impact Report of the public agency.

And these are some of the topics that we will be covering in the Environmental Impact Report; and if you are seeking to have any comments that you may have from the public, that we may address them further, any concerns that you might have about these resources.

With that said, I'll hand it over to Tom from the engineering firm to go over the details of the project.

MR. RYAN: Thank you, Ken.

My name is Tom Ryan with Power Engineers, and Power is assisting the County and the applicant with preparation of the Environmental Impact Report.

As Ken mentioned, this is a proposed of 485 megawatt solar photovoltaic project. It's total -- the total acreage is 3,660. That includes the project site itself plus another component, which is a transmission -- a short transmission line from the project site to a substation.

I'll show you a little bit more about the project in a moment, but I wanted to talk to you a little bit about project objectives, and project objectives are important from the CEQA standpoint because they basically answer why the project is being proposed.

So if we can get a good foundation for why a project is being proposed, it helps in quantification of the impacts and mitigation measures, it helps us justify alternatives, and it helps us with the findings that must be made later in the process when it comes to project consideration or approval.

So the project is being designed to obtain a number of objectives, and one is to assist with meeting the California Renewable Energy Standards and Goals.

The California Renewable Portfolio Standards that have been adopted require that 33 percent of the electricity used in the state be supplied from renewable resources by the year 2020, and there -- there was a previous deadline for that of 2010. There's an increasing percentage as we go forward into 2050, but the next step of that is the 33 percent by 2020.

And I know much progress has been made for renewable energy. It's projects like this that will help achieve that next level of the Renewable Portfolio Standard, so this projects contributes to that objective.

Next is assist with greenhouse gas reduction. We have in California the California Global Warming Solutions Act of 2006. There have been some amendments in the federal orders to that which establish the objective of reducing greenhouse gas emissions to 1990 levels by the year 2020. That means that we need to reduce greenhouse gas generation by about 25 percent to achieve that -- that 1990 level baseline.

So projects like this would provide electrical energy without using fossil fuels to help us meet the Global Warming Solutions Act objectives.

Locate the project near electrical transmission facilities. Um, I think a major impediment to meeting the Renewable Portfolio Standards is the fact that many of the solar projects and wind projects which are renewable are located in remote areas that aren't necessarily certified major transmission.

This project happens to be located close to the transmission. We are within four and a half miles of the major substation, and can -- this project will tie into to serve the regional grid.

Another objective is, of course, to take advantage of excellent solar resources, and the Blythe area, as you may know, is blessed with great solar resources. It's not just us saying that. It's Bureau of Land Management and Department of Energy have characterized the resources in the Riverside East study area as excellent potential for solar.

Um, another objective is the site the project is on disturbed lands with compatible topography. This project is by no means in an area of pristine desert environment. We've got the past -- current and previous agricultural use on the property. It's near the Blythe Airport, um, where a -- bisected by a major interstate highway. We've got regional transmission lines all surrounding the project site, so this is a disturbed property.

And then the final objective is use a proven and available solar PV technology for the project. The solar panels and tracker systems which are proposed by Sun Power are proven photovoltaic systems. There's 250 megawatts of installed capacity and more projects in the works, so this is a good, reliable solar technology to use here.

And another thing about this particular technology is that it actually reduces the amount of land that is necessary for solar generation by the tracking mechanism taking full advantage of the solar radiation as well as minimizing shading over adjacent panels by the individual panels.

So those are some of the project objectives, and we will go on to key project components. There's two primary components. The Solar Array Field, which is -- has a number of self components to it. There's a few substations. There's a few O&M facilities. We have a system of both underground and aboveground collection -- electric collection lines. We have two major access roads on Seeley Avenue and Riverside Drive, which I will point out in a moment, and then the second primary component is the 230 kV transmission line from the project site to the Colorado River Substation.

This is just to give you an orientation of where the project is. We've got the project site outlined in black there, City of Blythe in the green shading, got the

Blythe Airport, and the California/Arizona border over here, Interstate 10 bisecting the project site, and the transmission line from the edge of the project to the Colorado River Substation, which is right there.

Some more detail site plan. These little squares on here are power blocks or actually what we call solar modules. There's a blow-up of solar module right here, which contains the rows of solar panels. There's some equipment that is necessary to convert the power -- collect the power, convert it to AC/DC, and then transmit it on to -- throughout the system on the project site.

Each one of these little squares is about 1.5 megawatts, and there's -- they're arranged on the project site and connected via a system of 34 and a half kV lines, and those lines show up as purple. There's one there, which connects down into the -- a project substation. There's also 34 and a half kV overhead lines here for this substation, and then on this parcel connecting to the third substation here.

The City of Blythe boundary here is about 330 acres on the project within the City of Blythe city limits. Major access is Riverside Drive here accessing this O&M facility right there, and then Seeley Avenue down here to access a second O&M building in this location.

The substations on the project site are connected via 230 kV overhead transmission line, which follows an alignment from this first substation, across the freeway, down adjacent to some existing transmission lines, cutting across and reaching down here, and then exiting the project site in a westerly direction to the Colorado River Substation.

This is just another view of the project site. Um, I wanted to talk just for a minute about this transmission facility here. From the project site where the 230 kV line goes west to the Colorado River Substation, once you get about a mile in here just past the first solar project, which is right there, the project enters a combination of federal and private land.

So to permit and approve this -- this portion of the alignment, roughly this portion, will require the Bureau of Land Management to -- to give a right-of-way grant. And to issue that right-of-way grant they are likely to require some kind of environmental documentation, and we are not sure exactly what form of documentation, but that's a separate action, and, um, we will be working with the Bureau of Land Management to determine what their preference is for that, but wanted to -- to state that the CEQA requires us to look at the whole of an action, so the EIR will cover the entire project including the solar panel portion on private land and the transmission portion on federal land, and hopefully then the federal government when they get around to doing their environmental documentation will draw from the EIR or maybe perhaps use the EIR for that purpose. So that's the proposed project.

Ken, would you like to close us.

MR. BAEZ: Throughout the CEQA process there are a number of opportunities for the public to comment and review the documentation; and as you see here today, we are at the scoping meeting here, and it will essentially be closing on December 22nd; so if you would like to give comment and you're not in a position to do it today, you can do it by the 22nd.

I have contact information that's at the end of the slide that you are more than welcome to have. I also have business cards that we will be giving out, as well as also during the Draft EIR preparation that is expected to come out in the summer of 2012 there will also be a public review and comment.

We will have a notice that will be circulated out in the newspaper and also identify that the opportunity to review and comment is open as well as the final EIR when we post it for the decision-making body, the Board of Supervisors of Riverside, to certify the document as well as approve the Conditional Use Permit and the Public Use Permit.

So with that, that concludes my presentation, and here's the contact information that we would like to hand out to you and give that to anyone who's interested.

So if you have any comments or questions, I urge you to fill out a card; and also if you stand up and speak, please clearly state your name, and I'll open the floor to any questions or comments.

Any questions or comments?

MR. HOWARD: My name is Ray Howard --

THE COURT REPORTER: I'm sorry. I didn't hear your last name.

MR. HOWARD: Howard, H-o-w-a-r-d. And my question is regarding the three substations. Just at the map I couldn't really tell where those are at. Are those already being used or is that something you are going to be building?

MR. RYAN: They will be built. They will be constructed.

MR. HOWARD: And can you again go back to that map and give me a little more information as to where they are?

MR. RYAN: Right. Okay. So here's Interstate 10 coming across here.

MR. HOWARD: Okay.

MR. RYAN: This is the Blythe Energy Center right there.

MR. HOWARD: That's the current --

MR. RYAN: Yeah, the existing energy center. The airport is over here. So one of the substations is right there, and the other one is right here. This is pretty much an orchard right now.

MR. HOWARD: Okay. And both of those are on the south side of the freeway?

MR. RYAN: One's on the north side. This one's on the south side, and there's a third one down here.

MS. HOWARD: So is the top -- the first one at the top -- I'm sorry. I'm Shannon Howard. I'm his wife.

Is the one at the top the one that's existing there now, that substation?

MR. RYAN: No. This will be new.

MS. HOWARD: So this is totally new?

MR. RYAN: Yeah. It's not there yet.

MS. HOWARD: So all of the stuff that's there is not part of this at all or won't be part of this?

MR. BAEZ: That's correct.

MR. RYAN: All of these facilities will be new -- newly constructed facilities.

MR. ELLIS: My name is Ron Ellis. I have a question of the group. Is Riverside and Blythe talking about doing this? I don't see a contractor or who's going to try to put this together?

MR. BAEZ: The applicant is Renewable Recourses Group, and we have -- that's the applicant engineering.

MR. ELLIS: I didn't see this written down here. Maybe I missed it.

MR. BAEZ: It's in the beginning on the opening slide. It had an introduction that introduced them as the --

MR. ELLIS: Okay. I didn't recognize that as the name.

MR. RYAN: Yeah, this is not -- not -- it's in the permitting stage right now. We are going through the environmental process, and it will require a formal project approval, and then there will be some permits issued, and then construction would go.

MR. ELLIS: I've seen these processes go through, and sometimes it takes years to get this taken care of. Now, this PV, these processes, are they a little bit faster?

MR. BAEZ: Are they a little bit faster? It's kind of a new territory for Riverside County, and we're doing the best we can to permit these things when they come through, but the review process is the review process. We have to evaluate the environmental impact, and we're dependent upon the applicant to provide the documentation that's needed, so there are studies that are required, and sometimes they are prepared on time, and sometimes they have to wait a year for specific focus surveys to be done, particularly in biology. Sometimes the season isn't right for those to be done, so sometimes there's a wait that we have to endure for these types of projects.

Any other questions?

MR. HOWARD: You mentioned that Riverside Avenue would be one of the access roads, and at this time Riverside Avenue doesn't go all the way up on the Mesa there. Will that be extended?

MR. BAEZ: It would be required to have improvements done when --

MR. HOWARD: Paved?

MR. BAEZ: It will be paved more than likely. It's up to our transportation department to establish the requirement for that, and that would be subject to a condition of approval on the approved projects such as the Conditional Use Permit as well as the Public Use Permit.

MR. HOWARD: I know it's part of the environmental impact in one of the reports in terms of the traffic. Um, what kind of traffic are you expecting to be involved in that area where the solar panels are at?

MR. BAEZ: That would primarily be -- the higher point would be likely during the construction phase. That's where it would probably be the highest impact as well as some of the maintenance. That's where it would be evaluated. It's based on information that they provide to us on truck traffic trips, on daily truck traffic.

MR. HOWARD: Okay. At the present time there's some alfalfa fields, which I believe is part of the land that's going to be developed at some point in time.

Do you have any kind of a time frame? Because I've heard that those alfalfa fields would be staying for some time.

MR. BAEZ: That could potentially be there until they are ready to construct. That might be something part of what the land requisition between the applicant and the land owner, so it could be something that's worked out between them, but until that entitlement is actually -- a permit is being pulled for that, that can very well likely be until that time.

MR. HOWARD: Well, I am -- let me also state that I live up there. I have a house that's by those alfalfa fields, and there's a dirt road that kind of goes in front of our house, and I'm wondering if that is going to be considered one of the access roads, and if that's where part of this traffic is going to be going back and forth down.

MR. BAEZ: I can't say for any certainty

where that road is, what they're analyzing, what they are providing as far as what their access points are. That's our transportation department's. They have to look into our general plan and see what those roads require for any improvements when they go forward with their project.

MR. HOWARD: Okay.

MR. BAEZ: It wouldn't be done until after the approval process would be done.

MR. HOWARD: And I know there are lots of factors that will determine exactly when this is all under construction. Can you give me any kind of rough date of when to expect?

MR. BAEZ: I'd have to rely on the applicant quite honestly for that.

MS. PATEL: We are projecting probably January 2013.

MR. HOWARD: At least that's something to be aware of.

MS. PATEL: Uh-huh. Absolutely. And it will be completely spelled out and analyzed in the Environmental Impact Report.

MR. HOWARD: Okay. Now, can the general public get a copy of that Environmental Impact?

MR. BAEZ: It will be available.

MR. HOWARD: Do you have to sign up for

something to get that?

MS. PATEL: And you'll be able to comment. If you're part of this NOP scoping process -- I'm sorry. I'm probably speaking out of turn -- but if you're part of the NOP scoping process, you'll be included in the distribution of all notices and reports associated with this project.

MR. BAEZ: Okay. Because you signed in; right --

MR. HOWARD: Yes.

MR. BAEZ: -- with your address and contact information. You will be notified.

MR. HOWARD: Okay. Thank you.

MR. RYAN: Did you receive a letter by mail for this?

MR. HOWARD: Yes. And we appreciate that.

MR. RYAN: You will be notified.

MR. ELLIS: A project of this size, how long do you believe the construction project itself will take?

MR. RYAN: It's an estimate of about three years to construct. Um, the peak construction period, you know, there could be anywhere between two to 300 workers, 300 to 400 -- 200 to 400 workers at one time for the peak 24-month period, but a three-year total process.

So if it's January 2013, then it's three years before it's completed.

MR. BAEZ: Anybody else?

(No response.)

MR. BAEZ: Okay. And if you happen to have any comments, like I said, or questions, we would be happy to answer those. Just be sure to get those in before the 22nd of December.

With that, I'll close this, and I'll have my contact information here so if you would like to jot that down.

(The meeting concluded at 6:25 p.m.)

CERTIFICATE OF REPORTER

State of Arizona)
)
County of Mohave)

I, Juliette L. Vidaurri, CCR, RPR, do hereby certify that I took down in shorthand (Stenotype) all of the proceedings had in the above-entitled matter at the time and place indicated, and that thereafter said shorthand notes were transcribed into typewriting at and under my direction and supervision, and the foregoing transcript constitutes a full, true, and accurate record of the proceedings had.

In witness whereof, I have hereunto affixed my hand the 28th day of December, 2011.

Juliette L. Vidaurri, CCR, RPR
AZ CCR #50359/CA CCR #11081/NV CCR #748

APPENDIX D: SCOPING MEETING NOTICE

NOTICE OF SCOPING SESSION

A SCOPING SESSION has been scheduled before the **RIVERSIDE COUNTY PLANNING DIRECTOR** in order to bring together and hear the concerns of affected federal, state and local agencies, the proponent of the proposed project, and other interested persons; as well as inform the public of the nature and extent of the proposed project described below, and to provide an opportunity to identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in the Environmental Impact Report and help eliminate from detailed study issues found not to be important.

The Scoping Session is **not** a public hearing on the merit of the proposed project and **NO DECISION** on the project will be made. **Public testimony is limited to identifying issues regarding the project and potential environmental impacts.** The project proponent will not be required to provide an immediate response to any concerns raised. The project proponent will be requested to address any concerns expressed at the Scoping Session, through revisions to the proposed project and/or completion of a Final Environmental Impact Report, prior to the formal public hearing on the proposed project. Mailed notice of the public hearing will be provided to anyone requesting such notification.

ENVIRONMENTAL IMPACT REPORT NO.: **529**

PROJECT CASE NO(S). / TITLE: **CONDITIONAL USE PERMIT NO. 3670 / PUBLIC USE PERMIT NO. 913 / BLYTHE MESA I SOLAR PROJECT**

PROJECT LOCATION: East Riverside County – Palo Verde Area Plan, the Blythe Mesa I Solar Project is located approximately 5 miles west of central Blythe and 40 miles east of Desert Center; more specifically, the project is located north and south of Interstate 10, west of Neighbors Boulevard and Arrowhead Boulevard, south and east of the Blythe Airport. The site consists primarily of agricultural land located south and east of the community of Nicholls Warm Springs/Mesa Verde.

PROJECT DESCRIPTION: The proposed project consists of the construction and operation of a 485 megawatt solar photovoltaic (PV) electric generating facility and associated infrastructure on a total of approximately 3,660 acres. The proposed project would consist of a solar array field utilizing single-axis solar PV trackers and panels with a combined maximum height of 8 feet. Supporting facilities on-site would include three electrical substations, two operation and maintenance buildings, inverters, transformers, and associated switchgear. Since most of the site has nearly level to gently sloping topography, no mass grading would be required and the natural drainage patterns of the site would not be significantly altered. The Project site would be secured 24 hours per day by onsite private security personnel or remote services with motion-detection cameras. An equestrian-wire, wildlife-friendly and drainage-compatible security fence that meets National Electric Safety Code would be placed around the perimeter of the site. The proposed lighting for the site would be consistent with County building code. A new 8.4 mile long, 230 kilovolt (kV) double-circuit generation-tie transmission line would connect the proposed project with the approved Colorado River Substation located west of the project site subject to Public Use Permit (3.6 miles of the gen-tie line are located within the project site, and 4.8 miles are located off-site between the project site and the Colorado River Substation). A majority of the project is within the County of Riverside jurisdiction. An approximate 330-acre portion of the 3,660-acre project site is located within the City of Blythe jurisdiction. A Development Agreement between the County of Riverside and the applicant will be established setting forth the rights and responsibilities of each party with respect to project development and operation. APN's 821-110-004, 821-120-025, 821-120-026, 821-120-027, etc.

TIME OF SCOPING SESSION:	**6:00 p.m.** or as soon as possible thereafter.
DATE OF SCOPING SESSION:	**December 12, 2011**
PLACE OF SCOPING SESSION:	**Blythe City Council Chambers** **235 N. Broadway** **Blythe, CA 92225**

Please send all written correspondence to:
RIVERSIDE COUNTY PLANNING DEPARTMENT
Attn: Jay Olivas
P.O. Box 1409, Riverside, CA 92502-1409

For further information regarding this project, please contact Project Planner, Jay Olivas at 951-955-1195, or e-mail jolivas@rctlma.org.

PROPERTY OWNERS CERTIFICATION FORM

I, VINNIE NGUYEN, certify that on 11/16/2011,

The attached property owners list was prepared by Riverside County GIS,

APN (s) or case numbers CUP03670 For

Company or Individual's Name Planning Department,

Distance buffered 2400'.

Pursuant to application requirements furnished by the Riverside County Planning Department, Said list is a complete and true compilation of the owners of the subject property and all other property owners within 600 feet of the property involved, or if that area yields less than 25 different owners, all property owners within a notification area expanded to yield a minimum of 25 different owners, to a maximum notification area of 2,400 feet from the project boundaries, based upon the latest equalized assessment rolls. If the project is a subdivision with identified off-site access/improvements, said list includes a complete and true compilation of the names and mailing addresses of the owners of all property that is adjacent to the proposed off-site improvement/alignment.

I further certify that the information filed is true and correct to the best of my knowledge. I understand that incorrect or incomplete information may be grounds for rejection or denial of the application.

NAME: Vinnie Nguyen

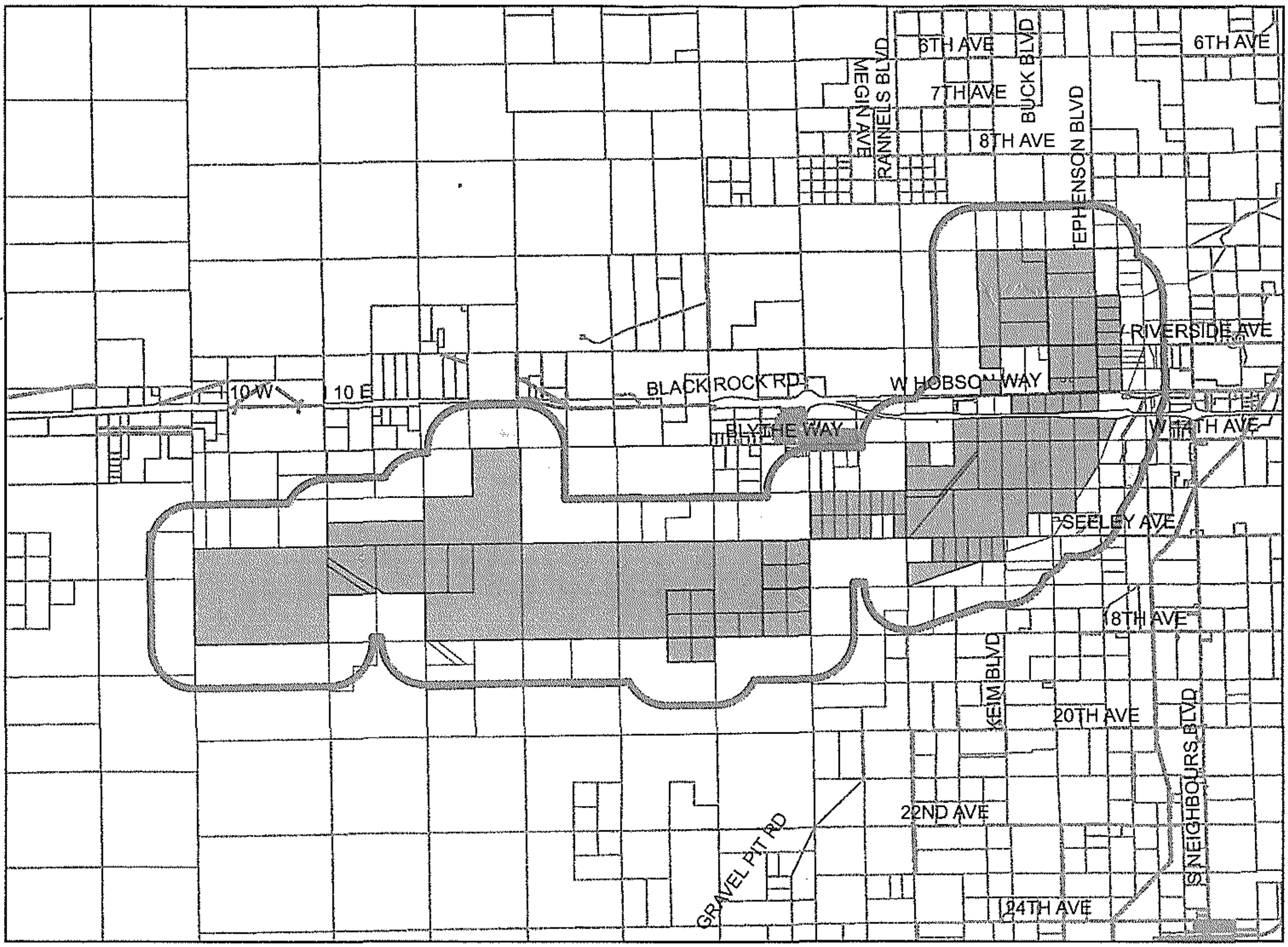
TITLE GIS Analyst

ADDRESS: 4080 Lemon Street 2nd Floor

Riverside, Ca. 92502

TELEPHONE NUMBER (8 a.m. – 5 p.m.): (951) 955-8158

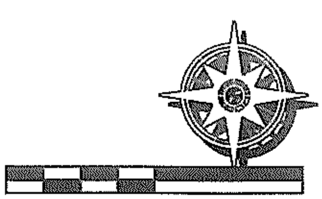
2400 feet buffer



Selected Parcels

866-030-001	866-030-002	879-080-007	879-080-014	824-130-004	863-020-020	879-110-001	824-030-023	824-090-020	824-090-042
824-090-044	863-020-015	863-120-003	863-120-004	863-120-006	824-101-021	879-030-007	879-080-001	879-080-002	879-080-034
824-101-012	824-101-013	824-073-019	824-064-004	866-021-007	821-080-041	821-110-003	824-030-003	824-073-010	824-080-004
824-101-007	863-020-013	863-120-005	863-040-002	824-122-015	824-142-002	824-063-001	863-020-018	863-030-012	879-080-008
879-080-013	879-300-008	879-100-003	863-060-004	824-073-013	824-064-007	824-150-001	824-122-014	824-073-007	863-110-004
863-070-003	863-070-004	863-070-007	863-070-008	863-120-007	863-120-008	866-021-005	879-090-053	879-090-054	866-021-006
824-030-012	879-300-015	821-080-043	821-090-011	821-090-012	821-090-018	821-110-004	821-120-025	821-120-026	821-120-027
821-120-028	821-120-029	821-120-030	821-120-034	821-120-035	821-120-038	821-120-039	821-120-040	821-120-042	821-120-043
821-120-044	821-120-046	821-120-047	821-120-048	824-080-003	824-080-005	824-090-009	824-090-024	824-090-028	824-101-014

rst 90 parcels shown



7,2503,625 0 7,250 Feet

ASMT: 821090010, APN: 821090010
KATHLEEN BARCINAS, ETAL
16120 KRAMERIA AVE
RIVERSIDE CA 92504

ASMT: 824030012, APN: 824030012
GARY KADING
10960 WILSHIRE BLVD 5TH FL
LOS ANGELES CA 90024

ASMT: 821120015, APN: 821120015
NANCY VANDERSLICE, ETAL
P O BOX 5354
MOHAVE VALLEY AZ 86440

ASMT: 824063001, APN: 824063001
DARRELL FOSSETT
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BLYTHE CA 92225

ASMT: 821120017, APN: 821120017
ROBINSON FARMS
P O BOX 2399
BLYTHE CA 92226

ASMT: 824063002, APN: 824063002
TERESA LERMA, ETAL
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BLYTHE CA 92225

ASMT: 821120019, APN: 821120019
LOS CERRITOS CAPITAL CORP
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THERMAL CA 92274

ASMT: 824063004, APN: 824063004
HELEN CRAWFORD, ETAL
42665 DEUR WAY
HEMET CA 92544

ASMT: 821120023, APN: 821120023
ANGELINA DILL, ETAL
P O DRAWER 1140
BLYTHE CA 92226

ASMT: 824064002, APN: 824064002
TINA MORGAN, ETAL
P O BOX 742
BLYTHE CA 92226

ASMT: 821120024, APN: 821120024
USA 821
US DEPT OF THE INTERIOR
WASHINGTON DC 21401

ASMT: 824064003, APN: 824064003
PATRICIA MORGA, ETAL
17845 BLYTHE WAY
BLYTHE, CA. 92225

ASMT: 824030007, APN: 824030007
MI CASA PROP
1330 OAK VIEW AVE
SAN MARINO CA 91108

ASMT: 824064004, APN: 824064004
CAROL WILYAT
17829 BLYTHEWAY
BLYTHE, CA. 92225

ASMT: 824064007, APN: 824064007
EARL LAIRD
C/O RANDALL JAMES LAIRD
944 W MONTGOMERY
SPOKANE WA 99207

ASMT: 824072010, APN: 824072010
STRAUGHAN GRACE ESTATE OF
C/O JOHN PEREIRA
1112 CHERRY HEIGHTS RD
THE DALLES OR 97058

ASMT: 824064011, APN: 824064011
MARTINA RIVERA, ETAL
17825 BLYTHE WAY
BLYTHE CA 92225

ASMT: 824072012, APN: 824072012
MARIA LOPEZ, ETAL
P O BOX 1754
BLYTHE CA 92226

ASMT: 824064013, APN: 824064013
EPIGENIA PEREZ, ETAL
17819 BLYTHE WAY
BLYTHE, CA. 92225

ASMT: 824072014, APN: 824072014
STEVEN FOLEY, ETAL
14101 LIME DR
BLYTHE, CA. 92225

ASMT: 824072002, APN: 824072002
MICHAEL SMALLEY
1979 PIDE POOL CT
MARYSVILLE CA 95901

ASMT: 824073007, APN: 824073007
MARIA SILVA, ETAL
17530 NICHOLS RD
BLYTHE, CA. 92225

ASMT: 824072004, APN: 824072004
NORMAN BARNARD
35899 RED BLUFF PL
MURRIETA CA 92562

ASMT: 824073012, APN: 824073012
NADINE RENTERIA
C/O JOSE A FLORES
1214 NOGALES ST
SACRAMENTO CA 95838

ASMT: 824072006, APN: 824072006
GMAC MORTGAGE
1100 VIRGINIA DR
FORT WASHINGTON PA 19034

ASMT: 824073013, APN: 824073013
JENNIFER HOPE, ETAL
P O BOX 855
BLYTHE CA 92226

ASMT: 824072008, APN: 824072008
PETE REYES, ETAL
17690 NICHOLLS RD
BLYTHE, CA. 92225

ASMT: 824073019, APN: 824073019
CONSUELO LOZOYA, ETAL
14060 LIME DR
BLYTHE, CA. 92225

ASMT: 824090025, APN: 824090025
DEDRA BENNETT, ETAL
16531 W HOBSON WAY
BLYTHE, CA. 92225

ASMT: 824110018, APN: 824110018
PATRICIA CHOAT
P O BOX 946
BLYTHE CA 92226

ASMT: 824090033, APN: 824090033
HEINZ NORDMANN, ETAL
WIEKSWEG 73 POSTFACH 1328
4840 RHEDA WIEDENBRUECK
WEST GERMANY

ASMT: 824110021, APN: 824110021
SHARON HOWARD, ETAL
P O BOX 422
BLYTHE CA 92226

ASMT: 824090035, APN: 824090035
SANDRA NORDELL, ETAL
5321 COLORADO RIVER RD
BLYTHE CA 922259335

ASMT: 824110023, APN: 824110023
LETTY STILES, ETAL
P O BOX 1003
BLYTHE CA 92226

ASMT: 824090037, APN: 824090037
RITA DAWSON, ETAL
16275 W HOBSON WAY
BLYTHE CA 92225

ASMT: 824110028, APN: 824110028
GLORIA DELGADO, ETAL
14515 HARRINGTON RD
RIVERSIDE CA 92508

ASMT: 824101013, APN: 824101013
CAITHNESS BLYTHE II
565 5TH AVE 29TH FL
NEW YORK NY 10017

ASMT: 824110029, APN: 824110029
PRISCILLA VANDYKE, ETAL
14271 RIVERSIDE DR
BLYTHE CA 92225

ASMT: 824101022, APN: 824101022
USA
P O BOX 281213
LAKEWOOD CO 80228

ASMT: 824110039, APN: 824110039
OLIVER WHITE, ETAL
361 N PALM DR
BLYTHE CA 92225

ASMT: 824110012, APN: 824110012
DOROTHY HOOVER, ETAL
3721 W HOBSON WAY
BLYTHE, CA. 92225

ASMT: 824110040, APN: 824110040
SCOTT DAVIS, ETAL
24372 ANTILLES WAY
DANA POINT CA 92629

ASMT: 824122011, APN: 824122011
DIANNA BROWNING, ETAL
107 W HOBSONWAY
BLYTHE CA 92225

ASMT: 824142019, APN: 824142019
JOAN WIGER, ETAL
C/O JOHN G PINIGTORE
43608 N BLACK CYN HWY
PHOENIX AZ 85087

ASMT: 824122014, APN: 824122014
ROBERT ALVARADO, ETAL
3880 OLD STATE HWY RD
BLYTHE CA 92225

ASMT: 824150001, APN: 824150001
ALFONSO CAMPOS, ETAL
13900 LEFINGWELL RD
WHITTIER CA 90604

ASMT: 824122015, APN: 824122015
CROWN ENTERPRISES INC
C/O ARNIE MISTURA
12223 STEPHENS
WARREN MI 48089

ASMT: 863020002, APN: 863020002
PEDRO RANGEL
15033 S LOVEKIN
BLYTHE CA 92225

ASMT: 824130004, APN: 824130004
MARY ELAM, ETAL
244 LOMA AVE
LONG BEACH CA 90803

ASMT: 863020004, APN: 863020004
J MORGAN
14035 ORANGE ST
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ASMT: 824141001, APN: 824141001
SCHINDLER BROS INC
3595 W HOBSONWAY
BLYTHE CA 92225

ASMT: 863020013, APN: 863020013
COUNTY OF RIVERSIDE
C/O REAL ESTATE DIVISION
P O BOX 1180
RIVERSIDE CA 92502

ASMT: 824142002, APN: 824142002
MARTHA DELATORRE, ETAL
14386 BELL LN
BLYTHE CA 92225

ASMT: 863020015, APN: 863020015
ANN GOSSER, ETAL
2137 W 183RD ST
TORRANCE CA 90504

ASMT: 824142011, APN: 824142011
ROBERT ALVARADO
C/O ROBERT ALVARADO
14499 W HOBSON WAY
BLYTHE CA 92225

ASMT: 863020018, APN: 863020018
DESERT ALLIANCE FOR COMMUNITY EMPOWI
53990 ENTERPRISE WAY STE 1
COACHELLA CA 92236

ASMT: 863020019, APN: 863020019
IRENE AUDET, ETAL
2110 POOPY DR
BURLINGAME CA 94010

ASMT: 863060004, APN: 863060004
DUC TRAN
13081 ROSALIND DR
SANTA ANA CA 92705

ASMT: 863020020, APN: 863020020
SILVIA AVALOS, ETAL
57 VIA SANTO TOMAS
RANCHO MIRAGE CA 92270

ASMT: 863070011, APN: 863070011
PATRICK CONNOLLY
680 W CALIFORNIA
BLYTHE CA 92225

ASMT: 863020021, APN: 863020021
LONEAR HEARD, ETAL
C/O LONEAR W HEARD
4900 LINCOLNSHIRE
BUENA PARK CA 90621

ASMT: 863070012, APN: 863070012
MARY COX
1020 N LOVEKIN NO 40
BLYTHE CA 92225

ASMT: 863030011, APN: 863030011
PRAKASH MEGHPARA
20 NEVADA
IRVINE CA 92606

ASMT: 863070013, APN: 863070013
VERNON STINSON
2610 PALOMA SENDA
BULLHEAD CITY AZ 86442

ASMT: 863030012, APN: 863030012
DON DUNCAN
P O BOX 2082
PALM SPRINGS CA 92263

ASMT: 863070014, APN: 863070014
PVID
180 W 14TH AVE
BLYTHE CA 92225

ASMT: 863030017, APN: 863030017
TERESA RIVERA, ETAL
1525 S FERN AVE
ONTARIO CA 91762

ASMT: 863070016, APN: 863070016
MICHELLE WALKER
15937 STEPHENSON BLV
BLYTHE, CA. 92225

ASMT: 863040002, APN: 863040002
VICTORIA RAMIREZ, ETAL
10750 BENNETT DR
FONTANA CA 92337

ASMT: 863070017, APN: 863070017
MICHELLE WALKER
15937 STEPHENSON BLVD
BLYTHE CA 92225

ASMT: 863070023, APN: 863070023
ROBERT MCCALL
C/O STEVE MCCALL
405 E MURPHY ST
BLYTHE CA 92225

ASMT: 863130001, APN: 863130001
NORMA MARTIN, ETAL
31547 WHISPERING PALMS
CATHEDRAL CY CA 92234

ASMT: 863100004, APN: 863100004
MARTHA HURTADO, ETAL
432 BLUEWATER DR
PARKER AZ 85344

ASMT: 866021002, APN: 866021002
KAY MASON
P O BOX 364
BLYTHE CA 92226

ASMT: 863110004, APN: 863110004
ERIC STROSCHEIN
P O BOX 1030
BLYTHE CA 92226

ASMT: 866021005, APN: 866021005
FISHER FAMILY PROP
C/O FISHER RANCH LLC
10610 ICEPLANT RD
BLYTHE CA 92225

ASMT: 863110007, APN: 863110007
SOUTH VALLEY HOLDINGS
C/O JOHN W SEILER
P O BOX 267
PALO VERDE CA 92266

ASMT: 866021006, APN: 866021006
G B INV CO
C/O COCOPAH NURSERIES INC
81880 ARUS AVE
INDIO CA 92201

ASMT: 863120002, APN: 863120002
LISA KONTILIS, ETAL
481 CORONADO ST
BLYTHE CA 92225

ASMT: 866021007, APN: 866021007
WILLIAM ODEN, ETAL
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INDIO CA 92201

ASMT: 863120005, APN: 863120005
COX FAMILY FARMS
C/O RICHARD C COX
918 E MURPHY ST
BLYTHE CA 92225

ASMT: 866022002, APN: 866022002
SONS INC, ETAL
81910 ARUS AVE
INDIO CA 92201

ASMT: 863120006, APN: 863120006
BILL VASILIS RANCH
C/O KIRK KONTILIS
332 W CHANSLOR WAY
BLYTHE CA 92225

ASMT: 866022003, APN: 866022003
TOHSHIN TRADING INC
P O BOX 1226
BLYTHE CA 92226

ASMT: 866022004, APN: 866022004
ROBERT ARTEAGA
P O BOX 700
BLYTHE CA 92226

ASMT: 879080008, APN: 879080008
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SUN CITY CA 92586

ASMT: 866022005, APN: 866022005
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14563 14TH AVE
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ASMT: 879080010, APN: 879080010
LINNA CHEN, ETAL
C/O OLIVIA CHEN
5232 VIA RINCON
NEWBURY PARK CA 91320

ASMT: 866022006, APN: 866022006
DANA RETHWISCH, ETAL
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RISING CITY NE 68658

ASMT: 879080013, APN: 879080013
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COLUMBIA MD 21044

ASMT: 866030002, APN: 866030002
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ASMT: 879080014, APN: 879080014
ALEXANDER WALTENSPERGER
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ASMT: 866080002, APN: 866080002
PURPLE VERBENA
C/O COLE FRATES
5700 WILSHIRE BLV STE 330
LOS ANGELES CA 90036

ASMT: 879080016, APN: 879080016
LILLIAN TOMICH, ETAL
C/O NATIVITY OF MOST HOLY THEOTOKOS
2148 MICHELSON DR
IRVINE CA 92612

ASMT: 879080006, APN: 879080006
LIANG CHU
11640 BALD EAGLE LN
MORENO VALLEY CA 92557

ASMT: 879080018, APN: 879080018
MARIA VIRAMONTES
1534 N CALIFORNIA AVE
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ASMT: 879080007, APN: 879080007
AGUANGA PROP
C/O CYNTHIA C WALSH
35272 VISTA DE TODO
CAPISTRANO BEACH CA 92624

ASMT: 879080027, APN: 879080027
USA 879
UNKNOWN 10-17-95

ASMT: 879080032, APN: 879080032
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46 THE COLONNADE
LONG BEACH CA 90803

ASMT: 879100003, APN: 879100003
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ASMT: 879080034, APN: 879080034
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ASMT: 879100005, APN: 879100005
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ASMT: 879090001, APN: 879090001
YAO LEE, ETAL
164 HONEYSUCKLE LN
BREA CA 92821

ASMT: 879100007, APN: 879100007
USA 879
DEPT OF INTERIOR
WASHINGTON DC 21401

ASMT: 879090052, APN: 879090052
NANCY WOO, ETAL
82257 CROSBY DR
INDIO CA 92201

ASMT: 879100011, APN: 879100011
MAHMMAD KHALAJZADEH
C/O MAJID YOUSSEFIHA
6134 CASE ST
NORTH HOLLYWOOD CA 91606

ASMT: 879090053, APN: 879090053
FSE BLYTHE 1
C/O TAX DEPT
211 CARNEGIE CENTER
PRINCETON NJ 8540

ASMT: 879100012, APN: 879100012
MICKEY WU
3129 S HACIENDA BLV NO 345
HACIENDA HEIGHTS CA 91745

ASMT: 879090054, APN: 879090054
FSE BLYTHE 1
C/O NRG SOLAR PU
1817 ASTON AVE STE 104
CARLSBAD CA 92008

ASMT: 879100013, APN: 879100013
SOUTHERN CALIFORNIA EDISON CO
P O BOX 800
ROSEMEAD CA 91770

ASMT: 879100001, APN: 879100001
AUSTIN WHITNEY, ETAL
C/O PDS TAX SERVICES
P O BOX 13519
ARLINGTON TX 76094

ASMT: 879110001, APN: 879110001
HSIEN CHAO, ETAL
21725 MARJORIE AVE
TORRANCE CA 90503

ASMT: 879110008, APN: 879110008
USA 879
US DEPT OF INTERIOR
WASHINGTON DC 21401

ASMT: 879300015, APN: 879300015
GEORGE BECERRA
27115 DARTMOUTH ST
HEMET CA 92544

ASMT: 879110014, APN: 879110014
GILA FARM LAND
5700 WILSHIRE BLV NO 330
LOS ANGELES CA 90036

ASMT: 879300007, APN: 879300007
MARGIE URRUTIA, ETAL
82822 VIA PALERMO
INDIO CA 92201

ASMT: 879300008, APN: 879300008
DOROTHY SZOLLOSI
14075 MESA DR
BLYTHE CA 92225

ASMT: 879300009, APN: 879300009
JOYCE PACIFICO
P O BOX 152
EHRENBERG AZ 85334

ASMT: 879300011, APN: 879300011
WILLIAM MILLER
1713 N PENNINGTON
CHANDLER AZ 85224

ASMT: 879300014, APN: 879300014
IRVIN TESKEY
P O BOX 1133
BLYTHE CA 92226

APPENDIX E: REPRESENTATIVE LETTER TO NATIVE AMERICAN TRIBES

POWER ENGINEERS, INC.

731 E. Ball Road
Suite 100
Anaheim, CA 92805 USA

PHONE 714-507-2700
FAX 714-507-2799

POWER ENGINEERS

ENERGY
FACILITIES
COMMUNICATIONS
ENVIRONMENTAL

April 28, 2011

Ms. Ann Brierty, Policy/ Cultural Resources Department
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346

Subject: Proposed Blythe Mesa Solar Farm in Riverside County, California

Dear Ms. Brierty:

POWER Engineers, Inc. (POWER) is sending you this letter on behalf of Renewable Resources Group (RRG) to inform you of the proposed Blythe Mesa Solar Farm in eastern Riverside County, California. We also request information you are willing to share regarding Native American cultural resources in the project area as well as any comments or concerns you may have about the project in general. The information you provide will be considered during project planning and design.

RRG is planning to construct and operate a 485 megawatt solar photovoltaic energy generating facility in the Palo Verde Mesa region of Riverside County. The proposed solar farm will help California meet its Renewable Portfolio Standard (RPS) mandate, which requires each of California's investor-owned utilities to supply 20 percent of its total electricity through renewable energy generation by the year 2020.

The proposed project would be located approximately 5 miles west of the city of Blythe. The project site is comprised of disturbed parcels that were previously farmed or fallow totaling approximately 3,828 acres, located to North and South interstate 10. The location is depicted on the Roosevelt Mine, Ripley, and McCoy Wash 7.5' U.S. Geological Survey (USGS) Topographic Quadrangles (see attached Project Area Map). The project is located on:

- Sections 1-14 of Township 7 South, Range 21East
- Sections 3, 4, 5, 6, 8, 9 of Township 7 South, Range 22 East
- Sections 27, 28, 29, 32, 33, 34 of Township 6 South, Range 22 East of the San Bernardino Base Meridian.

POWER is managing and conducting the overall permitting program for the proposed Blythe Mesa Solar Farm for RRG. An Environmental Impact Report (EIR) is currently being prepared for Riverside County.

We look forward to hearing from you, Ms. Brierty. If you have any questions or desire additional information, please do not hesitate to contact either of us at your convenience: Johanna Marty at (714) 507-2739 (johanna.marty@powereng.com) or Gini Austerman at (714) 507-2761 (gini.austerman@powereng.com).

Sincerely,

Johanna Marty

Johanna Marty,
Cultural Resource Specialist

Enclosure(s): Project Area Map (1)

APPENDIX F: COMMENT LETTERS

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

December 19, 2011

Jay Olivas
Project Planner
38686 El Cerrito Road
Palm Desert, CA 92211

Re: Preparation of Draft Environmental Impact Report for Blythe Mesa Solar Project, Riverside County CA.

Dear Mr. Olivas:

The Agua Caliente Band of Cahuilla, ACBCI Indians appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Blythe Mesa Solar Project. The proposed project is located in Riverside County in Blythe near the McCoy Mountains. The project is not located on lands managed by the Agua Caliente Band of Cahuilla Indians, but the project is within the ACBCI's Traditional Trade Network Area. The THPO comments and recommends:

1. A 100% cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area. ***Please forward copies of any cultural resource documentation (report and site records) generated in connection with these efforts to the Tribal Historic Preservation Office for review and comment.***

2. The presence of an approved Native American Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer and the Agua Caliente Tribal Historic Preservation Officer.

3. Please forward copies of any cultural resource documentation (report and site records) generated in connection with these efforts to the Tribal Historic Preservation Office for review and comment.

4. Should human remains be discovered during construction of the proposed project, the project contractor would be subject to the State law regarding the discovery and disturbance of human remains. In that circumstance destructive activity in the immediate vicinity shall halt and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) shall be contacted. The NAHC will make a determination of the Most Likely Descendent (MLD). The City and Developer will work with the designated MLD to determine the final disposition of the remains.

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

The Agua Caliente appreciates your interest in our cultural heritage. If you have questions, need monitors or require additional information, please call me at (760) 699-6912. You may also email me at smilanovich@aguacaliente-nsn.gov.

Cordially,

Sean Milanovich
Cultural Specialist
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

C: Agua Caliente Cultural Register

X:\CONSULTATIONSLetters\2012\External\TUA\RC_DraftEIR_BlytheMesaSolarProject_12_19_2011.doc

WARREN D. WILLIAMS
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
951.955.1200
FAX 951.788.9965
www.rcflood.org

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

December 15, 2011

Mr. Jay Olivas
Riverside County
Planning Department
County Administrative Center
Riverside, California

Dear Mr. Olivas:

Re: Notice of Preparation of a
Draft Environmental Impact Report
CUP 3670

We have reviewed this case and have the following comments:

The Draft Environmental Impact Report (DEIR) analyzes the potential environmental impacts of Conditional Use Permit No. 3670. Conditional Use Permit No. 3670 proposes to construct and operate a 485-MW solar photovoltaic electric generating facility and associated infrastructure. The 3,660-acre site is located in the Blythe area, east of the Blythe Municipal Airport, west of Neighbors Boulevard, and north and south of Interstate 10.

The site is subject to offsite flows from the northwest and southwest with total tributary drainage areas of approximately 42 and 9 square miles, respectively. In general, these flows enter the site in a broad sheet flow manner. A natural watercourse bisects the lower southern portion of the project (APNs 879-090-043, 879-090-044, 879-090-050 and 879-090-051). The natural watercourse should be kept free of buildings and obstructions in order to maintain the natural drainage patterns of the area. It appears that the project avoids this area, however, additional information shall be provided.

Since the proposal is to construct solar panels, no increased runoff and/or flow diversion is anticipated.

The District recommends that the DEIR address the following:

1. The drainage for the overall area and site shall be described. The site's tributary drainage area shall be identified.

2. Description of how onsite storm runoff would be collected and conveyed to an adequate outlet.

3. Description of how the project is protected from offsite storm runoff and how it is collected.

4. As described above, a natural watercourse bisects the lower southern portion of the project (APNs 879-090-043, 879-090-044, 879-090-050 and 879-090-051). The DEIR shall address how the project would avoid or mitigate its impact to any floodplain/watercourse.

5. The report should identify any existing drainage facility within the area. A description of who owns and maintains the facility shall also be included.

6. The impacts and mitigation for water quality caused by the development and proposed mitigations shall be discussed.

7. The NOP indicates "light grubbing" and "minimal grading" will be performed as part of this development. A grading and drainage plan shall be included in the DEIR. The property's maintenance access and site grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage areas, outlet points and outlet conditions.

8. Hydrology/hydraulic study, exhibits and other pertinent information shall also be included.

Any questions pertaining to this project may be directed to Tina Hanson of this office at 951.955.2511 or me at 951.955.1214.

Very truly yours,

MEKBIB DEGAGA
Engineering Project Manager

TTH:blj
P8/142767

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

December 19, 2011

Mr. Jay Olivas
Riverside County
4080 Lemon Street, 9th Floor
P.O. Box 1409
Riverside, California 92502-1409
jolivas@rctlma.org

NOTICE PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT NO. 529/CUP NO. 3670/PUP NO. 913 FOR THE BLYTHE MESA I SOLAR PROJECT, (SCH#201111056), RIVERSIDE COUNTY

Dear Mr. Olivas:

The Department of Toxic Substances Control (DTSC) has received your submitted Notice of Preparation for a draft Environmental Impact Report (EIR) for the above-mentioned project. The following project description is stated in your document: "The proposed project consists of the construction and operation of a 485 megawatt (MW) solar photovoltaic (PV) electric generating facility and associated infra structure on a total of approximately 3,660 acres. The Project site would be secured 24 hours per day by onsite private security personnel or remote services with motion-detection cameras. A new 8.4 mile long, 230 kilovolt (kV) double-circuit generation-tie transmission line would connect the proposed project with the approved Colorado River Substation located west of the project site subject to Public Use Permit (PUP). A majority of the project is within the County of Riverside jurisdiction. An approximately 330-acre portion of the 3,660-acre project site is located within the City of Blythe jurisdiction. The Project is located approximately 5 miles west of central Blythe and 40 miles east of Desert Center, more specifically, the project is located north and south of Interstate 10 (I-10) west of Neighbors Boulevard and Arrowhead Boulevard, south and east of the Blythe Airport. The site consists of primarily of agricultural land located south and east of the community of Nicholls Warm Springs/Mesa Verde. The proposed Project would be conditionally consistent with the agricultural land use designation, subject to issuance of a conditional use permit (CUP)".

Based on the review of the submitted document DTSC has the following comments:

1) The EIR should evaluate whether conditions within the Project area may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:

- National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).

- EnviroStor (formerly CalSites): A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below).

- Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.

- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA.

- Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.

- GeoTracker: A List that is maintained by Regional Water Quality Control Boards.

- Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.

- The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).

2) The EIR should identify the mechanism to initiate any required investigation and/or remediation for any site within the proposed Project area that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary, DTSC would require an oversight agreement in order to review such documents.

3) Any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All

sampling results in which hazardous substances were found above regulatory standards should be clearly summarized in a table. All closure, certification or remediation approval reports by regulatory agencies should be included in the EIR.

4) If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.

5) Future project construction may require soil excavation or filling in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure that the imported soil is free of contamination.

6) Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.

7) If the site was used for agricultural, livestock or related activities, onsite soils and groundwater might contain pesticides, agricultural chemical, organic waste or other related residue. Proper investigation, and remedial actions, if necessary, should be conducted under the oversight of and approved by a government agency at the site prior to construction of the project.

8) If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA.

9) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Sincerely,

Greg Holmes
Unit Chief
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
Attn: Nancy Ritter
nritter@dtsc.ca.gov

CEQA # 3425

Mojave Desert Air Quality Management District
14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 • fax 760.245.2699
Visit our web site: http://www.mdaqmd.ca.gov
Eldon Heaston, Executive Director

December 2, 2011

Riverside County Planning Department
4080 Lemon Street, 12th Floor
P.O. Box 1409
Riverside, CA 92502-1409
Attn: Jay Olivas, Project Planner

Re: Notice of Preparation of a Draft Environmental Impact Report for the Blythe Mesa I Solar Project

Dear Mr. Olivas,

The Mojave Desert Air Quality Management District (District) has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the Blythe Mesa I Solar Project. The proposed project consists of the construction and operation of a 485 megawatt solar photovoltaic (PV) electric generating facility and associated infrastructure on a total of approximately 3,660 acres. The proposed project would consist of a solar array field utilizing single-axis solar PV trackers and panels with a combined maximum height of eight feet. Supporting facilities on-site would include three electrical substations, two operation and maintenance buildings, inverters, transformers, and associated switchgear. A new 8.4 mile long, 230 kV double-circuit generation-tie transmission line would connect the proposed project with the Approved Colorado River Substation.

The District has no special comments or information that would be necessary to the environmental review process. District attainment plans are located at http://www.mdaqmd.ca.gov/index.aspx?page=13 for your information and review.

The District supports the development of renewable energy sources; such development is expected to produce cumulative and regional environmental benefits.

Thank you for the opportunity to review this notice of preparation. If you have any questions regarding this letter, please contact me at (760) 245-1661 or Tracy Walters at ext. 6122.

Sincerely,

Alan J. De Salvio
Supervising Air Quality Engineer

AJD/tw Blythe Mesa I Solar Project.doc

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

November 21, 2011

Mr. Jay Olivas, Planner
Riverside County Planning Department
4080 Lemon Street, 12th Floor
Riverside, CA 92502-1409

Re: SCH#2011111056 CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the **"EIR No. 529/CUP No. 3670/PUP No. 913/Blythe Mesa I Solar Project"** located in the Blythe Area of eastern Riverside County, California

Dear Mr. Olivas:

The Native American Heritage Commission (NAHC), the State of California 'Trustee Agency' for the protection and preservation of Native American cultural resources pursuant to California Public Resources Code §21070 and affirmed by the Third Appellate Court in the case of EPIC v. Johnson (1985: 170 Cal App. 3rd 604). The court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites. The NAHC wishes to comment on the proposed project.

This letter includes state and federal statutes relating to Native American historic properties of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law. State law also addresses the freedom of Native American Religious Expression in Public Resources Code §5097.9.

The California Environmental Quality Act (CEQA – CA Public Resources Code 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect.

The NAHC Sacred Lands File (SLF) search resulted as follows: **Native American cultural resources <u>were not identified</u>** within the project area identified (e.g. 'area of potential effect' or APE). Also, the absence of archaeological resources does not preclude their existence. . California Public Resources Code §§5097.94 (a) and 5097.96 authorize the NAHC to establish a Sacred Land Inventory to record Native American sacred sites and burial sites. These records are exempt from the provisions of the California Public Records Act pursuant to. California Government Code §6254 (r). The purpose of this code is to protect such sites from vandalism, theft and destruction. The NAHC "Sacred Sites,' as defined by the Native American Heritage Commission and the California Legislature in California Public Resources Code

§§5097.94(a) and 5097.96. Items in the NAHC Sacred Lands Inventory are confidential and exempt from the Public Records Act pursuant to California Government Code §6254 (r). This area is known to the NAHC to be culturally sensitive.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries of cultural resources or burial sites once a project is underway. Culturally affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We strongly urge that you make contact with the list of Native American Contacts on the list of Native American contacts, to see if your proposed project might impact Native American cultural resources and to obtain their recommendations concerning the proposed project. Special reference is made to the *Tribal Consultation* requirements of the California 2006 Senate Bill 1059: enabling legislation to the federal Energy Policy Act of 2005 (P.L. 109-58), mandates consultation with Native American tribes (both federally recognized and non federally recognized) where electrically transmission lines are proposed. This is codified in the California Public Resources Code, Chapter 4.3 and §25330 to Division 15.

Furthermore, pursuant to CA Public Resources Code § 5097.95, the NAHC requests that the Native American consulting parties be provided pertinent project information. Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). Pursuant to CA Public Resources Code §5097.95, the NAHC requests that pertinent project information be provided consulting tribal parties. The NAHC recommends *avoidance* as defined by CEQA Guidelines §15370(a) to pursuing a project that would damage or destroy Native American cultural resources and Section 2183.2 that requires documentation, data recovery of cultural resources.

Consultation with tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 *et seq*), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

Confidentiality of "historic properties of religious and cultural significance" should also be considered as protected by California Government Code §6254(r) and may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APEs and possibility threatened by proposed project activity.

Furthermore, Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery'.

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: Native American Contact List

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

November 21, 2011

Mr. Jay Olivas, Planner
Riverside County Planning Department
4080 Lemon Street, 12th Floor
Riverside, CA 92502-1409

Re: SCH#2011111056 CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the **"EIR No. 529/CUP No. 3670/PUP No. 913/Blythe Mesa I Solar Project"** located in the Blythe Area of eastern Riverside County, California

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If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: Native American Contact List

California Native American Contacts
Riverside County
November 21, 2011

Twenty-Nine Palms Band of Mission Indians
Darrell Mike, Chairperson
46-200 Harrison Place — Chemehuevi
Coachella , CA 92236
tribal-epa@worldnet.att.net
(760) 775-5566
(760) 808-0409 - cell - EPA
(760) 775-4639 Fax

Joseph R. Benitez (Mike)
P.O. Box 1829 — Chemehuevi
Indio , CA 92201
(760) 347-0488
(760) 408-4089 - cell

Chemehuevi Reservation
Charles Wood, Chairperson
P.O. Box 1976 — Chemehuevi
Chemehuevi Valley CA 92363
chair1cit@yahoo.com
(760) 858-4301
(760) 858-5400 Fax

Fort Mojave Indian Tribe
Tim Williams, Chairperson
500 Merriman Ave — Mojave
Needles , CA 92363
(760) 629-4591
(760) 629-5767 Fax

Colorado River Indian Tribe
Ginger Scott, Museum Curator; George Ray, Coor
26600 Mojave Road — Mojave, Chemehuevi
Parker , AZ 85344
crit.museum@yahoo.com
(928) 669-9211-Tribal Office
(928) 669-8970 ext 21
(928) 669-1925 Fax

Fort Yuma Quechan Indian Nation
Keeny Escalanti., President
PO Box 1899 — Quechan
Yuma , AZ 85366
qitpres@quechantribe.com
(760) 572-0213
(760) 572-2102 FAX

AhaMaKav Cultural Society, Fort Mojave Indian
Linda Otero, Director
P.O. Box 5990 — Mojave
Mohave Valley AZ 86440
(928) 768-4475
LindaOtero@fortmojave.com
(928) 768-7996 Fax

Morongo Band of Mission Indians
Michael Contreras, Cultural Heritage Prog.
12700 Pumarra Road — Cahuilla, Serrano
Banning , CA 92220
(951) 201-1866 - cell
mcontreras@morongo-nsn.gov
(951) 922-0105 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2011111056; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Blythe Mesa I Solar Project; located in the Blythe area of eastern Riverside County, California.

California Native American Contacts
Riverside County
November 21, 2011

San Manuel Band of Mission Indians
Ann Brierty, Policy/Cultural Resources Departmen
26569 Community Center. Drive Serrano
Highland , CA 92346
(909) 864-8933, Ext 3250
abrierty@sanmanuel-nsn.
gov
(909) 862-5152 Fax

Quenchan Indian Nation
THPO
P.O. Box 1899 Quechan
Yuma , AZ 85366
b.nash@quechantribe.com
(928) 920-6068 - CELL
(760) 572-2423

Torres-Martinez Desert Cahuilla Indians
Diana L. Chihuahua, Vice Chairperson, Cultural
P.O. Boxt 1160 Cahuilla
Thermal , CA 92274
dianac@torresmartinez.
760) 397-0300, Ext. 1209
(760) 272-9039 - cell (Lisa)
(760) 397-8146 Fax

Ah-Mut-Pipa Foundation
Preston J. Arrow-weed
P.O. Box 160 Quechan
Bard , CA 92222 Kumeyaay
ahmut@earthlink.net
(928) 388-9456

Cocopah Museum/Cultural Resources Dept.
Jill McCormick, Tribal Archaeologist
County 15th & Ave. G Cocopah
Sommerton , AZ 85350
culturalres@cocopah.com
(928) 530-2291 - cell
(928) 627-2280 - fax

Agua Caliente Band of Cahuilla Indians THPO
Patricia Tuck, Tribal Historic Perservation Officer
5401 Dinah Shore Drive Cahuilla
Palm Springs, CA 92264
ptuck@augacaliente-nsn.gov
(760) 699-6907

(760) 699-6924- Fax

This list is current only as of the date of this document.

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This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2011111056; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Blythe Mesa I Solar Project; located in the Blythe area of eastern Riverside County, California.

Riverside County
Waste Management Department

Hans W. Kernkamp, General Manager-Chief Engineer

December 16, 2011

Jay Olivas, Project Planner
Riverside County Planning Department
P. O. Box No. 1409
Riverside, CA 92502-1409

RE: Comments on the Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for Blythe Mesa I Solar Project

Dear Mr. Olivas:

The Riverside County Waste Management Department (RCWMD) has reviewed the NOP for a DEIR for the Blythe Mesa I Solar Project. The RCWMD requests that the following potential project impact areas be analyzed and evaluated in the forthcoming DEIR:

1. The RCWMD is concerned about the quantity of construction and demolition (C&D) waste that could be generated by the project and how the waste will be disposed of. Should a large quantity of the projects' C&D waste be brought to a county landfill for disposal, it could exceed the landfill's daily permitted capacity, thus a violation of State regulations and an impact to County landfill operation. The DEIR should analyze this potential solid waste impact.

   CR&R is the franchise waste hauler for the project area. This hauler operates under a waste delivery agreement (WDA) which stipulates that any waste generated within the franchise area, including solid waste generated from the Project area, will be disposed of at the Blythe Landfill. The Blythe Landfill is described below:

   Blythe Landfill
   The Blythe Landfill is located at 1000 Midland Road, Blythe, CA, 92225. The landfill is owned and operated by the RCWMD. The landfill property encompasses approximately 335-acres, of which 78 acres are permitted for waste disposal. The landfill is currently permitted to receive a maximum of 400 tons per day of refuse, and as of January 1, 2011, had a remaining capacity of approximately 650,000 tons. It is estimated that the remaining disposal capacity will last until approximately 2047. During 2010, the Blythe Landfill accepted a daily average volume of 60 tons, for a period total of approximately 16,256 tons.

2. In order to preserve landfill capacity and support efforts to recycle, reuse, and/or reduce the amount of recyclable material going to the landfill, the Project will be conditioned to implement the following measures (see attached):

14310 Frederick Street • Moreno Valley, CA 92553 • (951) 486-3200 • Fax (951) 486-3205 • Fax (951) 486-3230
www.rivcowm.org

- **Prior to issuance of a grading and/or building permit**, A Waste Recycling Plan (WRP) shall be submitted to the Riverside County Waste Management Department for approval. At a minimum, the WRP must identify the materials (i.e., cardboard, concrete, asphalt, wood, etc.) that will be generated by construction and development, the projected amounts, the measures/methods that will be taken to recycle, reuse, and/or reduce the amount of materials, the facilities and/or haulers that will be utilized, and the targeted recycling or reduction rate. During project construction, the project site shall have, at a minimum, two (2) bins: one for waste disposal and the other for the recycling of Construction and Demolition (C&D) materials. Additional bins are encouraged to be used for further source separation of C&D recyclable materials. Accurate record keeping (receipts) for recycling of C&D recyclable materials and solid waste disposal must be kept. Arrangements can be made through the franchise hauler

- **Prior to final building inspection,** evidence (i.e., receipts or other type of verification) to demonstrate project compliance with the approved WRP shall be presented by the project proponent to the Planning Division of the Riverside County Waste Management Department. Receipts must clearly identify the amount of waste disposed and Construction and Demolition (C&D) materials recycled.

3. Hazardous materials are not accepted at Riverside County landfills. In compliance with federal, state, and local regulations and ordinances, any hazardous waste generated in association with the project shall be disposed of at a permitted Hazardous Waste disposal facility. Hazardous waste materials include, but are not limited to, paint, batteries, oil, asbestos, and solvents. For further information regarding the determination, transport, and disposal of hazardous waste, please contact the Riverside County Department of Environmental Health, Environmental Protection and Oversight Division, at 1.888.722.4234.

Thank you for the allowing us the opportunity to comment on the NOP. Please continue to include the RCWMD in future transmittals. Feel free to call me at (951) 486-3351 if you have any questions regarding the above comments.

Sincerely,

Ryan Ross
Planner IV

Attachments: RCWMD Conditions for CUP 3670, dated July 18, 2011
PD112748

Riverside County
Waste **M**anagement **D**epartment

Hans W. Kernkamp, General Manager-Chief Engineer

July 18, 2011

Jay Olivas, Project Planner
Riverside County Planning Department
P. O. Box No. 1409
Riverside, CA 92502-1409

RE: Conditional Use Plan (CUP) No. 3670
Proposal: The CUP proposes the development of a 485 MW photovoltaic facility on 3,428 acres (Blythe Mesa Solar)
APNs: 821-110-004, etc.

Dear Mr. Olivas:

The Riverside County Waste Management Department (Department) has reviewed the proposed project, located east of the Blythe Airport and west of Neighbors Boulevard, in the Palo Verde Area Plan. In order to mitigate the project's potential solid waste impacts and to help the County's efforts to comply with State law in diverting solid waste from landfill disposal, the Department is recommending that the following conditions be made a part of any Conditions of Approval for the project:

1. **Prior to issuance of a grading and/or building permit,** A Waste Recycling Plan (WRP) shall be submitted to the Riverside County Waste Management Department for approval. At a minimum, the WRP must identify the materials (i.e., cardboard, concrete, asphalt, wood, etc.) that will be generated by construction and development, the projected amounts, the measures/methods that will be taken to recycle, reuse, and/or reduce the amount of materials, the facilities and/or haulers that will be utilized, and the targeted recycling or reduction rate. During project construction, the project site shall have, at a minimum, two (2) bins: one for waste disposal and the other for the recycling of Construction and Demolition (C&D) materials. Additional bins are encouraged to be used for further source separation of C&D recyclable materials. Accurate record keeping (receipts) for recycling of C&D recyclable materials and solid waste disposal must be kept. Arrangements can be made through the franchise hauler

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14310 Frederick Street • Moreno Valley, CA 92553 • (951) 486-3200 • Fax (951) 486-3205 • Fax (951) 486-3230
www.rivcowm.org

3. Please note that the Blythe Airport Dumpsite is located within the vicinity of the proposed solar project. For more information on the dumpsite and its location, please contact Chad Davies with the County of Riverside Economic Development Agency (EDA), Aviation Division at (951) 955-9722, or Laurie Holk with the Local Enforcement Agency (LEA) at 760-863-7008.

4. Hazardous materials are not accepted at Riverside County landfills. In compliance with federal, state, and local regulations and ordinances, any hazardous waste generated in association with the project shall be disposed of at a permitted Hazardous Waste disposal facility. Hazardous waste materials include, but are not limited to, paint, batteries, oil, asbestos, and solvents. For further information regarding the determination, transport, and disposal of hazardous waste, please contact the Riverside County Department of Environmental Health, Environmental Protection and Oversight Division, at 1.888.722.4234.

5. Use mulch and/or compost in the development and maintenance of landscaped areas within the project boundaries. Recycle green waste through either onsite composting of grass, i.e., leaving the grass clippings on the lawn, or sending separated green waste to a composting facility.

6. Consider xeriscaping and using drought tolerant/low maintenance vegetation in all landscaped areas of the project.

Thank you for the opportunity to review this proposal. If you have any questions, please call me at (951) 486-3351.

Sincerely,

Ryan Ross
Planner IV

Doc 88468v44

Cc: Chad Davies, EDA
Laurie Holk, LEA

SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

Main Office
818 West Seventh Street
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www.scag.ca.gov

December 19, 2011

Mr. Jay Olivas
Project Planner
Riverside County Planning Department
4080 Lemon Street, 12th Floor
Riverside, CA 92502-1409
(951) 955-1195

RE: SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Blythe Mesa I Solar Project [I20110201]

Dear Mr. Olivas:

Thank you for submitting the **Notice of Preparation of a Draft Environmental Impact Report for the Blythe Mesa I Solar Project [I20110201]** to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12372 (replacing A-95 Review). Additionally, pursuant to Public Resources Code Section 21083(d) SCAG reviews Environmental Impact Reports of projects of regional significance for consistency with regional plans per the California Environmental Quality Act Guidelines, Sections 15125(d) and 15206(a)(1). SCAG is also the designated Regional Transportation Planning Agency and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Federal Transportation Improvement Program (FTIP) under California Government Code Section 65080 and 65082.

SCAG staff has reviewed this project and determined that the proposed project is regionally significant per California Environmental Quality Act (CEQA) Guidelines, Sections 15125 and/or 15206. The proposed project consists of the construction and operation of a 485 megawatt solar photovoltaic electric generating facility and associated infrastructure on a total of approximately 3,660 acres in the City of Blythe and unincorporated Riverside County.

Policies of SCAG's Regional Transportation Plan (RTP) and Compass Growth Visioning (CGV) that may be applicable to your project are outlined in the attachment. The RTP, CGV, and table of policies can be found on the SCAG web site at: http://scag.ca.gov/igr. For ease of review, we would encourage you to use a side-by-side comparison of all SCAG policies with a discussion of the consistency, non-consistency or non-applicability of the policy and supportive analysis in a table format (example attached).

The attached policies are meant to provide guidance for considering the proposed project within the context of our regional goals and policies. We also encourage the use of the SCAG List of Mitigation Measures extracted from the RTP to aid with demonstrating consistency with regional plans and policies. **When available, please send environmental documentation ONLY to SCAG's main office in Los Angeles and provide a minimum of 45 days for SCAG to review.** If you have any questions regarding the attached comments, please contact Pamela Lee at (213) 236-1895 or leep@scag.ca.gov. Thank you.

Sincerely,

Jacob Lieb, Manager
Environmental and Assessment Services

COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE BLYTHE MESA I SOLAR PROJECT [I20110201]

PROJECT LOCATION

The Blythe Mesa I Solar Project is located approximately 5 miles west of central Blythe and 40 miles east of Desert Center; more specifically, the project is located north and south of Interstate 10, west of Neighbors Boulevard and Arrowhead Boulevard, south and east of the Blythe Airport. The site consists of primarily agricultural land located south and east of the community of Nicholls Warm Springs/Mesa Verde.

PROJECT DESCRIPTION

The proposed project consists of the construction and operation of a 485 megawatt solar photovoltaic (PV) electric generating facility and associated infrastructure on a total of approximately 3,660 acres. The proposed project would consist of a solar array field utilizing single-axis solar PV trackers and panels with a combined maximum height of 8 feet. Supporting facilities on-site would include three electrical substations, two operation and maintenance buildings, inverters, transformers, and associated switchgear. The project site would be secured 24 hours a day by onsite private security personnel or remote services with motion-detection cameras. An equestrian wire, wildlife-friendly and drainage-compatible security fence would be placed around the perimeter of the site. The proposed lighting for the site would be consistent with the County building code. A new 8.4 mile long, 230 kilovolt (kV) double-circuit generation-tie transmission line would connect the proposed project with the approved Colorado River Substation located west of the project site (3.6 miles of the gen-tie line are located within the project site, and 4.8 miles are located off-site between the project site and the Colorado River Substation). A majority of the project is within the County of Riverside jurisdiction. An approximate 330-acre portion of the 3,660-acre project site is located within the City of Blythe jurisdiction. A Development Agreement between the County of Riverside and the applicant will be established setting forth the rights and responsibilities of each party with respect to project development and operation.

CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN

Regional Growth Forecasts

The DEIR should reflect the most current SCAG forecasts, which are the 2008 RTP (May 2008) Population, Household and Employment forecasts. The forecasts for your region, subregion and city are as follows:

Adopted SCAG Regionwide Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	19,418,344	20,465,830	21,468,948	22,395,121	23,255,377	24,057,286
Households	6,086,986	6,474,074	6,840,328	7,156,645	7,449,484	7,710,722
Employment	8,349,453	8,811,406	9,183,029	9,546,773	9,913,376	10,287,125

Adopted Coachella Valley Association of Governments Subregion Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	507,318	590,368	712,462	827,009	929,522	1,045,814
Households	174,485	202,268	241,275	281,289	317,209	354552
Employment	196,475	220,121	244,519	267,606	289,564	315289

Adopted City of Blythe Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	23,124	24,170	25,897	26,496	27,011	27,626
Households	4,806	5,116	5,645	5,914	6,152	6,399
Employment	6,225	6,539	6,923	7,198	7,375	7,551

1. The 2008 RTP growth forecast at the regional, subregional, and city level was adopted by the Regional Council in May 2008. City totals are the sum of small area data and should be used for advisory purposes only.

The **2008 Regional Transportation Plan (RTP)** also has goals and policies that may be pertinent to this proposed project. This RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. The RTP continues to support all applicable federal and state laws in implementing the proposed project. Among the relevant goals and policies of the RTP are the following:

Regional Transportation Plan Goals:

RTP G1 *Maximize mobility and accessibility for all people and goods in the region.*
RTP G2 *Ensure travel safety and reliability for all people and goods in the region.*
RTP G3 *Preserve and ensure a sustainable regional transportation system.*
RTP G4 *Maximize the productivity of our transportation system.*
RTP G5 *Protect the environment, improve air quality and promote energy efficiency.*
RTP G6 *Encourage land use and growth patterns that complement our transportation investments.*
RTP G7 *Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.*

GROWTH VISIONING

The fundamental goal of the **Compass Growth Visioning** effort is to make the SCAG region a better place to live, work and play for all residents regardless of race, ethnicity or income class. Thus, decisions regarding growth, transportation, land use, and economic development should be made to promote and sustain for future generations the region's mobility, livability and prosperity. The following "Regional Growth Principles" are proposed to provide a framework for local and regional decision making that improves the quality of life for all SCAG residents. Each principle is followed by a specific set of strategies intended to achieve this goal.

Principle 1: Improve mobility for all residents.

GV P1.1 *Encourage transportation investments and land use decisions that are mutually supportive.*
GV P1.2 *Locate new housing near existing jobs and new jobs near existing housing.*
GV P1.3 *Encourage transit-oriented development.*
GV P1.4 *Promote a variety of travel choices*

Principle 2: Foster livability in all communities.

GV P2.1 *Promote infill development and redevelopment to revitalize existing communities.*
GV P2.2 *Promote developments, which provide a mix of uses.*
GV P2.3 *Promote "people scaled," walkable communities.*
GV P2.4 *Support the preservation of stable, single-family neighborhoods.*

Principle 3: Enable prosperity for all people.

GV P3.1 *Provide, in each community, a variety of housing types to meet the housing needs of all income levels.*

GV P3.2 *Support educational opportunities that promote balanced growth.*
GV P3.3 *Ensure environmental justice regardless of race, ethnicity or income class.*
GV P3.4 *Support local and state fiscal policies that encourage balanced growth*
GV P3.5 *Encourage civic engagement.*

Principle 4: Promote sustainability for future generations.
GV P4.1 *Preserve rural, agricultural, recreational, and environmentally sensitive areas*
GV P4.2 *Focus development in urban centers and existing cities.*
GV P4.3 *Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.*
GV P4.4 *Utilize "green" development techniques*

CONCLUSION

As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA. We recommend that you review the SCAG List of Mitigation Measures for additional guidance, and encourage you to follow them, where applicable to your project. The SCAG List of Mitigation Measures may be found here: http://www.scag.ca.gov/igr/documents/SCAG_IGRMMRP_2008.pdf

SUGGESTED SIDE BY SIDE FORMAT - COMPARISON TABLE OF SCAG POLICIES

For ease of review, we would encourage the use of a side-by-side comparison of all SCAG policies with a discussion of the consistency, non-consistency or not applicable of the policy and supportive analysis in a table format. All policies and goals must be evaluated as to impacts. Suggested format is as follows:

The complete table can be found at: http://www.scag.ca.gov/igr/

- Click on ***"Demonstrating Your Project's Consistency With SCAG Policies"***
- Scroll down to ***"Table of SCAG Policies for IGR"***

SCAG Regional Transportation Plan Goals and Compass Growth Visioning Principles		
Regional Transportation Plan Goals		
Goal/ Principle Number	**Policy Text**	**Statement of Consistency, Non-Consistency, or Not Applicable**
RTP G1	Maximize mobility and accessibility for all people and goods in the region.	***Consistent:*** *Statement as to why* ***Not-Consistent:*** *Statement as to why* *or* ***Not Applicable:*** *Statement as to why*
RTP G2	Ensure travel safety and reliability for all people and goods in the region.	***Consistent:*** *Statement as to why* ***Not-Consistent:*** *Statement as to why* *or* ***Not Applicable:*** *Statement as to why*
RTP G3	Preserve and ensure a sustainable regional transportation system.	***Consistent:*** *Statement as to why* ***Not-Consistent:*** *Statement as to why* *or* ***Not Applicable:*** *Statement as to why*
Etc.	Etc.	Etc.

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

Louis B. Davis
Region Manager

December 19, 2011

Mr. Jay Olivas
Riverside County Planning Department
4080 Lemon Street, 12th Floor
P.O. Box 1409
Riverside, CA 92502-1409

RE: Notice of Preparation (NOP) for the Blythe Mesa I Solar Project

Dear Mr. Olivas:

Southern California Edison (SCE) appreciates the opportunity to provide comment on the NOP for the Blythe Solar PV I Project (Conditional Use Permit No. 3670) by Renewable Resources Group. The project is described as a proposal to develop a 485 megawatt solar photovoltaic (PV) electric generating facility and associated infrastructure on approximately 3,660 acres of land within the County of Riverside. Specifically, the project is stated to be located north and south of Interstate 10, west of Neighbors Boulevard and Arrowhead Boulevard, south and east of the Blythe Airport.

The proposed project includes a new 8.4 mile long, 230 kV double-circuit generator-tie line that will connect the proposed project with the approved Colorado River Substation located west of the project site. 3.6 miles of the gen-tie line are located within the project site, and 4.8 miles are located off-site between the project site and the Colorado River Substation.

Interconnection of renewable generators into SCE's California Independent System Operator (CAISO)-controlled grid is established through an application to CAISO under their rules and tariffs. SCE and CAISO work together to determine, through a series of Interconnection Studies, the new and/or upgraded electrical facilities required to be constructed to support interconnection of the project into SCE's transmission system. The generator enters into an Interconnection Agreement with SCE and CAISO to interconnect and operate its generation project, and for SCE to design, construct, install, operate and maintain any facilities or upgrades, and for the customer to pay for such upgrades. The Agreement also allows for refunds to be provided to the customer for any network upgrades financed up-front by the customer, pursuant to the Federal Energy Regulatory Commission (FERC) Tariff. Currently, the process includes projects studied serially and in clusters, which are queued for study purposes and for scheduling of construction activities.

CPUC Certificate of Public Convenience and Necessity (CPCN) Requirements

If the SCE interconnection facilities to be constructed or relocated are over 200 kV, GO 131-D, Section III.A requires SCE to obtain a CPCN from the CPUC unless certain exceptions apply. Accordingly, SCE would need to consult on a case-by-case basis with the CPUC for such projects to determine if the CPUC would allow the project to proceed "exempt" or instead allow SCE to proceed under an "expedited" CPCN application by attaching the final CEQA document completed by the Lead Agency in lieu of an SCE PEA.

24487 Prielipp Rd.
Wildomar, CA 92595

Office: (951) 249-8468
E-mail: louis.davis@sce.com

Such an expedited CPCN would typically take from 4-6 months for the CPUC to process.

For the benefits and reasons stated above, it is assumed that the project proponent for the generation project will include SCE's interconnection facilities and network upgrades work scope (including facilities to be constructed by others and deeded to SCE) in the reports/applications submitted to the Lead Agency permitting/entitling the generation project (e.g., California Energy Commission or applicable local, state or federal permitting agency, such as the Bureau of Land Management), and that such agencies will review the potential environmental impacts associated with SCE's work scope in any environmental document issued. However, depending on certain circumstances, the CPUC may still require SCE to undergo a standard PTC or CPCN for the generator tie-line and network upgrades associated with the generation project.

SCE Scope of Work NOT Subject to CPUC General Order 131-D

Certain SCE facilities and scope of work may not be subject to the CPUC's GO 131-D. In such instances, SCE will follow any and all other applicable environmental laws and regulations. In some cases, SCE will be required to obtain permits for SCE facilities and scope of work from state and federal agencies under other environmental laws and regulations, such as California Fish and Game Code, Clean Water Act, and Endangered Species Act. State and federal agencies may be required to comply with CEQA and NEPA prior to issuing their permits. The Lead Agency may also require evaluation of SCE's facilities and scope of work as part of the proposed generation project.

Coordination with SCE

For these reasons, SCE recommends that the project proponent and Lead Agency coordinate with SCE early in its environmental review process to identify the potential need to obtain certain permits for SCE facilities and scope of work necessary to interconnect the proposed project. SCE further suggests the project proponent submit to the Lead Agency information on the foreseeable SCE scope of work and its associated impacts, so that the Lead Agency can analyze such impacts during its environmental review process as appropriate. In this manner, the Lead Agency may coordinate with responsible agencies (under CEQA) or with cooperating agencies (under NEPA) to appropriately analyze impacts of the other agencies' actions and reduce the need for supplemental analyses and amendments to circulated environmental documents. In addition, SCE recommends that the project proponent coordinates with SCE when obtaining environmental permits in case both parties require permits issued under the same authorities.

For facilities that are not subject to GO 131-D, once all pre-construction requirements of applicable environmental laws and regulations are complied with, SCE would issue an in-house Environmental Clearance before commencement of its construction activities.

Impacts to SCE Facilities or Land Rights

In the event the project proposes to impact SCE facilities or its land related rights, please forward five (5) sets of project plans depicting SCE's facilities and its associated land rights to the following location for review:

Real Properties Department
Southern California Edison Company
2131 Walnut Grove Avenue, G.O.3 – Second Floor
Rosemead, CA 91770

Once again, SCE appreciates the opportunity to comment on the NOP for this project and looks forward to working closely with the applicant and the Lead Agency to support interconnection of this project into SCE's CAISO controlled transmission grid (or through SCE's WDAT). Please notify SCE when the DEIR for this project becomes available for public review. If you have any questions regarding this letter, please do not hesitate to contact me at (951) 249-8468.

Sincerely,

Louis Davis
Local Public Affairs Region Manager
Southern California Edison Company

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

Notice of Preparation

November 18, 2011

To: Reviewing Agencies

Re: EIR No. 529/CUP No. 3670/PUP No. 913/Blythe Mesa I Solar Projejct
SCH# 2011111056

Attached for your review and comment is the Notice of Preparation (NOP) for the EIR No. 529/CUP No. 3670/PUP No. 913/Blythe Mesa I Solar Projejct draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Jay Olivas
Riverside County
4080 Lemon Street, 9th Floor
P.O. Box 1409
Riverside, CA 92502-1409

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH#	**2011111056**
Project Title	EIR No. 529/CUP No. 3670/PUP No. 913/Blythe Mesa I Solar Projejct
Lead Agency	Riverside County

Type **NOP** Notice of Preparation

Description The proposed project consists of the construction and operation of a 485 megawatt solar photovoltaic (PV) electric generating facility and associated infrastructure on a total of ~3,6660 acres. The proposed project would consist of a solar array field utilizing single-axis solar PV trackers and panels with a combined maximum height of 8 feet. Supporting facilities on-site would include three electrical substations, two operation and maintenance buildings, inverters, transformers, and associated switchgear. Since most of the site has nearly level to gently sloping topography, no mass grading would be required and the natural drainage patterns of the site would not be significantly altered. The project site would be secured 24 hours per day by onsite private security personnel or remote services with motion-detection cameras. An equestrian-wire, wildlife-friendly and drainage-compatible security fence that meets National Electric Safety Code would be placed around the perimeter of the site. The proposed lighting for the site would be consistent with County building code. A new 8.4 mile long, 230 kv double-circuit generation-tie transmission line would connect the proposed project with the approved Colorado River Substation located west of the project site subject to Public Use Permit. A majority of the project is within the County of Riverside jurisdiction.

Lead Agency Contact

Name Jay Olivas
Agency Riverside County
Phone (951) 955-1195 *Fax*
email jolivas@rctlma.org
Address 4080 Lemon Street, 9th Floor
P.O. Box 1409
City Riverside *State* CA *Zip* 92502-1409

Project Location

County Riverside
City Blythe
Region
Cross Streets No. & So. of I-10, W. of Neighbors Blvd, So. & E. of Blythe Airport
Lat / Long 33° 36' N / 114° 41' 40" W
Parcel No. 821-110-004, etc.,
Township 7S *Range* 2W *Section* 27 *Base* SBB&M

Proximity to:

Highways I-10
Airports Blythe Airport
Railways Union Pacific
Waterways Colorado River
Schools Palo Verde Valley
Land Use Active and inactive agriculture/Heavy Agricultural, Light Agriculture, Controlled Development Areas/Agriculture and Rural Community.

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Economics/Jobs; Fiscal Impacts; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Septic System; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Landuse; Cumulative Effects; Other Issues

Note: Blanks in data fields result from insufficient information provided by lead agency.

Reviewing Agencies	Resources Agency; Colorado River Board; California Energy Commission; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 6; Native American Heritage Commission; Public Utilities Commission; California Highway Patrol; Caltrans, District 8; Air Resources Board; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 7

Date Received 11/18/2011 ***Start of Review*** 11/18/2011 ***End of Review*** 12/19/2011

NOP Distribution List ccm County: Riverside SCH# 2011111056

Resources Agency

- ■ **Resources Agency** Nadell Gayou
- ☐ **Dept. of Boating & Waterways** Nicole Wong
- ☐ **California Coastal Commission** Elizabeth A. Fuchs
- ☒ **Colorado River Board** Gerald R. Zimmerman
- ☐ **Dept. of Conservation** Elizabeth Carpenter
- ☒ **California Energy Commission** Eric Knight
- ☐ **Cal Fire** Allen Robertson
- ☐ **Central Valley Flood Protection Board** James Herota
- ☒ **Office of Historic Preservation** Ron Parsons
- ■ **Dept of Parks & Recreation** Environmental Stewardship Section
- ☐ **California Department of Resources, Recycling & Recovery** Sue O'Leary
- ☐ **S.F. Bay Conservation & Dev't. Comm.** Steve McAdam
- ☒ **Dept. of Water Resources** Resources Agency Nadell Gayou

Fish and Game

- ☐ **Depart. of Fish & Game** Scott Flint Environmental Services Division
- ☐ **Fish & Game Region 1** Donald Koch
- ☐ **Fish & Game Region 1E** Laurie Harnsberger
- ☐ **Fish & Game Region 2** Jeff Drongesen
- ☐ **Fish & Game Region 3** Charles Armor
- ☐ **Fish & Game Region 4** Julie Vance
- ☐ **Fish & Game Region 5** Leslie Newton-Reed Habitat Conservation Program
- ☒ **Fish & Game Region 6** Gabrina Gatchel Habitat Conservation Program
- ☐ **Fish & Game Region 6 I/M** Brad Henderson Inyo/Mono, Habitat Conservation Program
- ☐ **Dept. of Fish & Game M** George Isaac Marine Region

Other Departments

- ☐ **Food & Agriculture** Sandra Schubert Dept. of Food and Agriculture
- ☐ **Depart. of General Services** Public School Construction
- ☐ **Dept. of General Services** Anna Garbeff Environmental Services Section
- ☐ **Dept. of Public Health** Bridgette Binning Dept. of Health/Drinking Water
- ☐ **Delta Stewardship Council** **Terry Macaulay**

Independent Commissions,Boards

- ☐ **Delta Protection Commission** Linda Flack
- ☐ **Cal EMA (Emergency Management Agency)** Dennis Castrillo
- ■ **Native American Heritage Comm.** Debbie Treadway
- ☒ **Public Utilities Commission** Leo Wong
- ☐ **Santa Monica Bay Restoration** Guangyu Wang
- ☐ **State Lands Commission** Jennifer Deleong
- ☐ **Tahoe Regional Planning Agency (TRPA)** Cherry Jacques

Business, Trans & Housing

- ☐ **Caltrans - Division of Aeronautics** Philip Crimmins
- ☐ **Caltrans - Planning** Terri Pencovic
- ☒ **California Highway Patrol** Suzann Ikeuchi Office of Special Projects
- ☐ **Housing & Community Development** CEQA Coordinator Housing Policy Division

Dept. of Transportation

- ☐ **Caltrans, District 1** Rex Jackman
- ☐ **Caltrans, District 2** Marcelino Gonzalez
- ☐ **Caltrans, District 3** Bruce de Terra
- ☐ **Caltrans, District 4** Lisa Carboni
- ☐ **Caltrans, District 5** David Murray
- ☐ **Caltrans, District 6** Michael Navarro
- ☐ **Caltrans, District 7** Elmer Alvarez
- ☒ **Caltrans, District 8** Dan Kopulsky
- ☐ **Caltrans, District 9** Gayle Rosander
- ☐ **Caltrans, District 10** Tom Dumas
- ☐ **Caltrans, District 11** Jacob Armstrong
- ☐ **Caltrans, District 12** Marlon Regisford

Cal EPA

Air Resources Board

- ☒ Airport/Energy Projects Jim Lerner
- ☐ Transportation Projects Douglas Ito
- ☐ Industrial Projects Mike Tollstrup
- ☐ **State Water Resources Control Board** Regional Programs Unit Division of Financial Assistance
- ☐ **State Water Resources Control Board** Student Intern, 401 Water Quality Certification Unit Division of Water Quality
- ☐ **State Water Resouces Control Board** Phil Crader Division of Water Rights
- ☒ **Dept. of Toxic Substances Control** CEQA Tracking Center
- ☐ **Department of Pesticide Regulation** CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- ☐ **RWQCB 1** Cathleen Hudson North Coast Region (1)
- ☐ **RWQCB 2** Environmental Document Coordinator San Francisco Bay Region (2)
- ☐ **RWQCB 3** Central Coast Region (3)
- ☐ **RWQCB 4** Teresa Rodgers Los Angeles Region (4)
- ☐ **RWQCB 5S** Central Valley Region (5)
- ☐ **RWQCB 5F** Central Valley Region (5) Fresno Branch Office
- ☐ **RWQCB 5R** Central Valley Region (5) Redding Branch Office
- ☐ **RWQCB 6** Lahontan Region (6)
- ☐ **RWQCB 6V** Lahontan Region (6) Victorville Branch Office
- ☒ **RWQCB 7** Colorado River Basin Region (7)
- ☐ **RWQCB 8** Santa Ana Region (8)
- ☐ **RWQCB 9** San Diego Region (9)
- ☐ **Other** ____________
- ☐ ____________ Conservancy

Last Updated 9/29/11

RIVERSIDE COUNTY
PLANNING DEPARTMENT

Carolyn Syms Luna
Director

Agency Notice of Preparation of an Draft Environmental Impact Report

Date: November 16, 2011

ATTN: Stanley Sniff, Sheriff
Sheriff's Department, Riverside County
Mail Stop 1450

PROJECT CASE NO./TITLE: Environmental Impact Report No. 529 / Conditional Use Permit No. 3670 / Public Use Permit No. 913 / Blythe Mesa I Solar Project

PROJECT LOCATION: East Riverside County - Palo Verde Area Plan, the Blythe Mesa I Solar Project is located approximately 5 miles west of central Blythe and 40 miles east of Desert Center; more specifically, the project is located north and south of Interstate 10, west of Neighbors Boulevard and Arrowhead Boulevard, south and east of the Blythe Airport. The site consists primarily of agricultural land located south and east of the community of Nicholls Warm Springs/Mesa Verde. APNs 821-110-004, 821-120-025, 821-120-026, 821-120-027, etc. (see attached sheet entitled "Blythe Mesa Solar Project" "Assessor's Parcels for Solar Field (CUP03670)". Also, as shown on the exhibits entitled "Blythe Mesa Solar Project - Topographic Quadrangle Map", "Public Use Permit", "Blythe Mesa Solar Project Conditional Use Permit #3670 Pages 1 & 2", Exhibits "A1", "Notice of Preparation Attachment A", "Figure 1: Regional Area Map", "Figure 2: Site Plan & Solar Module", and "Figure 3: Typical Tiled Tracker Panels".

PROJECT DESCRIPTION: The proposed project consists of the construction and operation of a 485 megawatt solar photovoltaic (PV) electric generating facility and associated infrastructure on a total of approximately 3,660 acres. The proposed project would consist of a solar array field utilizing single-axis solar PV trackers and panels with a combined maximum height of 8 feet. Supporting facilities on-site would include three electrical substations, two operation and maintenance buildings, inverters, transformers, and associated switchgear. Since most of the site has nearly level to gently sloping topography, no mass grading would be required and the natural drainage patterns of the site would not be significantly altered. The Project site would be secured 24 hours per day by onsite private security personnel or remote services with motion-detection cameras. An equestrian-wire, wildlife-friendly and drainage-compaitble security fence that meets National Electric Safety Code would be placed around the perimeter of the site. The proposed lighting for the site would be consistent with County building code. A new 8.4 mile long, 230 kilovolt (kV) double-circuit generation-tie transmission line would connect the proposed project with the approved Colorado River Substation located west of the project site subject to Public Use Permit (3.6 miles of the gen-tie line are located within the project site, and 4.8 miles are located off-site between the project site and the Colorado River Substation). A majority of the project is within the County of Riverside jurisdiction. An approximate 330-acre portion of the 3,660-acre project site is located within the City of Blythe jurisdiction. A Development Agreement between the County of Riverside and the applicant will be established setting forth the rights and responsibilities of each party with respect to project development and operation.

Riverside County Sheriff- Colorado River Station
260 North Spring Street, Blythe CA. 92225
Stan Sniff - Sheriff

MEMORANDUM

To: Riverside Co. Planning Dept. **Date**: 12/15/2011

From: Capt. Jim Navarro
Station Commander
760-921-7900

Re: EIR No. 529, CUP No. 3670, PUP No. 913, Blythe Mesa Solar Project

The Sheriff's Department, Colorado River Station has no specific requests or changes at this time.

One comment concerning the location of the project in relation to the Sheriff's Department Shooting Range in Parcel # 824-080-004. Please be aware of our requirement to have 24-hour access to our site and that live fire activities can be occurring many times between 5:00 AM and 11:00 PM on any day of the week.

Thank you,

James D. Navarro
Sheriff's Captain

APPENDIX B
AIR QUALITY AND GLOBAL CLIMATE CHANGE TECHNICAL REPORT

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Air Quality and
Global Climate Change Technical Report

for the

Blythe Mesa Solar Project

Submitted To:

Power Engineers, Inc.
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Anaheim, CA 92805

Prepared By:

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San Diego, CA 92109

January 2013

Table of Contents

1.0 Introduction

The purpose of this Air Quality Technical Report is to describe the existing regional air quality in the air basin of the Project area; to provide a discussion of applicable federal, state, and local air quality regulations; to assess the potential air quality impacts associated with construction and operation of the Project; and to identify measures that would be required to mitigate air quality impacts or minimize emissions.

The Project's potential for air quality impacts would be mainly associated with construction activities. Construction of the project would result in emissions of tailpipe emissions from vehicles and heavy construction equipment, and in emissions of fugitive dust from site preparation activities. Operational activities would also result in emissions from vehicles and inspection and maintenance activities.

This report also provides an evaluation of emissions of greenhouse gases (GHGs) from construction and operation activities, and an evaluation of the potential for cumulative impacts associated with GHG emissions.

1.1 Study Personnel

This Air Quality Technical Report was prepared by Valorie L. Thompson, Ph.D., Principal of Scientific Resources Associated. Scientific Resources Associated specializes in Air Quality and Global Climate Change technical studies.

1.2 Project Description (Alternative 1)

The proposed Blythe Mesa Solar Project (Project) consists of construction and operation of a 485 megawatt (MW) alternating current solar photovoltaic (PV) electrical generating facility and associated infrastructure to provide site access and connection to the statewide electricity transmission grid. The Project is proposed to be located on approximately 3,660 acres in the Palo Verde Mesa region of Riverside County—3,587 for the solar field and 73 acres for the 230 kilovolt (kV) transmission line interconnect (Figure 1). The power produced by the Project would be conveyed to the local power grid via interconnection to the Southern California Edison Colorado River Substation, an approved new substation located south of Highway 10 and approximately four miles west of the Project site. The Project has secured a California Independent System Operator (CAISO) interconnection queue position sufficient for the size of the Project. The Project would produce enough energy to power approximately 180,000 households and progress the goals of the California Renewable Portfolio Standard (RPS) and other similar renewable programs in the state.

The objectives for the Blythe Mesa Solar Project are as follows:

- Construct a solar energy facility in order to meet state and federal renewable energy standards and goals.
- Assist with greenhouse gas reduction objectives to the maximum extent possible.
- Locate the Project facilities as near as possible to electrical transmission facilities with anticipated capacity and reserved CASIO interconnection position.
- Site the Project in an area with excellent solar energy resource, in order to maximize productivity from the PV panels.
- To the extent feasible, site the Project on disturbed land and locate the facility on land with compatible topography in a manner that minimizes environmental impacts.
- Use a proven and available solar PV technology.

1.3 Project Alternatives

In addition to the Project (Alternative 1), this analysis addresses three project alternatives. The project alternatives include the following:

ALTERNATIVE 2: NO ACTION/PROJECT ALTERNATIVE

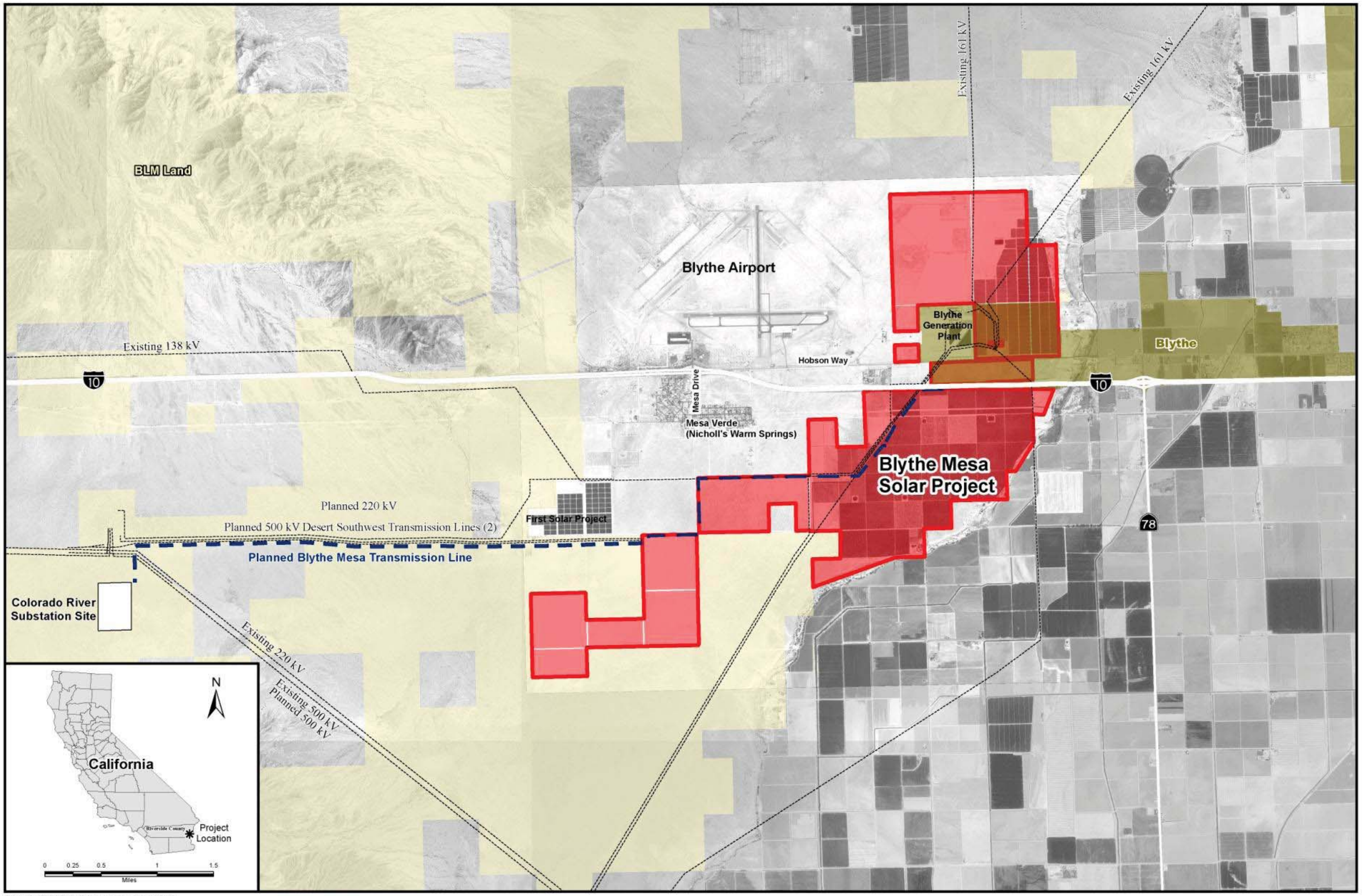
The No Action/Project Alternative is required by NEPA and CEQA. Under the No Action/Project Alternative, the construction of a solar generating facility and associated infrastructure would not occur. This alternative reflects existing conditions as well as what would be reasonably expected to occur in the foreseeable future if the Project was not approved and does not take place.

ALTERNATIVE 3: NORTHERN ALTERNATIVE 230 KV TRANSMISSION LINE LOCATION

Similar to Alternative 1 (Proposed Project), Alternative 3 would include the construction, operation, and potential decommissioning of a 485 MW solar PV electrical generating facility and associated infrastructure. It would occupy a total of 3,682 acres and would utilize the same solar array field as the proposed Project. The primary difference between Alternatives 1 and 3 is the location of the 230 kV transmission line that extends outside of the solar array field to the Colorado River Substation; the same 230 kV transmission alignment within the solar array field would be utilized for both Alternatives 1 and 3. The transmission alignment for Alternatives 1 and 3 would also be located within the same BLM utility corridor; however, Alternative 3 would be located on the north side of the corridor and within a 150-foot ROW entirely on BLM-managed lands. Under this alternative, the total length of the 230 kV transmission line both on-site and off-site would be 8.8 miles; 3.6 miles are located on private lands within the array site boundary and 5.2 miles located off-site on BLM managed lands. The BLM portion of the ROW would contain 95 acres.

ALTERNATIVE 4: SOUTHERN TRANSMISSION LINE ALTERNATIVE

Similar to Alternative 1, Alternative 4 would include the construction, operation, and decommissioning of a 485 MW solar PV electrical generating facility and associated infrastructure. Alternative 4 would occupy a total of 3,648 acres and would utilize the same solar array field location as the proposed Project. The primary difference between Alternatives 1 and 4 is the location of the 230 kV transmission line that extends between the solar array field (BMSP substation 3) to the Colorado River Substation. Alternative 4 would exit the southwestern portion of the solar array field and extend approximately 4.0 miles west to the Colorado River Substation within a 125-foot ROW. To facilitate this alignment, and additional 10,000 feet of 230 kV transmission line would need to be built on the solar array extending south from the BMSP substation 3 and angling west to the site boundary. The transmission line would continue westerly off-site across 3.4 miles of BLM managed lands and 0.6 miles of private lands before reaching the Colorado River Substation. Under this alternative, the total length of the 230 kV transmission line both on-site and off-site would be 9.5 miles; 5.5 miles are located on private lands within the array site boundary and 4.0 miles located off-site (3.3 miles on BLM managed lands and 0.7 mile on private land). The total area of the ROW offsite is about 60 acres (50 acres of BLM managed land and 10 acres of private land).


BLM Land
Blythe Airport
Existing 161 kV
Existing 161 kV
Blythe Generation Plant
Blythe
Existing 138 kV
Hobson Way
10
10
Mesa Drive
Mesa Verde (Nicholl's Warm Springs)
Blythe Mesa Solar Project
78
Planned 220 kV
Planned 500 kV Desert Southwest Transmission Lines (2)
First Solar Project
Planned Blythe Mesa Transmission Line
Colorado River Substation Site
Existing 220 kV
Existing 500 kV
Planned 500 kV
California
Project Location
N
Miles

2.0 Regulatory Framework

Air quality is defined by ambient air concentrations of specific pollutants determined by the United States Environmental Protection Agency (USEPA) to be of concern with respect to the health and welfare of the general public. Seven major pollutants of concern, called "criteria pollutants," are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb). The USEPA has established National Ambient Air Quality Standards (NAAQS) for these pollutants. Areas that violate a federal air quality standard are designated as non-attainment areas.

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. Emission considerations include the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter of air) or as a volume fraction (e.g., parts per million [ppm] by volume).

Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, Pb, and some particulates, are emitted directly into the atmosphere from emission sources.

Secondary pollutants, such as O_3, NO_2, and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. PM_{10} and $PM_{2.5}$ are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, PM_{10} and $PM_{2.5}$ can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants condensing into fine aerosols. In general, emissions that are considered "precursors" to secondary pollutants in the atmosphere (such as reactive organic gases [ROG] and oxides of nitrogen [NOx], which are considered precursors for O_3), are the pollutants for which emissions are evaluated to control the level of O_3 in the ambient air.

The following specific descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on information from the California Air Resources Board (ARB) (ARB 2012).

Ozone. O_3 is considered a photochemical oxidant, which is a chemical that is formed when reactive organic gases (ROG) and oxides of nitrogen (NOx), both by-products of combustion, react in the presence of ultraviolet light. O_3 is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma and increase susceptibility to respiratory infections. Exposure to levels of ozone above the current ambient air quality standard can lead to human health effects such as lung inflammation and tissue damage and impaired lung functioning. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms. The greatest risk for harmful health effects belongs to outdoor workers, athletes, children and others who spend greater amounts of time outdoors during smoggy periods. Elevated ozone levels can reduce crop and timber yields, as well as damage native plants. Ozone can also damage materials such as rubber, fabrics and plastics. Children and those with existing respiratory diseases are at greatest risk from exposure to O_3.

Carbon Monoxide. CO is a product of combustion, and the main source of CO in the SDAB is from motor vehicle exhaust. CO is an odorless, colorless gas. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen. Exposure to CO is especially harmful to those with heart disease, because the heart has to pump harder to get enough oxygen to the body. CO exposure has been associated with aggravation of angina pectoris and other aspects of coronary heart disease, decreased exercise tolerance in people with peripheral vascular disease and lung disease, impairment of central nervous system functions, and possible increased risk to fetuses. At high altitudes (such as in the Lake Tahoe Air Basin), these effects are worsened. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues.

Nitrogen Dioxide. NO_2 is also a by-product of fuel combustion, and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen oxide (NO) with oxygen. NO_2 is a respiratory irritant and may affect those with existing respiratory illness, including asthma. Exposure to NO_2 along with other traffic-related pollutants, is associated with respiratory symptoms, episodes of respiratory illness and impaired lung functioning. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.

Respirable Particulate Matter and Fine Particulate Matter. Respirable particulate matter, or PM_{10}, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Fine particulate matter, or $PM_{2.5}$, refers to particulate matter with an aerodynamic diameter of 2.5 microns or less. Particulate matter in this size range has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM_{10} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, combustion, tire and brake wear, construction operations and windblown dust. Extensive research indicates that exposure to outdoor PM_{10} and $PM_{2.5}$ levels exceeding current air quality standards is associated with increased risk of hospitalization for lung and heart-related respiratory illness, including emergency room visits for asthma. PM exposure is also associated with increased risk of premature deaths, especially in the elderly and people with pre-existing cardiopulmonary disease. In children, studies have shown associations between PM exposure and reduced lung function and increased respiratory symptoms and illnesses. Besides reducing visibility, the acidic portion of PM (nitrates, sulfates) can harm crops, forests, aquatic and other ecosystems.

Sulfur dioxide. SO_2 is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO_2 are found near large industrial sources. Effects from SO_2 exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO_2 results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. SO_2 is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

Lead. Lead in the atmosphere occurs as particulate matter. Lead has historically been emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children. Lead is also classified as a probable human carcinogen.

Sulfates. Sulfates are the fully oxidized ionic form of sulfur. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The ARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and due to fact that they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide. H_2S is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard would result in exposure to a very disagreeable odor. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

Vinyl Chloride. Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants and hazardous waste sites, due to microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer, in humans.

Visibility Reducing Particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The CAAQS is intended to limit the frequency and severity of visibility impairment due to regional haze. A separate standard for visibility-reducing particles that is applicable only in the Lake Tahoe Air Basin is based on reduction in scenic quality.

Toxic air contaminants (TACs) are substances that have the potential to be emitted into the ambient air that have been determined to present some level of acute or chronic health risk (cancer or non-cancer) to the general public. These pollutants may be emitted in trace amounts from various types of sources, including combustion sources.

TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act apply to facilities that use, produce, or emit toxic chemicals. Facilities that are subject to the toxic emission inventory requirements of the act must prepare and submit toxic emission inventory plans and reports and periodically update those reports.

The main TACs that are emitted from mobile sources such as those that would be operating to construct and operate the Blythe Mesa Solar Project include those substances that the USEPA and the Federal Highway Administration (FHWA) have identified as Mobile Source Air Toxics. The USEPA reviewed the list of TACs and identified a group of 21 TAC's as Mobile Source Air Toxics (MSATs), which are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. The USEPA also extracted a subset of this list of 21 MSAT's that it now labels as the seven priority MSATs. These are *benzene, formaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, 1,3-butadiene, naphthalene, and polycyclic organic matter (POM)* (FHWA 2009). While these MSATs are considered the priority transportation toxics, the USEPA stresses that the lists are subject to change and may be adjusted in future rules (FHWA 2009).

The following specific descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on information on health effects of

TACs from the California Office of Environmental Health Hazard Assessment (OEHHA 2012) and the USEPA (USEPA 2012).

Benzene. Approximately 84 percent of the benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. Currently, the benzene content of gasoline is less than one percent.

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. The USEPA has classified benzene as a Group A, human carcinogen.

Formaldehyde. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. The USEPA considers formaldehyde a probable human carcinogen (Group B1).

The non-cancer adverse health effects of formaldehyde are largely a manifestation of its ability to irritate mucous membranes. As a result of its solubility in water and high reactivity, formaldehyde is efficiently absorbed into the mucus layers protecting the eyes and respiratory tract where it rapidly reacts, leading primarily to localized irritation. Acute high exposure may lead to eye, nose and throat irritation, and in the respiratory tract, nasal obstruction, pulmonary edema and dyspnea. Prolonged or repeated exposures have been associated with allergic sensitization, respiratory symptoms (coughing, wheezing, shortness of breath), histopathological changes in respiratory epithelium, and decrements in lung function. Children, especially those with diagnosed asthma, may be more likely to show impaired pulmonary function and symptoms than are adults following chronic exposure to formaldehyde.

Diesel Particulate Matter. Diesel particulate matter is emitted from both mobile and stationary sources. In California, onroad diesel-fueled engines contribute approximately 24 percent of the statewide total, with an additional 71 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources contribute about five percent of total diesel particulate matter.

Diesel exhaust includes over 40 substances that are listed by the USEPA as hazardous air pollutants and by the ARB as toxic air contaminants. Fifteen of these substances are listed by the International Agency for Research on Cancer (IARC) as carcinogenic to humans, or as a probable or possible human carcinogen. Some of these substances are: acetaldehyde; antimony compounds; arsenic; benzene; beryllium compounds; bis(2-ethylhexyl)phthalate; dioxins and dibenzofurans; formaldehyde; inorganic lead; mercury compounds; nickel; POM (including PAHs); and styrene. Almost all of the diesel particle mass is in the fine particle range of 10 microns or less in diameter (PM_{10}). Approximately 94 percent of the mass of these particles are less than 2.5 microns in diameter. Because of their small size, these particles can be inhaled and a portion will eventually become trapped within the small airways and alveolar regions of the lung.

A number of adverse short-term health effects have been associated with exposures to diesel exhaust. Occupational exposures to diesel exhaust particles have been associated with significant cross-shift decreases in lung function. Increased cough, labored breathing, chest tightness, and wheezing have been associated with exposure to diesel exhaust in bus garage workers. A significant increase in airway resistance and increases in eye and nasal irritation were observed in human volunteers following one-hour chamber exposure to diesel exhaust. In acute or subchronic animal studies, exposure to diesel exhaust particles induced inflammatory airway changes, lung function changes, and increased the animals' susceptibility to infection.

A number of adverse long-term noncancer effects have been associated with exposure to diesel exhaust. Occupational studies have shown that there may be a greater incidence of cough, phlegm and chronic bronchitis among those exposed to diesel exhaust than among those not exposed. Reductions in pulmonary function have also been reported following occupational exposures in chronic studies. Exposure to diesel exhaust has also shown cellular changes in laboratory animals.

Over 30 human epidemiological studies have investigated the potential carcinogenicity of diesel exhaust. These studies, on average, found that long-term occupational exposures to diesel exhaust were associated with a 40 percent increase in the relative risk of lung cancer. The lung cancer findings are consistent and the association is unlikely to be due to chance. These epidemiological studies strongly suggest a causal relationship between occupational diesel exhaust exposure and lung cancer.

Acrolein. Acrolein is a powerful irritant. Due to its highly reactive nature, the effects of acrolein are generally limited to the site of contact; skin, eyes and mucous membranes. Inhalation exposure to low levels (≤ 1 ppm) causes irritation of the eyes, nose and throat. Acute exposures to levels above 1 ppm result in mucous hypersecretion and exacerbation of allergic airway response in animal models. Moderately higher exposures may result in severe lacrimation, and irritation of the mucous membranes of the respiratory tract. Death due to respiratory failure has been associated with high level exposures. Long term exposure to acrolein may result in structural and functional changes in the respiratory tract, including lesions in the nasal mucosa, and pulmonary inflammation.

1,3–Butadiene. Motor vehicle exhaust is a constant source of 1,3-butadiene. Although 1,3-butadiene breaks down quickly in the atmosphere, it is usually found in ambient air at low levels in urban and suburban areas. Acute (short-term) exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Epidemiological studies have reported a possible association between 1,3-butadiene exposure and cardiovascular diseases. Epidemiological studies of workers in rubber plants have shown an association between 1,3-butadiene exposure and increased incidence of leukemia. Animal studies have reported tumors at various sites from 1,3-butadiene exposure. The USEPA has classified 1,3-butadiene as carcinogenic to humans by inhalation.

Naphthalene. Naphthalene is used in the production of phthalic anhydride; it is also used in mothballs. Acute (short-term) exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to the liver, and neurological damage. Cataracts have also been reported in workers acutely exposed to naphthalene by inhalation and ingestion. Chronic (long-term) exposure of workers and rodents to naphthalene has been reported to cause cataracts and damage to the retina. Hemolytic anemia has been reported in infants born to mothers who "sniffed" and ingested naphthalene (as mothballs) during pregnancy. Available data are inadequate to establish a causal relationship between exposure to naphthalene and cancer in humans. The USEPA has classified naphthalene as a Group C, possible human carcinogen. The state of California has classified naphthalene as a carcinogenic compound.

Polycyclic Organic Matter. The term polycyclic organic matter (POM) defines a broad class of compounds that includes the polycyclic aromatic hydrocarbon compounds (PAHs), of which benzo[a]pyrene is a member. POM compounds are formed primarily from combustion and are present in the atmosphere in particulate form. Sources of air emissions are diverse and include cigarette smoke, vehicle exhaust, home heating, laying tar, and grilling meat. Cancer is the major concern from exposure to POM. Epidemiologic studies have reported an increase in lung cancer in humans exposed to coke oven emissions, roofing tar emissions, and cigarette smoke; all of these mixtures contain POM compounds. Animal studies have reported respiratory tract tumors from inhalation exposure to benzo[a]pyrene and forestomach tumors, leukemia, and lung tumors from oral exposure to benzo[a]pyrene. The USEPA has classified seven PAHs (benzo[*a*]pyrene, benz[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene) as Group B2, probable human carcinogens.

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions occur from natural processes as well as human activities. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Scientific evidence indicates a trend of increasing global temperature over the past century, which a number of scientists attribute to an increase in GHG emissions from human activities. The climate change associated with this global warming is predicted to produce negative economic and social consequences across the globe.

Recent observed changes due to global warming include shrinking glaciers, thawing permafrost, a lengthened growing season, and shifts in plant and animal ranges (Intergovernmental Panel on Climate Change 2007). Generally accepted predictions of long-term environmental impacts due to global warming include sea level rise, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack.

The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons and perfluorocarbons) and sulfur hexafluoride. Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO_2, which has a value of one. For example, CH_4 has a global warming potential of 21, which means that it has a global warming effect 21 times greater than CO_2 on an equal-mass basis. Total GHG emissions from a source are often reported as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its global warming potential and adding the results together to produce a single, combined emission rate representing all GHGs. On a national scale, federal agencies are addressing emissions of GHGs by reductions mandated in federal laws and Executive Orders, most recently, Executive Order 13423 Strengthening Federal Environmental, Energy, and Transportation Management (January 24, 2007) was enacted. Several states have promulgated laws as a means to reduce statewide levels of GHG emissions. In particular, the California

Global Warming Solutions Act of 2006 directs the State of California to reduce statewide GHG emissions to 1990 levels by the year 2020.

The potential effects of proposed GHG emissions are by nature global, and have cumulative impacts. As individual sources, GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, the impact of proposed GHG emissions to climate change is discussed in the context of cumulative impacts.

Air quality in the air basin for the Project area is regulated by federal, state, and local regulatory agencies with the responsibility for maintaining ambient air quality within federal and state standards. The USEPA is the federal agency responsible for establishing air quality regulations on a federal level. The Federal Clean Air Act (CAA) and its subsequent amendments establish air quality regulations and the NAAQS and delegate the enforcement of these standards to the states. In California, the California Air Resources Board (ARB) is responsible for enforcing air pollution regulations. The ARB has in turn delegated the responsibility of regulating stationary emission sources to regional air agencies. In the air basin of the Project area, which is located in eastern Riverside County, the Mojave Desert Air Quality Management District (MDAQMD) has this responsibility.

The following sections summarize the air quality rules and regulations that apply to the Blythe Mesa Solar Project.

2.1 Federal Regulations

The Federal CAA applies to all air emission sources and to all areas within the United States. Regulations adopted under the CAA that would apply to the Blythe Mesa Solar Project would include the NAAQS, as well as other requirements that have been adopted as part of the MDAQMD's federally approved plans and programs.

As indicated in Federal Register Volume 75, No. 11, Page 2938, the USEPA is considering lowering the 8-hour O_3 standard from 0.075 ppm, which is its current level, to a lower level within the range of 0.060 and 0.070 ppm. The lower level is proposed to provide increased protection for children and other "at risk" populations against O_3 health effects.

Recent actions by the USEPA have allowed for the regulation of greenhouse gases (GHGs). On April 17, 2009, USEPA issued its proposed endangerment finding for GHG emissions. On December 7, 2009, the USEPA Administrator signed and finalized two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

> **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)--in the atmosphere threaten the public health and welfare of current and future generations.
>
> **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite to finalizing the USEPA's proposed greenhouse gas emission standards for light-duty vehicles, which were jointly proposed by USEPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009 and adopted on April 1, 2010. As finalized in April 2010, the emissions standards rule for vehicles will improve average fuel economy standards to 35.5 miles per gallon by 2016. In addition, the rule will require model year 2016 vehicles to meet an estimated combined average emission level of 250 grams of carbon dioxide per mile.

On March 10, 2009, in response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), the USEPA proposed a rule that requires mandatory reporting of greenhouse gas (GHG) emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of Greenhouse Gases Rule was signed, and was published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009.

The rule will collect accurate and comprehensive emissions data to inform future policy decisions.

The USEPA is requiring suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to USEPA. The gases covered by the proposed rule are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), and other fluorinated gases, including nitrogen trifluoride (NF_3) and hydrofluorinated ethers (HFE).

2.2 State Regulations

The ARB has oversight over air quality in the state of California, and has established the California Clean Air Act (CCAA). The CCAA was signed into law in 1988 and, for the first time, clearly spelled out in statute California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. The CCAA provides the State with a comprehensive framework for air quality planning regulation. Prior to passage of the Act, federal law contained the only comprehensive planning framework. As part of its authority within the state of California, and as allowed under the Federal CAA, the ARB has established the California Ambient Air Quality Standards (CAAQS). The CAAQS are at least as stringent as the NAAQS. Both the NAAQS and CAAQS are shown in Table 1.

The ARB is responsible for the development of the State Implementation Plan (SIP), which provides a framework for attaining and maintaining the NAAQS within the state of California. In turn, development of individual inputs to the SIP is the responsibility of local air pollution control agencies. Regulation of individual stationary sources has been delegated to local air pollution control agencies.

The ARB is responsible for developing programs designed to reduce emissions from non-stationary sources, including motor vehicles and off-road equipment. The ARB and the California Office of Environmental Health Hazard Assessment (OEHHA) are also responsible for developing regulations governing TACs. TACs include air pollutants that can cause serious illnesses or increased mortality, even in low concentrations. The ARB and OEHHA identify specific air pollutants as TACs, develop health thresholds for exposure to TACs, and develop guidelines for conducting health risk assessments for sources of TAC emissions.

The state of California enacted some of the first legislation in the United States to regulate GHGs. The following subsections describe regulations and standards that have been adopted by the state of California to address GHG emissions.

Assembly Bill 32, the California Global Warming Solutions Act of 2006. In September 2006, Governor Schwarzenegger signed AB 32 into law. AB 32 directs the ARB to do the following:

- Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit.
- Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020.
- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures.
- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources that ARB finds necessary to achieve the statewide GHG emissions limit.
- Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

AB 32 required that, by January 1, 2008, the ARB determine what the statewide GHG emissions level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. The ARB adopted its Scoping Plan in December 2008, which provided estimates of the 1990 GHG emissions level and identified sectors for the reduction of GHG emissions. The ARB has estimated that the 1990 GHG emissions level was 427 MMT net CO_2e (ARB 2007b). The ARB estimates that a reduction of 173 MMT net CO_2e emissions below business-as-usual would be required by 2020 to meet the 1990 levels (ARB 2007b). This amounts to roughly a 30 percent reduction from projected business-as-usual levels in 2020 (ARB 2008a).

Senate Bill 97. Senate Bill (SB) 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. SB 97 directed the Governor's Office of Planning and Research (OPR) to develop draft CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009, and directed the California Natural Resources Agency (CNRA) to certify and adopt the CEQA guidelines by January 1, 2010.

OPR published a technical advisory on CEQA and climate change on June 19, 2008. The guidance did not include a suggested threshold, but stated that the OPR had asked the ARB to "recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of greenhouse gas emissions throughout the state." The OPR technical advisory does recommend that CEQA analyses include the following components:

- Identification of greenhouse gas emissions;
- Determination of significance; and
- Mitigation of impacts, as needed and as feasible.

On December 31, 2009, the CNRA adopted the proposed amendments to the State CEQA Guidelines. These amendments became effective on March 18, 2010.

Executive Order S-3-05. Executive Order S-3-05, signed by Governor Schwarzenegger on June 1, 2005, calls for a reduction in GHG emissions to 1990 levels by 2020 and for an 80 percent reduction in GHG emissions below 1990 levels by 2050. Executive Order S-3-05 also calls for the California EPA (CalEPA) to prepare biennial science reports on the potential impact of continued GCC on certain sectors of the California economy. The first of these reports, "Our

Changing Climate: Assessing Risks to California", and its supporting document "Scenarios of Climate Change in California: An Overview" were published by the California Climate Change Center in 2006.

Executive Order S-21-09. Executive Order S-21-09 was enacted by the Governor on September 15, 2009. Executive Order S-21-09 requires that the ARB, under its AB 32 authority, adopt a regulation by July 31, 2010 that sets a 33 percent renewable energy target. Under Executive Order S-21-09, the ARB will work with the Public Utilities Commission and California Energy Commission to encourage the creation and use of renewable energy sources, and will regulate all California utilities. The ARB will also consult with the Independent System Operator and other load balancing authorities on the impacts on reliability, renewable integration requirements, and interactions with wholesale power markets in carrying out the provisions of the Executive Order. The order requires the ARB to establish highest priority for those resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health.

California Code of Regulations Title 24. Although not originally intended to reduce greenhouse gas emissions, Title 24 of the California Code of Regulations, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods. Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in greenhouse gas emissions. Therefore, increased energy efficiency results in decreased greenhouse gas emissions.

The GHG emission inventory was based on Title 24 standards as of October 2005; however, Title 24 has been updated as of 2008 and standards are currently being phased in.

Senate Bill 1078, Senate Bill 107, and Executive Order S-14-08. SB 1078 initially set a target of 20% of energy to be sold from renewable sources by the year 2017. The schedule for implementation of the RPS was accelerated in 2006 with the Governor's signing of SB 107, which accelerated the 20% RPS goal from 2017 to 2010. On November 17, 2008, the Governor signed Executive Order S-14-08, which requires all retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. The Governor signed Executive Order S-21-09 on September 15, 2009, which directs ARB to implement a regulation consistent with the 2020 33% renewable energy target by July 31, 2010.

State Standards Addressing Vehicular Emissions. California Assembly Bill 1493 (Pavley) enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. Regulations adopted by ARB would apply to 2009 and later model year vehicles. ARB estimated that the regulation would reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18% in 2020 and by 27% in 2030 (AEP 2007). Overall within the state of California, implementation of the Pavley standards are anticipated to reduce GHG emissions by 17.23% (ARB 2011).

The ARB has adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments, approved by the ARB Board on September 24, 2009, are part of California's commitment toward a nation-wide program to reduce new passenger vehicle GHGs from 2012 through 2016, and prepare California to harmonize its rules with the federal rules for passenger vehicles.

Executive Order S-01-07. Executive Order S-01-07 was enacted by the Governor on January 18, 2007, and mandates that: 1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and 2) a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California. On April 23, 2009, the ARB adopted regulations to implement the LCFS.

Senate Bill 375. SB 375 finds that GHG from autos and light trucks can be substantially reduced by new vehicle technology, but even so "it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." Therefore, SB 375 requires that regions with metropolitan planning organizations adopt sustainable communities strategies, as part of their regional transportation plans, which are designed to achieve certain goals for the reduction of GHG emissions from mobile sources.

SB 375 also includes CEQA streamlining provisions for "transit priority projects" that are consistent with an adopted sustainable communities strategy. As defined in SB 375, a "transit priority project" shall: (1) contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 and 50 percent nonresidential uses, a floor area ratio of not less than 0.75; (2) provide a maximum net density of at least 20 dwelling units per acre; and (3) be within 0.5 mile of a major transit stop or high quality transit corridor.

Table 1
National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	NATIONAL STANDARDS [a]	
			Primary [b,c]	Secondary [b,d]
Ozone (O_3)	8-hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as primary
	1-hour	0.09 ppm (180 µg/m^3)	—	—
Carbon monoxide (CO)	8-hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
Nitrogen dioxide (NO_2)	Annual	0.030 ppm (56 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary
	1-hour	0.18 ppm (338 µg/m^3)	0.100 ppm (188 µg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1,300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	—
PM_{10}	Annual	20 µg/m^3	—	—
	24-hour	50 µg/m^3	150 µg/m^3	Same as primary
$PM_{2.5}$	Annual	12 µg/m^3	12.0 µg/m^3	
	24-hour	—	35 µg/m^3	
Lead	Rolling 3-month period	—	0.15 µg/m^3	Same as primary
	Calendar Quarter	—	1.5 µg/m^3	Same as primary
	30-day average	1.5 µg/m^3	—	—
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	—	—

Notes:

(a) Standards other than the 1-hour ozone, 24-hour PM_{10}, 24-hour $PM_{2.5}$, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

(b) Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

(c) Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

(d) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

2.3 Local Regulations

As discussed above, the Blythe Mesa Solar Project is located in the jurisdiction of the MDAQMD. The MDAQMD is responsible for regulating stationary sources of air emissions in the air basin of the Project area. Stationary sources that have the potential to emit air pollutants into the ambient air are subject to the Rules and Regulations adopted by the MDAQMD. The following MDAQMD rules are applicable to the project.

Rule 401 – Visible Emissions. Rule 401 states that a person shall not discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines, or
(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Subsection A [of the Rules].

Rule 402 - Nuisance. Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403 – Fugitive Dust. Rule 403 requires control of fugitive dust emissions during activities such as construction that have the potential to generate dust. The provisions of Rule 403 include the following:

(a) A person shall not cause or allow the emissions of fugitive dust from any transport, handling, construction or storage activity so that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source. (Does not apply to emissions emanating from unpaved roadways open to public travel or farm roads. This exclusion shall not apply to industrial or commercial facilities).
(b) A person shall take every reasonable precaution to minimize fugitive dust emissions from wrecking, excavation, grading, clearing of land and solid waste disposal operations.
(c) A person shall not cause or allow particulate matter to exceed 100 micrograms per cubic meter when determined as the difference between upwind and downwind samples collected on high volume samplers at the property line for a minimum of five hours.
(d) A person shall take every reasonable precaution to prevent visible particulate matter from being deposited upon public roadways as a direct result of their operations. Reasonable precautions shall include, but are not limited to, the removal of particulate matter from equipment prior to movement on paved streets or the prompt removal of any material from paved streets onto which such material has been deposited.

(e) Subsections (a) and (c) shall not be applicable when the wind speed instantaneously exceeds 40 kilometers (25 miles) per hour, or when the average wind speed is greater than 24 kilometers (15 miles) per hour. The average wind speed determination shall be on a 15 minute average at the nearest official air-monitoring station or by wind instrument located at the site being checked.

(f) The provisions of this rule shall not apply to agricultural operations.

Rule 404 – Particulate Matter Concentration. Rule 404 restricts emissions of particulate matter from any source based on the concentrations specified in Table 404(a).

Rule 405 – Solid Particulate Matter Weight. Rule 405 restricts emissions of particulate matter from any source based on the concentrations specified in Table 405(a).

Rule 406 – Specific Contaminants. Rule 406 restricts emissions of sulfur compounds to 500 ppmv or less, and restricts emissions of halogens, which are not generally emitted from construction projects.

Rule 407 – Liquid and Gaseous Air Contaminants. Rule 407 restricts emissions of carbon monoxide to 2000 ppm or less.

Rule 408 – Circumvention. Rule 408 restricts the building, erection, installation or use of any equipment, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which would otherwise constitute a violation of Chapter 3 (commencing with Section 41700) of Part 4, of Division 26 of the Health and Safety Code or of the MDAQMD Rules.

Rule 409 – Combustion Contaminants. Rule 409 restricts discharge into the atmosphere from the burning of fuel, combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12 percent of carbon dioxide (CO2) at standard conditions averaged over a minimum of 25 consecutive minutes.

Rule 431 – Sulfur Content of Fuels. Rule 431 restricts the use of any gaseous fuel containing sulfur compounds in excess of 800 ppm calculated as hydrogen sulfide at standard conditions, or any liquid or solid fuel having a sulfur content in excess of 0.5 percent by weight.

Rule 442 – Usage of Solvents. Rule 442 restricts the emission of VOCs from any solvent material to 1,190 pounds per month, and requires proper storage and handling of VOC-containing solvents.

To date, the MDAQMD has not enacted regulations governing GHGs.

3.0 Environmental Setting

As discussed in Section 1.2, the Project is proposed to be located on approximately 3,660 acres in the Palo Verde Mesa region of Riverside County—3,587 for the solar field and 73 acres for the 230 kilovolt (kV) transmission line interconnect. The site is located in proximity to rural agricultural lands, undeveloped lands, uses associated with the Blythe Airport, power generation, local roads, and interstate highway and other non-sensitive uses.

Sensitive receptors are people who are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be sensitive to poor air quality because children, elderly people, and the infirmed are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses may also be considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

Sensitive air quality receptors (e.g., local residences, schools, hospitals, churches, and recreational facilities) are located within one mile of the project site, including several residences. There are 369 residences within one mile of the project site, of which eight individual residences are located within 1,000 feet of the site. The closest residence is located approximately 260 feet away. In addition, the project is approximately 0.4 miles (2,200 feet) from the Mesa Verde Park and approximately 0.8 miles (4,400 feet) from the Roy Wilson Community and Child Center. No schools, hospitals, or convalescent homes are located within one mile of the proposed project.

Areas that do not meet the NAAQS or CAAQS for a given criteria pollutant are designated as "nonattainment areas" by the USEPA and/or the ARB. Further classifications are given to nonattainment areas to identify the severity and number of violations experienced, and the year in which attainment is anticipated based on implementation of attainment plans. The Project area is located in a portion of the air basin considered an unclassified/attainment area for all of the NAAQS. The air basin of the Project area is considered a moderate nonattainment area for the CAAQS for O_3 and a nonattainment area for the CAAQS for PM_{10}. The air basin of the Project area is considered unclassified/attainment for all CAAQS for the other criteria pollutants.

3.1 Regional Climate

The project area is located in eastern California in the Colorado Desert. The Colorado Desert ranges in elevation from 2,000 feet above sea level to 5,000 feet above sea level. The climate in the Blythe area is categorized as a high desert climate, with dry, hot summers and cool winters. The region is characterized by extreme fluctuations of daily temperatures, strong seasonal winds, and clear skies. January is the coldest month, with a mean low temperature of 37.4°F. July is the hottest month, with a mean high temperature of 108.4°F.

In late winter and early spring the wind is a prominent feature, with dry winds blowing in the afternoon and evening. Winds in excess of 25 mph, with gusts of 75 mph or more are not uncommon. Although it is windy during all months, November, December and January are the calmest. The humidity is below 40% most of the year. During most winter nights, and during and after summer rains the humidity can get above 50%.

The Colorado Desert lies in the rainshadow of the Coast Ranges and receives an average annual precipitation of 5 inches. Most of the precipitation occurs between November and April. There is, however, a summer thunderstorm season from July to September with violent and heavy rainstorms possible.

Data from the Western Regional Climate Center (WRCC 2010) indicate that temperature and precipitation data were measured at Blythe from January 1913 through the present. The mean temperature for the Blythe station is 71.6°F, and the mean annual precipitation is 3.80 inches. Monthly average temperatures and precipitation for the area are summarized in Table 2.

Table 2 Monthly Average Temperatures and Precipitation Blythe Meteorological Station				
Month	**Monthly Average Temperatures, °F**			**Precipitation, inches**
	Maximum	**Minimum**	**Mean**	**Mean**
January	67.6	37.4	52.5	0.51
February	73.0	41.8	57.4	0.46
March	79.4	46.5	57.4	0.34
April	87.4	52.7	70.0	0.12
May	95.5	59.9	77.7	0.03
June	104.2	67.4	85.8	0.05
July	108.4	76.1	92.3	0.19
August	106.8	75.4	91.1	0.61
September	101.8	67.3	84.6	0.39
October	90.5	54.8	72.6	0.27
November	76.7	43.4	60.0	0.27
December	67.7	37.6	52.7	0.57
Annual	75.8	49.9	62.9	3.80

Source: www.wrcc.dri.edu

Figure 3 presents a wind rose from Blythe Airport showing the prevailing winds in the Project area.

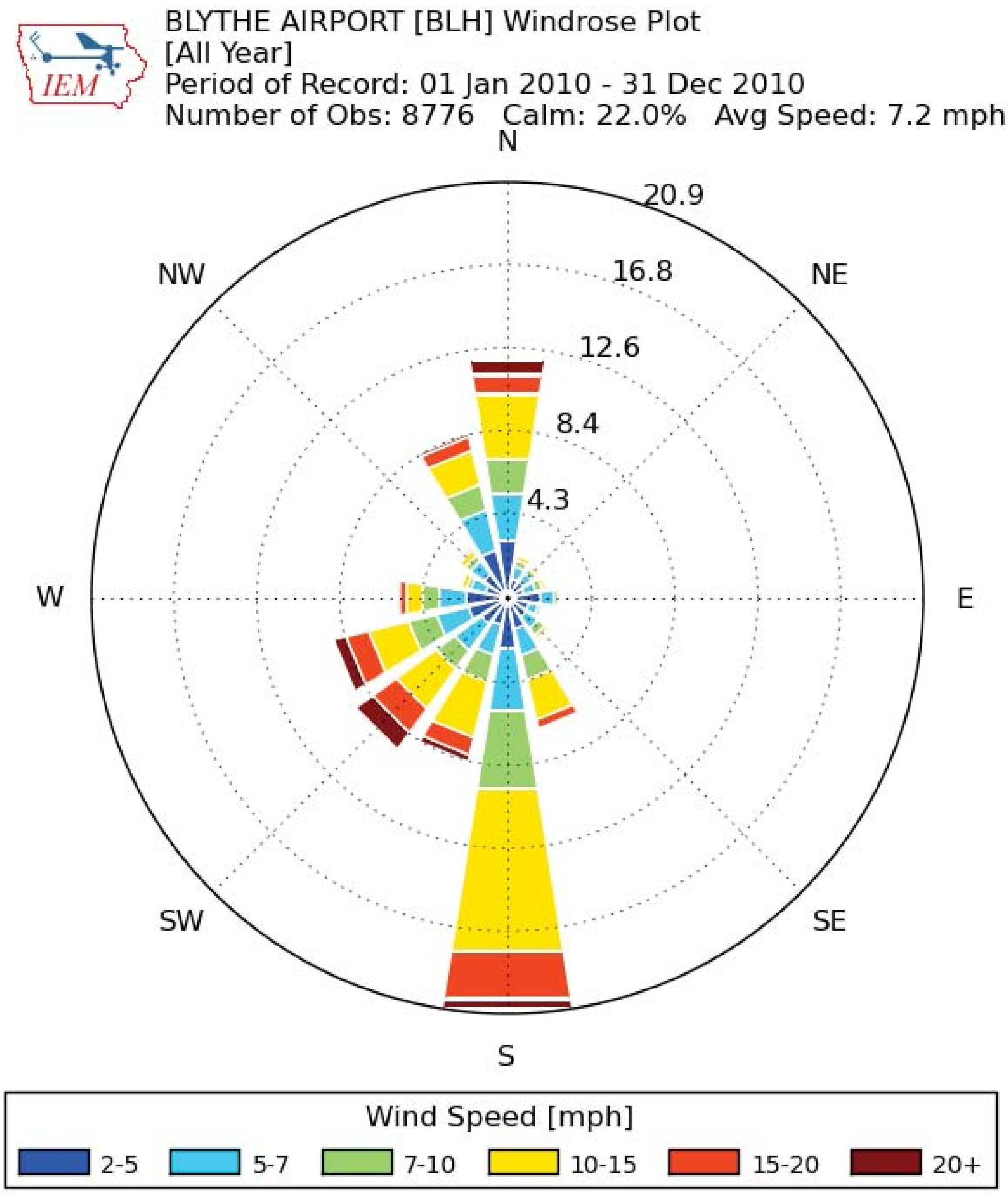


Figure 3. Blythe Wind Rose

3.2 Existing Air Quality

The ARB and the MDAQMD operate a series of ambient air quality monitoring stations throughout the southern California. The closest monitoring site to the Blythe Mesa Solar Project is located at 445 West Murphy Street in Blythe. The Blythe monitoring station measures O_3. The nearest monitoring station that measures $PM_{2.5}$ is located in Victorville; measurements in Victorville are not likely to be representative of conditions in the Project area. The nearest monitoring station that measures CO, NO_2, and PM_{10} is located at Barstow, which may also be substantially different from conditions in Blythe. Data from this station are shown below for informational purposes. Table 3 provides a summary of background air quality representative of the Project region.

Table 3
Representative Air Quality Data for the Blythe Mesa Solar Project Area (2006-2011)

Air Quality Indicator	2006	2007	2008	2009	2010	2011
Ozone (O_3) [1,3]						
Peak 1-hour value (ppm)	0.073	0.092	0.074	0.072	0.072	0.066
Days above state standard (0.09 ppm)	0	0	0	0	0	0
Peak 8-hour value (ppm)	0.059	0.075	0.071	0.066	0.067	0.061
Days above state standard (0.070 ppm)	0	1	1	0	0	0
Days above federal standard (0.075 ppm) [1,2]	0	0	0	0	0	0
Particulate matter less than or equal to 10 microns in diameter (PM_{10}) [4]						
Peak 24-hour value ($\mu g/m^3$)	80	202	93	76	38	108
Days above state standard (50 $\mu g/m^3$)	2	5	2	2	0	2
Days above federal standard (150 $\mu g/m^3$)	0	1	0	0	0	0
Annual Arithmetic Mean (ppm)	21.9	29.8	26.1	26.8	18.8	21.5
Carbon Monoxide [4]						
Peak 8-hour value ($\mu g/m^3$)	1.19	0.70	1.23	0.89	0.89	1.35
Days above federal standard (9 ppm)	0	0	0	0	0	0
Peak 8-hour value ($\mu g/m^3$)	3.5	1.4	1.4	1.2	1.1	4.3
Days above state standard (20 ppm)	0	0	0	0	0	0
Days above federal standard (35 ppm)	0	0	0	0	0	0
Nitrogen Dioxide (NO_2) [4]						
Peak 1-hour value (ppm)	0.082	0.073	0.081	0.060	0.062	0.077
Days above state standard (0.18 ppm)	0	0	0	0	0	0
Annual Arithmetic Mean (ppm)	0.022	0.020	0.019	0.016	0.017	0.017

Notes: (1) The federal O_3 standard was revised downward in 2008 to 0.075 ppm.
(2) The federal eight-hour ozone standard was previously defined as 0.08 ppm (1 significant digit). Measurements were rounded up or down to determine compliance with the standard; therefore a measurement of 0.084 ppm is rounded to 0.08 ppm. The 8-hour ozone ambient air quality standards are met at an ambient air quality monitoring site when the average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to the standard.
(3) Data from the Blythe monitoring station. Data for 1-hour CO concentrations unavailable.
(4) Data from the Barstow monitoring station.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; * = not available
Source: http://www.arb.ca.gov/adam/php_files/aqdphp/topfourdisplay.php

4.0 Impact Assessment

4.1 Significance Thresholds

The CEQA thresholds of significance for air quality are derived from Appendix G of the state CEQA guidelines. These thresholds indicate that a project could have potentially significant impacts if it could:

a. Conflict with or obstruct implementation of the applicable air quality plan

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation

c. Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including release emissions which exceed quantitative thresholds for ozone precursors);

d. Expose sensitive receptors to substantial pollutant concentrations; or

e. Create objectionable odors affecting a substantial number of people.

The MDAQMD has adopted CEQA Guidelines (MDAQMD 2009) based on the State CEQA Guidelines that indicate that a project would have a significant impact on air quality if it will:

1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table 4 below; and/or,
2. Generates a violation of any ambient air quality standard when added to the local background; and/or,
3. Does not conform with the applicable attainment or maintenance plan(s); and/or,
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.

As defined in the MDAQMD's CEQA Guidelines, sensitive receptors include residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. The following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated using significance threshold criterion number 4:

- Any industrial project within 1000 feet;
- A distribution center (40 or more trucks per day) within 1000 feet;
- A major transportation project (50,000 or more vehicles per day) within 1000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

Table 4 presents the quantitative thresholds by which a project's emissions are evaluated under significance threshold criterion number 1. The air quality impacts associated with the project were evaluated for significance based on these significance criteria.

Table 4
MDAQMD Significant Emission Thresholds

Criteria Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NOx)	25	137
Volatile Organic Compounds (VOCs)	25	137
Oxides of Sulfur (SOx)	25	137
Particulate Matter (PM_{10})	15	82
Particulate Matter ($PM_{2.5}$)	15	82
Hydrogen Sulfide (H_2S)	10	54
Lead (Pb)	0.6	3

In addition to air quality impacts, this analysis addresses impacts associated with greenhouse gas emissions. The effects of project-specific greenhouse gas (GHG) emissions are cumulative, and therefore global climate change impacts are addressed as a cumulative, rather than a direct, impact. The guidance for determining significance of impacts has been developed from the requirements of AB 32. The guideline addresses the potential cumulative impacts that a project's GHG emissions could have on global climate change. Based on Appendix G of the CEQA Guidelines, the following criteria are used to evaluate whether a project would result in a significant impact for global climate change impacts:

Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed in Section 15064.4 of the CEQA Regulations, the determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

(2) Rely on a qualitative analysis or performance based standards.

A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are

still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Different agencies and studies estimate different goals for reduction of emissions to achieve 1990 levels by the year 2020, as set forth in AB 32. CAPCOA has suggested a screening-level significance threshold of 900 metric tons of CO_2-equivalent (CO_2e) emissions annually (CAPCOA 2008).

Impacts from GHG emissions were therefore evaluated based on a significance threshold of 900 metric tons of CO_2e as a screening threshold.

4.2 Impacts – Alternative 1

4.2.1 Construction Impacts – Alternative 1

Site Preparation

Since most of the site has nearly level to gently sloping topography, no mass grading would be required. Some of the parcels where facilities and arrays are located would require light grubbing for leveling and trenching. Access roads would require minimal grading. After grubbing and light grading, construction of staging areas would occur. On-site pre-assembly of trackers would take place in the assembly area.

The PV system proposed for the site can operate on slopes up to nine percent in all directions. Fine grading would only be required for the development of site access roads or to reduce extreme elevation areas. In order to aim for balanced cut-and-fill quantities, grading activities may include placement and compaction of excess materials in low-elevation areas of the site.

Minor demolition of existing site structures (e.g., storage buildings in citrus grove) is required.

Installation of the electrical collection system would require excavations to a depth of about three feet for underground electrical circuits, inverter and switchgear enclosure foundations, and transformer foundation. The O&M building foundation would also be excavated to a depth of about three feet.

Construction Activities

The Project would be constructed in the following phases, which will occur simultaneously on different portions of the site:

- Development of staging areas and assembly areas, and grading of site access roads.
- Construction of arrays including the pile installation, the assembly of trackers, the mounting of PV panels, and trenching and installation of electrical equipment for arrays.
- Construction of electrical transmission facilities including the construction of three substation, double-circuit transmission line, and two O&M buildings.

Staging Areas, Assembly Areas, and Access Roads

Construction staging and material lay-down would be distributed across the project site evenly to allow for efficient distribution of components to different parts of the project. One staging and material lay-down area is typically set up for every 100 acres of a project site. These lay-down areas would be fenced and cover approximately five acres each. Lay-down areas would be temporary and would be converted to solar arrays as work is completed in the general area. Within the solar field, 12 foot wide access road would also be constructed approximately every 200 to 400 feet to allow access and maintenance of the solar panels.

Array Assembly

Tracker assembly may include up to 25 small gas-powered generators to power welding machines to assemble trackers and construct tracker arrays. Support piles up would be driven into the ground to a depth of eight to twelve feet using a vibration technology to reduce noise impacts. Torque tubes, electrical wire trays, and panels would then be installed on the piles. Concrete foundations for the drive motors would be poured in place, and electrical equipment for the array would be set in place. A tracked backhoe would drive piles. No blasting or rock breaking is anticipated or proposed. Small truck-mounted cranes or grade-all forklifts would place trackers on support tiles. Tracker installation would include small all-terrain vehicles to transport materials and workers on access roads and array aisles.

Substations

Construction of the substations would involve site preparation, clearing of the switchyard site, and installation of substructures and electrical equipment. The site would be initially cleared, graded, and security fenced for the duration of substation construction. Underground Service Alert would be contacted to mark the locations of existing buried utilities in the vicinity. Substation materials and equipment would be delivered to, and stored at, the substation site, as required, during construction. The site would be graded to maintain current drainage patters as much as possible.

The substation would be constructed with conventional grading and construction equipment. Grading would establish the desired site grade, and minor excavation would provide concrete footings for the substation equipment. The substation site would be graveled with crushed rock for grounding and employee safety purposes.

O&M Buildings

The O&M building area would be surveyed and staked. A concrete slab would be poured to the dimensions of the building. The prefabricated steel building structure would then be assembled. The exterior finished would be constructed as the mechanical and electrical systems are built inside. Interior finishing would follow, and final fixtures and equipment would be installed.

Transmission Line

The transmission line construction will involve the following activities: (1) construction of staging areas for trailers, office personnel, equipment, material staging, lay-down and employee parking; (2) construction of access roads to the structure locations; (3) pole erection; (4) conductor installation; (5) tension and pulling sites of conductors; and (6) installation of overhead ground/fiber optic communications system.

Construction Sequence, Equipment, and Workforce

Construction is anticipated to occur over a three-year period with the construction phases (described above) occurring simultaneously. The solar field would be developed in six-month phases, with six blocks constructed at a time (each block 100 acres or a total of 600 acres at a time). As the arrays are being assembled, construction of the substations, transmission line, switchyard, and O&M buildings would also occur simultaneously. The timing and workforce used for each construction activity/phase is illustrated in Table 3. After the common facilities (e.g., substations, switchyards, O&M buildings) are completed in the earlier stages, the workforce would be devoted more to array construction in the later stages.

Approximately 300-500 daily workers would be present on site during construction. Workers would gain primary access to the site using Seeley Avenue and Riverside Drive off of Neighbors Blvd. Worker construction traffic would consist of up to 400daily vehicle roundtrips. It is anticipated that most workers would be drawn from the Blythe/Palo Verde Valley region and the Desert Center region, with a smaller portion drawn from the Imperial Valley or Eastern Riverside County region. Anticipated average daily material deliveries would consist of 20 truck deliveries per day for 24 months. Workers and delivery trucks will access site using the Neighbors Blvd. off ramp off Highway 10. On-site work hours would be from 7:00 a.m. to 7:00 p.m. During the installation period, construction workers are projected to be onsite five days per week, year round. Due to weather or other major type delays, times may shift to start as early as 5:00 a.m. and end as late as 8:00 p.m., as well as continue into the weekends. Security will be onsite 24 hours per day.

Table 5
Construction Phasing and Workforce Estimates

CONSTRUCTION ACTIVITY/PHASE*	DURATION	WORKERS
Site Preparation/Clearing/Grading	6 months	20
Staging & Assembly Areas (including access roads)	6 months	20
Construction of Solar Array, Substations, O&M Buildings	24 months	200-400
Installation of 230 kV Transmission Line & Fiber Optic Cable	12 months	30
Testing	3 months	20
Clean up/restoration	1 month	20

*Construction would occur over a three-year period with construction activities staggered.

During construction, a variety of equipment and vehicles would be operating on the site. Table 6 provides a list of the type and number of equipment and vehicles expected to construct each construction phase.

Table 6
Construction Equipment by Construction Phase

EQUIPMENT	CONSTRUCTION PHASES					
	Site Preparation	Construction of Solar Array	Installation of Transmission Line Poles	Fiber Optic Cable	Substation & O&M Building	Clean up & Restoration
Backhoe		X	X		X	
Cranes		X	X	X	X	
Vibratory Post Divers		X				
Fork Lifts	X	X	X	X	X	
Dozers	X				X	
Excavator	X				X	
Grader	X				X	X
Loaders, Rubber Tired	X	X	X	X		
Rollers	X				X	
Scrapers	X					
Trenchers		X				
Dump Truck	X	X				
Water Truck	X	X			X	
Concrete Truck	X	X	X			
Flatbed Truck		X	X	X	X	
Light-weight Truck	X	X	X	X	X	
ATV Gator Carts	X	X			X	

The assumptions used to calculate construction emissions are as follows:

- Heavy construction equipment would be similar to other similar projects for site preparation, installation of the solar array, construction of the transmission line, and construction of the substation and O&M buildings.
- It was assumed that watering three times daily would control emissions of PM_{10} and $PM_{2.5}$ by 75 percent (based on the Midwest Research Institute's evaluation of fugitive

dust control measures, considering the application of water and dust suppressants on unpaved surfaces, control of stockpiles using water, use of enclosures and minimum freeboard on trucks, and limiting vehicles speeds on unpaved roadways).

- For the purpose of estimating maximum daily traffic, it was assumed that the maximum number of employees (500) could arrive in a single day. For conservative purposes,it was assumed that carpooling would reduce the total number of daily round trips to 400. It was also assumed that 20 truck trips could occur in a single day.
- Workers and trucks would travel, on average, 40 miles round trip per day.

Emissions of ROG, SOx, and GHGs from heavy equipment used in construction of the Blythe Mesa Solar Project were estimated based on emission factors for the SCAB from the ARB's OFFROAD2007 Model (ARB 2007a), as published on the SCAQMD's website. Emissions of NOx, CO, and PM were calculated based on the assumption that the equipment used for construction would, at a minimum, meet USEPA Tier 2 emission standards. Emission factors for 2012 represent the average fleet emissions throughout the SCAB and were considered representative of construction equipment that would be used during construction of the project. Emissions from worker travel and truck traffic were calculated using the ARB's EMFAC2007 Model (ARB 2007b) for on-road vehicles. Emissions of fugitive dust were estimated based on SCAQMD and USEPA emission factors. Unmitigated construction emissions may have the potential to result in a temporary significant impact on the air quality. Under the MDAQMD Rules and Regulations, all projects must comply with Rule 403, which prohibits fugitive dust from construction activities that results in emissions that are visible in the atmosphere beyond the property line where construction is occurring. Through the implementation of Rule 403, fugitive dust control measures must be utilized to reduce emissions of particulate matter during construction, and emissions from construction would therefore not conflict with or obstruct implementation of the applicable air quality management plan, and will be mitigated to below a level of significance.

Solar Array, O&M Buildings, Substation, and Transmission Line. Construction of these portions of the project would occur on site. The project also includes construction of an 8.4-mile transmission line to connect with the grid. Emissions were estimated based on the construction schedule and equipment requirements for the project provided by the project team. Table 7 presents a summary of the daily construction emissions for the construction of the solar array, O&M buildings, substation, and transmission line based on the above assumptions and assuming standard mitigation measures would be implemented, in comparison with the MDAQMD significance thresholds.

Table 7
Estimated Construction Emissions – Solar Arrays, O&M Buildings, Substation and Transmission Line
Blythe Mesa Solar Project

Emission Source	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Maximum Daily Construction Emissions, lbs/day						
Offroad Equipment	35.35	99.36	63.31	12.81	4.61	4.10
On-Road Vehicles	19.10	33.84	207.51	0.02	4.04	4.00
Fugitive Dust	---	---	---	---	41.82	8.78
TOTAL	**54.45**	**133.20**	**270.82**	**12.83**	**50.47**	**16.88**
Significance Thresholds	137	137	548	137	82	82
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Annual Construction Emissions, tons/year						
Offroad Equipment	1.71	13.90	8.61	0.39	0.62	0.55
On-Road Vehicles	2.41	4.54	25.97	0.00	0.52	0.51
Fugitive Dust	---	---	---	---	5.02	0.96
TOTAL	**4.12**	**18.44**	**34.58**	**0.39**	**6.16**	**2.02**
Significance Thresholds	25	25	100	25	15	15
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

As shown in Table 7, maximum daily emissions from construction of the solar array, O&M buildings, and substation would be below the significance thresholds for the maximum daily construction for all pollutants. Annual emissions would also be below the significance thresholds for all pollutants. Construction would therefore result in a less than significant impact on air quality.

Mitigation measures include fugitive dust control measures as required under MDAQMD Rule 403. Additional measures to reduce emissions during construction include the following:

Mitigation Measure AQ-1: Employ the following measures to reduce emissions from construction equipment and fugitive dust generating activities, as feasible.

- Require off-road construction equipment to meet or exceed Tier 3 standards with available CARB verified technologies, or
- Alternatively, require the use of alternative fueled off-road construction equipment, and
- Reroute construction trucks away from congested streets or sensitive receptor areas.
- Operating equipment in an idling mode shall be minimized not idle for more than five minutes. All equipment should be turned off when not in use, to the extent feasible.
- Minimize obstruction of through-traffic lanes. When feasible, construction should be planned so that lane closures on existing streets are kept to a minimum. If necessary, a flag person shall be retained to maintain the safety adjacent to existing roadways. Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Dedicated turn lanes and/or other roadway improvements shall be provided as appropriate at heavily congested roadways.
- Require the application of non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more),
- Install wheel washers where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site,
- Require all trucks hauling dirt, sand, soil, or other loose materials to be covered,
- Suspend all excavating and grading operations when wind gusts (as instantaneous gusts) exceed 25 mph,
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM_{10} generation,
- When sweeping streets to remove visible soil materials use certified street sweepers or roadway washing trucks, and
- Replace ground cover in disturbed areas as quickly as possible.
- Construct or build with materials that do not require painting, and
- Require the use of pre-painted construction materials.

These construction mitigation measures will reduce emissions from construction. Impacts will be less than significant.

4.2.2 Operational Emissions – Alternative 1

Operations and maintenance include general operational activities in support of the site, as well as periodic washing of the solar panels. After the construction phase, the O&M building would serve the Project's approximately 12 permanent full-time employees, which would include one plant manager, five engineers/technicians, and six security staff. Project facilities would be monitored during operating (daylight) hours, even though the Project facilities would be capable of automatic start up, shutdown, self-diagnosis, and fault detection. The panels may be cleaned up to two times per year, if necessary to optimize output. No heavy equipment would be used during normal operation. O&M vehicles would include trucks (pickup and flatbed), forklifts, and loaders for routine and unscheduled maintenance and water trucks for solar panel washing. Large heavy-haul transport equipment may be brought to the project site infrequently for equipment repair or replacement. Fugitive dust would be generated from vehicles and equipment on unpaved surfaces.

Operational emissions would be confined to inspection and maintenance activities, including washing of the solar panels. Emissions associated with operations are summarized in Table 8.

Table 8
Estimated Operational Emissions
Blythe Mesa Solar Project

Emission Source	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Total Operational Emissions, lbs/day						
Offroad Equipment	10.99	37.59	19.95	1.32	1.15	1.02
On-Road Vehicles	3.25	9.48	36.90	0.00	0.38	0.38
Fugitive Dust	---	---	---	---	6.87	0.69
TOTAL	**14.24**	**47.07**	**56.84**	**1.32**	**8.40**	**2.09**
Significance Thresholds	137	137	548	137	82	82
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Total Operational Emissions, tons/year						
Offroad Equipment	0.97	2.83	1.50	0.12	0.09	0.08
On-Road Vehicles	0.06	0.09	0.72	0.00	0.01	0.01
Fugitive Dust	---	---	---	---	0.20	0.03
TOTAL	**1.03**	**2.92**	**2.22**	**0.12**	**0.30**	**0.12**
Significance Thresholds	25	25	100	25	15	15
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

As shown in Table 8, operational emissions would be below the maximum daily and annual significance thresholds within the MDAQMD. Impacts from operations would therefore be less than significant.

4.2.3 Toxic Air Contaminant Emissions – Alternative 1

Construction activities would result in emissions of diesel particulate matter from heavy construction equipment used on site and truck traffic to and from the site, as well as minor amounts of TAC emissions from motor vehicles (such as benzene, 1,3-butadiene, toluene, and xylenes). Health effects attributable to exposure to diesel particulate matter are long-term effects based on chronic (i.e., long-term) exposure to emissions. Health effects are generally evaluated based on a lifetime (70 years) of exposure. As discussed in Section 4.1, a project would result in a significant impact if it exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.

The risk-driving TAC associated with construction activities at the Blythe Mesa project site is diesel particulate emitted from equipment and vehicles operating on site. Sources of diesel particulate matter at the site would include haul truck activities, heavy construction equipment, and contractor vehicles. Construction emissions were modeled using the SCREEN3 model to evaluate whether diesel particulate matter would result in a significant health risk to sensitive receptors in and adjacent to the Project area.

Based on the construction emissions analysis as shown in Table 7, the annual particulate emissions from offroad equipment operating on site would be 0.62 tons per year. The on-road diesel emissions would be 0.52 tons per year, which includes the 40-mile round trip distance traveling on roads to the site. For the purpose of providing a worst case analysis of the potential for TAC impacts to sensitive receptors, it was assumed that all of the on-road emissions could occur at the site.

The emissions were modeled using the SCREEN3 model as a volume source on the site, assuming the nearest off-site receptor would be located 100 meters from the site boundary.

Because SCREEN3 only provides maximum one-hour concentrations and excess cancer and chronic risks from diesel particulate matter are calculated on an annualized basis, the concentration predicted by the model was multiplied by the USEPA's recommended scaling factor of 0.08 to convert a 1-hour maximum concentration to an annual concentration.

The expected diesel construction emission concentrations from the SCREEN3 model are shown below in Table 9. Based upon the model results, the particulate matter concentrations are below the inhalation Chronic Risk Factor of 1.0 and the Cancer Risk Threshold of 10 in one million. There is no other substantial evidence in the record demonstrating that the Proposed Project would have a significant impact. Therefore, impacts for cancer risks from toxic air emissions during construction activities would be less than significant.

Table 9
Screening Health Risk Assessment Results

Diesel Particulate Matter Emissions (tons per year)	**1-hour Ground-Level Concentration, micrograms/cubic meter**	Annual **Ground-Level Concentration, micrograms/cubic meter**	**Calculated Cancer Risk (in a million)**	**Inhalation Chronic Risk Factor**	**Significant?**
1.14	0.4807	0.03846	0.549	0.00769	***No***

Notes:
1. SCREEN3 inputs were calculated by converting the diesel engine particulate matter emissions in tons per year for construction activities to grams per second per meters squared. The following conversion factors were utilized: 1 day = 86,400 seconds; 1 pound = 453.592 grams; 1 acre = 4,046.873 square meters
2. Pollutant concentrations based upon SCREEN3 modeling results.
3. The inhalation cancer risk was calculated based on the following equation:

Inhalation cancer risk = ((Cair*DBR*A*EF*ED*1x10^{-6})/AT)*Inhalation Cancer Potency Factor)

Where

Cair = concentration in the air of DPM;
DBR = daily breathing rate (based on OEHHA guidance, assume 80^{th} percentile breathing rate of 303 L/kg-day);
A = inhalation absorption factor (1);
EF = exposure frequency (365 days/year);
ED = duration of construction (3 years)
AT = average time period over which exposure is averaged (25,550 days);
Inhalation Cancer Potency Factor = 1.1 mg/kg-d$)^{-1}$

4. The inhalation chronic risk was based upon the following equation:

Inhalation chronic risk = (Cair/Chronic Reference Exposure Level)

Where

Cair = concentration in the air of DPM;
Chronic Reference Exposure Level = Concentration level at which OEHHA has determined a significant chronic risk may result from inhalation exposure (5.0 μg/m^3)

4.2.4 Consistency with Ambient Air Quality Plans – Alternative 1

The MDAQMD's most recently adopted air quality management plan is its 2004 Ozone Attainment Plan (MDAQMD 2004). The MDAQMD has adopted the control measures recommended in the plan in its Rules and Regulations. The MDAQMD has also adopted fugitive dust control requirements in its Rule 403. Because the project will comply with the MDAQMD's Rules and Regulations, including those adopted from the SIP, the project will not conflict with the applicable Air Quality Plan.

4.2.5 Decommissioning Emissions – Alternative 1

At the end of the energy contract term, the facilities would be decommissioned and dismantled and the site restored. Decommissioning activities would require a workforce similar to that of construction. Activities for decommissioning of the Blythe Mesa Solar Project would include:

- Dismantling and removal of all above-ground equipment (solar panels, tracker units, transformers, substation, O&M building, etc.)
- Excavation and removal of all below-ground cabling
- Removal of posts
- Removal of primary roads (aggregate-based)
- Break-up and removal of concrete pads and foundations
- Scarification of compacted areas

Decommissioning of the 230-kV transmission line would be completed using traditional heavy construction equipment, such as front-end loaders, cranes, track-mounted and rubber-tired excavators, and motor graders. Dismantling would proceed in the following general stages: (1) dismantling and demolishing above-ground structures; (2) removing concrete foundations; (3) excavating and removing soiled and broken concrete from the site; and (4) surface contouring to return the disturbed area to its pre-Project state to the greatest extent feasible.

Table 10 presents an estimate of decommissioning emissions based on the assumption that the workforce and truck trips would be the same as construction emissions.

Table 10 Estimated Decommissioning Emissions Blythe Mesa Solar Project						
Emission Source	**ROG**	**NOx**	**CO**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Construction Emissions, lbs/day						
Heavy Construction Equipment	15.75	62.40	35.17	4.52	2.26	2.01
On-Road Vehicles	19.10	33.84	207.51	0.02	4.04	4.00
Fugitive Dust	---	---	---	---	41.82	8.78
TOTAL	**34.85**	**96.24**	**242.68**	**4.54**	**48.12**	**14.79**
Significance Thresholds	137	137	548	137	82	82
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Annual Construction Emissions, tons/year						
Heavy Construction Equipment	1.42	5.62	3.16	0.41	0.20	0.20
On-Road Vehicles	2.41	4.54	25.97	0.00	0.52	0.51
Construction Truck Trips					5.02	0.96
TOTAL	**3.83**	**10.16**	**29.13**	**0.41**	**5.74**	**1.67**
Significance Thresholds	25	25	100	25	15	15
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

As shown in Table 10, emissions would be below the significance thresholds, and no significant impact would result from decommissioning activities.

4.3 Impacts – Alternative 2

As discussed in Section 1.0, Alternative 2 is the No Action/No Project Alternative. Under Alternative 2, the construction of a solar generating facility and associated infrastructure would not occur. Alternative 2 would therefore not generate air emissions associated with construction or operation and maintenance activities. Alternative 2 would therefore not result in any air quality impacts.

4.4 Impacts – Alternative 3

4.4.1 Construction Impacts – Alternative 3

Construction of Alternative 3 would be essentially identical to construction of Alternative 1, except for the total acreage that would be disturbed and the location of the 230 kV transmission line that extends outside of the solar array field to the Colorado River Substation. Alternative 3 would therefore require the same construction activities for construction of the solar array. Under Alternative 3, the total length of the transmission line both on-site and off-site would be 8.8 miles, and a total of 3,682 acres would be required for the solar array and associated infrastructure. As for Alternative 1, construction for Alternative 3 is anticipated to occur over a three-year period with the construction phases occurring simultaneously. Alternative 3 would require the same workforce and construction equipment as Alternative 1.

Emissions of ROG, SOx, and GHGs from heavy equipment used in construction of Alternative 3 were estimated based on the same assumptions as described under Alternative 1. Table 11 presents a summary of the daily construction emissions for the construction of the solar array, O&M buildings, substation, and transmission line based on the above assumptions and assuming standard mitigation measures would be implemented, in comparison with the MDAQMD significance thresholds.

Table 11
Estimated Construction Emissions – Solar Arrays, O&M Buildings, Substation and Transmission Line, Alternative 3
Blythe Mesa Solar Project

Emission Source	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Maximum Daily Construction Emissions, lbs/day						
Heavy Construction Equipment	35.35	99.36	63.31	12.81	4.61	4.10
On-Road Vehicles	19.10	33.84	207.51	0.02	4.04	4.00
Fugitive Dust	---	---	---	---	42.07	8.83
TOTAL	**54.45**	**133.20**	**270.82**	**12.83**	**50.72**	**16.94**
Significance Thresholds	137	137	548	137	82	82
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Annual Construction Emissions, tons/year						
Heavy Construction Equipment	1.71	13.97	8.65	0.39	0.62	0.55
On-Road Vehicles	2.41	4.55	25.97	0.00	0.52	0.52
Construction Truck Trips					5.02	0.96
TOTAL	**4.12**	**18.52**	**34.62**	**0.39**	**6.17**	**2.03**
Significance Thresholds	25	25	100	25	15	15
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

As shown in Table 11, maximum daily emissions from construction of the solar array, O&M buildings, and substation for Alternative 3 would be below the significance thresholds for the maximum daily construction for all pollutants. Annual emissions would also be below the significance thresholds for all pollutants. Construction would therefore result in a less than significant impact on air quality.

Mitigation measures adopted under Alternative 1 would also be adopted under Alternative 3.

4.4.2 Operational Emissions – Alternative 3

Operations and maintenance activities under Alternative 3 would be identical to activities under Alternative 1, and emissions would therefore be the same as for Alternative 1. Impacts would be less than significant.

4.4.3 Toxic Air Contaminant Emissions – Alternative 3

Construction activities under Alternative 3 would be similar to those under Alternative 1. Emissions are slightly higher under Alternative 3 due to the slightly longer length of the transmission line; however, as with Alternative 1, due to the short-term nature of construction at the site, no adverse health effects would be anticipated from short-term diesel particulate emissions. Motor vehicle emissions would not be concentrated in any one area but would be dispersed along travel routes and would not be anticipated to pose a significant health risk to receptors.

4.4.4 Consistency with Ambient Air Quality Plans – Alternative 3

As for Alternative 1, because Alternative 3 will comply with the MDAQMD's Rules and Regulations, including those adopted from the SIP, the project will not conflict with the applicable Air Quality Plan.

4.4.5 Decommissioning Emissions – Alternative 3

Decommissioning activities under Alternative 3 would be similar to those under Alternative 1. As discussed under Alternative 1, emissions would be below the significance thresholds, and no air quality impact would occur.

4.5 Impacts – Alternative 4

4.5.1 Construction Impacts – Alternative 4

Construction of Alternative 4 would be essentially identical to construction of Alternative 1, except for the total acreage that would be disturbed and the location of the 230 kV transmission line that extends outside of the solar array field to the Colorado River Substation. Alternative 3 would therefore require the same construction activities for construction of the solar array. Under Alternative 4, the total length of the transmission line both on-site and off-site would be 9.5 miles, and a total of 3,648 acres would be required for the solar array and associated infrastructure. As for Alternative 1, construction for Alternative 4 is anticipated to occur over a three-year period with the construction phases occurring simultaneously. Alternative 4 would require the same workforce and construction equipment as Alternative 1.

Emissions of ROG, SOx, and GHGs from heavy equipment used in construction of Alternative 4 were estimated based on the same assumptions as described under Alternative 1. Table 12 presents a summary of the daily construction emissions for the construction of the solar array, O&M buildings, substation, and transmission line based on the above assumptions and assuming standard mitigation measures would be implemented, in comparison with the MDAQMD significance thresholds.

Table 12
Estimated Construction Emissions – Solar Arrays, O&M Buildings, Substation and Transmission Line, Alternative 4
Blythe Mesa Solar Project

Emission Source	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Maximum Daily Construction Emissions, lbs/day						
Heavy Construction	35.35	99.36	63.31	12.81	4.61	4.10

Table 12 Estimated Construction Emissions – Solar Arrays, O&M Buildings, Substation and Transmission Line, Alternative 4 Blythe Mesa Solar Project						
Emission Source	**ROG**	**NOx**	**CO**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Construction Emissions, lbs/day						
Equipment						
On-Road Vehicles	19.10	33.84	207.51	0.02	4.04	4.00
Fugitive Dust	---	---	---	---	41.68	8.75
TOTAL	**54.45**	**133.20**	**270.82**	**12.83**	**50.33**	**16.85**
Significance Thresholds	137	137	548	137	82	82
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Annual Construction Emissions, tons/year						
Heavy Construction Equipment	1.71	14.08	8.72	0.39	0.63	0.56
On-Road Vehicles	2.41	4.57	25.97	0.00	0.52	0.52
Construction Truck Trips					5.01	0.96
TOTAL	**4.12**	**18.65**	**34.70**	**0.39**	**6.16**	**2.03**
Significance Thresholds	25	25	100	25	15	15
Above Significance Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

As shown in Table 12, maximum daily emissions from construction of the solar array, O&M buildings, and substation for Alternative 4 would be below the significance thresholds for the maximum daily construction for all pollutants. Annual emissions would also be below the significance thresholds for all pollutants. Construction would therefore result in a less than significant impact on air quality.

Mitigation measures adopted under Alternative 1 would also be adopted under Alternative 4.

4.5.2 Operational Emissions – Alternative 4

Operations and maintenance activities under Alternative 4 would be identical to activities under Alternative 1, and emissions would therefore be the same as for Alternative 1. Impacts would be less than significant.

4.5.3 Toxic Air Contaminant Emissions – Alternative 4

Construction activities under Alternative 4 would be similar to those under Alternative 1. Emissions are slightly higher under Alternative 4 due to the slightly longer length of the transmission line; however, as with Alternative 1, due to the short-term nature of construction at the site, no adverse health effects would be anticipated from short-term diesel particulate emissions. Motor vehicle emissions would not be concentrated in any one area but would be dispersed along travel routes and would not be anticipated to pose a significant health risk to receptors.

4.5.4 Consistency with Ambient Air Quality Plans – Alternative 4

As for Alternative 1, because Alternative 4 will comply with the MDAQMD's Rules and Regulations, including those adopted from the SIP, the project will not conflict with the applicable Air Quality Plan.

4.5.5 Decommissioning Emissions – Alternative 4

Decommissioning activities under Alternative 4 would be similar to those under Alternative 1. As discussed under Alternative 1, emissions would be below the significance thresholds, and no air quality impact would occur.

5.0 Global Climate Change

Global Climate Change (GCC) refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), which are known as greenhouse gases (GHGs). These gases allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. Gases that trap heat in the atmosphere are often called greenhouse gases, analogous to a greenhouse. GHGs are emitted by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Emissions from human activities, such as burning fossil fuels for electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere.

The State of California has been at the forefront of developing solutions to address GCC. GCC refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. GCC may result from natural factors, natural processes, and/or human activities that change the composition of the atmosphere and alter the surface and features of land.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. The IPCC concluded that a stabilization of GHGs at 400 to 450 ppm CO_2 equivalent concentration is required to keep global mean warming below 3.6º Fahrenheit (2º Celsius), which is assumed to be necessary to avoid dangerous climate change (Association of Environmental Professionals 2007).

State law defines greenhouse gases as any of the following compounds: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) (California Health and Safety Code Section 38505(g).) CO_2, followed by CH_4 and N_2O, are the most common GHGs that result from human activity.

The State of California GHG Inventory performed by the California Air Resources Board (ARB), compiled statewide anthropogenic GHG emissions and sinks. It includes estimates for CO_2, CH_4, N_2O, SF_6, HFCs, and PFCs. The current inventory covers the years 1990 to 2009, and is summarized in Table 13. Data sources used to calculate this GHG inventory include California and federal agencies, international organizations, and industry associations. The calculation methodologies are consistent with guidance from the IPCC. The 1990 emissions level is the sum total of sources and sinks from all sectors and categories in the inventory. The inventory is divided into seven broad sectors and categories in the inventory. These sectors include: Agriculture; Commercial; Electricity Generation; Forestry; Industrial; Residential; and Transportation.

Table 13 State of California GHG Emissions by Sector				
Sector	**Total 1990 Emissions ($MMTCO_2e$)**	**Percent of Total 1990 Emissions**	**Total 2009 Emissions ($MMTCO_2e$)**	**Percent of Total 2009 Emissions**
Agriculture	23.4	5%	32.13	7%
Commercial	14.4	3%	13.41	3%
Electricity Generation	110.6	26%	103.68	23%
Forestry (excluding sinks)	0.2	<1%	0.19	<1%
Industrial	103.0	24%	81.38	18%
Residential	29.7	7%	28.61	6%
Transportation	150.7	35%	172.92	38%
Recycling and Waste			7.32	2%
High GWP Gases			16.32	4%
Forestry Sinks	(6.7)		(3.80)	

When accounting for GHGs, all types of GHG emissions are expressed in terms of CO_2 equivalents (CO_2e) and are typically quantified in metric tons (MT) or millions of metric tons (MMT).

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (USEPA 2006). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main greenhouse gases that have been attributed to human activity include CH_4, which has a GWP of 21, and N_2O, which has a GWP of 310. Table 14 presents the GWP and atmospheric lifetimes of common GHGs.

Table 14 Global Warming Potentials and Atmospheric Lifetimes of GHGs			
GHG	**Formula**	**100-Year Global Warming Potential**	**Atmospheric Lifetime (Years)**
Carbon Dioxide	CO_2	1	Variable
Methane	CH_4	21	12 ± 3
Nitrous Oxide	N_2O	310	120
Sulfur Hexafluoride	SF_6	23,900	3,200

Human-caused sources of CO_2 include combustion of fossil fuels (coal, oil, natural gas, gasoline and wood). Data from ice cores indicate that CO_2 concentrations remained steady prior to the current period for approximately 10,000 years. Concentrations of CO_2 have increased in the atmosphere since the industrial revolution.

CH_4 is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Human-caused sources of natural gas include landfills, fermentation of manure and cattle farming. Human-caused sources of N_2O include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid.

Other GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses.

5.1 Potential Climate Change Impacts to Project

The Climate Scenarios Report (CCCC 2006), uses a range of emissions scenarios developed by the IPCC to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century. Three warming ranges were identified: Lower warming range (3.0 to 5.5 degrees Fahrenheit (ºF)); medium warming range (5.5 to 8.0 ºF); and higher warming range (8.0 to 10.5 ºF). The Climate Scenarios report then presents an analysis of the future projected climate changes in California under each warming range scenario.

According to the report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California. These impacts would result from a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. These impacts are described below.

Public Health. Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to O_3 formation are projected to increase by 25 to 35 percent under the lower warming range and 75 to 85 percent under the medium warming range. In addition, if global background O_3 levels increase as is predicted in some scenarios, it may become impossible to meet local air quality standards. An increase in wildfires could also occur, and the corresponding increase in the release of pollutants including $PM_{2.5}$ could further compromise air quality. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent of GHG emissions are not significantly reduced.

Potential health effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (e.g., heat rash and heat stroke). In addition, climate sensitive diseases (such as malaria, dengue fever, yellow fever, and encephalitis) may increase, such as those spread by mosquitoes and other disease-carrying insects.

Climate change could affect the project area in that it is located in the desert area of California, where warmer climates may lead to more of the problems identified above related to heat, should increases in average temperature in the project area occur.

Water Resources. A vast network of reservoirs and aqueducts capture and transport water throughout the State from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages. In addition, if temperatures continue to rise more precipitation would fall as rain instead of snow, further reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. The State's water resources are also at risk from rising sea levels. An influx of seawater would degrade California's estuaries, wetlands, and groundwater aquifers.

This global climate change impact is not likely to have a direct effect on the operation of the project.

Agriculture. Increased GHG and associated increases in temperature are expected to cause widespread changes to the agricultural industry, reducing the quantity and quality of agricultural products statewide. Significant reductions in available water supply to support agriculture would also impact production. Crop growth and development will change as will the intensity and frequency of pests and diseases. This effect of global climate change would not be anticipated to affect the project site directly because there are no agricultural uses present.

Ecosystems/Habitats. Continued global warming will likely shift the ranges of existing invasive plants and weeds, thus alternating competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Continued global warming is also likely to increase the populations of and types of pests. Continued global warming would also affect natural ecosystems and biological habitats throughout the State. This effect of global climate change could affect current ecosystems/habitats at the project site.

Wildland Fires. Global warming is expected to increase the risk of wildfire and alter the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the State. Should global climate change in the southern California region lead to increased risk of wildfires, this impact could directly affect the project site in that the potential for wildfire at the project location would increase.

Rising Sea Levels. Rising sea levels, more intense coastal storms, and warmer water temperatures will increasing threaten the State's coastal regions. Under the high warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. A sea level risk of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten levees and inland water systems, and disrupt wetlands and natural habitats. Because the project site is located in the high desert area, it is not anticipated that rising sea levels would have a direct affect on the project.

5.2 Impacts

The effects of project-specific GHG emissions are cumulative, and therefore GCC impacts are addressed as a cumulative, rather than a direct, impact. The guidance for determining significance of impacts has been developed from the requirements of AB 32. The guideline addresses the potential cumulative impacts that a project's GHG emissions could have on GCC. Based on Appendix G of the CEQA Guidelines, the following criteria are used to evaluate whether a project would result in a significant impact for GCC impacts:

Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed in Section 15064.4 of the CEQA Regulations, the determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

(2) Rely on a qualitative analysis or performance based standards.

A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Different agencies and studies estimate different goals for reduction of emissions to achieve 1990 levels by the year 2020, as set forth in AB 32. Some agencies have estimated a reduction of 28 percent to 29 percent, based on the ARB's analysis that statewide 2020 business as usual GHG emissions would be 596 $MMTCO_2e$, with 1990 emissions of 427 $MMTCO_2e$, for a reduction of 28.35% (ARB 2008).

Projects that meet the criteria for conducting a climate change analysis are required to conduct a GHG inventory and disclose GHG emissions associated with project implementation and operation under "business as usual" conditions. "Business as usual" is defined as the emissions that would have occurred in the absence of reductions mandated under AB 32.

The main source of greenhouse gas emissions associated with the projects would be combustion of fossil fuels during construction of the project. Emissions of GHG were calculated using the same approach as emissions for overall construction emissions discussed in Section 4.1. Estimated emissions of construction greenhouse gases for Alternative 1 are summarized in Table 15. Emission calculations are provided in Appendix A.

Table 15
Construction Greenhouse Gas Emissions – Alternative 1

Emissions, metric tons/year	**CO_2**
Solar Array, O&M Building, Substation and Transmission Line	5,479
Total	**5,479**

Some lead agencies recommend amortization of GHG emissions associated with construction activities over a 30-year period to account for the project's contribution over the lifetime of the project (SCAQMD 2008, County of San Diego 2010). Amortization of the construction emissions for the Blythe Mesa Solar Project would result in a contribution of 183 metric tons of CO_2e emissions over the lifetime of the project.

GHG emissions associated with the construction of Alternative 3 would be similar to construction of Alternative 1, with a total of 5,480 metric tons of CO_2e annually. GHG emissions associated with the construction of Alternative 4 would be similar to construction of Alternative 1, with a total of 5,483 metric tons of CO_2e annually. Amortized over a 30-year period, the emissions from both of these alternatives would be the same as Alternative 1, at 183 metric tons of CO_2e emissions.

Emissions associated with construction would be temporary, likely to occur in only one three-year period. Emissions associated with operations are estimated to be 271 metric tons per year of CO_2e, which is below the CAPCOA recommended threshold of 900 metric tons per year of CO_2e. Operational impacts to global climate change would therefore be less than significant.

Adding the amortized construction emissions to the operational emissions would result in an estimate of 453 metric tons of CO_2e annually, which remains below the CAPCOA recommended threshold of 900 metric tons per year of CO_2e.

It should also be noted that the purpose of the project is to provide electricity generation from a renewable resource. The Blythe Mesa Solar Project would serve to meet the state's goals for the Renewable Portfolio Standard, which has been identified by the state as a means of meeting the goals of AB 32 to reduce emissions to 1990 levels by the year 2020.

The project is proposed to produce approximately 485 MW of electrical energy, which would be approximately 1,062,635,000 kilowatt hour (kWh) of electrical energy per year. In comparison, GHG emissions were estimated for a conventional fossil-fuel combustion power plant producing the same electrical energy (kWh) per year as the Project facility. Data from the U.S. Department of Energy, USEPA, and the Electric Power Research Institute provided GHG production rates per megawatt (MWh). GHG emissions from the most efficient combined cycle gas turbine power plant and a coal-fired power plant were calculated based on 0.35 and 1.0 metric tons of CO_2 equivalent (CO_2e) per MWh of electricity produced by gas turbine and coal-fired plants, respectively. Therefore, gas turbine and coal-fired plants are estimated to produce approximately 371,922 and 1,062,635 metric tons of CO_2e, respectively.

The net GHG displacement or off-set would therefore be the difference between the annual operational GHG emissions associated with the Blythe Mesa Solar Project and the emissions associated with operation of a conventional power plant. The project would result in a net GHG displacement through the replacement of fossil-fuel generated electricity with solar electricity of from 371,116 to 1,061,829 metric tons of CO_2e. Operation of the Blythe Mesa Solar Project would therefore result in a substantial net reduction (displacement) in GHG emissions in the region with the implementation of the Project's solar facility, when compared to a conventional fossil-fuel combustion power plant.

The Project's construction and operational emissions would therefore be offset by the Project's provision of renewable energy that would replace conventionally-generated electricity in the service area.

Because the project's construction GHG emissions are temporary, and the project's long-term operational GHG emissions are less than significant, and the project would result in a reduction in GHG emissions, the project is therefore consistent with the goals of AB 32 and impacts to global climate are less than significant.

6.0 Cumulative Impacts

In analyzing cumulative impacts from a proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the air basin for the Project area is listed as "non-attainment" for the federal or state AAQS. In the event direct impacts from a project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed, or reasonably foreseeable future projects are in excess of screening levels identified above, and the project's contribution accounts for more than an insignificant proportion of the cumulative total emissions.

As discussed in Section 2.0, the air basin for the Project area is considered an unclassified/attainment area for all of the NAAQS. The air basin for the Project area is considered a moderate nonattainment area for the CAAQS for O_3 and a nonattainment area for the CAAQS for PM_{10}. The air basin for the Project area is considered unclassified/attainment for all CAAQS for the other criteria pollutants.

While the region is nonattainment for the CAAQS for O_3 and PM_{10}, not all projects would result in a significant impact to air quality. Permitting agencies and lead agencies with jurisdiction over nonattainment areas, such as the USEPA and the MDAQMD, typically establish thresholds below which a project would have neither direct, nor cumulative impacts. The Blythe Mesa Solar Project's potential for air quality impacts are mainly attributable to construction activities.

Each air district in a nonattainment area is responsible for developing emissions inventory data as part of the planning process to develop its attainment plan. The emissions budget for the MDAQMD includes emissions associated with construction activity, including construction equipment, fugitive dust, and vehicles. The MDAQMD construction emissions budget for off-road construction equipment and vehicles includes 1.63 tons per day of ROG, 4.67 tons per day of NOx and 0.28 tons per day of PM_{10}. The MDAQMD fugitive dust emissions budget attributable to construction activities also includes 8.77 tons per day of PM_{10}. During construction, the Blythe Mesa Solar Project's estimated ROG emissions are less than 1 percent of the total emissions budget, NOx emissions are less than 1 percent of the total emissions budget, and PM_{10} emissions are less than 1 percent of the total emissions budget. Operational emissions of nonattainment pollutants are also a small percentage of the overall emissions budget for the air basin. The Blythe Mesa Solar Project's emissions are therefore not cumulatively considerable. Because the project would also provide renewable energy, the project would reduce emissions of both criteria pollutants and greenhouse gases, thus lessening the amount of pollution emitted overall.

7.0 Conclusions and Recommendations

In summary, the proposed project and Alternatives 3 and 4 would result in emissions of air pollutants for both the construction phase and operational phase of the project. The air quality impact analysis evaluated the potential for adverse impacts to the ambient air quality due to construction and operational emissions. Construction emissions would include emissions associated with fugitive dust, heavy construction equipment and construction workers commuting to and from the site. The emissions associated with construction would be below the MDAQMD's significance thresholds for all pollutants. Emissions from construction would be temporary. The project would implement mitigation measures in accordance with MDAQMD Rule 403 to reduce emissions to the extent possible. Construction impacts would be less than significant.

Project operational emissions would be minor and would only be associated with operation and maintenance activities. These activities would involve on-road vehicle travel, minor heavy equipment use, and emissions associated with periodic solar panel washing activities. Operational emissions are less than significant.

The project would provide renewable energy and would therefore serve the purpose of meeting the state's goals for renewable energy as set forth in AB 32. The project would therefore not conflict with the goals of AB 32 in reducing emissions of GHG, and would result in a less than significant impact on global climate.

8.0 References

Association of Environmental Professionals. 2007. *Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*. June.

California Air Pollution Control Officers Association. 2008. *CEQA and Climate Change – Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* January.

California Air Resources Board. 2007. EMFAC2007 Emissions Model.

California Air Resources Board. 2008. *Climate Change Scoping Plan*. December.

California Air Resources Board. 2011. *Final Supplement to the AB 32 Scoping Plan – Functional Equivalent Document*. August 19.

California Air Resources Board. 2012. California Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm.

California Climate Action Registry General Reporting Protocol, Version 3.1. 2009. January.

California Climate Change Center (CCCC). 2006. *Our Changing Climate, Assessing the Risks to California: A Summary Report from the California Climate Change Center*. July.

California Coastal Commission (CCC). 2006. *Discussion Draft – Global Warming and the California Coastal Commission*. December 12.

California Department of Water Resources. 2006. *Progress on Incorporating Climate Change into Management of California's Water Resources*. July.

California Energy Commission. 2006. *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004.* December.

Federal Highway Administration. 2009. *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents.* September 30.

MDAQMD. 2004. *2004 Ozone Attainment Plan.* Adopted April 26.

MDAQMD. 2011. *Rules and Regulations.*

Office of Environmental Health Hazard Assessment. 2012. http://www.oehha.ca.gov/air/allrels.html.

South Coast Air Quality Management District. 2011. OFFROAD Mobile Source Emission Factors. http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html.

United Nations Framework Convention on Climate Change. 2006. *Greenhouse Gas Emissions Data, Predefined Queries, Annex I Parties – GHG total without LULUCF (land-use, land-use change and forestry).* http://unfccc.int/ghg_emissions_data/predefined_queries/items/3841.php.

USEPA. 2006. *The U.S. Inventory of Greenhouse Gas Emissions and Sinks: Fast Facts.* www.epa.gov/climatechange/emissions/downloads06/06FastFacts.pdf.

USEPA. 2012. Technology Transfer Air Toxics Website. http://www.epa.gov/ttn/atw/hlthef/hapindex.html.

Western Regional Climatic Center. 2010. Climate Data for Blythe, www.wrcc.dri.edu.

Appendix A

Emission Calculations

Table A-1a. Air Emissions Calculations Summary - Solar Field, Alternative 1

Offroad Tiers 2 emission factors (EFs) are applied to NOx, PM, and CO. Load factors (LFs) are used in conjunction with Tiers 2 EFs.
2012 SCAB EFs (OFFROAD2007 model) are applied to CO2, ROG, SOX. LFs already incorporated in OFFROAD model.
Onroad model (EMFAC) assumes 1990-2012 composite fleet across light, medium, and heavy duty vehicle classes.

	Maximum Daily Emissions of Proposed Project	NOX lbs/day	ROG lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day
Riverside County	Offroad Vehicles and Equipment	99.36	35.35	4.61	4.10	63.31	12.81	33598.70
	Onroad Vehicles	33.84	19.10	4.04	4.00	207.51	0.02	34903.50
	Fugitive Dust	---	---	41.82	8.78	---	---	---
	Total for Riverside County	**133.20**	**54.45**	**50.47**	**16.88**	**270.82**	**12.83**	**68502.20**

Overall Emissions of MSSF1	NOX (ton)	ROG (ton)	PM10 (ton)	PM2.5 (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Offroad Vehicles and Equipment	25.13	1.71	1.03	0.91	14.94	0.39	1,082.1
Onroad Vehicles	4.54	2.41	0.52	0.52	25.97	0.00	4,396.4
Fugitive Dust			5.02	0.96			
Total Emissions for Project Duration	**29.68**	**4.12**	**6.56**	**2.39**	**40.91**	**0.39**	**5,478.5**

Table A-1b. Air Emissions Calculations Summary - Solar Field, Alternative 3

Offroad Tiers 2 emission factors (EFs) are applied to NOx, PM, and CO. Load factors (LFs) are used in conjunction with Tiers 2 EFs.
2012 SCAB EFs (OFFROAD2007 model) are applied to CO2, ROG, SOX. LFs already incorporated in OFFROAD model.
Onroad model (EMFAC) assumes 1990-2012 composite fleet across light, medium, and heavy duty vehicle classes.

	Maximum Daily Emissions of Proposed Project	NOX lbs/day	ROG lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day
Riverside County	Offroad Vehicles and Equipment	99.36	35.35	4.61	4.10	63.31	12.81	33598.70
	Onroad Vehicles	33.84	19.10	4.04	4.00	207.51	0.02	34903.50
	Fugitive Dust	---	---	42.07	8.83	---	---	---
	Total for Riverside County	**133.20**	**54.45**	**50.72**	**16.94**	**270.82**	**12.83**	**68502.20**

Overall Emissions of MSSF1	NOX (ton)	ROG (ton)	PM10 (ton)	PM2.5 (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Offroad Vehicles and Equipment	13.97	1.71	0.62	0.55	8.65	0.39	1,082.1
Onroad Vehicles	4.55	2.41	0.52	0.52	25.97	0.00	4,397.9
Fugitive Dust			5.02	0.96			
Total Emissions for Project Duration	**18.52**	**4.12**	**6.17**	**2.03**	**34.62**	**0.39**	**5,480.0**

Table A-1c. Air Emissions Calculations Summary - Solar Field, Alternative 4

Offroad Tiers 2 emission factors (EFs) are applied to NOx, PM, and CO. Load factors (LFs) are used in conjunction with Tiers 2 EFs.
2012 SCAB EFs (OFFROAD2007 model) are applied to CO2, ROG, SOX. LFs already incorporated in OFFROAD model.
Onroad model (EMFAC) assumes 1990-2012 composite fleet across light, medium, and heavy duty vehicle classes.

	Maximum Daily Emissions of Proposed Project	NOX lbs/day	ROG lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day
Riverside County	Offroad Vehicles and Equipment	99.36	35.35	4.61	4.10	63.31	12.81	33598.70
	Onroad Vehicles	33.84	19.10	4.04	4.00	207.51	0.02	34903.50
	Fugitive Dust	---	---	41.68	8.75	---	---	---
	Total for Riverside County	**133.20**	**54.45**	**50.33**	**16.85**	**270.82**	**12.83**	**68502.20**

Overall Emissions of MSSF1	NOX (ton)	ROG (ton)	PM10 (ton)	PM2.5 (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Offroad Vehicles and Equipment	14.08	1.71	0.63	0.56	8.72	0.39	1,082.1
Onroad Vehicles	4.57	2.41	0.52	0.52	25.97	0.00	4,400.9
Fugitive Dust			5.01	0.96			
Total Emissions for Project Duration	**18.65**	**4.12**	**6.16**	**2.03**	**34.70**	**0.39**	**5,483.0**

Table A-2. 2012 SCAB Fleet Average Emission Factors (OFFROAD2007)

These emission factors are applied to CO2, ROG, SOX only. Load factors are already incorporated.

Equipment	MaxHP	NOX (lbs/hr)	ROG (lbs/hr)	PM (lbs/hr)	CO (lbs/hr)	SOX (lbs/hr)	CO2 (lbs/hr)
Aerial Lifts	15	0.0102	0.0528	0.0642	0.0001	0.0030	8.7
	25	0.0175	0.0517	0.0957	0.0001	0.0055	11.0
	50	0.0650	0.1822	0.1916	0.0003	0.0169	19.6
	120	0.0607	0.2451	0.4012	0.0004	0.0324	38.1
	500	0.1276	0.4941	1.6553	0.0021	0.0491	213
	750	0.2379	0.8930	3.0795	0.0039	0.0903	385
Aerial Lifts Total		0.0576	0.1976	0.3249	0.0004	0.0219	34.7
Air Compressors	15	0.0129	0.0494	0.0768	0.0001	0.0052	7.2
	25	0.0286	0.0779	0.1337	0.0002	0.0087	14.4
	50	0.1010	0.2646	0.2310	0.0003	0.0239	22.3
	120	0.0891	0.3287	0.5333	0.0006	0.0492	47.0
	175	0.1135	0.5074	0.8954	0.0010	0.0512	88.5
	250	0.1066	0.3052	1.2194	0.0015	0.0379	131
	500	0.1709	0.5726	1.9077	0.0023	0.0623	232
	750	0.2681	0.8849	3.0371	0.0036	0.0980	358
	1000	0.4533	1.5617	5.4098	0.0049	0.1589	486
Air Compressors Total		0.0984	0.3445	0.6494	0.0007	0.0469	63.6
Bore/Drill Rigs	15	0.0120	0.0632	0.0754	0.0002	0.0029	10.3
	25	0.0194	0.0658	0.1233	0.0002	0.0054	16.0
	50	0.0351	0.2335	0.2768	0.0004	0.0149	31.0
	120	0.0514	0.4724	0.5026	0.0009	0.0328	77.1
	175	0.0750	0.7538	0.7479	0.0016	0.0366	141
	250	0.0838	0.3435	0.8722	0.0021	0.0268	188
	500	0.1354	0.5526	1.3152	0.0031	0.0437	311
	750	0.2685	1.0916	2.6320	0.0062	0.0865	615
	1000	0.4491	1.6773	6.6123	0.0093	0.1699	928
Bore/Drill Rigs Total		0.0854	0.5068	0.9013	0.0017	0.0367	165
Cement and Mortar Mixers	15	0.0075	0.0386	0.0475	0.0001	0.0023	6.3
	25	0.0293	0.0852	0.1548	0.0002	0.0091	17.6
Cement and Mortar Mixers Total		0.0093	0.0425	0.0564	0.0001	0.0029	7.2
Concrete/Industrial Saws	25	0.0199	0.0678	0.1261	0.0002	0.0050	16.5
	50	0.1047	0.3015	0.2972	0.0004	0.0268	30.2
	120	0.1155	0.4880	0.7625	0.0009	0.0639	74.1
	175	0.1685	0.8723	1.4507	0.0018	0.0767	160
Concrete/Industrial Saws Total		0.1090	0.4148	0.5910	0.0007	0.0491	58.5
Cranes	50	0.1101	0.2979	0.2478	0.0003	0.0258	23.2
	120	0.0982	0.3650	0.5844	0.0006	0.0533	50.1
	175	0.1089	0.4838	0.8259	0.0009	0.0479	80.3
	250	0.1103	0.3103	1.0712	0.0013	0.0388	112
	500	0.1635	0.5691	1.5327	0.0018	0.0571	180
	750	0.2767	0.9554	2.6486	0.0030	0.0974	303
	9999	0.9905	3.5715	10.9484	0.0098	0.3384	971
Cranes Total		0.1425	0.4946	1.2753	0.0014	0.0553	129
Crawler Tractors	50	0.1262	0.3333	0.2713	0.0003	0.0289	24.9
	120	0.1374	0.4906	0.8120	0.0008	0.0729	65.8
	175	0.1758	0.7491	1.3245	0.0014	0.0765	121
	250	0.1854	0.5225	1.7044	0.0019	0.0667	166
	500	0.2659	1.0217	2.3914	0.0025	0.0942	259
	750	0.4784	1.8248	4.3817	0.0047	0.1705	465
	1000	0.7229	2.8959	7.7626	0.0066	0.2503	658
Crawler Tractors Total		0.1671	0.6051	1.2309	0.0013	0.0752	114
Crushing/Proc. Equipment	50	0.1927	0.5215	0.4545	0.0006	0.0462	44.0
	120	0.1525	0.5829	0.9172	0.0010	0.0851	83.1
	175	0.2088	0.9654	1.6343	0.0019	0.0946	167
	250	0.1953	0.5592	2.1896	0.0028	0.0682	245
	500	0.2733	0.8961	2.9457	0.0037	0.0972	374
	750	0.4361	1.3892	4.8387	0.0059	0.1560	589
	9999	1.2112	4.0327	14.2648	0.0131	0.4203	1,308
Crushing/Proc. Equipment Total		0.1872	0.6911	1.2633	0.0015	0.0819	132
Dumpers/Tenders	25	0.0100	0.0324	0.0614	0.0001	0.0031	7.6
Dumpers/Tenders Total		0.0100	0.0324	0.0614	0.0001	0.0031	7.6
Excavators	25	0.0198	0.0677	0.1253	0.0002	0.0048	16.4
	50	0.0912	0.2933	0.2568	0.0003	0.0237	25.0
	120	0.1183	0.5220	0.7300	0.0009	0.0657	73.6
	175	0.1288	0.6678	0.9613	0.0013	0.0569	112
	250	0.1301	0.3630	1.2438	0.0018	0.0415	159
	500	0.1805	0.5493	1.6112	0.0023	0.0574	234
	750	0.3013	0.9096	2.7605	0.0039	0.0969	387
Excavators Total		0.1300	0.5401	0.9817	0.0013	0.0536	120

Table A-2. 2012 SCAB Fleet Average Emission Factors (OFFROAD2007)

These emission factors are applied to CO2, ROG, SOX only. Load factors are already incorporated.

Equipment	MaxHP	NOX (lbs/hr)	ROG (lbs/hr)	PM (lbs/hr)	CO (lbs/hr)	SOX (lbs/hr)	CO2 (lbs/hr)
Forklifts	50	0.0514	0.1682	0.1488	0.0002	0.0136	14.7
	120	0.0489	0.2195	0.3017	0.0004	0.0277	31.2
	175	0.0624	0.3304	0.4664	0.0006	0.0278	56.1
	250	0.0595	0.1638	0.5872	0.0009	0.0187	77.1
	500	0.0806	0.2241	0.7257	0.0011	0.0252	111
Forklifts Total		0.0585	0.2257	0.4330	0.0006	0.0231	54.4
Generator Sets	15	0.0157	0.0698	0.1063	0.0002	0.0061	10.2
	25	0.0276	0.0951	0.1632	0.0002	0.0096	17.6
	50	0.0959	0.2734	0.2966	0.0004	0.0255	30.6
	120	0.1206	0.4956	0.8099	0.0009	0.0640	77.9
	175	0.1460	0.7413	1.3131	0.0016	0.0644	142
	250	0.1372	0.4502	1.8047	0.0024	0.0508	213
	500	0.1952	0.7617	2.5896	0.0033	0.0756	337
	750	0.3257	1.2296	4.3019	0.0055	0.1241	544
	9999	0.8673	3.0642	10.8871	0.0105	0.3104	1,049
Generator Sets Total		0.0832	0.3121	0.5779	0.0007	0.0351	61.0
Graders	50	0.1182	0.3365	0.2882	0.0004	0.0286	27.5
	120	0.1348	0.5355	0.8223	0.0009	0.0740	75.0
	175	0.1554	0.7363	1.1931	0.0014	0.0688	124
	250	0.1575	0.4508	1.5344	0.0019	0.0547	172
	500	0.1947	0.6639	1.8193	0.0023	0.0671	229
	750	0.4147	1.4022	3.9602	0.0049	0.1439	486
Graders Total		0.1533	0.6129	1.2503	0.0015	0.0649	133
Off-Highway Tractors	120	0.2224	0.7269	1.2964	0.0011	0.1143	93.7
	175	0.2135	0.8404	1.6085	0.0015	0.0923	130
	250	0.1718	0.4896	1.5282	0.0015	0.0644	130
	750	0.6814	3.0883	6.1417	0.0057	0.2515	568
	1000	1.0246	4.8137	10.5080	0.0082	0.3620	814
Off-Highway Tractors Total		0.2170	0.7878	1.7969	0.0017	0.0871	151
Off-Highway Trucks	175	0.1533	0.7593	1.1072	0.0014	0.0666	125
	250	0.1469	0.3944	1.3513	0.0019	0.0461	167
	500	0.2263	0.6661	1.9463	0.0027	0.0705	272
	750	0.3695	1.0792	3.2612	0.0044	0.1164	442
	1000	0.5790	1.7854	6.4025	0.0063	0.1933	625
Off-Highway Trucks Total		0.2241	0.6635	2.0158	0.0027	0.0715	260
Other Construction Equipment	15	0.0118	0.0617	0.0737	0.0002	0.0028	10.1
	25	0.0160	0.0544	0.1019	0.0002	0.0044	13.2
	50	0.0842	0.2740	0.2707	0.0004	0.0228	28.0
	120	0.1104	0.5320	0.7540	0.0009	0.0633	80.9
	175	0.1008	0.5880	0.8599	0.0012	0.0467	107
	500	0.1517	0.5426	1.6573	0.0025	0.0545	254
Other Construction Equipment Total		0.0925	0.3847	0.8599	0.0013	0.0366	123
Other General Industrial Equipr	15	0.0066	0.0391	0.0466	0.0001	0.0018	6.4
	25	0.0185	0.0632	0.1170	0.0002	0.0045	15.3
	50	0.1085	0.2856	0.2332	0.0003	0.0253	21.7
	120	0.1274	0.4542	0.7277	0.0007	0.0703	62.0
	175	0.1349	0.5757	1.0001	0.0011	0.0599	95.9
	250	0.1235	0.3281	1.2983	0.0015	0.0417	136
	500	0.2232	0.6772	2.2367	0.0026	0.0758	265
	750	0.3707	1.1162	3.8016	0.0044	0.1273	437
	1000	0.5621	1.8453	6.4018	0.0056	0.1947	560
Other General Industrial Equipmen Total		0.1635	0.5362	1.4520	0.0016	0.0632	152
Other Material Handling Equipr	50	0.1506	0.3950	0.3243	0.0004	0.0352	30.3
	120	0.1239	0.4423	0.7103	0.0007	0.0684	60.7
	175	0.1703	0.7292	1.2706	0.0014	0.0759	122
	250	0.1305	0.3496	1.3863	0.0016	0.0443	145
	500	0.1590	0.4876	1.6124	0.0019	0.0545	192
	9999	0.7467	2.4395	8.4619	0.0073	0.2565	741
Other Material Handling Equipment Total		0.1566	0.5108	1.4125	0.0015	0.0613	141
Pavers	25	0.0255	0.0811	0.1531	0.0002	0.0080	18.7
	50	0.1451	0.3680	0.3038	0.0004	0.0327	28.0
	120	0.1467	0.5107	0.8788	0.0008	0.0776	69.2
	175	0.1864	0.7833	1.4495	0.0014	0.0819	128
	250	0.2182	0.6365	2.0698	0.0022	0.0818	194
	500	0.2383	0.9957	2.2418	0.0023	0.0883	233
Pavers Total		0.1596	0.5445	0.8980	0.0009	0.0642	77.9
Paving Equipment	25	0.0153	0.0520	0.0974	0.0002	0.0042	12.6
	50	0.1239	0.3124	0.2591	0.0003	0.0279	23.9
	120	0.1150	0.3997	0.6897	0.0006	0.0610	54.5
	175	0.1455	0.6114	1.1384	0.0011	0.0640	101
	250	0.1349	0.3946	1.2976	0.0014	0.0507	122
Paving Equipment Total		0.1204	0.4365	0.8114	0.0008	0.0570	68.9

Table A-2. 2012 SCAB Fleet Average Emission Factors (OFFROAD2007)

These emission factors are applied to CO2, ROG, SOX only. Load factors are already incorporated.

Equipment	MaxHP	NOX (lbs/hr)	ROG (lbs/hr)	PM (lbs/hr)	CO (lbs/hr)	SOX (lbs/hr)	CO2 (lbs/hr)
Plate Compactors	15	0.0050	0.0263	0.0314	0.0001	0.0013	4.3
Plate Compactors Total		0.0050	0.0263	0.0314	0.0001	0.0013	4.3
Pressure Washers	15	0.0075	0.0334	0.0509	0.0001	0.0029	4.9
	25	0.0112	0.0385	0.0662	0.0001	0.0039	7.1
	50	0.0349	0.1074	0.1339	0.0002	0.0102	14.3
	120	0.0332	0.1458	0.2385	0.0003	0.0172	24.1
Pressure Washers Total		0.0173	0.0635	0.0921	0.0001	0.0063	9.4
Pumps	15	0.0133	0.0508	0.0790	0.0001	0.0054	7.4
	25	0.0386	0.1051	0.1803	0.0002	0.0117	19.5
	50	0.1155	0.3229	0.3362	0.0004	0.0299	34.3
	120	0.1250	0.5036	0.8226	0.0009	0.0669	77.9
	175	0.1498	0.7431	1.3164	0.0016	0.0664	140
	250	0.1357	0.4345	1.7375	0.0023	0.0501	201
	500	0.2089	0.8032	2.6861	0.0034	0.0803	345
	750	0.3557	1.3279	4.5700	0.0057	0.1350	571
	9999	1.1456	4.0641	14.2305	0.0136	0.4081	1,355
Pumps Total		0.0813	0.2983	0.4999	0.0006	0.0351	49.6
Rollers	15	0.0074	0.0386	0.0461	0.0001	0.0018	6.3
	25	0.0162	0.0549	0.1029	0.0002	0.0045	13.3
	50	0.1105	0.2994	0.2677	0.0003	0.0263	26.0
	120	0.1054	0.4098	0.6619	0.0007	0.0574	59.0
	175	0.1320	0.6220	1.0725	0.0012	0.0591	108
	250	0.1347	0.4083	1.4103	0.0017	0.0498	153
	500	0.1755	0.6752	1.8093	0.0022	0.0652	219
Rollers Total		0.1038	0.4107	0.6936	0.0008	0.0488	67.1
Rough Terrain Forklifts	50	0.1315	0.3910	0.3455	0.0004	0.0330	33.9
	120	0.1038	0.4364	0.6425	0.0007	0.0585	62.4
	175	0.1444	0.7268	1.1204	0.0014	0.0652	125
	250	0.1353	0.3896	1.4082	0.0019	0.0458	171
	500	0.1894	0.5985	1.8577	0.0025	0.0642	257
Rough Terrain Forklifts Total		0.1093	0.4680	0.6995	0.0008	0.0587	70.3
Rubber Tired Dozers	175	0.2209	0.8528	1.6304	0.0015	0.0945	129
	250	0.2545	0.7124	2.1985	0.0021	0.0942	183
	500	0.3345	1.5220	2.8822	0.0026	0.1210	265
	750	0.5042	2.2809	4.4100	0.0040	0.1832	399
	1000	0.7807	3.6654	7.7816	0.0060	0.2729	592
Rubber Tired Dozers Total		0.3114	1.2491	2.6866	0.0025	0.1137	239
Rubber Tired Loaders	25	0.0205	0.0697	0.1295	0.0002	0.0052	16.9
	50	0.1315	0.3756	0.3242	0.0004	0.0319	31.1
	120	0.1045	0.4187	0.6404	0.0007	0.0576	58.9
	175	0.1312	0.6288	1.0135	0.0012	0.0583	106
	250	0.1330	0.3838	1.3129	0.0017	0.0462	149
	500	0.1961	0.6755	1.8555	0.0023	0.0677	237
	750	0.4044	1.3812	3.9115	0.0049	0.1408	486
	1000	0.5480	1.9543	6.3337	0.0060	0.1909	594
Rubber Tired Loaders Total		0.1272	0.4855	1.0034	0.0012	0.0558	109
Scrapers	120	0.1990	0.7011	1.1749	0.0011	0.1054	93.9
	175	0.2172	0.9158	1.6429	0.0017	0.0945	148
	250	0.2367	0.6699	2.1849	0.0024	0.0859	209
	500	0.3333	1.3000	3.0162	0.0032	0.1190	321
	750	0.5779	2.2380	5.3231	0.0056	0.2075	555
Scrapers Total		0.2916	1.0984	2.5680	0.0027	0.1087	262
Signal Boards	15	0.0072	0.0377	0.0450	0.0001	0.0017	6.2
	50	0.1270	0.3587	0.3564	0.0005	0.0324	36.2
	120	0.1284	0.5269	0.8360	0.0009	0.0703	80.2
	175	0.1661	0.8370	1.4268	0.0017	0.0750	155
	250	0.1746	0.5516	2.1599	0.0029	0.0639	255
Signal Boards Total		0.0203	0.0940	0.1470	0.0002	0.0083	16.7
Skid Steer Loaders	25	0.0211	0.0635	0.1189	0.0002	0.0067	13.8
	50	0.0596	0.2332	0.2402	0.0003	0.0180	25.5
	120	0.0482	0.2769	0.3536	0.0005	0.0286	42.8
Skid Steer Loaders Total		0.0534	0.2360	0.2686	0.0004	0.0207	30.3
Surfacing Equipment	50	0.0513	0.1441	0.1411	0.0002	0.0128	14.1
	120	0.1040	0.4251	0.6895	0.0007	0.0557	63.8
	175	0.0950	0.4745	0.8195	0.0010	0.0422	85.8
	250	0.1095	0.3526	1.1993	0.0015	0.0413	135
	500	0.1631	0.6813	1.7819	0.0022	0.0622	221
	750	0.2601	1.0660	2.8642	0.0035	0.0986	347
Surfacing Equipment Total		0.1362	0.5467	1.3678	0.0017	0.0512	166

Table A-2. 2012 SCAB Fleet Average Emission Factors (OFFROAD2007)

These emission factors are applied to CO2, ROG, SOX only. Load factors are already incorporated.

Equipment	MaxHP	NOX (lbs/hr)	ROG (lbs/hr)	PM (lbs/hr)	CO (lbs/hr)	SOX (lbs/hr)	CO2 (lbs/hr)
Sweepers/Scrubbers	15	0.0124	0.0729	0.0870	0.0002	0.0034	11.9
	25	0.0237	0.0808	0.1501	0.0002	0.0060	19.6
	50	0.1195	0.3565	0.3179	0.0004	0.0302	31.6
	120	0.1233	0.5204	0.7534	0.0009	0.0706	75.0
	175	0.1575	0.8008	1.2212	0.0016	0.0717	139
	250	0.1205	0.3447	1.3019	0.0018	0.0402	162
Sweepers/Scrubbers Total		0.1278	0.5215	0.7403	0.0009	0.0576	78.5
Tractors/Loaders/Backhoes	25	0.0199	0.0662	0.1250	0.0002	0.0061	15.9
	50	0.1006	0.3305	0.3030	0.0004	0.0267	30.3
	120	0.0760	0.3557	0.4910	0.0006	0.0432	51.7
	175	0.1058	0.5866	0.8294	0.0011	0.0478	101
	250	0.1264	0.3755	1.2813	0.0019	0.0415	172
	500	0.2386	0.7714	2.2621	0.0039	0.0784	345
	750	0.3611	1.1563	3.5105	0.0058	0.1199	517
Tractors/Loaders/Backhoes Total		0.0862	0.3824	0.5816	0.0008	0.0435	66.8
Trenchers	15	0.0099	0.0517	0.0617	0.0001	0.0024	8.5
	25	0.0398	0.1355	0.2519	0.0004	0.0101	32.9
	50	0.1656	0.4176	0.3536	0.0004	0.0374	32.9
	120	0.1354	0.4732	0.8257	0.0008	0.0709	64.9
	175	0.2050	0.8694	1.6306	0.0016	0.0901	144
	250	0.2483	0.7418	2.3854	0.0025	0.0951	223
	500	0.3135	1.4011	3.0220	0.0031	0.1190	311
	750	0.5949	2.6307	5.8034	0.0059	0.2259	587
Trenchers Total		0.1507	0.4749	0.6995	0.0007	0.0582	58.7
Welders	15	0.0111	0.0425	0.0660	0.0001	0.0045	6.2
	25	0.0224	0.0609	0.1044	0.0001	0.0068	11.3
	50	0.1071	0.2854	0.2637	0.0003	0.0260	26.0
	120	0.0708	0.2687	0.4376	0.0005	0.0387	39.5
	175	0.1183	0.5475	0.9688	0.0011	0.0531	98.2
	250	0.0909	0.2704	1.0791	0.0013	0.0329	119
	500	0.1154	0.4072	1.3538	0.0016	0.0431	168
Welders Total		0.0703	0.2150	0.2702	0.0003	0.0243	25.6

Table A-3a. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 1

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
			Offroad Equipment Project Total		
35.35	12.81	33598.70	1.71	0.39	1,082.07

Conformity Emissions

ROG (tons)	SOX (tons)	CO2 (tons)
1.42	0.41	1491.14

Blythe Mesa Solar Project
Site Preparation/Grading/Earthwork
3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 6,120	HP Used for OFFROAD	2012 SCAB ROG (lbs/hr)	2012 SCAB SOX (lbs/hr)	2012 SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB SOx lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Grader	Grader	185	1	90	6	540	250	0.1575	0.0547	172.1133	0.9449	0.3279	1032.6795	0.0425	0.0148	46.4706
Rough-Terrain Forklifts	Rough Terrain Forklift	99	2	90	4	720	120	0.0955	0.0007	62.4498	0.7640	0.0059	499.5985	0.0344	0.0003	22.4819
Track Type Dozer	Crawler Tractor	185	1	90	6	540	250	0.1764	0.0019	166.1315	1.0584	0.0112	996.7893	0.0476	0.0005	44.8555
Excavator	Excavator	85	1	90	8	720	120	0.1183	0.0657	73.6231	0.9462	0.5260	588.9848	0.0426	0.0237	26.5043
Rubber-Tired Loaders	Rubber Tired Loader	78	1	90	8	720	120	0.0971	0.0007	58.9135	0.7765	0.0055	471.3081	0.0349	0.0002	21.2089
Rollers	Roller	100	1	90	6	540	120	0.1054	0.0574	58.9888	0.6327	0.3446	353.9325	0.0285	0.0155	15.9270
Scrapers	Scraper	365	1	90	6	540	500	0.3186	0.0032	321.4286	1.9118	0.0189	1928.5717	0.0860	0.0009	86.7857
DumpTruck	Grader	473	1	90	4	360	500	0.2263	0.0705	272.3339	0.9052	0.2822	1089.3355	0.0407	0.0127	49.0201
4000 Gallon Water Truck	Off-highway Truck	250	1	90	8	720	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0529	0.0166	59.9563
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	120	0.1104	0.0633	80.8587	0.8832	0.5066	646.8698	0.0397	0.0228	29.1091

Concrete Foundations
3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,100	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Pavers	Paving Equipment	173	1	90	6	540	250	0.1349	0.0507	122.2913	0.8093	0.3041	733.7475	0.0364	0.0137	33.0186
Concrete Pump	Concrete Pumps	10	4	90	4	1440	50	0.1155	0.0299	34.3348	1.8475	0.4782	549.3575	0.0831	0.0215	24.7211
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	90	6	1080	120	0.0955	0.0007	62.4498	1.1460	0.0088	749.3978	0.0516	0.0004	33.7229
Concrete Truck	Off-highway Truck	250	2	90	4	720	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0529	0.0166	59.9563
Drum Type Compactor	Paving Equipment	250	1	90	6	540	250	0.1349	0.0507	122.2913	0.8093	0.3041	733.7475	0.0364	0.0137	33.0186
ATV Gator Carts	Other Construction Equipment	100	1	90	6	540	120	0.1104	0.0633	80.8587	0.6624	0.3799	485.1523	0.0298	0.0171	21.8319
Welders	Welders	50	6	90	6	3240	50	0.1071	0.0260	25.9581	3.8551	0.9346	934.4901	0.1735	0.0421	42.0521

Table A-3a. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 1

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

Offroad Equipment Project Total

ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
35.35	12.81	33598.70	1.71	0.39	1,082.07

Conformity Emissions

Structural Steel Work
4 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,760	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	120	5	1200	120	0.0955	0.0007	62.4498	0.9550	0.0073	624.4981	0.0573	0.0004	37.4699
30 Ton Crane Truck	Off-highway Truck	99	1	120	5	600	175	0.1441	0.0014	125.0878	0.7206	0.0070	625.4389	0.0432	0.0004	37.5263
80 Ton Rough Terrain Cranes	Off-highway Truck	250	1	120	6	720	250	0.1400	0.0019	166.5454	0.8398	0.0112	999.2724	0.0504	0.0007	59.9563
Compressor Truck	Air Compressor	25	2	120	8	1920	50	0.0266	0.0002	14.4462	0.4253	0.0029	231.1396	0.0255	0.0002	13.8684
Welders	Welders	50	6	120	6	4320	50	0.1071	0.0260	25.9581	3.8551	0.9346	934.4901	0.2313	0.0561	56.0694

Electrical/Instrumentation Work
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,240	HP Used for OFFROAD	SCAB ROG (lb/hr)	SCAB SOX (lb/hr)	SCAB CO2 (lb/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
30 Ton Crane Truck	Off-highway Truck	99	1	60	4	240	175	0.1441	0.0014	125.0878	0.5764	0.0056	500.3511	0.0173	0.0002	15.0105
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	60	6	720	120	0.0955	0.0007	62.4498	1.1460	0.0088	749.3978	0.0344	0.0003	22.4819
Carryall Vehicles	Off-highway Truck	180	2	60	4	480	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0353	0.0111	39.9709
Generator	Generator Sets	30	3	60	10	1800	50	0.0959	0.0255	30.6230	2.8770	0.7641	918.6896	0.0863	0.0229	27.5607

Architectural and Landscape
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 4,680	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	120	0.0694	0.0006	51.7280	0.5555	0.0049	413.8241	0.0167	0.0001	12.4147
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	175	0.1441	0.0014	125.0878	1.1529	0.0113	1000.7022	0.0346	0.0003	30.0211
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	120	0.0955	0.0007	62.4498	0.3820	0.0029	249.7993	0.0115	0.0001	7.4940
Vibratory Compactor	Paving Equipment	80	1	60	2	120	120	0.1150	0.0610	54.4994	0.2299	0.1219	108.9987	0.0069	0.0037	3.2700
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	120	0.0760	0.0432	51.7280	0.6083	0.3456	413.8241	0.0182	0.0104	12.4147
Trencher	Trencher	75	1	60	8	480	120	0.1354	0.0709	64.8951	1.0830	0.5671	519.1611	0.0325	0.0170	15.5748
Manlifts	Aerial Lift	75	2	60	8	960	120	0.0607	0.0324	38.0718	0.9718	0.5183	609.1490	0.0292	0.0155	18.2745
Generator	Generator Sets	30	3	60	8	1440	50	0.0959	0.0255	30.6230	2.3016	0.6112	734.9517	0.0690	0.0183	22.0486

Substation and O&M Bldgs
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 9,000	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	120	0.0694	0.0006	51.7280	0.5555	0.0049	413.8241	0.0167	0.0001	12.4147
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	120	0.0185	0.0045	15.3491	0.1481	0.0358	122.7929	0.0044	0.0011	3.6838
Track Type Dozer	Crawler Tractor	185	1	90	8	720	250	0.1764	0.0019	166.1315	1.4112	0.0150	1329.0524	0.0635	0.0007	59.8074
Excavator	Excavator	85	1	90	8	720	120	0.1183	0.0657	73.6231	0.9462	0.5260	588.9848	0.0426	0.0237	26.5043
Rollers	Roller	100	1	90	8	720	120	0.1054	0.0574	58.9888	0.8436	0.4595	471.9100	0.0380	0.0207	21.2360
4000 Gallon Water Truck	Off-highway Truck	250	2	90	8	1440	250	0.1469	0.0461	166.5454	2.3502	0.7368	2664.7258	0.1058	0.0332	119.9127
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	120	0.0955	0.0007	62.4498	0.3820	0.0029	249.7993	0.0115	0.0001	7.4940
Vibratory Compactor	Paving Equipment	80	1	60	2	120	120	0.1155	0.0299	34.3348	0.2309	0.0598	68.6697	0.0069	0.0018	2.0601
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	120	0.5949	0.2259	586.8778	4.7593	1.8072	4695.0227	0.1428	0.0542	140.8507
Trencher	Trencher	75	1	60	8	480	120	0.0703	0.0243	25.6027	0.5625	0.1944	204.8214	0.0169	0.0058	6.1446
Manlifts	Aerial Lift	75	2	60	8	960	120	0.0984	0.0469	63.6073	1.5737	0.7511	1017.7170	0.0472	0.0225	30.5315
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	120	0.1104	0.0633	80.8587	0.8832	0.5066	646.8698	0.0397	0.0228	29.1091
Generator	Generator Sets	30	3	60	8	1440	50	0.4147	0.1439	485.7416	9.9529	3.4547	11657.7984	0.2986	0.1036	349.7340

Table A-3a. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 1

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

			Offroad Equipment Project Total		
ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
35.35	12.81	33598.70	1.71	0.39	1,082.07
			Conformity Emissions		

Transmission Line Installation

12 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 5,116	HP Used for OFFROAD	2012 SCAB ROG (lbs/hr)	2012 SCAB SOX (lbs/hr)	2012 SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB SOX lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Sleeving Rigs	Other Gen Indust Equipment	85	1	152	4	608	120	0.5779	0.2075	555.2765	2.3116	0.8301	2221.1061	0.1757	0.0631	168.8041
Hydralic Pump Motor	Pumps	10	2	10	5	100	15	0.2050	0.0901	143.8979	2.0499	0.9009	1438.9789	0.0102	0.0045	7.1949
580 Case Backhoe	Tractor/loader/backhoe	120	1	152	2	304	120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Spacing Carts	Other Gen Indust Equipment	10	4	152	4	2432	15	0.2916	0.1087	262.4958	4.6649	1.7389	4199.9328	0.3545	0.1322	319.1949
3 Drum Strawline Pullers	Other Gen Indust Equipment	85	1	152	4	608	120	0.1284	0.0703	80.2066	0.5135	0.2812	320.8265	0.0390	0.0214	24.3828
60lk Puller	Other Gen Indust Equipment	250	1	152	3	456	250	0.1661	0.0750	154.5445	0.4984	0.2249	463.6335	0.0379	0.0171	35.2361
Triple Conductor Tensioner	Other Gen Indust Equipment	250	1	152	2	304	250	0.1661	0.0750	154.5445	0.3323	0.1499	309.0890	0.0253	0.0114	23.4908
Sag Cat w2 winches	Grader	350	1	152	2	304	500	0.1894	0.0642	256.5709	0.3787	0.1285	513.1418	0.0288	0.0098	38.9988

Decommissioning

6 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 9,720	HP Used for OFFROAD	2012 SCAB ROG (lbs/hr)	2012 SCAB SOX (lbs/hr)	2012 SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB SOx lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Grader	Grader	185	1	180	6	1080	250	0.1312	0.0583	106.3152	0.7874	0.3499	637.8911	0.0709	0.0315	57.4102
Rough-Terrain Forklifts	Rough Terrain Forklift	99	2	180	4	1440	120	0.0955	0.0007	62.4498	0.7640	0.0059	499.5985	0.0688	0.0005	44.9639
Track Type Dozer	Crawler Tractor	185	1	180	6	1080	250	0.1764	0.0019	166.1315	1.0584	0.0112	996.7893	0.0953	0.0010	89.7110
Excavator	Excavator	85	1	180	8	1440	120	1.1456	0.4081	1354.8351	9.1651	3.2647	10838.6809	0.8249	0.2938	975.4813
Rubber-Tired Loaders	Rubber Tired Loader	78	1	180	8	1440	120	0.0971	0.0007	58.9135	0.7765	0.0055	471.3081	0.0699	0.0005	42.4177
80 Ton Rough Terrain Cranes	Off-highway Truck	250	1	180	6	1080	250	0.1400	0.0019	166.5454	0.8398	0.0112	999.2724	0.0756	0.0010	89.9345
DumpTruck	Grader	473	1	180	4	720	500	0.0072	0.0017	6.1697	0.0287	0.0070	24.6790	0.0026	0.0006	2.2211
4000 Gallon Water Truck	Off-highway Truck	250	1	180	8	1440	250	0.2916	0.1087	262.4958	2.3325	0.8694	2099.9664	0.2099	0.0783	188.9970
											15.75	**4.52**	**16568.19**	**1.42**	**0.41**	**1491.14**

Table A-4a. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 1

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

NOX lbs/day	PM lbs/day	CO lbs/day	Offroad Equipment Project Total NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	25.13	1.03	14.94

Conformity Emissions

NOX (tons)	PM (tons)	CO (tons)
5.62	0.20	3.16

Blythe Mesa Solar Project

Site Preparation/Grading/Earthwork

3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 4,320	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 CO (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Road Grader	Grader	185	1	90	6	540	0.61	250	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Rough-Terrain Forklifts	Rough Terrain Forklift	99	2	90	4	720	0.6	250	0.7333	0.0393	0.4845	5.87	0.31	3.88	0.2640	0.0141	0.1744
Track Type Dozer	Grader	185	1	90	6	540	0.61	500	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Excavator	Excavator	85	1	90	8	720	0.57	120	0.5981	0.0320	0.3952	4.79	0.26	3.16	0.2153	0.0115	0.1423
Rubber-Tired Loaders	Rubber Tired Loader	78	1	90	8	720	0.54	250	0.5200	0.0279	0.3436	4.16	0.22	2.75	0.1872	0.0100	0.1237
Rollers	Roller	100	1	90	6	540	0.56	120	0.6049	0.0272	0.4568	3.63	0.16	2.74	0.1633	0.0073	0.1233
Scrapers	Scraper	365	1	90	6	540	0.72	250	2.7810	0.0869	1.5063	16.69	0.52	9.04	0.7509	0.0235	0.4067
DumpTruck	Grader	473	1	90	4	360	0.57	500	2.8530	0.0892	1.5454	11.41	0.36	6.18	0.5135	0.0160	0.2782
4000 Gallon Water Truck	Off-highway Truck	250	1	90	8	720	0.57	250	1.5394	0.0471	0.8168	12.31	0.38	6.53	0.5542	0.0170	0.2940
ATV Gator Carts	Other Construction Equipment	100	1	90	4	360	0.62	120	0.6698	0.0301	0.5057	2.68	0.12	2.02	0.1206	0.0054	0.0910

Concrete Foundations

3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,100	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Pavers	Paving Equipment	173	1	90	6	540	0.53	250	0.9905	0.0445	0.7479	5.94	0.27	4.49	0.2674	0.0120	0.2019
Concrete Pump	Concrete Pumps	10	4	90	4	1440	0.74	50	0.0914	0.0098	0.0979	1.46	0.16	1.57	0.0658	0.0070	0.0705
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	90	6	1080	0.6	250	0.7333	0.0393	0.4845	8.80	0.47	5.81	0.3960	0.0212	0.2616
Concrete Truck	Off-highway Truck	250	2	90	4	720	0.57	250	1.5394	0.0471	0.8168	12.31	0.38	6.53	0.5542	0.0170	0.2940
Drum Type Compactor	Paving Equipment	250	1	90	6	540	0.53	250	1.4313	0.0438	0.7595	8.59	0.26	4.56	0.3865	0.0118	0.2051
ATV Gator Carts	Other Construction Equipment	100	1	90	6	540	0.53	250	0.5725	0.0257	0.4323	3.44	0.15	2.59	0.1546	0.0069	0.1167
Welders	Welders	50	6	90	6	3240	0.45	50	0.2778	0.0149	0.1835	10.00	0.54	6.61	0.4500	0.0241	0.2973

Table A-4a. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 1

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

Offroad Equipment Project Total

NOX lbs/day	PM lbs/day	CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	25.13	1.03	14.94

Conformity Emissions

Blythe Mesa Solar Project

Structural Steel Work

4 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,520	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	120	5	1200	0.6	250	0.7333	0.0393	0.4845	7.33	0.39	4.85	0.4400	0.0236	0.2907
30 Ton Crane Truck	Off-highway Truck	99	1	120	5	600	0.57	500	0.6967	0.0373	0.4603	3.48	0.19	2.30	0.2090	0.0112	0.1381
80 Ton Rough Terrain Cranes	Off-highway Truck	250	1	120	4	480	0.57	500	1.5394	0.0471	0.8168	6.16	0.19	3.27	0.3694	0.0113	0.1960
Compressor Truck	Off-highway Truck	25	2	120	8	1920	0.57	500	0.1759	0.0141	0.1288	2.81	0.23	2.06	0.1689	0.0136	0.1237
Welders	Welders	50	6	120	6	4320	0.45	50	0.2778	0.0149	0.1835	10.00	0.54	6.61	0.6000	0.0321	0.3964

Electrical/Instrumentation Work

2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,240	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lb/hr)	TIER 2 PM (lb/hr)	TIER 2 CO (lb/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
30 Ton Crane Truck	Off-highway Truck	99	1	60	4	240	0.57	500	0.6967	0.0373	0.4603	2.79	0.15	1.84	0.0836	0.0045	0.0552
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	60	6	720	0.6	500	0.7333	0.0393	0.4845	8.80	0.47	5.81	0.2640	0.0141	0.1744
Carryall Vehicles	Off-highway Truck	180	2	60	4	480	0.57	250	1.1083	0.0339	0.5881	8.87	0.27	4.70	0.2660	0.0081	0.1411
Generator	Generator Sets	30	3	60	10	1800	0.74	50	0.2741	0.0220	0.2007	8.22	0.66	6.02	0.2467	0.0198	0.1806

Architectural and Landscape **Upgrade**

2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 4,680	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	0.55	250	0.5296	0.0284	0.3499	4.24	0.23	2.80	0.1271	0.0068	0.0840
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	0.57	250	0.6967	0.0373	0.4603	5.57	0.30	3.68	0.1672	0.0090	0.1105
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	0.6	250	0.7333	0.0393	0.4845	2.93	0.16	1.94	0.0880	0.0047	0.0581
Vibratory Compactor	Paving Equipment	80	1	60	2	120	0.53	120	0.5235	0.0280	0.3459	1.05	0.06	0.69	0.0314	0.0017	0.0208
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	0.55	120	0.5772	0.0309	0.3813	4.62	0.25	3.05	0.1385	0.0074	0.0915
Trencher	Trencher	75	1	60	8	480	0.75	120	0.6944	0.0372	0.4588	5.56	0.30	3.67	0.1667	0.0089	0.1101
Manlifts	Aerial Lift	75	2	60	8	960	0.46	120	0.4259	0.0228	0.2814	6.81	0.37	4.50	0.2044	0.0110	0.1351
Generator	Generator Sets	30	3	60	8	1440	0.74	50	0.2741	0.0220	0.2007	6.58	0.53	4.82	0.1973	0.0159	0.1445

Substation and O&M Bldgs

2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,220	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	6	360	0.55	250	0.5296	0.0284	0.3499	3.18	0.17	2.10	0.0953	0.0051	0.0630
30 Ton Crane Truck	Off-highway Truck	99	1	60	6	360	0.57	250	0.6967	0.0373	0.4603	4.18	0.22	2.76	0.1254	0.0067	0.0829
Track Type Dozer	Grader	185	1	90	6	540	0.61	500	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Excavator	Excavator	85	1	90	6	540	0.57	120	0.5981	0.0320	0.3952	3.59	0.19	2.37	0.1615	0.0087	0.1067
Rollers	Roller	100	1	90	6	540	0.56	120	0.6049	0.0272	0.4568	3.63	0.16	2.74	0.1633	0.0073	0.1233
4000 Gallon Water Truck	Off-highway Truck	250	2	90	8	1440	0.57	250	1.5394	0.0471	0.8168	24.63	0.75	13.07	1.1083	0.0339	0.5881
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	0.6	250	0.7333	0.0393	0.4845	2.93	0.16	1.94	0.0880	0.0047	0.0581
Vibratory Compactor	Paving Equipment	80	1	60	2	120	0.53	120	0.5235	0.0280	0.3459	1.05	0.06	0.69	0.0314	0.0017	0.0208
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	0.55	120	0.5772	0.0309	0.3813	4.62	0.25	3.05	0.1385	0.0074	0.0915
Trencher	Trencher	75	1	60	8	480	0.75	120	0.6944	0.0372	0.4588	5.56	0.30	3.67	0.1667	0.0089	0.1101
Manlifts	Aerial Lift	75	2	60	8	960	0.46	120	0.4259	0.0228	0.2814	6.81	0.37	4.50	0.2044	0.0110	0.1351
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	0.62	120	0.6698	0.0301	0.5057	5.36	0.24	4.05	0.2411	0.0108	0.1821
Generator	Generator Sets	30	3	60	8	1440	0.74	50	0.2741	0.0220	0.2007	6.58	0.53	4.82	0.1973	0.0159	0.1445

Table A-4a. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 1

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

Blythe Mesa Solar Project

NOX lbs/day	PM lbs/day	CO lbs/day	Offroad Equipment Project Total NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	25.13	1.03	14.94

Conformity Emissions

Transmission Line Installation
12 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 5,116	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Sleeving Rigs	Other Gen Indust Equipment	85	1	152	4	608	0.51	120	0.5352	0.0287	0.3536	2.14	0.11	1.41	0.1627	0.0087	0.1075
Hydralic Pump Motor	Pumps	10	2	10	5	100	0.74	15	0.0914	0.0098	0.0979	0.91	0.10	0.98	0.0046	0.0005	0.0049
580 Case Backhoe	Tractor/loader/backhoe	120	1	152	2	304	0.55	120	0.7130	0.0320	0.5384	1.43	0.06	1.08	0.1084	0.0049	0.0818
Spacing Carts	Other Gen Indust Equipment	10	4	152	4	2432	0.51	15	0.0630	0.0067	0.0675	1.01	0.11	1.08	0.0766	0.0082	0.0820
3 Drum Strawline Pullers	Other Gen Indust Equipment	85	1	152	4	608	0.51	120	0.5352	0.0287	0.3536	2.14	0.11	1.41	0.1627	0.0087	0.1075
60lk Puller	Other Gen Indust Equipment	250	1	152	3	456	0.51	250	1.3773	0.0422	0.7308	4.13	0.13	2.19	0.3140	0.0096	0.1666
Triple Conductor Tensioner	Other Gen Indust Equipment	250	1	152	2	304	0.51	250	1.3773	0.0422	0.7308	2.75	0.08	1.46	0.2094	0.0064	0.1111
Sag Cat w2 winches	Grader	350	1	152	2	304	0.61	500	2.2593	0.0706	1.2238	4.52	0.14	2.45	0.3434	0.0107	0.1860

Decommissioning
6 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 9,720	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Grader	Grader	185	1	180	6	1080	0.61	250	1.2191	0.0373	0.6468	7.3144	0.2239	3.8811	0.6583	0.0202	0.3493
Rough-Terrain Forklifts	Rough Terrain Forklift	99	2	180	4	1440	0.6	250	0.7333	0.0393	0.4845	5.8667	0.3143	3.8762	0.5280	0.0283	0.3489
Track Type Dozer	Crawler Tractor	185	1	180	6	1080	0.61	500	1.2191	0.0373	0.6468	7.3144	0.2239	3.8811	0.6583	0.0202	0.3493
Excavator	Excavator	85	1	180	8	1440	0.57	120	0.5981	0.0320	0.3952	4.7852	0.2563	3.1616	0.4307	0.0231	0.2845
Rubber-Tired Loaders	Rubber Tired Loader	78	1	180	8	1440	0.54	480	0.5200	0.0279	0.3436	4.1600	0.2229	2.7486	0.3744	0.0201	0.2474
80 Ton Rough Terrain Cranes	Off-highway Truck	250	1	180	6	1080	0.57	250	1.5394	0.0471	0.8168	9.2361	0.2827	4.9008	0.8313	0.0254	0.4411
DumpTruck	Grader	473	1	180	4	720	0.57	500	2.8530	0.0892	1.5454	11.4121	0.3566	6.1815	1.0271	0.0321	0.5563
4000 Gallon Water Truck	Off-highway Truck	250	1	180	8	1440	0.57	250	1.5394	0.0471	0.8168	12.3148	0.3770	6.5344	1.1083	0.0339	0.5881
												62.40	**2.26**	**35.17**	**5.62**	**0.20**	**3.16**

Table A-3b. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 3

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

Offroad Equipment Project Total

ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
35.35	12.81	33598.70	1.71	0.39	1,082.07

Blythe Mesa Solar Project

Site Preparation/Grading/Earthwork

3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 6,120	HP Used for OFFROAD	2012 SCAB ROG (lbs/hr)	2012 SCAB SOX (lbs/hr)	2012 SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB SOx lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Grader	Grader	185	1	90	6	540	250	0.1575	0.0547	172.1133	0.9449	0.3279	1032.6795	0.0425	0.0148	46.4706
Rough-Terrain Forklifts	Rough Terrain Forklift	99	2	90	4	720	120	0.0955	0.0007	62.4498	0.7640	0.0059	499.5985	0.0344	0.0003	22.4819
Track Type Dozer	Crawler Tractor	185	1	90	6	540	250	0.1764	0.0019	166.1315	1.0584	0.0112	996.7893	0.0476	0.0005	44.8555
Excavator	Excavator	85	1	90	8	720	120	0.1183	0.0657	73.6231	0.9462	0.5260	588.9848	0.0426	0.0237	26.5043
Rubber-Tired Loaders	Rubber Tired Loader	78	1	90	8	720	120	0.0971	0.0007	58.9135	0.7765	0.0055	471.3081	0.0349	0.0002	21.2089
Rollers	Roller	100	1	90	6	540	120	0.1054	0.0574	58.9888	0.6327	0.3446	353.9325	0.0285	0.0155	15.9270
Scrapers	Scraper	365	1	90	6	540	500	0.3186	0.0032	321.4286	1.9118	0.0189	1928.5717	0.0860	0.0009	86.7857
DumpTruck	Grader	473	1	90	4	360	500	0.2263	0.0705	272.3339	0.9052	0.2822	1089.3355	0.0407	0.0127	49.0201
4000 Gallon Water Truck	Off-highway Truck	250	1	90	8	720	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0529	0.0166	59.9563
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	120	0.1104	0.0633	80.8587	0.8832	0.5066	646.8698	0.0397	0.0228	29.1091

Concrete Foundations

3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,100	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Pavers	Paving Equipment	173	1	90	6	540	250	0.1349	0.0507	122.2913	0.8093	0.3041	733.7475	0.0364	0.0137	33.0186
Concrete Pump	Concrete Pumps	10	4	90	4	1440	50	0.1155	0.0299	34.3348	1.8475	0.4782	549.3575	0.0831	0.0215	24.7211
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	90	6	1080	120	0.0955	0.0007	62.4498	1.1460	0.0088	749.3978	0.0516	0.0004	33.7229
Concrete Truck	Off-highway Truck	250	2	90	4	720	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0529	0.0166	59.9563
Drum Type Compactor	Paving Equipment	250	1	90	6	540	250	0.1349	0.0507	122.2913	0.8093	0.3041	733.7475	0.0364	0.0137	33.0186
ATV Gator Carts	Other Construction Equipment	100	1	90	6	540	120	0.1104	0.0633	80.8587	0.6624	0.3799	485.1523	0.0298	0.0171	21.8319
Welders	Welders	50	6	90	6	3240	50	0.1071	0.0260	25.9581	3.8551	0.9346	934.4901	0.1735	0.0421	42.0521

Table A-3b. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 3

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO_2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

Offroad Equipment Project Total

ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
35.35	12.81	33598.70	1.71	0.39	1,082.07

Structural Steel Work
4 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,760	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	120	5	1200	120	0.0955	0.0007	62.4498	0.9550	0.0073	624.4981	0.0573	0.0004	37.4699
30 Ton Crane Truck	Off-highway Truck	99	1	120	5	600	175	0.1441	0.0014	125.0878	0.7206	0.0070	625.4389	0.0432	0.0004	37.5263
80 Ton Rough Terrain Cranes	Off-highway Truck	250	1	120	6	720	250	0.1400	0.0019	166.5454	0.8398	0.0112	999.2724	0.0504	0.0007	59.9563
Compressor Truck	Air Compressor	25	2	120	8	1920	50	0.0266	0.0002	14.4462	0.4253	0.0029	231.1396	0.0255	0.0002	13.8684
Welders	Welders	50	6	120	6	4320	50	0.1071	0.0260	25.9581	3.8551	0.9346	934.4901	0.2313	0.0561	56.0694

Electrical/Instrumentation Work
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,240	HP Used for OFFROAD	SCAB ROG (lb/hr)	SCAB SOX (lb/hr)	SCAB CO2 (lb/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
30 Ton Crane Truck	Off-highway Truck	99	1	60	4	240	175	0.1441	0.0014	125.0878	0.5764	0.0056	500.3511	0.0173	0.0002	15.0105
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	60	6	720	120	0.0955	0.0007	62.4498	1.1460	0.0088	749.3978	0.0344	0.0003	22.4819
Carryall Vehicles	Off-highway Truck	180	2	60	4	480	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0353	0.0111	39.9709
Generator	Generator Sets	30	3	60	10	1800	50	0.0959	0.0255	30.6230	2.8770	0.7641	918.6896	0.0863	0.0229	27.5607

Architectural and Landscape
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 4,680	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	120	0.0694	0.0006	51.7280	0.5555	0.0049	413.8241	0.0167	0.0001	12.4147
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	175	0.1441	0.0014	125.0878	1.1529	0.0113	1000.7022	0.0346	0.0003	30.0211
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	120	0.0955	0.0007	62.4498	0.3820	0.0029	249.7993	0.0115	0.0001	7.4940
Vibratory Compactor	Paving Equipment	80	1	60	2	120	120	0.1150	0.0610	54.4994	0.2299	0.1219	108.9987	0.0069	0.0037	3.2700
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	120	0.0760	0.0432	51.7280	0.6083	0.3456	413.8241	0.0182	0.0104	12.4147
Trencher	Trencher	75	1	60	8	480	120	0.1354	0.0709	64.8951	1.0830	0.5671	519.1611	0.0325	0.0170	15.5748
Manlifts	Aerial Lift	75	2	60	8	960	120	0.0607	0.0324	38.0718	0.9718	0.5183	609.1490	0.0292	0.0155	18.2745
Generator	Generator Sets	30	3	60	8	1440	50	0.0959	0.0255	30.6230	2.3016	0.6112	734.9517	0.0690	0.0183	22.0486

Substation and O&M Bldgs
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 9,000	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	120	0.0694	0.0006	51.7280	0.5555	0.0049	413.8241	0.0167	0.0001	12.4147
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	120	0.0185	0.0045	15.3491	0.1481	0.0358	122.7929	0.0044	0.0011	3.6838
Track Type Dozer	Crawler Tractor	185	1	90	8	720	250	0.1764	0.0019	166.1315	1.4112	0.0150	1329.0524	0.0635	0.0007	59.8074
Excavator	Excavator	85	1	90	8	720	120	0.1183	0.0657	73.6231	0.9462	0.5260	588.9848	0.0426	0.0237	26.5043
Rollers	Roller	100	1	90	8	720	120	0.1054	0.0574	58.9888	0.8436	0.4595	471.9100	0.0380	0.0207	21.2360
4000 Gallon Water Truck	Off-highway Truck	250	2	90	8	1440	250	0.1469	0.0461	166.5454	2.3502	0.7368	2664.7258	0.1058	0.0332	119.9127
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	120	0.0955	0.0007	62.4498	0.3820	0.0029	249.7993	0.0115	0.0001	7.4940
Vibratory Compactor	Paving Equipment	80	1	60	2	120	120	0.1155	0.0299	34.3348	0.2309	0.0598	68.6697	0.0069	0.0018	2.0601
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	120	0.5949	0.2259	586.8778	4.7593	1.8072	4695.0227	0.1428	0.0542	140.8507
Trencher	Trencher	75	1	60	8	480	120	0.0703	0.0243	25.6027	0.5625	0.1944	204.8214	0.0169	0.0058	6.1446
Manlifts	Aerial Lift	75	2	60	8	960	120	0.0984	0.0469	63.6073	1.5737	0.7511	1017.7170	0.0472	0.0225	30.5315
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	120	0.1104	0.0633	80.8587	0.8832	0.5066	646.8698	0.0397	0.0228	29.1091
Generator	Generator Sets	30	3	60	8	1440	50	0.4147	0.1439	485.7416	9.9529	3.4547	11657.7984	0.2986	0.1036	349.7340

Table A-3b. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 3

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

Offroad Equipment Project Total

ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
35.35	12.81	33598.70	1.71	0.39	1,082.07

Transmission Line Installation

12 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 5,357	HP Used for OFFROAD	2012 SCAB ROG (lbs/hr)	2012 SCAB SOX (lbs/hr)	2012 SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB SOX lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Sleeving Rigs	Other Gen Indust Equipment	85	1	159	4	636	120	0.5779	0.2075	555.2765	2.3116	0.8301	2221.1061	0.1838	0.0660	176.5779
Hydralic Pump Motor	Pumps	10	2	11	5	110	15	0.2050	0.0901	143.8979	2.0499	0.9009	1438.9789	0.0113	0.0050	7.9144
580 Case Backhoe	Tractor/loader/backhoe	120	1	159	2	318	120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Spacing Carts	Other Gen Indust Equipment	10	4	159	4	2544	15	0.2916	0.1087	262.4958	4.6649	1.7389	4199.9328	0.3709	0.1382	333.8947
3 Drum Strawline Pullers	Other Gen Indust Equipment	85	1	159	4	636	120	0.1284	0.0703	80.2066	0.5135	0.2812	320.8265	0.0408	0.0224	25.5057
60lk Puller	Other Gen Indust Equipment	250	1	159	3	477	250	0.1661	0.0750	154.5445	0.4984	0.2249	463.6335	0.0396	0.0179	36.8589
Triple Conductor Tensioner	Other Gen Indust Equipment	250	1	159	2	318	250	0.1661	0.0750	154.5445	0.3323	0.1499	309.0890	0.0264	0.0119	24.5726
Sag Cat w2 winches	Grader	350	1	159	2	318	500	0.1894	0.0642	256.5709	0.3787	0.1285	513.1418	0.0301	0.0102	40.7948

Table A-4b. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 3

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

Offroad Equipment Project Total

NOX lbs/day	PM lbs/day	CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	13.97	0.62	8.65

Blythe Mesa Solar Project
Site Preparation/Grading/Earthwork
3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 4,320	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 CO (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Road Grader	Grader	185	1	90	6	540	0.61	250	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Rough-Terrain Forklifts	Rough Terrain Forklift	99	2	90	4	720	0.6	250	0.7333	0.0393	0.4845	5.87	0.31	3.88	0.2640	0.0141	0.1744
Track Type Dozer	Grader	185	1	90	6	540	0.61	500	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Excavator	Excavator	85	1	90	8	720	0.57	120	0.5981	0.0320	0.3952	4.79	0.26	3.16	0.2153	0.0115	0.1423
Rubber-Tired Loaders	Rubber Tired Loader	78	1	90	8	720	0.54	250	0.5200	0.0279	0.3436	4.16	0.22	2.75	0.1872	0.0100	0.1237
Rollers	Roller	100	1	90	6	540	0.56	120	0.6049	0.0272	0.4568	3.63	0.16	2.74	0.1633	0.0073	0.1233
Scrapers	Scraper	365	1	90	6	540	0.72	250	2.7810	0.0869	1.5063	16.69	0.52	9.04	0.7509	0.0235	0.4067
DumpTruck	Grader	473	1	90	4	360	0.57	500	2.8530	0.0892	1.5454	11.41	0.36	6.18	0.5135	0.0160	0.2782
4000 Gallon Water Truck	Off-highway Truck	250	1	90	8	720	0.57	250	1.5394	0.0471	0.8168	12.31	0.38	6.53	0.5542	0.0170	0.2940
ATV Gator Carts	Other Construction Equipment	100	1	90	4	360	0.62	120	0.6698	0.0301	0.5057	2.68	0.12	2.02	0.1206	0.0054	0.0910

Concrete Foundations
3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,100	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Pavers	Paving Equipment	173	1	90	6	540	0.53	250	0.9905	0.0445	0.7479	5.94	0.27	4.49	0.2674	0.0120	0.2019
Concrete Pump	Concrete Pumps	10	4	90	4	1440	0.74	50	0.0914	0.0098	0.0979	1.46	0.16	1.57	0.0658	0.0070	0.0705
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	90	6	1080	0.6	250	0.7333	0.0393	0.4845	8.80	0.47	5.81	0.3960	0.0212	0.2616
Concrete Truck	Off-highway Truck	250	2	90	4	720	0.57	250	1.5394	0.0471	0.8168	12.31	0.38	6.53	0.5542	0.0170	0.2940
Drum Type Compactor	Paving Equipment	250	1	90	6	540	0.53	250	1.4313	0.0438	0.7595	8.59	0.26	4.56	0.3865	0.0118	0.2051
ATV Gator Carts	Other Construction Equipment	100	1	90	6	540	0.53	250	0.5725	0.0257	0.4323	3.44	0.15	2.59	0.1546	0.0069	0.1167
Welders	Welders	50	6	90	6	3240	0.45	50	0.2778	0.0149	0.1835	10.00	0.54	6.61	0.4500	0.0241	0.2973

Table A-4b. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 3

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

Offroad Equipment Project Total

NOX lbs/day	PM lbs/day	CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	13.97	0.62	8.65

Blythe Mesa Solar Project
Structural Steel Work
4 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 8,520	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	120	5	1200	0.6	250	0.7333	0.0393	0.4845	7.33	0.39	4.85	0.4400	0.0236	0.2907
30 Ton Crane Truck	Off-highway Truck	99	1	120	5	600	0.57	500	0.6967	0.0373	0.4603	3.48	0.19	2.30	0.2090	0.0112	0.1381
80 Ton Rough Terrain Cranes	Off-highway Truck	250	1	120	4	480	0.57	500	1.5394	0.0471	0.8168	6.16	0.19	3.27	0.3694	0.0113	0.1960
Compressor Truck	Off-highway Truck	25	2	120	8	1920	0.57	500	0.1759	0.0141	0.1288	2.81	0.23	2.06	0.1689	0.0136	0.1237
Welders	Welders	50	6	120	6	4320	0.45	50	0.2778	0.0149	0.1835	10.00	0.54	6.61	0.6000	0.0321	0.3964

Electrical/Instrumentation Work
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 3,240	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lb/hr)	TIER 2 PM (lb/hr)	TIER 2 CO (lb/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
30 Ton Crane Truck	Off-highway Truck	99	1	60	4	240	0.57	500	0.6967	0.0373	0.4603	2.79	0.15	1.84	0.0836	0.0045	0.0552
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	60	6	720	0.6	500	0.7333	0.0393	0.4845	8.80	0.47	5.81	0.2640	0.0141	0.1744
Carryall Vehicles	Off-highway Truck	180	2	60	4	480	0.57	250	1.1083	0.0339	0.5881	8.87	0.27	4.70	0.2660	0.0081	0.1411
Generator	Generator Sets	30	3	60	10	1800	0.74	50	0.2741	0.0220	0.2007	8.22	0.66	6.02	0.2467	0.0198	0.1806

Architectural and Landscape **Upgrade**
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 4,680	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	0.55	250	0.5296	0.0284	0.3499	4.24	0.23	2.80	0.1271	0.0068	0.0840
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	0.57	250	0.6967	0.0373	0.4603	5.57	0.30	3.68	0.1672	0.0090	0.1105
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	0.6	250	0.7333	0.0393	0.4845	2.93	0.16	1.94	0.0880	0.0047	0.0581
Vibratory Compactor	Paving Equipment	80	1	60	2	120	0.53	120	0.5235	0.0280	0.3459	1.05	0.06	0.69	0.0314	0.0017	0.0208
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	0.55	120	0.5772	0.0309	0.3813	4.62	0.25	3.05	0.1385	0.0074	0.0915
Trencher	Trencher	75	1	60	8	480	0.75	120	0.6944	0.0372	0.4588	5.56	0.30	3.67	0.1667	0.0089	0.1101
Manlifts	Aerial Lift	75	2	60	8	960	0.46	120	0.4259	0.0228	0.2814	6.81	0.37	4.50	0.2044	0.0110	0.1351
Generator	Generator Sets	30	3	60	8	1440	0.74	50	0.2741	0.0220	0.2007	6.58	0.53	4.82	0.1973	0.0159	0.1445

Substation and O&M Bldgs
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 8,220	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	6	360	0.55	250	0.5296	0.0284	0.3499	3.18	0.17	2.10	0.0953	0.0051	0.0630
30 Ton Crane Truck	Off-highway Truck	99	1	60	6	360	0.57	250	0.6967	0.0373	0.4603	4.18	0.22	2.76	0.1254	0.0067	0.0829
Track Type Dozer	Grader	185	1	90	6	540	0.61	500	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Excavator	Excavator	85	1	90	6	540	0.57	120	0.5981	0.0320	0.3952	3.59	0.19	2.37	0.1615	0.0087	0.1067
Rollers	Roller	100	1	90	6	540	0.56	120	0.6049	0.0272	0.4568	3.63	0.16	2.74	0.1633	0.0073	0.1233
4000 Gallon Water Truck	Off-highway Truck	250	2	90	8	1440	0.57	250	1.5394	0.0471	0.8168	24.63	0.75	13.07	1.1083	0.0339	0.5881
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	0.6	250	0.7333	0.0393	0.4845	2.93	0.16	1.94	0.0880	0.0047	0.0581
Vibratory Compactor	Paving Equipment	80	1	60	2	120	0.53	120	0.5235	0.0280	0.3459	1.05	0.06	0.69	0.0314	0.0017	0.0208
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	0.55	120	0.5772	0.0309	0.3813	4.62	0.25	3.05	0.1385	0.0074	0.0915
Trencher	Trencher	75	1	60	8	480	0.75	120	0.6944	0.0372	0.4588	5.56	0.30	3.67	0.1667	0.0089	0.1101
Manlifts	Aerial Lift	75	2	60	8	960	0.46	120	0.4259	0.0228	0.2814	6.81	0.37	4.50	0.2044	0.0110	0.1351
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	0.62	120	0.6698	0.0301	0.5057	5.36	0.24	4.05	0.2411	0.0108	0.1821
Generator	Generator Sets	30	3	60	8	1440	0.74	50	0.2741	0.0220	0.2007	6.58	0.53	4.82	0.1973	0.0159	0.1445

Table A-4b. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 3

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

Offroad Equipment Project Total

NOX lbs/day	PM lbs/day	CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	13.97	0.62	8.65

Blythe Mesa Solar Project

Transmission Line Installation
12 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 5,357	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Sleeving Rigs	Other Gen Indust Equipment	85	1	159	4	636	0.51	120	0.5352	0.0287	0.3536	2.14	0.11	1.41	0.1702	0.0091	0.1124
Hydralic Pump Motor	Pumps	10	2	11	5	110	0.74	15	0.0914	0.0098	0.0979	0.91	0.10	0.98	0.0050	0.0005	0.0054
580 Case Backhoe	Tractor/loader/backhoe	120	1	159	2	318	0.55	120	0.7130	0.0320	0.5384	1.43	0.06	1.08	0.1134	0.0051	0.0856
Spacing Carts	Other Gen Indust Equipment	10	4	159	4	2544	0.51	15	0.0630	0.0067	0.0675	1.01	0.11	1.08	0.0801	0.0086	0.0858
3 Drum Strawline Pullers	Other Gen Indust Equipment	85	1	159	4	636	0.51	120	0.5352	0.0287	0.3536	2.14	0.11	1.41	0.1702	0.0091	0.1124
60lk Puller	Other Gen Indust Equipment	250	1	159	3	477	0.51	250	1.3773	0.0422	0.7308	4.13	0.13	2.19	0.3285	0.0101	0.1743
Triple Conductor Tensioner	Other Gen Indust Equipment	250	1	159	2	318	0.51	250	1.3773	0.0422	0.7308	2.75	0.08	1.46	0.2190	0.0067	0.1162
Sag Cat w2 winches	Grader	350	1	159	2	318	0.61	500	2.2593	0.0706	1.2238	4.52	0.14	2.45	0.3592	0.0112	0.1946

Table A-3c. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 4

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

Offroad Equipment Project Total

ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
35.35	12.81	33598.70	1.71	0.39	1,082.07

Blythe Mesa Solar Project

Site Preparation/Grading/Earthwork

3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 6,120	HP Used for OFFROAD	2012 SCAB ROG (lbs/hr)	2012 SCAB SOX (lbs/hr)	2012 SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB SOx lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Grader	Grader	185	1	90	6	540	250	0.1575	0.0547	172.1133	0.9449	0.3279	1032.6795	0.0425	0.0148	46.4706
Rough-Terrain Forklifts	Rough Terrain Forklift	99	2	90	4	720	120	0.0955	0.0007	62.4498	0.7640	0.0059	499.5985	0.0344	0.0003	22.4819
Track Type Dozer	Crawler Tractor	185	1	90	6	540	250	0.1764	0.0019	166.1315	1.0584	0.0112	996.7893	0.0476	0.0005	44.8555
Excavator	Excavator	85	1	90	8	720	120	0.1183	0.0657	73.6231	0.9462	0.5260	588.9848	0.0426	0.0237	26.5043
Rubber-Tired Loaders	Rubber Tired Loader	78	1	90	8	720	120	0.0971	0.0007	58.9135	0.7765	0.0055	471.3081	0.0349	0.0002	21.2089
Rollers	Roller	100	1	90	6	540	120	0.1054	0.0574	58.9888	0.6327	0.3446	353.9325	0.0285	0.0155	15.9270
Scrapers	Scraper	365	1	90	6	540	500	0.3186	0.0032	321.4286	1.9118	0.0189	1928.5717	0.0860	0.0009	86.7857
DumpTruck	Grader	473	1	90	4	360	500	0.2263	0.0705	272.3339	0.9052	0.2822	1089.3355	0.0407	0.0127	49.0201
4000 Gallon Water Truck	Off-highway Truck	250	1	90	8	720	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0529	0.0166	59.9563
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	120	0.1104	0.0633	80.8587	0.8832	0.5066	646.8698	0.0397	0.0228	29.1091

Concrete Foundations

3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,100	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Pavers	Paving Equipment	173	1	90	6	540	250	0.1349	0.0507	122.2913	0.8093	0.3041	733.7475	0.0364	0.0137	33.0186
Concrete Pump	Concrete Pumps	10	4	90	4	1440	50	0.1155	0.0299	34.3348	1.8475	0.4782	549.3575	0.0831	0.0215	24.7211
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	90	6	1080	120	0.0955	0.0007	62.4498	1.1460	0.0088	749.3978	0.0516	0.0004	33.7229
Concrete Truck	Off-highway Truck	250	2	90	4	720	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0529	0.0166	59.9563
Drum Type Compactor	Paving Equipment	250	1	90	6	540	250	0.1349	0.0507	122.2913	0.8093	0.3041	733.7475	0.0364	0.0137	33.0186
ATV Gator Carts	Other Construction Equipment	100	1	90	6	540	120	0.1104	0.0633	80.8587	0.6624	0.3799	485.1523	0.0298	0.0171	21.8319
Welders	Welders	50	6	90	6	3240	50	0.1071	0.0260	25.9581	3.8551	0.9346	934.4901	0.1735	0.0421	42.0521

Table A-3c. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 4

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

Offroad Equipment Project Total

ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
35.35	12.81	33598.70	1.71	0.39	1,082.07

Structural Steel Work
4 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,760	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	120	5	1200	120	0.0955	0.0007	62.4498	0.9550	0.0073	624.4981	0.0573	0.0004	37.4699
30 Ton Crane Truck	Off-highway Truck	99	1	120	5	600	175	0.1441	0.0014	125.0878	0.7206	0.0070	625.4389	0.0432	0.0004	37.5263
80 Ton Rough Terrain Cranes	Off-highway Truck	250	1	120	6	720	250	0.1400	0.0019	166.5454	0.8398	0.0112	999.2724	0.0504	0.0007	59.9563
Compressor Truck	Air Compressor	25	2	120	8	1920	50	0.0266	0.0002	14.4462	0.4253	0.0029	231.1396	0.0255	0.0002	13.8684
Welders	Welders	50	6	120	6	4320	50	0.1071	0.0260	25.9581	3.8551	0.9346	934.4901	0.2313	0.0561	56.0694

Electrical/Instrumentation Work
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,240	HP Used for OFFROAD	SCAB ROG (lb/hr)	SCAB SOX (lb/hr)	SCAB CO2 (lb/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
30 Ton Crane Truck	Off-highway Truck	99	1	60	4	240	175	0.1441	0.0014	125.0878	0.5764	0.0056	500.3511	0.0173	0.0002	15.0105
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	60	6	720	120	0.0955	0.0007	62.4498	1.1460	0.0088	749.3978	0.0344	0.0003	22.4819
Carryall Vehicles	Off-highway Truck	180	2	60	4	480	250	0.1469	0.0461	166.5454	1.1751	0.3684	1332.3629	0.0353	0.0111	39.9709
Generator	Generator Sets	30	3	60	10	1800	50	0.0959	0.0255	30.6230	2.8770	0.7641	918.6896	0.0863	0.0229	27.5607

Architectural and Landscape
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 4,680	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	120	0.0694	0.0006	51.7280	0.5555	0.0049	413.8241	0.0167	0.0001	12.4147
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	175	0.1441	0.0014	125.0878	1.1529	0.0113	1000.7022	0.0346	0.0003	30.0211
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	120	0.0955	0.0007	62.4498	0.3820	0.0029	249.7993	0.0115	0.0001	7.4940
Vibratory Compactor	Paving Equipment	80	1	60	2	120	120	0.1150	0.0610	54.4994	0.2299	0.1219	108.9987	0.0069	0.0037	3.2700
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	120	0.0760	0.0432	51.7280	0.6083	0.3456	413.8241	0.0182	0.0104	12.4147
Trencher	Trencher	75	1	60	8	480	120	0.1354	0.0709	64.8951	1.0830	0.5671	519.1611	0.0325	0.0170	15.5748
Manlifts	Aerial Lift	75	2	60	8	960	120	0.0607	0.0324	38.0718	0.9718	0.5183	609.1490	0.0292	0.0155	18.2745
Generator	Generator Sets	30	3	60	8	1440	50	0.0959	0.0255	30.6230	2.3016	0.6112	734.9517	0.0690	0.0183	22.0486

Substation and O&M Bldgs
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 9,000	HP Used for OFFROAD	SCAB ROG (lbs/hr)	SCAB SOX (lbs/hr)	SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB PM lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	120	0.0694	0.0006	51.7280	0.5555	0.0049	413.8241	0.0167	0.0001	12.4147
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	120	0.0185	0.0045	15.3491	0.1481	0.0358	122.7929	0.0044	0.0011	3.6838
Track Type Dozer	Crawler Tractor	185	1	90	8	720	250	0.1764	0.0019	166.1315	1.4112	0.0150	1329.0524	0.0635	0.0007	59.8074
Excavator	Excavator	85	1	90	8	720	120	0.1183	0.0657	73.6231	0.9462	0.5260	588.9848	0.0426	0.0237	26.5043
Rollers	Roller	100	1	90	8	720	120	0.1054	0.0574	58.9888	0.8436	0.4595	471.9100	0.0380	0.0207	21.2360
4000 Gallon Water Truck	Off-highway Truck	250	2	90	8	1440	250	0.1469	0.0461	166.5454	2.3502	0.7368	2664.7258	0.1058	0.0332	119.9127
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	120	0.0955	0.0007	62.4498	0.3820	0.0029	249.7993	0.0115	0.0001	7.4940
Vibratory Compactor	Paving Equipment	80	1	60	2	120	120	0.1155	0.0299	34.3348	0.2309	0.0598	68.6697	0.0069	0.0018	2.0601
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	120	0.5949	0.2259	586.8778	4.7593	1.8072	4695.0227	0.1428	0.0542	140.8507
Trencher	Trencher	75	1	60	8	480	120	0.0703	0.0243	25.6027	0.5625	0.1944	204.8214	0.0169	0.0058	6.1446
Manlifts	Aerial Lift	75	2	60	8	960	120	0.0984	0.0469	63.6073	1.5737	0.7511	1017.7170	0.0472	0.0225	30.5315
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	120	0.1104	0.0633	80.8587	0.8832	0.5066	646.8698	0.0397	0.0228	29.1091
Generator	Generator Sets	30	3	60	8	1440	50	0.4147	0.1439	485.7416	9.9529	3.4547	11657.7984	0.2986	0.1036	349.7340

Table A-3c. Offroad Emissions Calculation - Using SCAB Emission Factors - Alternative 4

2012 SCAB emission factors (EFs) corresponding to OFFROAD2007 model are applied to CO2, ROG, and SOX.
Tier 2 and 3 EFs are applied to NOx, PM, and CO. Calculation details are provided in *Offroad Tier 2* and *Offroad Tier 3* worksheets.
Load factors are used in conjunction with Tier 2and 3 EFs.

Offroad Equipment Project Total

ROG lbs/day	SOx lbs/day	CO2 lbs/day	ROG (tons)	SOX (tons)	CO2 (tons)
35.35	12.81	33598.70	1.71	0.39	1,082.07

Transmission Line Installation

12 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 5,796	HP Used for OFFROAD	2012 SCAB ROG (lbs/hr)	2012 SCAB SOX (lbs/hr)	2012 SCAB CO2 (lbs/hr)	2012 SCAB ROG lbs/day	2012 SCAB SOX lbs/day	2012 SCAB CO2 lbs/day	2012 SCAB ROG (tons)	2012 SCAB SOX (tons)	2012 SCAB CO2 (tons)
Sleeving Rigs	Other Gen Indust Equipment	85	1	172	4	688	120	0.5779	0.2075	555.2765	2.3116	0.8301	2221.1061	0.1988	0.0714	191.0151
Hydralic Pump Motor	Pumps	10	2	12	5	120	15	0.2050	0.0901	143.8979	2.0499	0.9009	1438.9789	0.0123	0.0054	8.6339
580 Case Backhoe	Tractor/loader/backhoe	120	1	172	2	344	120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Spacing Carts	Other Gen Indust Equipment	10	4	172	4	2752	15	0.2916	0.1087	262.4958	4.6649	1.7389	4199.9328	0.4012	0.1495	361.1942
3 Drum Strawline Pullers	Other Gen Indust Equipment	85	1	172	4	688	120	0.1284	0.0703	80.2066	0.5135	0.2812	320.8265	0.0442	0.0242	27.5911
60lk Puller	Other Gen Indust Equipment	250	1	172	3	516	250	0.1661	0.0750	154.5445	0.4984	0.2249	463.6335	0.0429	0.0193	39.8725
Triple Conductor Tensioner	Other Gen Indust Equipment	250	1	172	2	344	250	0.1661	0.0750	154.5445	0.3323	0.1499	309.0890	0.0286	0.0129	26.5817
Sag Cat w2 winches	Grader	350	1	172	2	344	500	0.1894	0.0642	256.5709	0.3787	0.1285	513.1418	0.0326	0.0111	44.1302

Table A-4c. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 4

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

Offroad Equipment Project Total

NOX lbs/day	PM lbs/day	CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	14.08	0.63	8.72

Blythe Mesa Solar Project
Site Preparation/Grading/Earthwork
3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 4,320	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 CO (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Road Grader	Grader	185	1	90	6	540	0.61	250	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Rough-Terrain Forklifts	Rough Terrain Forklift	99	2	90	4	720	0.6	250	0.7333	0.0393	0.4845	5.87	0.31	3.88	0.2640	0.0141	0.1744
Track Type Dozer	Grader	185	1	90	6	540	0.61	500	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Excavator	Excavator	85	1	90	8	720	0.57	120	0.5981	0.0320	0.3952	4.79	0.26	3.16	0.2153	0.0115	0.1423
Rubber-Tired Loaders	Rubber Tired Loader	78	1	90	8	720	0.54	250	0.5200	0.0279	0.3436	4.16	0.22	2.75	0.1872	0.0100	0.1237
Rollers	Roller	100	1	90	6	540	0.56	120	0.6049	0.0272	0.4568	3.63	0.16	2.74	0.1633	0.0073	0.1233
Scrapers	Scraper	365	1	90	6	540	0.72	250	2.7810	0.0869	1.5063	16.69	0.52	9.04	0.7509	0.0235	0.4067
DumpTruck	Grader	473	1	90	4	360	0.57	500	2.8530	0.0892	1.5454	11.41	0.36	6.18	0.5135	0.0160	0.2782
4000 Gallon Water Truck	Off-highway Truck	250	1	90	8	720	0.57	250	1.5394	0.0471	0.8168	12.31	0.38	6.53	0.5542	0.0170	0.2940
ATV Gator Carts	Other Construction Equipment	100	1	90	4	360	0.62	120	0.6698	0.0301	0.5057	2.68	0.12	2.02	0.1206	0.0054	0.0910

Concrete Foundations
3 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 8,100	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Pavers	Paving Equipment	173	1	90	6	540	0.53	250	0.9905	0.0445	0.7479	5.94	0.27	4.49	0.2674	0.0120	0.2019
Concrete Pump	Concrete Pumps	10	4	90	4	1440	0.74	50	0.0914	0.0098	0.0979	1.46	0.16	1.57	0.0658	0.0070	0.0705
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	90	6	1080	0.6	250	0.7333	0.0393	0.4845	8.80	0.47	5.81	0.3960	0.0212	0.2616
Concrete Truck	Off-highway Truck	250	2	90	4	720	0.57	250	1.5394	0.0471	0.8168	12.31	0.38	6.53	0.5542	0.0170	0.2940
Drum Type Compactor	Paving Equipment	250	1	90	6	540	0.53	250	1.4313	0.0438	0.7595	8.59	0.26	4.56	0.3865	0.0118	0.2051
ATV Gator Carts	Other Construction Equipment	100	1	90	6	540	0.53	250	0.5725	0.0257	0.4323	3.44	0.15	2.59	0.1546	0.0069	0.1167
Welders	Welders	50	6	90	6	3240	0.45	50	0.2778	0.0149	0.1835	10.00	0.54	6.61	0.4500	0.0241	0.2973

Table A-4c. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 4

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

Offroad Equipment Project Total

NOX lbs/day	PM lbs/day	CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	14.08	0.63	8.72

Blythe Mesa Solar Project
Structural Steel Work
4 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 8,520	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
10,000 lb Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	120	5	1200	0.6	250	0.7333	0.0393	0.4845	7.33	0.39	4.85	0.4400	0.0236	0.2907
30 Ton Crane Truck	Off-highway Truck	99	1	120	5	600	0.57	500	0.6967	0.0373	0.4603	3.48	0.19	2.30	0.2090	0.0112	0.1381
80 Ton Rough Terrain Cranes	Off-highway Truck	250	1	120	4	480	0.57	500	1.5394	0.0471	0.8168	6.16	0.19	3.27	0.3694	0.0113	0.1960
Compressor Truck	Off-highway Truck	25	2	120	8	1920	0.57	500	0.1759	0.0141	0.1288	2.81	0.23	2.06	0.1689	0.0136	0.1237
Welders	Welders	50	6	120	6	4320	0.45	50	0.2778	0.0149	0.1835	10.00	0.54	6.61	0.6000	0.0321	0.3964

Electrical/Instrumentation Work
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 3,240	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lb/hr)	TIER 2 PM (lb/hr)	TIER 2 CO (lb/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
30 Ton Crane Truck	Off-highway Truck	99	1	60	4	240	0.57	500	0.6967	0.0373	0.4603	2.79	0.15	1.84	0.0836	0.0045	0.0552
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	2	60	6	720	0.6	500	0.7333	0.0393	0.4845	8.80	0.47	5.81	0.2640	0.0141	0.1744
Carryall Vehicles	Off-highway Truck	180	2	60	4	480	0.57	250	1.1083	0.0339	0.5881	8.87	0.27	4.70	0.2660	0.0081	0.1411
Generator	Generator Sets	30	3	60	10	1800	0.74	50	0.2741	0.0220	0.2007	8.22	0.66	6.02	0.2467	0.0198	0.1806

Architectural and Landscape **Upgrade**
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 4,680	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	8	480	0.55	250	0.5296	0.0284	0.3499	4.24	0.23	2.80	0.1271	0.0068	0.0840
30 Ton Crane Truck	Off-highway Truck	99	1	60	8	480	0.57	250	0.6967	0.0373	0.4603	5.57	0.30	3.68	0.1672	0.0090	0.1105
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	0.6	250	0.7333	0.0393	0.4845	2.93	0.16	1.94	0.0880	0.0047	0.0581
Vibratory Compactor	Paving Equipment	80	1	60	2	120	0.53	120	0.5235	0.0280	0.3459	1.05	0.06	0.69	0.0314	0.0017	0.0208
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	0.55	120	0.5772	0.0309	0.3813	4.62	0.25	3.05	0.1385	0.0074	0.0915
Trencher	Trencher	75	1	60	8	480	0.75	120	0.6944	0.0372	0.4588	5.56	0.30	3.67	0.1667	0.0089	0.1101
Manlifts	Aerial Lift	75	2	60	8	960	0.46	120	0.4259	0.0228	0.2814	6.81	0.37	4.50	0.2044	0.0110	0.1351
Generator	Generator Sets	30	3	60	8	1440	0.74	50	0.2741	0.0220	0.2007	6.58	0.53	4.82	0.1973	0.0159	0.1445

Substation and O&M Bldgs
2 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 8,220	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Front Loader	Tractor/loader/backhoe	78	1	60	6	360	0.55	250	0.5296	0.0284	0.3499	3.18	0.17	2.10	0.0953	0.0051	0.0630
30 Ton Crane Truck	Off-highway Truck	99	1	60	6	360	0.57	250	0.6967	0.0373	0.4603	4.18	0.22	2.76	0.1254	0.0067	0.0829
Track Type Dozer	Grader	185	1	90	6	540	0.61	500	1.2191	0.0373	0.6468	7.31	0.22	3.88	0.3291	0.0101	0.1746
Excavator	Excavator	85	1	90	6	540	0.57	120	0.5981	0.0320	0.3952	3.59	0.19	2.37	0.1615	0.0087	0.1067
Rollers	Roller	100	1	90	6	540	0.56	120	0.6049	0.0272	0.4568	3.63	0.16	2.74	0.1633	0.0073	0.1233
4000 Gallon Water Truck	Off-highway Truck	250	2	90	8	1440	0.57	250	1.5394	0.0471	0.8168	24.63	0.75	13.07	1.1083	0.0339	0.5881
20,000 lb. Rough Terrain Fork Lift	Rough Terrain Forklift	99	1	60	4	240	0.6	250	0.7333	0.0393	0.4845	2.93	0.16	1.94	0.0880	0.0047	0.0581
Vibratory Compactor	Paving Equipment	80	1	60	2	120	0.53	120	0.5235	0.0280	0.3459	1.05	0.06	0.69	0.0314	0.0017	0.0208
Backhoe	Tractor/loader/backhoe	85	1	60	8	480	0.55	120	0.5772	0.0309	0.3813	4.62	0.25	3.05	0.1385	0.0074	0.0915
Trencher	Trencher	75	1	60	8	480	0.75	120	0.6944	0.0372	0.4588	5.56	0.30	3.67	0.1667	0.0089	0.1101
Manlifts	Aerial Lift	75	2	60	8	960	0.46	120	0.4259	0.0228	0.2814	6.81	0.37	4.50	0.2044	0.0110	0.1351
ATV Gator Carts	Other Construction Equipment	100	1	90	8	720	0.62	120	0.6698	0.0301	0.5057	5.36	0.24	4.05	0.2411	0.0108	0.1821
Generator	Generator Sets	30	3	60	8	1440	0.74	50	0.2741	0.0220	0.2007	6.58	0.53	4.82	0.1973	0.0159	0.1445

Table A-4c. Offroad Emissions Calculations - Using Tier 2 Emission Factors - Alternative 4

Tier 2 emission factors (EFs) are applied to NOx, PM, and CO. Load Factors (LFs) are used in conjunction with Tier 2 EFs.
2012 SCAB EFs (OFFROAD2007) are applied to CO_2, ROG, and SOX. Calculation detail is provided in Offroad SCAB worksheet.

Offroad Equipment Project Total

NOX lbs/day	PM lbs/day	CO lbs/day	NOX (tons)	PM (tons)	CO (tons)
99.36	4.61	63.31	14.08	0.63	8.72

Blythe Mesa Solar Project

Transmission Line Installation
12 months

Primary Equipment Description	Offroad Equip Category	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/Day)	Total Hours of Utilization 5,796	Load Factor for Tier 2	HP Used for OFFROAD	TIER 2 NOX (lbs/hr)	TIER 2 PM (lbs/hr)	TIER 2 CO (lbs/hr)	TIER 2 NOX lbs/day	TIER 2 PM lbs/day	TIER 2 CO lbs/day	TIER 2 NOX (tons)	TIER 2 PM (tons)	TIER 2 CO (tons)
Sleeving Rigs	Other Gen Indust Equipment	85	1	172	4	688	0.51	120	0.5352	0.0287	0.3536	2.14	0.11	1.41	0.1841	0.0099	0.1216
Hydralic Pump Motor	Pumps	10	2	12	5	120	0.74	15	0.0914	0.0098	0.0979	0.91	0.10	0.98	0.0055	0.0006	0.0059
580 Case Backhoe	Tractor/loader/backhoe	120	1	172	2	344	0.55	120	0.7130	0.0320	0.5384	1.43	0.06	1.08	0.1226	0.0055	0.0926
Spacing Carts	Other Gen Indust Equipment	10	4	172	4	2752	0.51	15	0.0630	0.0067	0.0675	1.01	0.11	1.08	0.0866	0.0093	0.0928
3 Drum Strawline Pullers	Other Gen Indust Equipment	85	1	172	4	688	0.51	120	0.5352	0.0287	0.3536	2.14	0.11	1.41	0.1841	0.0099	0.1216
60lk Puller	Other Gen Indust Equipment	250	1	172	3	516	0.51	250	1.3773	0.0422	0.7308	4.13	0.13	2.19	0.3553	0.0109	0.1886
Triple Conductor Tensioner	Other Gen Indust Equipment	250	1	172	2	344	0.51	250	1.3773	0.0422	0.7308	2.75	0.08	1.46	0.2369	0.0073	0.1257
Sag Cat w2 winches	Grader	350	1	172	2	344	0.61	500	2.2593	0.0706	1.2238	4.52	0.14	2.45	0.3886	0.0121	0.2105

Table A-5. ARB and USEPA Off-Road Compression-Ignition (Diesel) Engine Standards (NMHC+NOx/CO/PM in g/bhp-hr). When ARB and USEPA standards differ, the standards shown here represent the more stringent of the two.

Maximum horsepower	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012	2012	2015+
<11	See Table 2 footnote (a)					7.8 / 6.0 / 0.75					5.6 / 6.0 / 0.6			5.6 / 6.0 / 0.30[a]							
11≤hp<25						7.1 / 4.9 / 0.60					5.6 / 4.9 / 0.60			5.6 / 4.9 / 0.30							
25≤hp<50	-				7.1 /4.1 / 0.60					5.6 / 4.1 / 0.45				5.6 / 4.1 / 0.22					3.5 / 4.1 / 0.02		
50≤hp< 75				- / 6.9 / - / - [b]						5.6 / 3.7 / 0.30				3.5 / 3.7 / 0.22[c]					3.5 / 3.7 / 0.02[c]		
75≤hp<100														3.5 / 3.7 / 0.30				0.14 / 2.5 / 3.7 / 0.015[b,d]			0.14 / 0.30 / 3.7 / 0.015[b]
100≤hp<175									4.9 / 3.7 / 0.22				3.0 / 3.7 / 0.22								
175≤hp<300	-	1.0 / 6.9 / 8.5 / 0.40[b]							4.9 / 2.6 / 0.15			3.0 / 2.6 / 0.15[e]					0.14 / 1.5 / 2.6 / 0.015[b,d]			0.14 / 0.30 / 2.2 / 0.015[b]	
300≤hp<600							4.8 / 2.6 / 0.15														
600≤hp≤750																					
Mobile Machines > 750hp	-					1.0 / 6.9 / 8.5 / 0.40[b]						4.8 / 2.6 / 0.15					0.30 / 2.6 / 2.6 / 0.07[b]				0.14 / 2.6 / 2.6 / 0.03[b]
750hp<GEN ≤1200hp																					0.14 / 0.50 / 2.6 / 0.02[b]
GEN>1200 hp																	0.30 / 0.50 / 2.6 / 0.07[b]				

a) The PM standard for hand-start, air cooled, direct injection engines below 11 hp may be delayed until 2010 and be set at 0.45 g/bhp-hr.
b) Standards given are NMHC/NOx/CO/PM in g/bhp-hr.
c) Engine families in this power category may alternately meet Tier 3 PM standards (0.30 g/bhp-hr) from 2008-2011 in exchange for introducing final PM standards in 2012.
d) The implementation schedule shown is the three-year alternate NOx approach. Other schedules are available.
e) Certain manufacturers have agreed to comply with these standards by 2005.

: Tier 1   : Tier 2   : Tier 3   : Tier 4 Interim / Final

	TIER 2 Emission Factors					
	NOx		CO		PM	
Maximum horsepower	g/bhp-hr	lb/bhp-hr	g/bhp-hr	lb/bhp-hr	g/bhp-hr	lb/bhp-hr
<11	5.6	0.0123457	6	0.0132275	0.6	0.0013228
11?hp<25	5.6	0.0123457	4.9	0.0108025	0.6	0.0013228
25?hp<50	5.6	0.0123457	4.1	0.0090388	0.45	0.0009921
50?hp< 75	5.6	0.0123457	3.7	0.008157	0.3	0.0006614
75?hp<100	5.6	0.0123457	3.7	0.008157	0.3	0.0006614
100?hp<175	4.9	0.0108025	3.7	0.008157	0.22	0.000485
175?hp<300	4.9	0.0108025	2.6	0.0057319	0.15	0.0003307
300?hp<600	4.8	0.010582	2.6	0.0057319	0.15	0.0003307
600?hp?750	4.8	0.010582	2.6	0.0057319	0.15	0.0003307
Mobile Machines > 750hp	4.8	0.010582	2.6	0.0057319	0.15	0.0003307
	4.8	0.010582	2.6	0.0057319	0.15	0.0003307
750hp<GEN ?1200hp	4.8	0.010582	2.6	0.0057319	0.15	0.0003307
GEN>1200 hp	4.8	0.010582	2.6	0.0057319	0.15	0.0003307

	TIER 3 Emission Factors					
	NOx		CO		PM	
Maximum horsepower	g/bhp-hr	lb/bhp-hr	g/bhp-hr	lb/bhp-hr	g/bhp-hr	lb/bhp-hr
<11	5.6	0.0123457	6	0.0132275	0.6	0.0013228
11?hp<25	5.6	0.0123457	4.9	0.0108025	0.6	0.0013228
25?hp<50	5.6	0.0123457	4.1	0.0090388	0.45	0.0009921
50?hp< 75	5.6	0.0123457	3.7	0.008157	0.3	0.0006614
75?hp<100	3.5	0.007716	3.7	0.008157	0.3	0.0006614
100?hp<175	3	0.0066138	3.7	0.008157	0.22	0.000485
175?hp<300	3	0.0066138	2.6	0.0057319	0.15	0.0003307
300?hp<600	3	0.0066138	2.6	0.0057319	0.15	0.0003307
600?hp?750	3	0.0066138	2.6	0.0057319	0.15	0.0003307
Mobile Machines > 750hp	4.8	0.010582	2.6	0.0057319	0.15	0.0003307
	4.8	0.010582	2.6	0.0057319	0.15	0.0003307
750hp<GEN ?1200hp	4.8	0.010582	2.6	0.0057319	0.15	0.0003307
GEN>1200 hp	4.8	0.010582	2.6	0.0057319	0.15	0.0003307

	% reduction from TIER 2 to TIER 3		
Maximum horsepower	NOx	CO	PM
<11	0.00%	0.00%	0.00%
11?hp<25	0.00%	0.00%	0.00%
25?hp<50	0.00%	0.00%	0.00%
50?hp< 75	0.00%	0.00%	0.00%
75?hp<100	37.50%	0.00%	0.00%
100?hp<175	38.78%	0.00%	0.00%
175?hp<300	38.78%	0.00%	0.00%
300?hp<600	37.50%	0.00%	0.00%
600?hp?750	37.50%	0.00%	0.00%
Mobile Machines > 750hp	0.00%	0.00%	0.00%
	0.00%	0.00%	0.00%
750hp<GEN ?1200hp	0.00%	0.00%	0.00%
GEN>1200 hp	0.00%	0.00%	0.00%

: Tier 2

: Tier 3

Table A-6. PSR Offroad Load Factors

Used in conjunction with Tier 2-3 emission factors.

Source: mailout MSC99-32, http://www.arb.ca.gov/msei/onroad/downloads/pubs/mo9932.zip (4/2/2009)

Category	Equipment	HP	P/N	Activity (hrs/yr)	Load
Agricultural	Agricultural Mowers	120	P	363	0.43
	Agricultural Tractors	50	P	475	0.70
		120	P	475	0.70
		175	P	475	0.70
		250	N	475	0.70
		500	N	475	0.70
	Balers	50	P	95	0.58
		120	P	95	0.58
	Combines	120	P	150	0.70
		175	P	150	0.70
		250	N	150	0.70
		500	N	150	0.70
	Hydro Power Units	50	P	790	0.48
		120	P	790	0.48
	Irrigation Pumps	50	P	749	0.65
		120	P	749	0.65
		175	P	749	0.65
		250	N	749	0.65
		500	N	749	0.65
	Other Agricultural Equipment	50	P	381	0.51
		120	P	381	0.51
		175	P	381	0.51
		250	N	381	0.51
		500	N	381	0.51
	Sprayers	50	P	90	0.50
		120	P	90	0.50
		175	P	90	0.50
		250	N	90	0.50
		500	N	90	0.50
	Swathers	120	P	110	0.55
		175	P	110	0.55
	Tillers >5 HP	250	N	172	0.78
		500	N	172	0.78
Commercial	Air Compressors	50	P	815	0.48
		120	P	815	0.48
		175	P	815	0.48
		250	N	815	0.48
		500	N	815	0.48
		750	N	815	0.48
		9999	N	815	0.48
	Generator Sets	50	N	338	0.74
		120	N	338	0.74
		175	N	338	0.74
		250	N	338	0.74
		500	N	338	0.74
		750	N	338	0.74
		9999	N	338	0.74
	Pressure Washers	50	P	145	0.30
		120	P	145	0.30
	Pumps	50	P	403	0.74
		120	P	403	0.74
		175	P	403	0.74
		250	N	403	0.74
		500	N	403	0.74
		9999	N	403	0.74
	Welders	50	P	643	0.45
		120	P	643	0.45
		175	P	643	0.45

Table A-6. PSR Offroad Load Factors

Used in conjunction with Tier 2-3 emission factors.

Source: mailout MSC99-32, http://www.arb.ca.gov/msei/onroad/downloads/pubs/mo9932.zip (4/2/2009)

Category	Equipment	HP	P/N	Activity (hrs/yr)	Load
Construction	Bore/Drill Rigs	50	P	726	0.75
		120	P	726	0.75
		175	P	726	0.75
		250	N	726	0.75
		500	N	726	0.75
		750	N	726	0.75
		9999	N	726	0.75
	Concrete/Industrial Saws	50	P	580	0.73
		120	P	580	0.73
		175	P	580	0.73
	Cranes	50	P	1464	0.43
		120	P	1464	0.43
		175	P	1464	0.43
		250	N	1464	0.43
		500	N	1464	0.43
		750	N	1464	0.43
	Crawler Tractors	50	P	936	0.64
		120	P	936	0.64
		175	P	936	0.64
		250	N	936	0.64
		500	N	936	0.64
		750	N	936	0.64
		9999	N	936	0.64
	Crushing/Proc. Equipment	50	P	955	0.78
		120	P	955	0.78
		175	P	955	0.78
		250	N	955	0.78
		500	N	955	0.78
		750	N	955	0.78
		9999	N	955	0.78
	Excavators	50	P	1162	0.57
		120	P	1162	0.57
		175	P	1162	0.57
		250	N	1162	0.57
		500	N	1162	0.57
		750	N	1162	0.57
	Graders	50	P	965	0.61
		120	P	965	0.61
		175	P	965	0.61
		250	N	965	0.61
		500	N	965	0.61
		750	N	965	0.61
	Off-Highway Tractors	120	P	855	0.65
		175	P	855	0.65
		250	N	855	0.65
		750	N	855	0.65
		9999	N	855	0.65
	Off-Highway Trucks	175	P	1641	0.57
		250	N	1641	0.57
		500	N	1641	0.57
		750	N	1641	0.57
		9999	N	1641	0.57
	Other Construction Equipment	50	P	606	0.62
		120	P	606	0.62
		175	P	606	0.62
		500	N	606	0.62
	Pavers	50	P	828	0.62
		120	P	828	0.62
		175	P	828	0.62
		250	N	828	0.62
		500	N	828	0.62
	Paving Equipment	50	P	622	0.53
		120	P	622	0.53
		175	P	622	0.53
		250	N	622	0.53
	Rollers	50	P	748	0.56
		120	P	748	0.56
		175	P	748	0.56
		250	N	748	0.56
		500	N	748	0.56
	Rough Terrain Forklifts	50	P	1198	0.60
		120	P	1198	0.60
		175	P	1198	0.60
		250	N	1198	0.60
		500	N	1198	0.60
	Rubber Tired Dozers	175	P	899	0.59
		250	N	899	0.59
		500	N	899	0.59
		750	N	899	0.59
		9999	N	899	0.59
	Rubber Tired Loaders	50	P	1346	0.54
		120	P	1346	0.54
		175	P	1346	0.54
		250	N	1346	0.54
		500	N	1346	0.54
		750	N	1346	0.54
		9999	N	1346	0.54
	Scrapers	120	P	1090	0.72
		175	P	1090	0.72
		250	N	1090	0.72
		500	N	1090	0.72
		750	N	1090	0.72
	Signal Boards	50	P	535	0.78
		120	P	535	0.78
		175	P	535	0.78
		250	N	535	0.78
	Skid Steer Loaders	50	P	811	0.55
		120	P	811	0.55
	Surfacing Equipment	50	P	561	0.45
		120	P	561	0.45
		175	P	561	0.45
		250	N	561	0.45
		500	N	561	0.45
		750	N	561	0.45
	Tractors/Loaders/Backhoes	50	P	1135	0.55
		120	P	1135	0.55
		175	P	1135	0.55
		250	N	1135	0.55
	Trenchers	50	P	620	0.75
		120	P	620	0.75
		175	P	620	0.75
		250	N	620	0.75
		500	N	620	0.75
		750	N	620	0.75

Table A-6. PSR Offroad Load Factors

Used in conjunction with Tier 2-3 emission factors.

Source: mailout MSC99-32, http://www.arb.ca.gov/msei/onroad/downloads/pubs/mo9932.zip (4/2/2009)

Category	Equipment	HP	P/N	Activity (hrs/yr)	Load
Dredging	Compressor (Dredging)	50	P	815	0.48
		120	P	815	0.48
	Crane	750	N	1464	0.43
	Deck/door engine	250	N	142	0.80
	Dredger	175	P	878	0.51
		250	N	878	0.51
		750	N	878	0.51
	Generator (Dredging)	50	P	1011	0.74
		120	P	1011	0.74
		175	P	1011	0.74
		250	N	1011	0.74
		500	N	1011	0.74
		750	N	1011	0.74
		9999	N	1011	0.74
	Hoist/swing/winch	50	P	878	0.51
		120	P	878	0.51
		175	P	878	0.51
		250	N	878	0.51
		500	N	878	0.51
		750	N	878	0.51
		9999	N	878	0.51
	Other (Dredging)	120	P	878	0.51
		175	P	878	0.51
		250	N	878	0.51
		500	N	878	0.51
	Pump (Dredging)	175	P	403	0.74
		250	N	403	0.74
		500	N	403	0.74
		9999	N	403	0.74
Drilling	Compressors (Workover)	120	P	1231	0.60
		175	P	1231	0.60
		250	N	1231	0.60
		750	N	1231	0.60
	Generator (Drilling)	120	P	1231	0.60
		175	P	1231	0.60
		250	N	1231	0.60
		750	N	1231	0.60
	Generator (Workover)	120	P	1231	0.60
		175	P	1231	0.60
		250	N	1231	0.60
		750	N	1231	0.60
		9999	N	1231	0.60
	Lift (Drilling)	250	N	1231	0.60
		750	N	1231	0.60
	Other Drilling Equipment	120	P	1231	0.60
		175	P	1231	0.60
		250	N	1231	0.60
		750	N	1231	0.60
		9999	N	1231	0.60
	Other Workover Equipment	120	P	1231	0.60
		175	P	1231	0.60
		250	N	1231	0.60
		750	N	1231	0.60
		9999	N	1231	0.60
	Pump (Drilling)	120	P	1231	0.60
		175	P	1231	0.60
		250	N	1231	0.60
		750	N	1231	0.60
		9999	N	1231	0.60
	Pump (Workover)	120	P	1231	0.60
		175	P	1231	0.60
		250	N	1231	0.60
		750	N	1231	0.60
		9999	N	1231	0.60
	Snubbing	120	P	1231	0.60
	Swivel	120	P	1231	0.60
		175	P	1231	0.60
		250	N	1231	0.60
		750	N	1231	0.60
Ground Support Equipment	A/C Tug Narrow Body	250	N	606.1839847	0.80
	A/C Tug Wide Body	500	N	759.2692308	0.80
	Air Conditioner	175	N	808.1666667	0.75
	Air Start Unit	500	N	332.9655172	0.90
	Baggage Tug	120	N	1623.8	0.55
	Belt Loader	120	N	1037.643678	0.50
	Bobtail	120	N	1867.428571	0.55
	Cargo Loader	120	N	901.7941176	0.50
	Cargo Tractors	120	N	101	0.54
	Catering Truck	250	N	1600	0.52
	Forklift	175	P	731.5	0.30
	Fuel Truck	250	N	3489.166667	0.25
	Generator	175	N	1629.714286	0.78
	Ground Power Unit	175	N	968.4296875	0.75
	Hydrant Truck	175	N	224.25	0.70
	Lav Truck	175	N	1306.5	0.25
	Lift	120	N	917.3636364	0.50
	Other	175	N	1645.590909	0.50
	Passenger Stand	120	N	70	0.59
	Service Truck	175	N	1930.75	0.20
	Sweeper	120	N	12	0.51
Industrial	Aerial Lifts	50	P	384	0.46
		120	P	384	0.46
		500	N	384	0.46
		750	N	384	0.46
	Forklifts	50	P	1800	0.30
		120	P	1800	0.30
		175	P	1800	0.30
		250	N	1800	0.30
		500	N	1800	0.30
	Other General Industrial Equipment	50	N	878	0.51
		120	N	878	0.51
		175	N	878	0.51
		250	N	878	0.51
		500	N	878	0.51
		750	N	878	0.51
		9999	N	878	0.51
	Other Material Handling Equipment	50	N	421	0.59
		120	N	421	0.59
		175	N	421	0.59
		250	N	421	0.59
		500	N	421	0.59
	Sweepers/Scrubbers	50	N	1220	0.68
		120	N	1220	0.68
		175	N	1220	0.68
		250	N	1220	0.68

Table A-6. PSR Offroad Load Factors

Used in conjunction with Tier 2-3 emission factors.

Source: mailout MSC99-32, http://www.arb.ca.gov/msei/onroad/downloads/pubs/mo9932.zip (4/2/2009)

Category	Equipment	HP	P/N	Activity (hrs/yr)	Load
Lawn and Garden	Chippers/Stump Grinders	120	P	465	0.73
		175	P	465	0.73
		250	N	465	0.73
		500	N	465	0.73
		750	N	465	0.73
	Leaf Blowers/Vacuums	120	N	120	0.40
		250	N	120	0.40
	Snowblowers	175	P	400	0.65
		250	N	400	0.65
		500	N	400	0.65
Logging	Fellers/Bunchers	120	P	1276	0.71
		175	P	1276	0.71
		250	N	1276	0.71
		500	N	1276	0.71
		750	N	1276	0.71
	Shredders	175	P	120	0.40
	Skidders	120	P	1442	0.74
		175	P	1442	0.74
		250	N	1442	0.74
		500	N	1442	0.74
Military Tactical Support	A/C unit	120	P	300	0.60
		250	N	300	0.60
		500	N	300	0.60
	Aircraft Support	120	P	300	0.60
		175	P	300	0.60
	Cart	120	P	300	0.60
		175	P	300	0.60
		250	N	300	0.60
	Communications	50	P	300	0.60
		120	P	300	0.60
	Compressor (Military)	50	P	300	0.60
		120	P	300	0.60
		175	P	300	0.60
		250	N	300	0.60
		500	N	300	0.60
	Crane	120	P	300	0.60
		175	P	300	0.60
		250	N	300	0.60
	Deicer	120	P	300	0.60
	Generator (Military)	50	P	300	0.60
		120	P	300	0.60
		175	P	300	0.60
		250	N	300	0.60
		500	N	300	0.60
	Hydraulic unit	120	P	300	0.60
	Lift (Military)	120	P	300	0.60
	Light	50	P	300	0.60
	Other tactical support equipment	50	P	300	0.60
		120	P	300	0.60
		175	P	300	0.60
		250	N	300	0.60
		500	N	300	0.60
		750	N	300	0.60
	Pressure Washer	175	P	300	0.60
	Pump (Military)	50	P	300	0.60
		120	P	300	0.60
	Start Cart	120	P	300	0.60
		500	N	300	0.60
	Test Stand	120	P	300	0.60
		175	P	300	0.60
		250	N	300	0.60
		500	N	300	0.60
	Welder	50	P	300	0.60
		120	P	300	0.60
Misc. Portable Equipment	Misc Portable Equipment	120	P	484	0.56
		175	P	484	0.56
		250	N	484	0.56
		500	N	484	0.56
		750	N	484	0.56
		9999	N	484	0.56
Transport Refrigeration	Transport Refrigeration Unit	50	N	1341	0.28
		120	P	1341	0.28

Table A-7a. Onroad Emissions Calculation - Solar Field - Alternative 1

Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Light Duty Autos and Trucks

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Maximum Labor Force	400	12	400	40	16,000	4,224,000	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839
Typical Labor Force	200	10	200	40	8,000	1,760,000	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839
* Estimated rideshare factor	1				SubTot Personnel (mi)	5,984,000						

The emission-factor columns (NOX to CO2) are headed "Composite Emissions for Fleet of Vehicles".

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839

TOTAL Light Duty Autos and Trucks (vmt) 6,048,400

Medium to Heavy Duty Trucks

Max Daily 2

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Splicing/testing vans, dump trucks under 200hp	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000
Water transportation	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000
Fuel transportation	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000

The emission-factor columns (NOX to CO2) are headed "Composite Emissions for Fleet of Vehicles".

TOTAL Medium Duty Trucks (vmt) 12,000

Heavy-Heavy Duty Trucks

Max Daily 7

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Local material deliveries and waste removal	40	1,995	79,800	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791
Equipment deliveries	20	1,995	39,900	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791
Transmission Line deliveries (occurs during line construction)	40	42	15120	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791

The emission-factor columns (NOX to CO2) are headed "Composite Emissions for Fleet of Vehicles".

TOTAL Heavy-Heavy Duty Trucks (vmt) 134,820

Table A-7a. Onroad Emissions Calculation - Solar Field - Alternative 1

Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Overall Onroad Emissions

NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
33.84	19.10	4.04	207.51	0.02	34,903.50	4.54	2.41	0.52	25.97	0.00	4,396.41

Light Duty Autos and Trucks

Total Emissions for Vehicles

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Maximum Labor Force	400	12	400	40	16,000	4,224,000	14.47	12.06	2.41	134.27	0.00	21708.54	1.9104	1.5920	0.3184	17.7238	0.0000	2865.5276
Typical Labor Force	200	10	200	40	8,000	1,760,000	7.24	6.03	1.21	67.14	0.00	10854.27	0.7960	0.6633	0.1327	7.3849	0.0000	1193.9698
* Estimated rideshare factor	1				SubTot Personnel (mi)	5,984,000												

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400	0.07	0.06	0.01	0.67	0.00	108.54	0.0291	0.0243	0.0049	0.2702	0.0000	43.6884

TOTAL Light Duty Autos and Trucks (vmt) 6,048,400

Medium to Heavy Duty Trucks Max Daily 2

Total Emissions for Vehicles

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Splicing/testing vans, dump trucks under 200hp	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000
Water transportation	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000
Fuel transportation	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000

TOTAL Medium Duty Trucks (vmt) 12,000

Heavy-Heavy Duty Trucks Max Daily 7

Total Emissions for Vehicles

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Local material deliveries and waste removal	40	1,995	79,800	7.40	0.52	0.27	2.22	0.01	1168.10	1.0542	0.0734	0.0392	0.3166	0.0016	166.4540
Equipment deliveries	20	1,995	39,900	3.70	0.26	0.14	1.11	0.01	584.05	0.5271	0.0367	0.0196	0.1583	0.0008	83.2270
Transmission Line deliveries (occurs during line construction)	40	42	15120	7.40	0.52	0.27	2.22	0.01	1168.10	0.1997	0.0139	0.0074	0.0600	0.0003	31.5387

TOTAL Heavy-Heavy Duty Trucks (vmt) 134,820

Table A-7a. Onroad Emissions Calculation - Solar Field - Alternative 1
Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Light Duty Autos and Trucks

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles
Maximum Labor Force	400	12	400	40	16,000	4,224,000
Typical Labor Force	200	10	200	40	8,000	1,760,000
* Estimated rideshare factor	1			SubTot Personnel (mi)		5,984,000

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400

TOTAL Light Duty Autos and Trucks (vmt) 6,048,400

Medium to Heavy Duty Trucks Max Daily 2

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles
Splicing/testing vans, dump trucks under 200hp	40	100	4,000
Water transportation	40	100	4,000
Fuel transportation	40	100	4,000

TOTAL Medium Duty Trucks (vmt) 12,000

Heavy-Heavy Duty Trucks Max Daily 7

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles
Local material deliveries and waste removal	40	1,995	79,800
Equipment deliveries	20	1,995	39,900
Transmission Line deliveries (occurs during line construction)	40	42	15120

TOTAL Heavy-Heavy Duty Trucks (vmt) 134,820

Table A-8a. Onroad Vehicle Mix and Schedules - Solar Field - Alternative 1

Source: Equipment mix and schedules from similar projects

Total Vehicle Workdays

Light	Medium	Heavy
1,610.00	100.00	2,325.00

Site Preparation

1 month

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
					2,460				
1/2 Ton Pick-up Truck, 4X4	200	6	30	4	720	light	60.0		
Mechanic Truck	300	2	30	8	480	heavy			40.0
Fuel Truck	300	2	30	8	480	heavy			40.0
40' Flat Bed Truck & Trailer	350	2	30	10	600	heavy			50.0
Dump Truck (Trash)	350	1	30	6	180	heavy			15.0

Grading and Earthwork

3 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
					9,000				
1/2 Ton Pick-up Truck, 4X4	200	6	90	4	2160	light	180.0		
Mechanic Truck	300	2	90	8	1440	heavy			120.0
Fuel Truck	300	2	90	8	1440	heavy			120.0
40' Flat Bed Truck & Trailer	350	2	90	10	1800	heavy			150.0
Dump Truck	350	4	90	6	2160	heavy			180.0

Concrete Foundations

3 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
					10,800				
1/2 Ton Pick-up Truck, 4X4	200	6	90	4	2160	light	180.0		
Mechanic Truck	300	2	90	8	1440	heavy			120.0
Fuel Truck	300	2	90	8	1440	heavy			120.0
10 cu.yd. Concrete Mixer Trucks	425	8	90	8	5760	heavy			480.0

Structural Steel Work

4 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
					18,960				
1/2 Ton Pick-up Truck, 4X4	200	8	120	4	3840	light	320.0		
1 Ton Crew Cab 4X4	300	1	120	2	240	light	20.0		
30 Ton Boom Truck	300	1	120	2	240	heavy			20.0
1 Ton Crew Cab Flat Bed, 4X4	300	9	120	4	4320	light	360.0		
40' Flat Bed Truck & Trailer	350	2	120	10	2400	heavy			200.0
3/4 Ton Pick-up Truck, 4X4	300	4	120	4	1920	light	160.0		
1 Ton Crew Cab Flat Bed, 4X4	300	2	120	4	960	light	80.0		
Wire Trucks & Trailers	350	6	120	6	4320	heavy			360.0
Dump Truck (Trash)	350	1	120	6	720	heavy			60.0

Table A-8a. Onroad Vehicle Mix and Schedules - Solar Field - Alternative 1

Source: Equipment mix and schedules from similar projects

Total Vehicle Workdays		
Light	Medium	Heavy
1,610.00	100.00	2,325.00

Electrical/Instrumentation Work

2 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,180	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
Foreman Truck	180	1	60	4	240	light	20.0		
Mechanic Truck	250	1	60	10	600	heavy			50.0
5-Ton Flatbed Truck	180	5	60	5	1500	heavy			125.0
Pickup Trucks	180	4	60	2	480	light	40.0		
Crew Trucks	180	2	60	2	240	light	20.0		
Support Trucks	180	1	60	2	120	light	10.0		

Architectural and Landscape

2 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,180	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	60	2	720	light	60.0		
Fuel Truck	300	2	60	3	360	heavy			30.0
Crew Trucks	180	2	60	5	600	light	50.0		
5 CY Dump Trucks	180	2	60	10	1200	medium		100.0	
Mulch Truck	350	1	60	5	300	heavy			25.0

Testing

1 month

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 840	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	1	30	8	240	light	20.0		
1/2 Ton Pick-up Truck, 4X4	200	1	30	8	240	light	20.0		
1 Ton Crew Cab 4X4	300	1	30	4	120	light	10.0		
Water Trucks	350	1	30	8	240	heavy			20.0

Estimated Deliveries from Port to Marshalling Yard and Miscellaneous Hardware

Material	No. Deliveries	Origin	RIV Co R/T Miles	
Transmission Lines				
Steel	42	Long Beach	150	6300
Conductors	42	Long Beach	150	6300
Misc Hardware	42	Local	60	2520
				15120
				0
				0
				0
				0

Table A-7b. Onroad Emissions Calculation - Solar Field - Alternative 3
Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Light Duty Autos and Trucks

Composite Emissions for Fleet of Vehicles

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Maximum Labor Force	400	12	400	40	16,000	4,224,000	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839
Typical Labor Force	200	10	200	40	8,000	1,760,000	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839
* Estimated rideshare factor	1			SubTot Personnel (mi)		5,984,000						

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839

TOTAL Light Duty Autos and Trucks (vmt) 6,048,400

Medium to Heavy Duty Trucks Max Daily 2

Composite Emissions for Fleet of Vehicles

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Splicing/testing vans, dump trucks under 200hp	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000
Water transportation	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000
Fuel transportation	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000

TOTAL Medium Duty Trucks (vmt) 12,000

Heavy-Heavy Duty Trucks Max Daily 7

Composite Emissions for Fleet of Vehicles

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Local material deliveries and waste removal	40	1,995	79,800	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791
Equipment deliveries	20	1,995	39,900	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791
Transmission Line deliveries (occurs during line construction)	40	44	15840	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791

TOTAL Heavy-Heavy Duty Trucks (vmt) 135,540

Table A-7b. Onroad Emissions Calculation - Solar Field - Alternative 3

Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Overall Onroad Emissions

NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
33.84	19.10	4.04	207.51	0.02	34,903.50	4.55	2.41	0.52	25.97	0.00	4,397.91

Light Duty Autos and Trucks

Total Emissions for Vehicles

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Maximum Labor Force	400	12	400	40	16,000	4,224,000	14.47	12.06	2.41	134.27	0.00	21708.54	1.9104	1.5920	0.3184	17.7238	0.0000	2865.5276
Typical Labor Force	200	10	200	40	8,000	1,760,000	7.24	6.03	1.21	67.14	0.00	10854.27	0.7960	0.6633	0.1327	7.3849	0.0000	1193.9698
* Estimated rideshare factor	1				SubTot Personnel (mi)	5,984,000												

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400	0.07	0.06	0.01	0.67	0.00	108.54	0.0291	0.0243	0.0049	0.2702	0.0000	43.6884

TOTAL Light Duty Autos and Trucks (vmt) 6,048,400

Medium to Heavy Duty Trucks

Max Daily 2

Total Emissions for Vehicles

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Splicing/testing vans, dump trucks under 200hp	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000
Water transportation	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000
Fuel transportation	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000

TOTAL Medium Duty Trucks (vmt) 12,000

Heavy-Heavy Duty Trucks

Max Daily 7

Total Emissions for Vehicles

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Local material deliveries and waste removal	40	1,995	79,800	7.40	0.52	0.27	2.22	0.01	1168.10	1.0542	0.0734	0.0392	0.3166	0.0016	166.4540
Equipment deliveries	20	1,995	39,900	3.70	0.26	0.14	1.11	0.01	584.05	0.5271	0.0367	0.0196	0.1583	0.0008	83.2270
Transmission Line deliveries (occurs during line construction)	40	44	15840	7.40	0.52	0.27	2.22	0.01	1168.10	0.2093	0.0146	0.0078	0.0628	0.0003	33.0405

TOTAL Heavy-Heavy Duty Trucks (vmt) 135,540

Table A-7b. Onroad Emissions Calculation - Solar Field - Alternative 3
Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Light Duty Autos and Trucks

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles
Maximum Labor Force	400	12	400	40	16,000	4,224,000
Typical Labor Force	200	10	200	40	8,000	1,760,000
* Estimated rideshare factor	1			SubTot Personnel (mi)		5,984,000

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400
TOTAL Light Duty Autos and Trucks (vmt)			6,048,400

Medium to Heavy Duty Trucks

Max Daily 2

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles
Splicing/testing vans, dump trucks under 200hp	40	100	4,000
Water transportation	40	100	4,000
Fuel transportation	40	100	4,000
TOTAL Medium Duty Trucks (vmt)			12,000

Heavy-Heavy Duty Trucks

Max Daily 7

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles
Local material deliveries and waste removal	40	1,995	79,800
Equipment deliveries	20	1,995	39,900
Transmission Line deliveries (occurs during line construction)	40	44	15840
TOTAL Heavy-Heavy Duty Trucks (vmt)			135,540

Table A-8b. Onroad Vehicle Mix and Schedules - Solar Field - Alternative 3

Source: Equipment mix and schedules from similar projects

Total Vehicle Workdays		
Light	Medium	Heavy
1,610.00	100.00	2,325.00

Site Preparation

1 month

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 2,460	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	30	4	720	light	60.0		
Mechanic Truck	300	2	30	8	480	heavy			40.0
Fuel Truck	300	2	30	8	480	heavy			40.0
40' Flat Bed Truck & Trailer	350	2	30	10	600	heavy			50.0
Dump Truck (Trash)	350	1	30	6	180	heavy			15.0

Grading and Earthwork

3 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 9,000	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	90	4	2160	light	180.0		
Mechanic Truck	300	2	90	8	1440	heavy			120.0
Fuel Truck	300	2	90	8	1440	heavy			120.0
40' Flat Bed Truck & Trailer	350	2	90	10	1800	heavy			150.0
Dump Truck	350	4	90	6	2160	heavy			180.0

Concrete Foundations

3 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 10,800	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	90	4	2160	light	180.0		
Mechanic Truck	300	2	90	8	1440	heavy			120.0
Fuel Truck	300	2	90	8	1440	heavy			120.0
10 cu.yd. Concrete Mixer Trucks	425	8	90	8	5760	heavy			480.0

Structural Steel Work

4 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 18,960	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	8	120	4	3840	light	320.0		
1 Ton Crew Cab 4X4	300	1	120	2	240	light	20.0		
30 Ton Boom Truck	300	1	120	2	240	heavy			20.0
1 Ton Crew Cab Flat Bed, 4X4	300	9	120	4	4320	light	360.0		
40' Flat Bed Truck & Trailer	350	2	120	10	2400	heavy			200.0
3/4 Ton Pick-up Truck, 4X4	300	4	120	4	1920	light	160.0		
1 Ton Crew Cab Flat Bed, 4X4	300	2	120	4	960	light	80.0		
Wire Trucks & Trailers	350	6	120	6	4320	heavy			360.0
Dump Truck (Trash)	350	1	120	6	720	heavy			60.0

Table A-8b. Onroad Vehicle Mix and Schedules - Solar Field - Alternative 3

Source: Equipment mix and schedules from similar projects

Total Vehicle Workdays		
Light	Medium	Heavy
1,610.00	100.00	2,325.00

Electrical/Instrumentation Work
2 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,180	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
Foreman Truck	180	1	60	4	240	light	20.0		
Mechanic Truck	250	1	60	10	600	heavy			50.0
5-Ton Flatbed Truck	180	5	60	5	1500	heavy			125.0
Pickup Trucks	180	4	60	2	480	light	40.0		
Crew Trucks	180	2	60	2	240	light	20.0		
Support Trucks	180	1	60	2	120	light	10.0		

Architectural and Landscape
2 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,180	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	60	2	720	light	60.0		
Fuel Truck	300	2	60	3	360	heavy			30.0
Crew Trucks	180	2	60	5	600	light	50.0		
5 CY Dump Trucks	180	2	60	10	1200	medium		100.0	
Mulch Truck	350	1	60	5	300	heavy			25.0

Testing
1 month

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 840	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	1	30	8	240	light	20.0		
1/2 Ton Pick-up Truck, 4X4	200	1	30	8	240	light	20.0		
1 Ton Crew Cab 4X4	300	1	30	4	120	light	10.0		
Water Trucks	350	1	30	8	240	heavy			20.0

Estimated Deliveries from Port to Marshalling Yard and Miscellaneous Hardware

Material	No. Deliveries	Origin	RIV Co R/T Miles	
Transmission Lines				
Steel	44	Long Beach	150	6600
Conductors	44	Long Beach	150	6600
Misc Hardware	44	Local	60	2640
				15840
				0
				0
				0
				0

Table A-7c. Onroad Emissions Calculation - Solar Field - Alternative 4

Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Light Duty Autos and Trucks

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Maximum Labor Force	400	12	400	40	16,000	4,224,000	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839
Typical Labor Force	200	10	200	40	8,000	1,760,000	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839
* Estimated rideshare factor	1			SubTot Personnel (mi)		5,984,000						

Composite Emissions for Fleet of Vehicles

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400	0.9045	0.7538	0.1508	8.3920	0.0000	1356.7839

TOTAL Light Duty Autos and Trucks (vmt) 6,048,400

Medium to Heavy Duty Trucks Max Daily 2

Composite Emissions for Fleet of Vehicles

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Splicing/testing vans, dump trucks under 200hp	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000
Water transportation	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000
Fuel transportation	40	100	4,000	4.0000	0.7500	0.0000	8.7500	0.0000	2000.0000

TOTAL Medium Duty Trucks (vmt) 12,000

Heavy-Heavy Duty Trucks Max Daily 7

Composite Emissions for Fleet of Vehicles

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Local material deliveries and waste removal	40	1,995	79,800	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791
Equipment deliveries	20	1,995	39,900	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791
Transmission Line deliveries (occurs during line construction)	40	48	17280	26.4213	1.8405	0.9816	7.9346	0.0409	4171.7791

TOTAL Heavy-Heavy Duty Trucks (vmt) 136,980

Table A-7c. Onroad Emissions Calculation - Solar Field - Alternative 4

Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Overall Onroad Emissions

NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
33.84	19.10	4.04	207.51	0.02	34,903.50	4.57	2.41	0.52	25.97	0.00	4,400.91

Light Duty Autos and Trucks

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles
Maximum Labor Force	400	12	400	40	16,000	4,224,000
Typical Labor Force	200	10	200	40	8,000	1,760,000
* Estimated rideshare factor	1			SubTot Personnel (mi)		5,984,000

Total Emissions for Vehicles

	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Maximum Labor Force	14.47	12.06	2.41	134.27	0.00	21708.54	1.9104	1.5920	0.3184	17.7238	0.0000	2865.5276
Typical Labor Force	7.24	6.03	1.21	67.14	0.00	10854.27	0.7960	0.6633	0.1327	7.3849	0.0000	1193.9698

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400	0.07	0.06	0.01	0.67	0.00	108.54	0.0291	0.0243	0.0049	0.2702	0.0000	43.6884

TOTAL Light Duty Autos and Trucks (vmt) 6,048,400

Medium to Heavy Duty Trucks

Max Daily 2

Total Emissions for Vehicles

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Splicing/testing vans, dump trucks under 200hp	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000
Water transportation	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000
Fuel transportation	40	100	4,000	0.32	0.06	0.00	0.70	0.00	160.00	0.0080	0.0015	0.0000	0.0175	0.0000	4.0000

TOTAL Medium Duty Trucks (vmt) 12,000

Heavy-Heavy Duty Trucks

Max Daily 7

Total Emissions for Vehicles

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles	NOX lbs/day	ROG lbs/day	PM lbs/day	CO lbs/day	SOX lbs/day	CO2 lbs/day	NOX (ton)	ROG (ton)	PM (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Local material deliveries and waste removal	40	1,995	79,800	7.40	0.52	0.27	2.22	0.01	1168.10	1.0542	0.0734	0.0392	0.3166	0.0016	166.4540
Equipment deliveries	20	1,995	39,900	3.70	0.26	0.14	1.11	0.01	584.05	0.5271	0.0367	0.0196	0.1583	0.0008	83.2270
Transmission Line deliveries (occurs during line construction)	40	48	17280	7.40	0.52	0.27	2.22	0.01	1168.10	0.2283	0.0159	0.0085	0.0686	0.0004	36.0442

TOTAL Heavy-Heavy Duty Trucks (vmt) 136,980

Table A-7c. Onroad Emissions Calculation - Solar Field - Alternative 4
Emission factors generated by EMFAC assuming 1990-2012 composite fleet of light, medium, and heavy duty vehicles.

Light Duty Autos and Trucks

Overall Personnel to Work Sites / Worker Commute Trips *	Workers	Months	Veh/Day	RT/day (mi)	Miles/Day	Total Miles
Maximum Labor Force	400	12	400	40	16,000	4,224,000
Typical Labor Force	200	10	200	40	8,000	1,760,000
* Estimated rideshare factor	1			SubTot Personnel (mi)		5,984,000

Max Daily 2

Operational Emissions - Light Duty	RT/day (mi)	Vehicle Days	Total Miles
SubTot Crew and QA/QC Mobilize (mi)	40	1,610	64,400

TOTAL Light Duty Autos and Trucks (vmt) 6,048,400

Medium to Heavy Duty Trucks Max Daily 2

Operational Emissions - Medium Duty	RT/day (mi)	Vehicle Days	Total Miles
Splicing/testing vans, dump trucks under 200hp	40	100	4,000
Water transportation	40	100	4,000
Fuel transportation	40	100	4,000

TOTAL Medium Duty Trucks (vmt) 12,000

Heavy-Heavy Duty Trucks Max Daily 7

Operational Emissions - Heavy Duty	RT/day (mi)	Vehicle Days	Total Miles
Local material deliveries and waste removal	40	1,995	79,800
Equipment deliveries	20	1,995	39,900
Transmission Line deliveries (occurs during line construction)	40	48	17280

TOTAL Heavy-Heavy Duty Trucks (vmt) 136,980

Table A-8c. Onroad Vehicle Mix and Schedules - Solar Field - Alternative 4

Source: Equipment mix and schedules from similar projects

Total Vehicle Workdays		
Light	Medium	Heavy
1,610.00	100.00	2,325.00

Site Preparation

1 month

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 2,460	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	30	4	720	light	60.0		
Mechanic Truck	300	2	30	8	480	heavy			40.0
Fuel Truck	300	2	30	8	480	heavy			40.0
40' Flat Bed Truck & Trailer	350	2	30	10	600	heavy			50.0
Dump Truck (Trash)	350	1	30	6	180	heavy			15.0

Grading and Earthwork

3 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 9,000	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	90	4	2160	light	180.0		
Mechanic Truck	300	2	90	8	1440	heavy			120.0
Fuel Truck	300	2	90	8	1440	heavy			120.0
40' Flat Bed Truck & Trailer	350	2	90	10	1800	heavy			150.0
Dump Truck	350	4	90	6	2160	heavy			180.0

Concrete Foundations

3 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 10,800	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	90	4	2160	light	180.0		
Mechanic Truck	300	2	90	8	1440	heavy			120.0
Fuel Truck	300	2	90	8	1440	heavy			120.0
10 cu.yd. Concrete Mixer Trucks	425	8	90	8	5760	heavy			480.0

Structural Steel Work

4 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 18,960	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	8	120	4	3840	light	320.0		
1 Ton Crew Cab 4X4	300	1	120	2	240	light	20.0		
30 Ton Boom Truck	300	1	120	2	240	heavy			20.0
1 Ton Crew Cab Flat Bed, 4X4	300	9	120	4	4320	light	360.0		
40' Flat Bed Truck & Trailer	350	2	120	10	2400	heavy			200.0
3/4 Ton Pick-up Truck, 4X4	300	4	120	4	1920	light	160.0		
1 Ton Crew Cab Flat Bed, 4X4	300	2	120	4	960	light	80.0		
Wire Trucks & Trailers	350	6	120	6	4320	heavy			360.0
Dump Truck (Trash)	350	1	120	6	720	heavy			60.0

Table A-8c. Onroad Vehicle Mix and Schedules - Solar Field - Alternative 4

Source: Equipment mix and schedules from similar projects

Total Vehicle Workdays

Light	Medium	Heavy
1,610.00	100.00	2,325.00

Electrical/Instrumentation Work

2 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,180	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
Foreman Truck	180	1	60	4	240	light	20.0		
Mechanic Truck	250	1	60	10	600	heavy			50.0
5-Ton Flatbed Truck	180	5	60	5	1500	heavy			125.0
Pickup Trucks	180	4	60	2	480	light	40.0		
Crew Trucks	180	2	60	2	240	light	20.0		
Support Trucks	180	1	60	2	120	light	10.0		

Architectural and Landscape

2 months

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 3,180	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	6	60	2	720	light	60.0		
Fuel Truck	300	2	60	3	360	heavy			30.0
Crew Trucks	180	2	60	5	600	light	50.0		
5 CY Dump Trucks	180	2	60	10	1200	medium		100.0	
Mulch Truck	350	1	60	5	300	heavy			25.0

Testing

1 month

Primary Equipment Description	HP Estimate	Primary Equip Quantity	Activity Schedule Estimate (Days)	Duration of Use (Hours/ Day)	Total Hours of Utilization 840	Onroad Vehicle Category	Light Duty Fractional Total Vehicle Workdays	Medium Duty Fractional Total Vehicle Workdays	Heavy Duty Fractional Total Vehicle Workdays
1/2 Ton Pick-up Truck, 4X4	200	1	30	8	240	light	20.0		
1/2 Ton Pick-up Truck, 4X4	200	1	30	8	240	light	20.0		
1 Ton Crew Cab 4X4	300	1	30	4	120	light	10.0		
Water Trucks	350	1	30	8	240	heavy			20.0

Estimated Deliveries from Port to Marshalling Yard and Miscellaneous Hardware

Material	No. Deliveries	Origin	RIV Co R/T Miles	
Transmission Lines				
Steel	48	Long Beach	150	7200
Conductors	48	Long Beach	150	7200
Misc Hardware	48	Local	60	2880
				17280
				0
				0
				0
				0

Table A-9. Onroad Emission Factors - Solar Field

Source: EMFAC2007 v.2.3, burden reports for Riverside County.

Composite fleet: 1990 - 2012 for light, medium, and heavy duty vehicle classes

1990-2012 Composite Fleet County-Wide

Riverside County Vehicle Class	2012 Fleet (VMT/1000)	NOX (ton/day)	ROG (ton/day)	PM (ton/day)	CO (ton/day)	SOX (ton/day)	CO2 (ton/day)	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
LDA-TOT	191	0.05	0.05	0.01	0.63	0.00	120.00	0.524	0.524	0.105	6.597	0.000	1256.545
LDT1-TOT	111	0.06	0.06	0.01	0.55	0.00	80.00	1.081	1.081	0.180	9.910	0.000	1441.441
LDT2-TOT	96	0.07	0.04	0.01	0.49	0.00	70.00	1.458	0.833	0.208	10.208	0.000	1458.333
MDV-TOT	51	0.04	0.02	0.00	0.24	0.00	50.00	1.569	0.784	0.000	9.412	0.000	1960.784
LHDT1-TOT	18	0.04	0.01	0.00	0.04	0.00	20.00	4.444	1.111	0.000	4.444	0.000	2222.222
LHDT2-TOT	4	0.02	0.00	0.00	0.03	0.00	0.00	10.000	0.000	0.000	15.000	0.000	0.000
MHDT-TOT	7	0.06	0.00	0.00	0.04	0.00	10.00	17.143	0.000	0.000	11.429	0.000	2857.143
HHDT-TOT	489	6.46	0.45	0.24	1.94	0.01	1020.00	26.421	1.840	0.982	7.935	0.041	4171.779

1990-2011 Composite Fleet County-Wide

Riverside Composite Vehicle Class	2012 Fleet (VMT/1000)	NOX (ton/day)	ROG (ton/day)	PM (ton/day)	CO (ton/day)	SOX (ton/day)	CO2 (ton/day)	NOX (lb/1000mi)	ROG (lb/1000mi)	PM (lb/1000mi)	CO (lb/1000mi)	SOX (lb/1000mi)	CO2 (lb/1000mi)
Light Duty Autos and Trucks Composite	398	0.18	0.15	0.03	1.67	0.00	270.00	0.905	0.754	0.151	8.392	0.000	1356.784
Medium to Heavy Trucks Composite	80	0.16	0.03	0.00	0.35	0.00	80.00	4.000	0.750	0.000	8.750	0.000	2000.000
Heavy-Heavy Duty Trucks Composite	489	6.46	0.45	0.24	1.94	0.01	1020.00	26.421	1.840	0.982	7.935	0.041	4171.779

	LDA-TOT	LDT1-TOT	LDT2-TOT	MDV-TOT	LHDT1-TOT	LHDT2-TOT	MHDT-TOT	HHDT-TOT
Vehicles	5219	2983	2465	1365	401	116	135	2766
VMT/1000	191	111	96	51	18	4	7	489
Trips	33148	18724	15604	8702	11044	2765	4200	14854
Reactive Organic Gas Emissions								
Run Exh	0.02	0.02	0.02	0.01	0	0	0	0.4
Idle Exh	0	0	0	0	0	0	0	0.05
Start Ex	0.01	0.01	0.01	0	0	0	0	0
	-------	-------	-------	-------	-------	-------	-------	-------
Total Ex	0.03	0.03	0.02	0.01	0	0	0	0.45
Diurnal	0	0	0	0	0	0	0	0
Hot Soak	0.01	0	0	0	0	0	0	0
Running	0.01	0.02	0.01	0	0	0	0	0
Resting	0	0	0	0	0	0	0	0
	-------	-------	-------	-------	-------	-------	-------	-------
Total	0.05	0.06	0.04	0.02	0.01	0	0	0.45
Carbon Monoxide Emissions								
Run Exh	0.48	0.42	0.38	0.19	0.01	0.01	0.02	1.67
Idle Exh	0	0	0	0	0	0	0	0.23
Start Ex	0.16	0.12	0.11	0.06	0.03	0.01	0.02	0.04
	-------	-------	-------	-------	-------	-------	-------	-------
Total Ex	0.63	0.55	0.49	0.24	0.04	0.03	0.04	1.94
Oxides of Nitrogen Emissions								
Run Exh	0.04	0.05	0.05	0.03	0.02	0.01	0.05	5.85
Idle Exh	0	0	0	0	0	0	0	0.6
Start Ex	0.01	0.01	0.01	0.01	0.02	0	0	0
	-------	-------	-------	-------	-------	-------	-------	-------
Total Ex	0.05	0.06	0.07	0.04	0.04	0.02	0.06	6.46
Carbon Dioxide Emissions (000)								
Run Exh	0.11	0.08	0.07	0.05	0.02	0	0.01	0.98
Idle Exh	0	0	0	0	0	0	0	0.03
Start Ex	0	0	0	0	0	0	0	0
	-------	-------	-------	-------	-------	-------	-------	-------
Total Ex	0.12	0.08	0.07	0.05	0.02	0	0.01	1.02
Total Particulate Emissions								
Run Exh	0	0	0.01	0	0	0	0	0.2
Idle Exh	0	0	0	0	0	0	0	0.01
Start Ex	0	0	0	0	0	0	0	0
	-------	-------	-------	-------	-------	-------	-------	-------
Total Ex	0	0	0.01	0	0	0	0	0.2
TireWear	0	0	0	0	0	0	0	0.02
BrakeWr	0	0	0	0	0	0	0	0.02
	-------	-------	-------	-------	-------	-------	-------	-------
Total	0.01	0.01	0.01	0	0	0	0	0.24
Lead	0	0	0	0	0	0	0	0
SOx	0	0	0	0	0	0	0	0.01
Fuel Consumption (000 gallons)								
Gasoline	11.97	8.24	7.55	5.44	1.69	0.32	0.09	0.25
Diesel	0.01	0.22	0.01	0.01	0.24	0.11	0.86	91.3

<---> Title : Blythe Mesa Solar Project
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/16 17:00:07
Scen Year: 2012 -- All model years in the range 1990 to 2012 selected
Season : Annual
Area : Riverside (MD/MDAQMD)
I/M Stat : COO Basic (2005)
Emissions: Tons Per Day

Table A-10a. Fugitive Dust Generating Activity Estimates - Solar Field - Alternative 1

Proposed Activity Sites and Areas	
(Activity Areas)	**Site**
Source: Project Description Table B-3, B-7, B-9.	
Site Area	**(acres)**
Total site area	3660.0
Construction Staging Areas and Fly Yards	
Staging Area	20.0
Total Activity Sites and Areas (acres)	3680.0
Duration of Activity (months)	**3**
Total Acres	**3,680**

Proposed Access Roads	**Riverside**
(Grading)	**County**
Assume 1% of site would be used for access roads	**(acres)**
Proposed Solar Field Access Roads	36.6

Proposed Structures - Solar Array	**Average**	**Riverside**	
(Excavation, Material Unloading)	**Excavation**	**County**	**All Links**
	(cu.yd per #)	**#**	**(cu.yd)**
Each Structure			
Total	1	1425600	1,425,600
			All Links
Avg Rate of Excavation	**(cu.yd/day)**	**(cu.yd)**	**(cu.yd)**
Each Structure	250	1,425,600	1,425,600

Table A-11a. Fugitive Dust Emissions by Activity - Solar Field - Alternative 1

Source: Emission factors from USEPA AP-42 and South Coast Air Quality Management District, where noted.

	PM10 lbs/day	PM2.5 lbs/day	SubTotals of Fugitive Dust Emissions / Overall Fugitive Dust Emissions	PM10 (ton)	PM2.5 (ton)
	41.8	8.8	**Overall Proposed Proj.**	5.0	1.0

Activity Sites and Areas

Source: "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for										
South Coast AQMD by Midwest Research Institute, March 1996										
E = Level 2 Factor = tonPM10/ac-month	0.011	tonPM10/acre-month	22	= activity days/mo					Overall	Overall
f = 0.21 for PM2.5	0.21	PM2.5 fraction (SCAQMD Methodology for PM 2.5, October 2006)	Activity Areas	Activity Areas	PM10	PM2.5		Activity Areas	PM10	PM2.5
Control Effectiveness (watering) =	75.0%	Emission Factors	(acres)	(ac-day)	(lb/day)	(lb/day)		(acres)	(ton)	(ton)
		5.5000 lbPM10 (per acre activity-per mo)	3,680	167	41.82	---		3,680	0.8	---
		1.1550 lbPM2.5 (per acre activity-per mo)	3,680	167	---	8.78		3,680	---	0.2

Access Roads

Source: "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for										Overall
South Coast AQMD by Midwest Research Institute, March 1996										PM2.5
E = Level 2 Factor = tonPM10/ac-month	0.011	tonPM10/acre-month	22	= activity days/mo					Overall	(ton)
f = 0.21 for PM2.5	0.21	PM2.5 fraction (SCAQMD Methodology for PM 2.5, October 2006)	Activity Areas	Activity Areas	PM10	PM2.5		Activity Areas	PM10	---
Control Effectiveness (watering) =	75.0%	Emission Factors	(acre-mo)	(ac-day)	(lb/day)	(lb/day)		(acre-mo)	(ton)	
		5.5000 lbPM10 (per acre activity-per mo)	37	2	0.42	---		37	0.0	---
		1.1550 lbPM2.5 (per acre activity-per mo)	37	2	---	0.09		37	---	0.0

Grading (Bulldozing of Overburden)

									Overall	Overall
Grading (Bulldozing of Overburden)			Doz/Grad/Scrap		PM10	PM2.5	Doz/Grad/Scrap		PM10	PM2.5
Source: USEPA AP-42, Table 11.9-1, 10/98		Emission Factors	(hr/day)		(lb/day)	(lb/day)	(hr)		(ton)	(ton)
E = 0.75 * (s^1.5) / (M^1.4) = lbPM10/hr		0.143 lbPM10 (per hr bulldozer or grader)	24		3.44	---	1,080		0.1	---
E = 0.105 * 5.7 * (s^1.2) / (M^1.3) = lbPM2.5/hr		0.077 lbPM2.5 (per hr bulldozer or grader)	24		---	1.85	1,080		---	0.0
s = silt content =	8.50	percent (average for construction sites, USEPA AP-42 Table 13.2.2-1)								
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)								

Excavation / Trenching (Removal of Overburden)

									Overall	Overall
Excavation / Trenching (Removal of Overburden)			Excavation		PM10	PM2.5	Excavation		PM10	PM2.5
Source: USEPA AP-42, Table 11.9-2 (dragline operations), 10/98		Emission Factors	(yd3/day)		(lb/day)	(lb/day)	(cu.yd)		(ton)	(ton)
E = 0.75 * 0.0021 (d^0.7)/(M^0.3) = lbPM10/yd3		0.0006 lbPM10 (per yd3 excavated)	250		0.14	---	1,425,600		0.411	---
E = 0.017 * 0.0021 (d^1.1)/(M^0.3) = lbPM2.5/yd3		0.0000 lbPM2.5 (per yd3 excavated)	250		---	0.01	1,425,600		---	0.018
d = drop height =	5	ft (estimate)								
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)								

Material Unloading/Loading

Source: USEPA AP-42, p. 13.2.4-3, 11/06										
E = (k)(0.0032)[(U/5)^1.3]/[(M/2)^1.4] = lb/ton										
U = average wind speed =	15.00	mph (upper bound wind, p.13.2.4-4)								
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)	2	= transfers					Overall	Overall
lb of material / yd3 =	2600.00	for moist soil	Excavation	Unloading	PM10	PM2.5	Excavation	Unloading	PM10	PM2.5
		Emission Factors	(yd3/day)	(yd3/day)	(lb/day)	(lb/day)	(cu.yd)	(cu.yd)	(ton)	(ton)
k = 0.35 for PM10	0.35	for PM10 0.00012 lbPM10 (per yd3 unloaded)	250	500	0.06	---	1,425,600	2,851,200	0.176	---
k = 0.053 for PM2.5	0.05	for PM2.5 0.00002 lbPM2.5 (per yd3 unloaded)	250	500	---	0.01	1,425,600	2,851,200	---	0.027

Table A-11a. Fugitive Dust Emissions by Activity - Solar Field - Alternative 1

Source: Emission factors from USEPA AP-42 and South Coast Air Quality Management District, where noted.

SubTotals of Fugitive Dust Emissions

Overall Fugitive Dust Emissions

PM10 lbs/day	PM2.5 lbs/day		PM10 (ton)	PM2.5 (ton)
41.8	**8.8**	**Overall Proposed Proj.**	**5.0**	**1.0**

Equipment on Unpaved/Industrial Roads

Source: USEPA AP-42, Section 13.2.2, 11/06

E = k (s/12)^0.9 (W/3)^0.45 = lb/vmt

s = silt content = 8.50 percent (average for construction sites, USEPA AP-42 Table 13.2.2-1)

2.5% = Unpaved VMT of Total

Control Effectiveness (watering) = 75.0%

	k (lb/vmt)	W (ton)	Emission Factors (lb/vmt)	VMT Class (VMT/day)	VMT Unpave (VMT/day)	PM10 (lb/day)	PM2.5 (lb/day)	VMT Class (vmt)	VMT Unpave (vmt)	Overall PM10 (ton)	Overall PM2.5 (ton)
Light Duty Vehicles (PM10)	1.5	2	0.2291 lbPM10 (per LDA vmt unpaved)	80	2	0.46	---	64,400	1,610	0.2	---
Medium to Heavy Duty Trucks (PM10)	1.5	13	0.5319 lbPM10 (per MDT vmt unpaved)	80	2	1.06	---	12,000	300	0.1	---
Heavy-Heavy Duty Trucks (PM10)	1.5	20	0.6457 lbPM10 (per HHDT vmt unpaved)	280	7	4.52	---	134,820	3,371	1.1	---
Light Duty Vehicles (PM2.5)	0.15	2	0.0229 lbPM2.5 (per LDA vmt unpaved)	80	2	---	0.05	64,400	1,610	---	0.0
Medium to Heavy Duty Trucks (PM2.5)	0.15	13	0.0532 lbPM2.5 (per MDT vmt unpaved)	80	2	---	0.11	12,000	300	---	0.0
Heavy-Heavy Duty Trucks (PM2.5)	0.15	30	0.0775 lbPM2.5 (per HHDT vmt unpaved)	280	7	---	0.54	134,820	3,371	---	0.1

Equipment on Paved Roads

Source: USEPA AP-42, Section 13.2.1, 11/06.

E = k (sL/2)^0.65 (W/3)^1.5 - C = lb/vmt

sL = road surface silt loading (grams per square meter) (g/m2) = 0.06 g/m2, medium ADT roads (USEPA AP-42 Table 13.2.1-3)

C = correction factor to remove exhaust

W = fleet average weight of the heavy vehicles = 2.413 ton (fleet average weight)

	W (ton)	VMT All (vmt)
Light Duty Vehicles (PM10)	2	6,048,400
Medium to Heavy Duty Trucks (PM10)	13	12,000
Heavy-Heavy Duty Trucks (PM10)	20	134,820

	k (lb/vmt)	C (lb/vmt)	Emission Factors (lb/vmt)	VMT All (VMT/day)	VMT Paved (VMT/day)	PM10 (lb/day)	PM2.5 (lb/day)	VMT All (vmt)	VMT Paved (vmt)	Overall PM10 (ton)	Overall PM2.5 (ton)
Fleet Average (PM10)	0.016	0.00047	0.000711 lbPM10 (per vmt on paved road)	16,440	16,029	11.40	---	6,195,220	6,040,340	2.1	---
Fleet Average (PM2.5)	0.0024	0.00036	0.000177 lbPM2.5 (per vmt on paved road)	16,440	16,029	---	2.84	6,195,220	6,040,340	---	0.5

Table A-10b. Fugitive Dust Generating Activity Estimates - Solar Field - Alternative 3

Proposed Activity Sites and Areas	
(Activity Areas)	**Site**
Source: Project Description Table B-3, B-7, B-9.	
Site Area	**(acres)**
Total site area	3682.0
Construction Staging Areas and Fly Yards	
Staging Area	20.0
Total Activity Sites and Areas (acres)	3702.0
Duration of Activity (months)	**3**
Total Acres	**3,702**

Proposed Access Roads	**Riverside**
(Grading)	**County**
Assume 1% of site would be used for access roads	**(acres)**
Proposed Solar Field Access Roads	36.82

Proposed Structures - Solar Array	**Average**	**Riverside**	
(Excavation, Material Unloading)	**Excavation**	**County**	**All Links**
	(cu.yd per #)	**#**	**(cu.yd)**
Each Structure			
Total	1	1425600	1,425,600
			All Links
Avg Rate of Excavation	**(cu.yd/day)**	**(cu.yd)**	**(cu.yd)**
Each Structure	250	1,425,600	1,425,600

Table A-11b. Fugitive Dust Emissions by Activity - Solar Field - Alternative 3

Source: Emission factors from USEPA AP-42 and South Coast Air Quality Management District, where noted.

	PM10 lbs/day	PM2.5 lbs/day		PM10 (ton)	PM2.5 (ton)
			SubTotals of Fugitive Dust Emissions		
			Overall Fugitive Dust Emissions		
	42.1	**8.8**	**Overall Proposed Proj.**	**5.0**	**1.0**

Activity Sites and Areas											
Source: "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for											
South Coast AQMD by Midwest Research Institute, March 1996											
E = Level 2 Factor = tonPM10/ac-month	0.011	tonPM10/acre-month		22	= activity days/mo					Overall	Overall
f = 0.21 for PM2.5	0.21	PM2.5 fraction (SCAQMD Methodology for PM 2.5, October 2006)		Activity Areas	Activity Areas	PM10	PM2.5		Activity Areas	PM10	PM2.5
Control Effectiveness (watering) =	75.0%		Emission Factors	(acres)	(ac-day)	(lb/day)	(lb/day)		(acres)	(ton)	(ton)
			5.5000 lbPM10 (per acre activity-per mo)	3,702	168	42.07	---		3,702	0.8	---
			1.1550 lbPM2.5 (per acre activity-per mo)	3,702	168	---	8.83		3,702	---	0.2

Access Roads											
Source: "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for											Overall
South Coast AQMD by Midwest Research Institute, March 1996											PM2.5
E = Level 2 Factor = tonPM10/ac-month	0.011	tonPM10/acre-month		22	= activity days/mo					Overall	(ton)
f = 0.21 for PM2.5	0.21	PM2.5 fraction (SCAQMD Methodology for PM 2.5, October 2006)		Activity Areas	Activity Areas	PM10	PM2.5		Activity Areas	PM10	---
Control Effectiveness (watering) =	75.0%		Emission Factors	(acre-mo)	(ac-day)	(lb/day)	(lb/day)		(acre-mo)	(ton)	
			5.5000 lbPM10 (per acre activity-per mo)	37	2	0.42	---		37	0.0	---
			1.1550 lbPM2.5 (per acre activity-per mo)	37	2	---	0.09		37	---	0.0

										Overall	Overall
Grading (Bulldozing of Overburden)				Doz/Grad/Scrap		PM10	PM2.5	Doz/Grad/Scrap		PM10	PM2.5
Source: USEPA AP-42, Table 11.9-1, 10/98			Emission Factors	(hr/day)		(lb/day)	(lb/day)	(hr)		(ton)	(ton)
E = 0.75 * (s^1.5) / (M^1.4) = lbPM10/hr			0.143 lbPM10 (per hr bulldozer or grader)	24		3.44	---	1,080		0.1	---
E = 0.105 * 5.7 * (s^1.2) / (M^1.3) = lbPM2.5/hr			0.077 lbPM2.5 (per hr bulldozer or grader)	24		---	1.85	1,080		---	0.0
s = silt content =	8.50	percent (average for construction sites, USEPA AP-42 Table 13.2.2-1)									
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)									

										Overall	Overall
Excavation / Trenching (Removal of Overburden)				Excavation		PM10	PM2.5	Excavation		PM10	PM2.5
Source: USEPA AP-42, Table 11.9-2 (dragline operations), 10/98			Emission Factors	(yd3/day)		(lb/day)	(lb/day)	(cu.yd)		(ton)	(ton)
E = 0.75 * 0.0021 (d^0.7)/(M^0.3) = lbPM10/yd3			0.0006 lbPM10 (per yd3 excavated)	250		0.14	---	1,425,600		0.411	---
E = 0.017 * 0.0021 (d^1.1)/(M^0.3) = lbPM2.5/yd3			0.0000 lbPM2.5 (per yd3 excavated)	250		---	0.01	1,425,600		---	0.018
d = drop height =	5	ft (estimate)									
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)									

Material Unloading/Loading											
Source: USEPA AP-42, p. 13.2.4-3, 11/06											
E = (k)(0.0032)[(U/5)^1.3]/[(M/2)^1.4] = lb/ton											
U = average wind speed =	15.00	mph (upper bound wind, p.13.2.4-4)									
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)		2	= transfers					Overall	Overall
lb of material / yd3 =	2600.00	for moist soil		Excavation	Unloading	PM10	PM2.5	Excavation	Unloading	PM10	PM2.5
			Emission Factors	(yd3/day)	(yd3/day)	(lb/day)	(lb/day)	(cu.yd)	(cu.yd)	(ton)	(ton)
k = 0.35 for PM10	0.35	for PM10	0.00012 lbPM10 (per yd3 unloaded)	250	500	0.06	---	1,425,600	2,851,200	0.176	---
k = 0.053 for PM2.5	0.05	for PM2.5	0.00002 lbPM2.5 (per yd3 unloaded)	250	500	---	0.01	1,425,600	2,851,200	---	0.027

Table A-11b. Fugitive Dust Emissions by Activity - Solar Field - Alternative 3

Source: Emission factors from USEPA AP-42 and South Coast Air Quality Management District, where noted.

	PM10 lbs/day	PM2.5 lbs/day	SubTotals of Fugitive Dust Emissions / Overall Fugitive Dust Emissions	PM10 (ton)	PM2.5 (ton)
	42.1	8.8	**Overall Proposed Proj.**	5.0	1.0

Equipment on Unpaved/Industrial Roads

Source: USEPA AP-42, Section 13.2.2, 11/06

E = k (s/12)^0.9 (W/3)^0.45 = lb/vmt

s = silt content = 8.50 percent (average for construction sites, USEPA AP-42 Table 13.2.2-1)

2.5% = Unpaved VMT of Total

Control Effectiveness (watering) = 75.0%

	k (lb/vmt)	W (ton)	Emission Factors (lb/vmt)	VMT Class (VMT/day)	VMT Unpave (VMT/day)	PM10 (lb/day)	PM2.5 (lb/day)	VMT Class (vmt)	VMT Unpave (vmt)	Overall PM10 (ton)	Overall PM2.5 (ton)
Light Duty Vehicles (PM10)	1.5	2	0.2291 lbPM10 (per LDA vmt unpaved)	80	2	0.46	---	64,400	1,610	0.2	---
Medium to Heavy Duty Trucks (PM10)	1.5	13	0.5319 lbPM10 (per MDT vmt unpaved)	80	2	1.06	---	12,000	300	0.1	---
Heavy-Heavy Duty Trucks (PM10)	1.5	20	0.6457 lbPM10 (per HHDT vmt unpaved)	280	7	4.52	---	134,820	3,371	1.1	---
Light Duty Vehicles (PM2.5)	0.15	2	0.0229 lbPM2.5 (per LDA vmt unpaved)	80	2	---	0.05	64,400	1,610	---	0.0
Medium to Heavy Duty Trucks (PM2.5)	0.15	13	0.0532 lbPM2.5 (per MDT vmt unpaved)	80	2	---	0.11	12,000	300	---	0.0
Heavy-Heavy Duty Trucks (PM2.5)	0.15	30	0.0775 lbPM2.5 (per HHDT vmt unpaved)	280	7	---	0.54	134,820	3,371	---	0.1

Equipment on Paved Roads

Source: USEPA AP-42, Section 13.2.1, 11/06.

E = k (sL/2)^0.65 (W/3)^1.5 - C = lb/vmt

sL = road surface silt loading (grams per square meter) (g/m2) = 0.06 g/m2, medium ADT roads (USEPA AP-42 Table 13.2.1-3)

C = correction factor to remove exhaust

W = fleet average weight of the heavy vehicles = 2.413 ton (fleet average weight)

	W (ton)	VMT All (vmt)
Light Duty Vehicles (PM10)	2	6,048,400
Medium to Heavy Duty Trucks (PM10)	13	12,000
Heavy-Heavy Duty Trucks (PM10)	20	134,820

	k (lb/vmt)	C (lb/vmt)	Emission Factors (lb/vmt)	VMT All (VMT/day)	VMT Paved (VMT/day)	PM10 (lb/day)	PM2.5 (lb/day)	VMT All (vmt)	VMT Paved (vmt)	Overall PM10 (ton)	Overall PM2.5 (ton)
Fleet Average (PM10)	0.016	0.00047	0.000711 lbPM10 (per vmt on paved road)	16,440	16,029	11.40	---	6,195,220	6,040,340	2.1	---
Fleet Average (PM2.5)	0.0024	0.00036	0.000177 lbPM2.5 (per vmt on paved road)	16,440	16,029	---	2.84	6,195,220	6,040,340	---	0.5

Table A-10c. Fugitive Dust Generating Activity Estimates - Solar Field - Alternative 4

Proposed Activity Sites and Areas	
(Activity Areas)	**Site**
Source: Project Description Table B-3, B-7, B-9.	
Site Area	**(acres)**
Total site area	3648.0
Construction Staging Areas and Fly Yards	
Staging Area	20.0
Total Activity Sites and Areas (acres)	3668.0
Duration of Activity (months)	**3**
Total Acres	**3,668**

Proposed Access Roads	**Riverside**
(Grading)	**County**
Assume 1% of site would be used for access roads	**(acres)**
Proposed Solar Field Access Roads	36.48

Proposed Structures - Solar Array	**Average**	**Riverside**	
(Excavation, Material Unloading)	**Excavation**	**County**	**All Links**
	(cu.yd per #)	**#**	**(cu.yd)**
Each Structure			
Total	1	1425600	1,425,600
			All Links
Avg Rate of Excavation	**(cu.yd/day)**	**(cu.yd)**	**(cu.yd)**
Each Structure	250	1,425,600	1,425,600

Table A-11c. Fugitive Dust Emissions by Activity - Solar Field - Alternative 4

Source: Emission factors from USEPA AP-42 and South Coast Air Quality Management District, where noted.

	PM10 lbs/day	PM2.5 lbs/day	SubTotals of Fugitive Dust Emissions Overall Fugitive Dust Emissions	PM10 (ton)	PM2.5 (ton)
	41.7	8.8	Overall Proposed Proj.	5.0	1.0

Activity Sites and Areas											
Source: "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for											
South Coast AQMD by Midwest Research Institute, March 1996											
E = Level 2 Factor = tonPM10/ac-month	0.011	tonPM10/acre-month		22	= activity days/mo					Overall	Overall
f = 0.21 for PM2.5	0.21	PM2.5 fraction (SCAQMD Methodology for PM 2.5, October 2006)		Activity Areas	Activity Areas	PM10	PM2.5	Activity Areas		PM10	PM2.5
Control Effectiveness (watering) =	75.0%		Emission Factors	(acres)	(ac-day)	(lb/day)	(lb/day)	(acres)		(ton)	(ton)
			5.5000 lbPM10 (per acre activity-per mo)	3,668	167	41.68	---	3,668		0.8	---
			1.1550 lbPM2.5 (per acre activity-per mo)	3,668	167	---	8.75	3,668		---	0.2

Access Roads											
Source: "Improvement of Specific Emission Factors (BACM Project No. 1), Final Report", prepared for											Overall
South Coast AQMD by Midwest Research Institute, March 1996											PM2.5
E = Level 2 Factor = tonPM10/ac-month	0.011	tonPM10/acre-month		22	= activity days/mo					Overall	(ton)
f = 0.21 for PM2.5	0.21	PM2.5 fraction (SCAQMD Methodology for PM 2.5, October 2006)		Activity Areas	Activity Areas	PM10	PM2.5	Activity Areas		PM10	---
Control Effectiveness (watering) =	75.0%		Emission Factors	(acre-mo)	(ac-day)	(lb/day)	(lb/day)	(acre-mo)		(ton)	
			5.5000 lbPM10 (per acre activity-per mo)	36	2	0.41	---	36		0.0	---
			1.1550 lbPM2.5 (per acre activity-per mo)	36	2	---	0.09	36		---	0.0

										Overall	Overall
Grading (Bulldozing of Overburden)				Doz/Grad/Scrap		PM10	PM2.5	Doz/Grad/Scrap		PM10	PM2.5
Source: USEPA AP-42, Table 11.9-1, 10/98			Emission Factors	(hr/day)		(lb/day)	(lb/day)	(hr)		(ton)	(ton)
E = 0.75 * (s^1.5) / (M^1.4) = lbPM10/hr			0.143 lbPM10 (per hr bulldozer or grader)	24		3.44	---	1,080		0.1	---
E = 0.105 * 5.7 * (s^1.2) / (M^1.3) = lbPM2.5/hr			0.077 lbPM2.5 (per hr bulldozer or grader)	24		---	1.85	1,080		---	0.0
s = silt content =	8.50	percent (average for construction sites, USEPA AP-42 Table 13.2.2-1)									
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)									

										Overall	Overall
Excavation / Trenching (Removal of Overburden)				Excavation		PM10	PM2.5	Excavation		PM10	PM2.5
Source: USEPA AP-42, Table 11.9-2 (dragline operations), 10/98			Emission Factors	(yd3/day)		(lb/day)	(lb/day)	(cu.yd)		(ton)	(ton)
E = 0.75 * 0.0021 (d^0.7)/(M^0.3) = lbPM10/yd3			0.0006 lbPM10 (per yd3 excavated)	250		0.14	---	1,425,600		0.411	---
E = 0.017 * 0.0021 (d^1.1)/(M^0.3) = lbPM2.5/yd3			0.0000 lbPM2.5 (per yd3 excavated)	250		---	0.01	1,425,600		---	0.018
d = drop height =	5	ft (estimate)									
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)									

Material Unloading/Loading											
Source: USEPA AP-42, p. 13.2.4-3, 11/06											
E = (k)(0.0032)[(U/5)^1.3]/[(M/2)^1.4] = lb/ton											
U = average wind speed =	15.00	mph (upper bound wind, p.13.2.4-4)									
M = moisture content =	12.00	percent (SCAQMD CEQA Handbook Table A9-9-G-1, with watering)		2	= transfers					Overall	Overall
lb of material / yd3 =	2600.00	for moist soil		Excavation	Unloading	PM10	PM2.5	Excavation	Unloading	PM10	PM2.5
			Emission Factors	(yd3/day)	(yd3/day)	(lb/day)	(lb/day)	(cu.yd)	(cu.yd)	(ton)	(ton)
k = 0.35 for PM10	0.35	for PM10	0.00012 lbPM10 (per yd3 unloaded)	250	500	0.06	---	1,425,600	2,851,200	0.176	---
k = 0.053 for PM2.5	0.05	for PM2.5	0.00002 lbPM2.5 (per yd3 unloaded)	250	500	---	0.01	1,425,600	2,851,200	---	0.027

Table A-11c. Fugitive Dust Emissions by Activity - Solar Field - Alternative 4

Source: Emission factors from USEPA AP-42 and South Coast Air Quality Management District, where noted.

PM10 lbs/day	PM2.5 lbs/day	SubTotals of Fugitive Dust Emissions / Overall Fugitive Dust Emissions	PM10 (ton)	PM2.5 (ton)
41.7	8.8	**Overall Proposed Proj.**	5.0	1.0

Equipment on Unpaved/Industrial Roads

Source: USEPA AP-42, Section 13.2.2, 11/06

E = k (s/12)^0.9 (W/3)^0.45 = lb/vmt

s = silt content = 8.50 percent (average for construction sites, USEPA AP-42 Table 13.2.2-1)

2.5% = Unpaved VMT of Total

Control Effectiveness (watering) = 75.0%

	k (lb/vmt)	W (ton)	Emission Factors (lb/vmt)	VMT Class (VMT/day)	VMT Unpave (VMT/day)	PM10 (lb/day)	PM2.5 (lb/day)	VMT Class (vmt)	VMT Unpave (vmt)	Overall PM10 (ton)	Overall PM2.5 (ton)
Light Duty Vehicles (PM10)	1.5	2	0.2291 lbPM10 (per LDA vmt unpaved)	80	2	0.46	---	64,400	1,610	0.2	---
Medium to Heavy Duty Trucks (PM10)	1.5	13	0.5319 lbPM10 (per MDT vmt unpaved)	80	2	1.06	---	12,000	300	0.1	---
Heavy-Heavy Duty Trucks (PM10)	1.5	20	0.6457 lbPM10 (per HHDT vmt unpaved)	280	7	4.52	---	134,820	3,371	1.1	---
Light Duty Vehicles (PM2.5)	0.15	2	0.0229 lbPM2.5 (per LDA vmt unpaved)	80	2	---	0.05	64,400	1,610	---	0.0
Medium to Heavy Duty Trucks (PM2.5)	0.15	13	0.0532 lbPM2.5 (per MDT vmt unpaved)	80	2	---	0.11	12,000	300	---	0.0
Heavy-Heavy Duty Trucks (PM2.5)	0.15	30	0.0775 lbPM2.5 (per HHDT vmt unpaved)	280	7	---	0.54	134,820	3,371	---	0.1

Equipment on Paved Roads

Source: USEPA AP-42, Section 13.2.1, 11/06.

E = k (sL/2)^0.65 (W/3)^1.5 - C = lb/vmt

sL = road surface silt loading (grams per square meter) (g/m2) = 0.06 g/m2, medium ADT roads (USEPA AP-42 Table 13.2.1-3)

C = correction factor to remove exhaust

W = fleet average weight of the heavy vehicles = 2.413 ton (fleet average weight)

	W (ton)	VMT All (vmt)
Light Duty Vehicles (PM10)	2	6,048,400
Medium to Heavy Duty Trucks (PM10)	13	12,000
Heavy-Heavy Duty Trucks (PM10)	20	134,820

	k (lb/vmt)	C (lb/vmt)	Emission Factors (lb/vmt)	VMT All (VMT/day)	VMT Paved (VMT/day)	PM10 (lb/day)	PM2.5 (lb/day)	VMT All (vmt)	VMT Paved (vmt)	Overall PM10 (ton)	Overall PM2.5 (ton)
Fleet Average (PM10)	0.016	0.00047	0.000711 lbPM10 (per vmt on paved road)	16,440	16,029	11.40	---	6,195,220	6,040,340	2.1	---
Fleet Average (PM2.5)	0.0024	0.00036	0.000177 lbPM2.5 (per vmt on paved road)	16,440	16,029	---	2.84	6,195,220	6,040,340	---	0.5

Table A-12. Air Emissions Calculations Summary - General Conformity Emissions (BLM Land)

Offroad Tiers 2 emission factors (EFs) are applied to NOx, PM, and CO. Load factors (LFs) are used in conjunction with Tiers 2 EFs.
2012 SCAB EFs (OFFROAD2007 model) are applied to CO2, ROG, SOX. LFs already incorporated in OFFROAD model.
Onroad model (EMFAC) assumes 1990-2012 composite fleet across light, medium, and heavy duty vehicle classes.

Overall Emissions of MSSF1	NOX (ton)	ROG (ton)	PM10 (ton)	PM2.5 (ton)	CO (ton)	SOX (ton)	CO2 (ton)
Offroad Vehicles and Equipment	5.62	1.42	0.20	0.18	3.16	0.41	1,491.1
Onroad Vehicles	0.20	0.01	0.01	0.01	0.06	0.00	31.54
Fugitive Dust			0.01	0.00			
Total Emissions for Project Duration	**5.82**	**1.43**	**0.22**	**0.19**	**3.22**	**0.41**	**1,522.7**

Appendix B

SCREEN3 Model Results

Diesel Particulate Emissions

SCREEN3 Model Output

Screening Health Risk Assessment

```
01/11/13

09:13:42
  ***  SCREEN3 MODEL RUN  ***
  *** VERSION DATED 96043 ***

 Blythe Mesa Screening HRA - Diesel Particulate Matter

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE              =       VOLUME
    EMISSION RATE (G/S)      =      .327900E-01
    SOURCE HEIGHT (M)        =       1.0000
    INIT. LATERAL DIMEN (M)  =    1000.0000
    INIT. VERTICAL DIMEN (M) =       2.0000
    RECEPTOR HEIGHT (M)      =        .0000
    URBAN/RURAL OPTION       =        RURAL

 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


 BUOY. FLUX =     .000 M**4/S**3;  MOM. FLUX =     .000 M**4/S**2.

 *** FULL METEOROLOGY ***

 **********************************
 *** SCREEN AUTOMATED DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)
DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------
-----
    100.   .0000        0      .0     .0      .0     .00     .00     .00
    200.   .0000        0      .0     .0      .0     .00     .00     .00
    300.   .0000        0      .0     .0      .0     .00     .00     .00
    400.   .0000        0      .0     .0      .0     .00     .00     .00
    500.   .0000        0      .0     .0      .0     .00     .00     .00
    600.   .0000        0      .0     .0      .0     .00     .00     .00
    700.   .0000        0      .0     .0      .0     .00     .00     .00
    800.   .0000        0      .0     .0      .0     .00     .00     .00
```

```
   900.   .0000         0      .0      .0       .0     .00     .00     .00
  1000.   .0000         0      .0      .0       .0     .00     .00     .00
  1100.   .0000         0      .0      .0       .0     .00     .00     .00
  1200.   .0000         0      .0      .0       .0     .00     .00     .00
  1300.   .0000         0      .0      .0       .0     .00     .00     .00
  1400.   .0000         0      .0      .0       .0     .00     .00     .00
  1500.   .0000         0      .0      .0       .0     .00     .00     .00
  1600.   .0000         0      .0      .0       .0     .00     .00     .00
  1700.   .0000         0      .0      .0       .0     .00     .00     .00
  1800.   .0000         0      .0      .0       .0     .00     .00     .00
  1900.   .0000         0      .0      .0       .0     .00     .00     .00
  2000.   .0000         0      .0      .0       .0     .00     .00     .00
  2100.   .0000         0      .0      .0       .0     .00     .00     .00
  2200.   .4745         6     1.0     1.0 10000.0    1.00  958.71   22.92
NO
  2300.   .4623         6     1.0     1.0 10000.0    1.00  960.71   23.48
NO
  2400.   .4509         6     1.0     1.0 10000.0    1.00  962.70   24.02
NO
  2500.   .4402         6     1.0     1.0 10000.0    1.00  964.69   24.56
NO
  2600.   .4301         6     1.0     1.0 10000.0    1.00  966.68   25.08
NO
  2700.   .4206         6     1.0     1.0 10000.0    1.00  968.67   25.60
NO
  2800.   .4116         6     1.0     1.0 10000.0    1.00  970.66   26.11
NO
  2900.   .4030         6     1.0     1.0 10000.0    1.00  972.64   26.61
NO
  3000.   .3960         6     1.0     1.0 10000.0    1.00  974.63   27.02
NO

 MAXIMUM 1-HR CONCENTRATION AT OR BEYOND   100. M:
  2151.   .4807         6      .0      .0       .0     .00     .00     .00

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  ********************************************
  *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
  *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
  ********************************************

       TERRAIN        DISTANCE RANGE (M)
        HT (M)       MINIMUM     MAXIMUM
       -------      --------    --------
            0.          100.       3000.

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
```

```
     ***************************************

 CALCULATION         MAX CONC    DIST TO   TERRAIN
  PROCEDURE         (UG/M**3)    MAX (M)    HT (M)
--------------     -----------   -------   -------
SIMPLE TERRAIN       .4807        2151.        0.

***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
***************************************************
```

APPENDIX C1
BIOLOGICAL RESOURCES TECHNICAL REPORT

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June 2012

RENEWABLE RESOURCES GROUP

Blythe Mesa Solar Project

Biological Resources Technical Report

PROJECT NUMBER:
122512

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POWER ENGINEERS

PREPARED FOR: *RENEWABLE RESOURCES GROUP*
PREPARED BY: *POWER ENGINEERS, INC.*

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INTRODUCTION

The proposed Blythe Mesa Solar Project (BMSP, Project) consists of construction and operation of a 485 megawatt (MW) alternating current solar photovoltaic (PV) electrical generating facility and associated infrastructure to provide site access and connection to the statewide electricity transmission grid. This technical report analyzes the biological resources with the potential to occur within the proposed Project. The analysis consists of a review of published peer-reviewed documents, databases and biological reports in conjunction with biological field surveys to determine areas that have suitable habitat to potentially support listed, proposed for listing, and candidate threatened and endangered species, and other identified sensitive species. This technical report first addresses the applicable laws, ordinances, regulations, and a standard related to biological resources, and then describes conditions in the study area, which encompasses the proposed disturbance area.

1.0 PROJECT DESCRIPTION

The Project is proposed to be located on approximately 3,660 acres in the Palo Verde Mesa region of Riverside County—3,587 acres for the solar field and 73 acres for the 230 kilovolt (kV) transmission line interconnect. The power produced by the Project would be conveyed to the local power grid via interconnection to the Southern California Edison Colorado River Substation, an approved new substation located south of Highway 10 and approximately four miles west of the Project site.

1.1 PROJECT LOCATION AND COMPONENTS

The 3,660-acre site is five miles west of Blythe and consists mostly of agricultural land, including citrus orchards. The location is depicted on the Roosevelt Mine, Ripley, and McCoy Wash 7.5' U.S. Geological Survey (USGS) Topographic Quadrangles (see Figure 1). The Project is located on:

- Sections 11 and 12 of Township 7 South, Range 21 East
- Sections 3, 4, 5, 6, 8, 9 of Township 7S, South, Range 22 East
- Sections 27, 28, 29, 32, 33, 34 of Township 6 South, Range 22 East, of the San Bernardino Base Meridian

State Highway 10 bisects the Project area, which is bounded on the north and south by undeveloped open desert, on the east by agricultural lands, and on the west by the Blythe City Airport and open desert lands.

The Project would utilize single-axis PV trackers with silicon solar panels. All panels would be oriented in the same direction as they track the sun's movement. By design, the PV panels absorb sunlight to maximize electrical output and use anti-reflective glass, resulting in about half the reflectance of standard residential and commercial glass. Due to the limited rotation angles, the solar panels have no potential for reflecting the sun's rays upon any ground-plane position.

The panels would be configured into trackers, and the trackers configured into blocks. Each block comprises six trackers with 18 north-south oriented rows of PV panels (295 feet long and 140 feet wide) that rotate up to 45 degrees from east to west to follow the daily motion of the sun, with the center of rotation being approximately four to eight feet above grade. The panels would be supported by micro-piles that would be driven directly into the ground to a depth of 8 to 12 feet using a vibration technology to reduce noise impacts. Torque tubes, electrical wire trays, and panels would then be installed on the piles. Concrete foundations for the drive motors (devices used to move the drive strut back and forth) would be poured in place, and electrical equipment for the array would be set in place. A tracked backhoe would drive piles. No blasting or rock breaking is anticipated or proposed. Small truck-mounted cranes or grade-all forklifts would place trackers on support piles.

Individual PV panels would be connected together in series to create a “string” to carry direct current (DC) electricity. Multiple DC strings would be brought together into an above-ground combiner box to merge the strings into a single high-current cable. From the combiner boxes, the cabling would run in raceways and underground to inverters (5.0 feet wide and 10.5 feet tall) mounted on small concrete pads (minimum 0.5 feet above grade) distributed across the site. The inverters would take the DC output from the combiner boxes and convert it to alternating current (AC) electricity. Within the solar field, dirt access roads 12 feet wide would be constructed approximately every 200 to 400 feet to allow access and maintenance of the solar panels.

Next, the alternating current (AC) electricity would be increased to medium voltage with a standard “step-up” transformer. The medium voltage collection lines would begin at the inverter/transformer pads and would be placed in trenches until the output from 10 to 15 blocks is gathered and transferred at risers to a system of overhead medium voltage collection lines for transmission to the substation. The medium voltage collection circuits would be mounted above-ground on poles (35 to 60 feet tall) and carry 20 to 30 MW of electricity.

The three Project substations (each 300 feet long by 300 feet wide) would collect all the medium-voltage circuits (34.5 kV) and would step up the voltage to 230 kV.

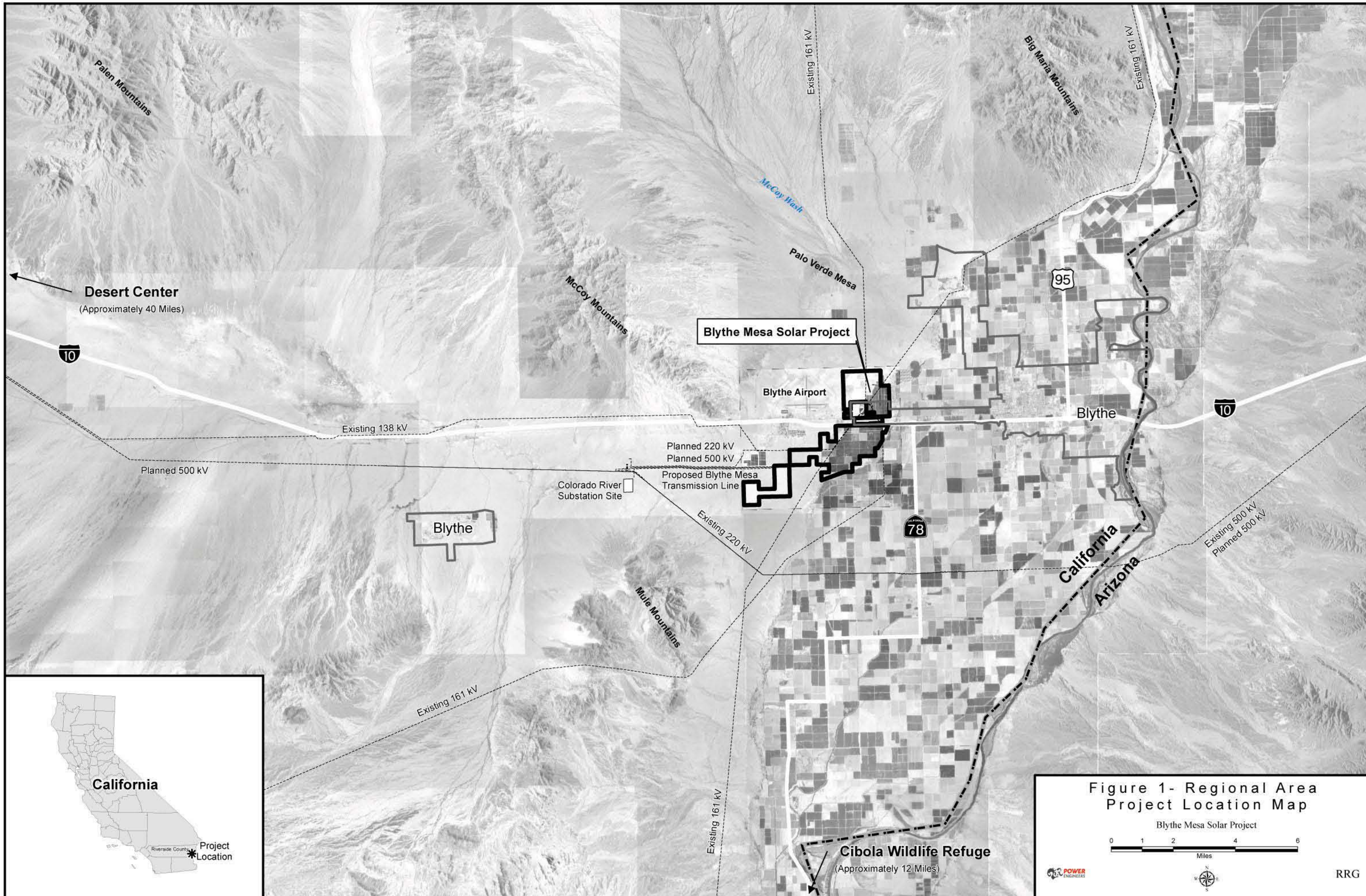
The Project substations and the interconnection point would be linked by a 230 kV double-circuit transmission line. The transmission line facilities include a single set of tubular steel poles that are 85 to 125 feet tall with an average distance between poles of 500 to 800 feet. The poles would be directly embedded in the soil or set in concrete foundations approximately 20 to 30 feet deep. Access roads to each structure will be 16 to 20 feet wide by eight inches deep of gravel over compacted subgrade and located within the proposed right-of-way (ROW).

Two operation and maintenance (O&M) buildings—approximately 3,500 square feet each, enclosed, and no more than 30 feet tall—would provide work and storage space. A covered outdoor temporary assembly and storage area (80,000 square feet, 25 feet tall) would be directly adjacent to the O&M buildings.

The site would be enclosed with equestrian-type fencing that would typically be set 30 feet from the array. The fence would be approximately seven feet high and consist of posts set into the ground on approximately 8- to 12-foot spacing, with approximately six strands of smooth wire at about one-foot vertical spacing.

All of the solar panels, substations, inverters, and O&M facilities would be located on lands in private ownership. The transmission line easement, from the Colorado River Substation to near the Project site substation, would be located mostly on federal land under management of the U.S. Department of the Interior, Bureau of Land Management (BLM) and some private land.

FIGURE 1. REGIONAL AREA PROJECT LOCATION MAP



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2.0 REGULATORY FRAMEWORK

The Project must comply with various federal, State, and local laws. While some laws and policies provide constraints, others provide intent and direction for certain actions to occur. The following is a general overview of such guidance, which gives intent or direction for the proposed Project relevant to biological resources.

2.1 FEDERAL

Endangered Species Act of 1973; 16 USC § 1531 et seq.; 50 CFR Parts 17 and 222

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

The Endangered Species Act (ESA) includes provisions for protection and management of species that are federally listed as threatened or endangered or proposed for such listing, and of designated critical habitat for these species. The administering agency for the above authority for non-marine species is the U.S. Fish and Wildlife Service (USFWS).

Migratory Bird Treaty Act: 16 USC § 703-711; 50 CFR Subchapter B

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

The Migratory Bird Treaty Act (MBTA) includes provisions for protection of migratory birds, including basic prohibitions against any taking not authorized by federal regulation. The administering agency for the above authority is the USFWS. The law contains no requirement to prove intent to violate any of its provisions. Wording in the MBTA makes it clear that most actions that result in "taking" or possession (permanent or temporary) of a protected species can be a violation of the act. The word "take" is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (including nests, eggs, and feathers)."

Bald and Golden Eagle Protection Act

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

Bald eagle protection began in 1940 with the passage of the Eagle Protection Act, which was later amended to include golden eagle and was renamed. The Bald and Golden Eagle Protection Act makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, their parts, products, nests, or eggs. Take includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing. Exceptions may be granted by USFWS for scientific or exhibition use, or for traditional and cultural use by Native Americans. However, no permits may be issued for import, export, or commercial activities involving eagles.

Clean Water Act (33 USC Section 1251 et seq.)

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

The Clean Water Act (CWA) is the principal federal statute protecting navigable waters and adjoining shorelines from pollution. The Clean Water Act is administered by the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE). USACE is responsible for regulating the discharge of fill material into waters of the United States. Waters of the United States include lakes, rivers, streams and their tributaries, as well as wetlands. Since its enactment, the CWA prohibits the discharge of pollutants into waters of the United States without a permit. Section 404 of the CWA provides that whenever any person dredges or places any fill material from or into waters of the U.S. including, without limitation, wetlands, streams, and bays (e.g., while undertaking road construction, bridge construction, or streambed alteration), a permit is required from USACE. Through field reconnaissance surveys and analyses of National Wetlands Inventory (NWI) and watershed data, it is unlikely that there are any jurisdictional waters of the U.S. within the Project area. It is anticipated that USACE will not assert jurisdiction over any waters and/or aquatic features occurring within the disturbance area.

Northern and Eastern Colorado Desert Coordinated Management Plan (BLM 2002)

Applicable to the transmission line (BLM jurisdiction)

The Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan is a landscape-scale, multi-agency planning effort that protects and conserves the natural resources of the California portion of the Sonoran Desert while also managing its use for humans. This plan was prepared under the same regulations that implement the Federal Land Policy and Management Act of 1976. The NECO Plan provides management areas for the desert tortoise (*Gopherus agassizii*), a system of integrated ecosystem management for special-status species and natural communities on federal lands, and regional standards and guidelines for public land health on BLM lands.

California Desert Conservation Area Plan

Applicable to the transmission line (BLM jurisdiction)

The California Desert Conservation Area (CDCA) Plan guides the management of all BLM-administered lands in the Mojave, Sonoran, and a small portion of the Great Basin Deserts. In total, the CDCA Plan includes an area of approximately 25 million acres, 12 million of which are public lands. The primary goal of the CDCA Plan is to provide guidance for the overall maintenance of the land while simultaneously planning for multiple uses and balancing the human needs with the need to protect the natural environment.

Executive Order 11312

Applicable to the transmission line (BLM jurisdiction)

This Executive Order from 1999 requires all federal agencies to prevent and control the introduction of invasive non-native species in cost-effective and environmentally sound manners. It established a nation-wide Invasive Species Council and Invasive Species Advisory Committee to oversee and facilitate the implementation of the Executive Order.

2.2 STATE

California Endangered Species Act of 1984, California Fish and Game Code § 2050-2098

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

The California Endangered Species Act (CESA) includes provisions for the protection and management of species listed by the State as endangered or threatened, or designated as candidates for such listings. CESA includes a requirement for consultation "to ensure that any action authorized by a state lead agency is not likely to jeopardize the continued existence of any endangered or threatened species… or result in the destruction or adverse modification of habitat essential to the continued existence of the species" (§ 2090). Plants of California declared to be endangered, threatened, or rare are listed at 14 California Code of Regulations (CCR) §670.2. Animals of California declared to be endangered, threatened, or rare are listed at 14 CCR §670.5. The administering agency for the above authority is the California Department of Fish and Game (CDFG).

California Fish and Game Code Section 3503, 3511, 4700, 5050, and 5515

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

These California Fish and Game Codes (CFGC) list bird (primarily raptor), mammal, amphibian, and reptile species that are classified as fully protected in California. Fully protected species are prohibited from being taken or possessed except under specific permit requirements. These Codes also prohibit the take, possession, or needless destruction of the nests or eggs of any bird, including birds of prey or their nests or eggs, except as otherwise provided by the code or any regulation made pursuant thereto.

Native Plant Protection Act (CFGC Section 1900 et seq.)

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

The California Native Plant Protection Act prohibits importation of rare and endangered plants into California, "take" of rare and endangered plants, and sale of rare and endangered plants. CESA defers to the California Native Plant Protection Act, which ensures that State-listed plant species are protected when State agencies are involved in projects subject to the California Environmental Quality Act (CEQA). In this case, plants listed as rare under the California Native Plant Protection Act are not protected under CESA but rather under CEQA.

California Fish and Game Code §1600-1616 – Streambed Alteration Agreement

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

This Code requires that any person, state or local government agency, or public utility notify CDFG and obtain a streambed alteration agreement before they begin any construction project that will divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake, use materials from a streambed, or result in the disposal or disposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. In general, CDFG jurisdiction extends to the top of the stream or bank, or to the outer edge of riparian vegetation, whichever is wider.

Porter-Cologne Water Quality Control Act of 1969 (California Water Code Section 13000 et seq.)

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

The Porter-Cologne Water Quality Control Act provides state coordination with the Clean Water Act, which is described above. It provides a mechanism by which the Regional Water Quality Control Boards (RWQCBs) certify federally issued CWA permits to ensure the compatibility of federal and state water quality guidelines. The act provides for the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Basin plans are primarily implemented by using the National Pollution Discharge Elimination System permitting system to regulate waste discharges to ensure that water quality objectives are met. Waste discharges may include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly impact waters of the State relative to the implementation of Section 401 of the CWA.

2.3 LOCAL ORDINANCES

Riverside General Plan, Land Use and Multi-Purpose Open Space Elements (2003)

Applicable to the solar array (private land) and transmission line (BLM jurisdiction)

Riverside County requires actions to ensure that proposed development projects demonstrate a high degree of compatibility with any threatened or endangered species habitat they may affect. The administering agency is the Riverside County Planning Department.

3.0 INVENTORY METHODS

The evaluation of biological resources included a review of applicable documents and the identification of resources during the reconnaissance-level survey and focused surveys conducted by qualified biologists. The details and methods used in this evaluation are presented below.

3.1 APPROACH TO DATA COLLECTION

The first step in the approach to data collection for this analysis was the identification and characterization of biological resources, including vegetation community types, riparian habitats, and special-status plant and animal species that are known to occur or have potential to occur in the Project area. The biological study area included the Project site and adjacent lands containing suitable habitat for biological species. For the purpose of this report, "study area" refers to the Project site and adjacent lands.

"Special-status" as used in this section refers to species that are:

- Listed, proposed for listing, or candidates for listing as threatened or endangered under the Federal Endangered Species Act (FESA) (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals], 67 FR 40657 [candidate species], and various notices in the Federal Register [FR] [proposed species]);

- Listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (CDFG 2011a);

- Identified by the California Department of Fish and Game (CDFG) as species of concern or fully protected species, including fish and wildlife that do not have state or federal threatened or endangered status but may still be threatened with extinction (CDFG 2011b);

- California Species of Special Concern (CSC), vertebrate species that have been designated as "species of special concern" by the CDFG because declining population levels, limited range, and/or continuing threats have made them vulnerable to extinction (CDFG 2011b);

- Listed by the Bureau of Land Management (BLM) as sensitive (BLM 2007);

- Listed by the CNPS as List 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common elsewhere). CNPS List 1A, 1B, and 2 species are considered special-status plant species if they fall within any of these categories as defined in the NPPA, CFGC Section 1901, or the CESA, CFGC Sections 2050 through 2098 (CNPS 2001, 2011);

- Covered as a State-protected furbearing mammal (PFM); or

- Otherwise defined as rare, threatened, or endangered under the California Environmental Quality Act;

The NECO Plan (BLM and CDFG 2002) was consulted for lands designated as Wildlife Management Areas, documentation of sensitive vegetation communities, and documentation of special-status plant and wildlife species. Several plant and wildlife special-status species with potential for occurrence within the study area are described in the NECO Plan.

Only CNPS Lists 1 and 2 are considered to be “special status” species because of their higher sensitivity to impacts. CNPS List 3 and List 4 species are of lower sensitivity; the mitigation for impacts to sensitive vegetation communities would provide compensation for impacts to these species, so no additional mitigation for impacts to them would be required.

3.2 LITERATURE REVIEW

Preliminary investigation included review of information obtained from the USFWS, CDFG, BLM, literature searches, reports from surrounding projects, examinations of aerial photographs, and database searches including CNPS, California Natural Diversity Data Base (CNDDB) records, and other sensitive species accounts for Riverside County. Regional resource planning documents prepared by federal, state and local agencies were also reviewed, including the NECO Plan, the CDCA Plan, and the Riverside General Plan. Additionally, USFWS was consulted regarding the federal listed species that could occur within the Project quads. USFWS identified only desert tortoise as having the potential to occur in the affected Project quadrangles (Appendix C).

To identify the existing and potential biological resources present in the vicinity of the proposed Project, a Geographic Information System (GIS) search was performed. This consisted of mapping baseline biological resource data (vegetation mapping, CNDDB records, habitat conservation areas, water resources, and potential jurisdictional areas). The following US Geological Survey quadrangles were reviewed: McCoy Wash, Ripley, and Roosevelt Mine. Figure 2 shows the CNDDB records that were located within or adjacent to the project area.

Other references used included the soil data from the US Department of Agriculture, the Jepson Manual, the CNPS Inventory of Rare and Endangered Plants of California, and several other published and technical references for the region. By reviewing the surveys conducted by other projects in the area, POWER was able to determine where focused surveys may be required and where recently acquired existing data may be able to be used for a species inventory instead. The surrounding projects that were reviewed for existing survey information include:

- Blythe Solar Power Project (AECOM 2010)
- Genesis Solar Energy Project (BLM and CEC 2010, TetraTech 2010a, TetraTech 2010b)
- Devers-Palo Verde No. 2 Transmission Line Project (Aspen 2006)
- Devers-Palo Verde No. 2 Transmission Line Project Telecommunication System Route (CH2MHill 2010)
- Devers-Palo Verde No. 2 Transmission Line Project Colorado River Substation Expansion (Aspen 2011)
- First Solar Electric Blythe Solar 1 Project (First Solar Electric, LLC (First Solar). No Date)
- Blythe Airport Solar Project (US Solar Holdings, LLC (US Solar). No Date.)

These projects were reviewed for survey information, including target species, survey areas, survey dates, and survey results. This was conducted through a combination of textual reviews and reviews of project survey maps, when available. Based on these reports, the following information was acquired for focused surveys that have been conducted in the areas surrounding the BMSP. Refer to Table 1 for a complete analysis of the existing data that was collected. Figure 3 shows the existing data that overlaps with the Project’s transmission line.

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FIGURE 2. CNDDB MAP

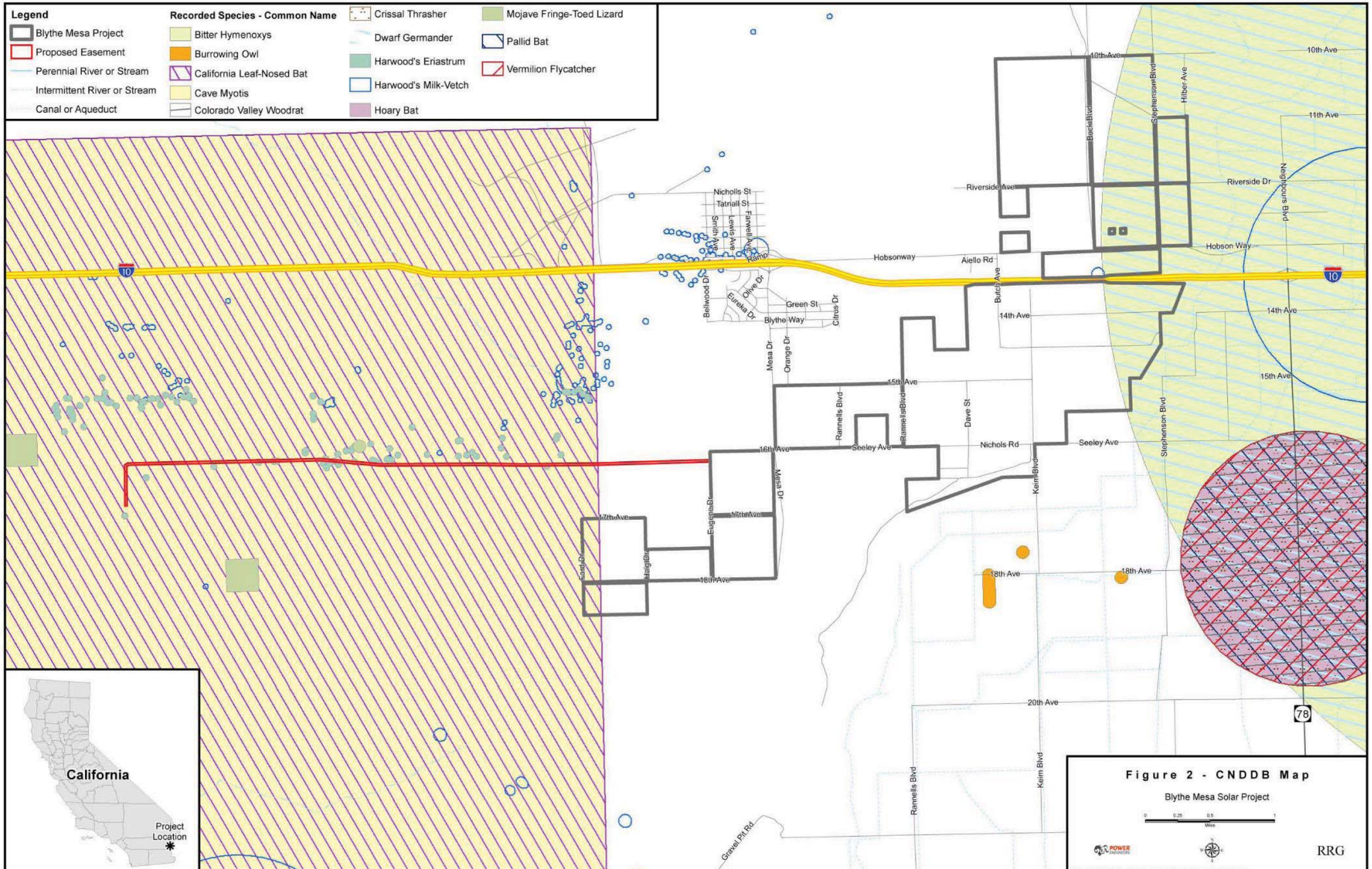

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TABLE 1. ADJACENT PROJECT SURVEY INFORMATION

Species	Project*	Species Detected	BMSP Survey Area Overlap
Burrowing Owl	Blythe Solar Power Project	Yes, two within solar site, four in transmission line and multiple sign. Not determined how sign was confirmed.	Overlaps with BMSP transmission line and Colorado River Substation (CRS) survey areas.
	Genesis Solar Energy Project	Yes, three individuals detected around the generation tie line and one burrow around the main site.	No overlap
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	Burrow sites detected along project segment that encompasses Colorado River Substation, but specific locations not mapped.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, burrowing owls detected along southern telecom route. Three owls detected just east of Colorado River Substation.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.
Desert Tortoise	Blythe Solar Power Project	Yes, three to west side of project site with multiple sign (carcass fragment) on the remainder of the site. Sign detected in northern portion of transmission line. No sign detected within southern portion of transmission line (overlapping with BMSP).	Overlaps with BMSP transmission line and CRS survey areas.
	Genesis Solar Energy Project	Yes, sign detected within main site and generation tie line.	No overlap.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	Detected in several project segments but not in the vicinity of BMSP.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, many sign (mostly scat) detected. Mainly scat detected around substation. Historical data of an adult and an occupied burrow.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.

Species	Project*	Species Detected	BMSP Survey Area Overlap
Golden Eagle	Blythe Solar Power Project	No, golden eagle active nests are not known within 10 miles of Blythe Solar site. One inactive nest in study area.	Overlaps with entire BMSP project area.
	Genesis Solar Energy Project	No.	No overlap.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	No.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	No.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.
Rare Plants	Blythe Solar Power Project	Yes. However, no federal or State protected species. Multiple species observed in project area. Multiple species observed in transmission line study area. Species observed in transmission line study area overlapping with BMSP include Harwood's milkvetch, Harwood's woollystar, winged cryptantha, and ribbed cryptantha.	Overlaps with BMSP transmission line and CRS survey areas.
	Genesis Solar Energy Project	Yes, numerous rare plants detected throughout entire project area. Species detected include ribbed cryptantha, Harwood's milkvetch, desert unicorn plant, winged cryptantha, and Harwood's woollystar.	No overlap.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	No State or federal listed species detected in the vicinity of BMSP.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, multiple species (no State or federal listed) detected. Ribbed cryptantha detected at overlap area near substation.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.

Species	Project*	Species Detected	BMSP Survey Area Overlap
Avian Use	Blythe Solar Power Project	Yes, various migratory and resident species observed.	Overlaps with BMSP transmission line and CRS survey areas.
	Genesis Solar Energy Project	Yes, various migratory and resident species observed.	No overlap.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	Various special-status birds detected in project segment that encompasses CRS, but specific locations not mapped.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, various species detected in vicinity of substation.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	Yes, one special-status bird species detected.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.
Bat Risk	Blythe Solar Power Project	One instance of bat guano in main site. .	Overlaps with BMSP transmission line and CRS survey areas.
	Genesis Solar Energy Project	No.	No overlap.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	No.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	No.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	No.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.
Mojave Fringe-toed Lizard	Blythe Solar Power Project	Yes, multiple locations along transmission line	Overlaps with BMSP transmission line and CRS survey areas.
	Genesis Solar Energy Project	Yes, species detected abundantly throughout entire Project area.	No overlap.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	Detected in project segment that encompasses Colorado River Substation, but specific locations not mapped.	The project areas overlap at the CRS.

Species	Project*	Species Detected	BMSP Survey Area Overlap
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, numerous individuals detected at and around the substation.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.
Sensitive Mammals (Badger, Kit Fox, Coyote)	Blythe Solar Power Project	Yes, numerous badger and kit fox sign. Several kit fox burrow complexes in northern transmission line.	Overlaps with BMSP transmission line and CRS survey areas.
	Genesis Solar Energy Project	Yes, kit fox and burro deer sign detected throughout project area.	No overlap.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	No.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, one badger skull and likely badger den detected.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.
Jurisdictional Waters	Blythe Solar Power Project	State waters delineated in main site, no waters delineated in transmission line or substation areas.	Overlaps with BMSP transmission line and CRS survey areas.
	Genesis Solar Energy Project	Yes, 91 acres of state jurisdictional waters within project area.	No overlap.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	Potential jurisdictional waterways along project route noted but not mapped. No formal delineations conducted.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	No.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.

Species	Project*	Species Detected	BMSP Survey Area Overlap
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.

*See the project list above this table for reference information for each project.

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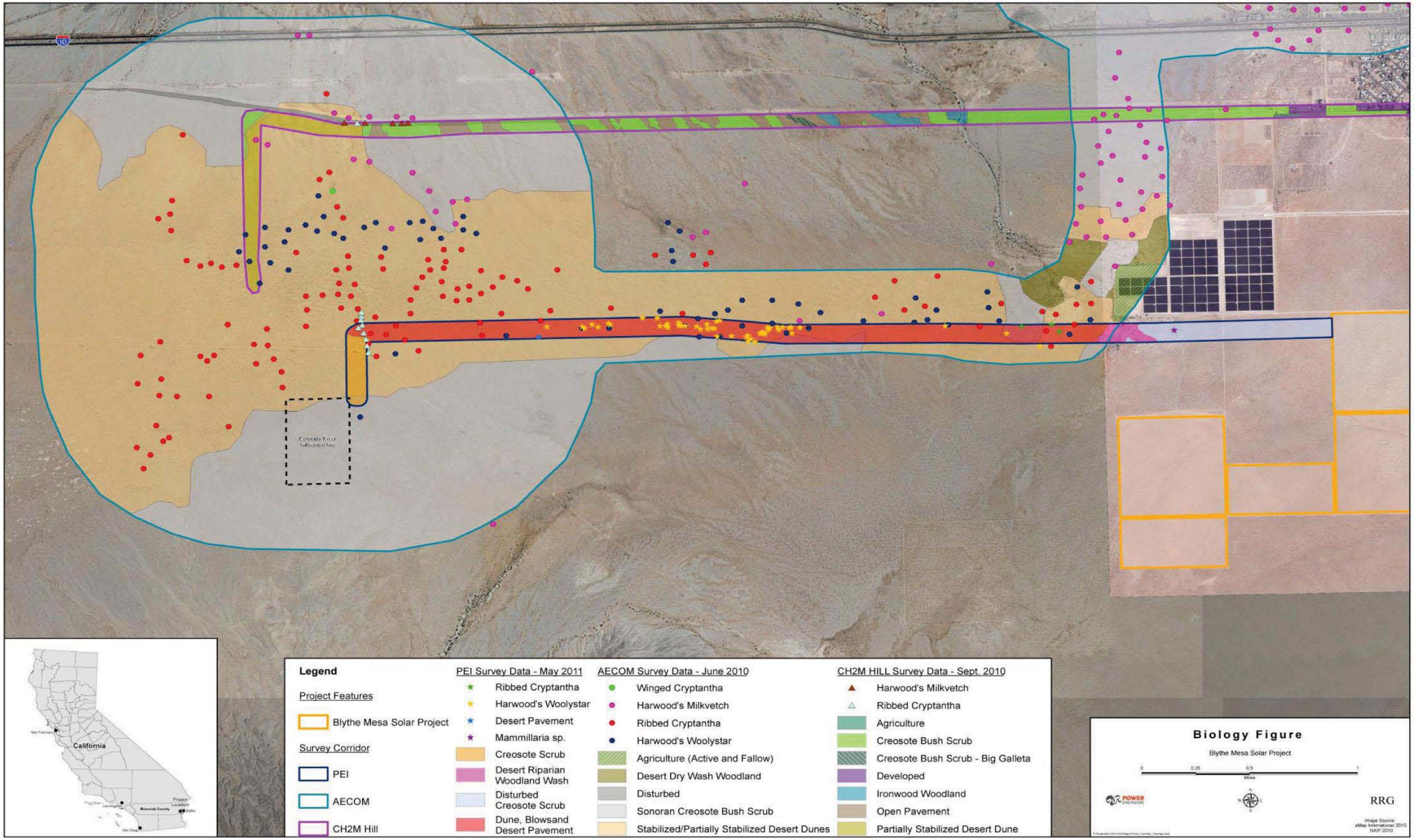
FIGURE 3. EXISTING PROJECT DATA OVERLAP WITH BMSP STUDY AREA



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3.3 FIELD SURVEY METHODOLOGY

The following section describes the methodology used to collect biological data in the field. Field surveys were conducted to supplement the data collected from the review of existing data. During spring 2011, Project biologists completed the following surveys within the study area: vegetation mapping, reconnaissance surveys, focused rare plant surveys, and protocol burrowing owl surveys. Comprehensive biological resource survey methodologies were designed to meet applicable BLM, USFWS, and CDFG requirements.

3.3.1 Reconnaissance Survey

Biologists first developed a potential list of special-status species by consulting the CDFG California Natural Diversity Database (CNDDB) (RareFind Version 3.1.1; CDFG 2011) and California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (2011) for documented occurrences of special-status or rare plants and animals within the McCoy Wash, Ripley, and Roosevelt Mine USGS 7.5-minute quadrangles (Figure 2). These resources, along with the species range maps, were utilized to determine historic occurrence of special-status plant and wildlife species and other natural resources within the study area. Additionally, USFWS was consulted regarding the federal listed species that could occur within the Project quads (Appendix C).

Once a complete list was developed of potential species that could occur within the Project area, POWER conducted a reconnaissance survey (refer to Tables 3 and 4 for species lists). The reconnaissance survey was conducted in the proposed solar array footprint by POWER biologists Tom Herzog and Ken McDonald on April 19 and 20, 2011. The survey was a comprehensive habitat assessment conducted across the whole site, identifying key habitat features for both flora and fauna.

Species-habitat correlations assume the occurrence of an organism with a series of environmental variables. Environmental variables can describe the habitat components organisms are dependent upon and, therefore, predict their pattern of habitat occupancy. Therefore, a habitat-based survey approach was used to assess the proposed Project footprint.

The field survey evaluated the quality of the habitat for each species and/or proximity of the habitat to a known occurrence of a species. Information used to determine known occurrence locations included CNDDB data, CNPS records, consultation with Wildlife Agencies, and reference to published species accounts. Field survey activities included documenting plant and animal species or sign observed within the study corridor, mapping vegetation communities, and photo-documenting existing biological conditions for all identified potential Project routes.

The potential for occurrence of special-status species not observed during field investigations was assessed based upon evaluation of species distribution and habitat use and information from previous research studies and biological reports. Therefore, based on the existing data and observations made during the field reconnaissance surveys, the following methodology was used to assess the following species.

Avian use: Numerous bird surveys have been completed by solar projects surrounding the Project area, including the Solar Millennium project (EDAW AECOM and Bloom Biological 2009). For the non-agricultural land within the Project area, information on late spring migrant songbirds and resident birds in native habitats (i.e., Sonoran creosote shrub scrub and desert dry wash woodland) is available (EDAW AECOM and Bloom Biological 2009).

Based on migratory bird data collected from adjacent projects, it was assumed that the agricultural land within the Project site may be used as foraging habitat (AECOM 2009). To the east of the Project area is the Lower Colorado River Valley. The Lower Colorado River Valley is in the Pacific Flyway, one of the four major migration flyways in North America (Bird Nature 2001), and is a globally important bird area (IBA) (Audubon 2011). The IBA consists of the Colorado River, associated riparian areas and marshes, and agricultural fields in the area. Waterfowl are known to move daily between water bodies and irrigated agricultural fields to forage (Randall et al. 2011). The Project site comprises primarily irrigated orchard and non-irrigated field crops and fallow fields. However, approximately 90,000 acres of irrigated agricultural land is within the Palo Verde Valley just east of the Project area. Due to the existing suitable forage land east of the Project site and the distance from the Colorado River, it is assumed that migratory birds would only incidentally use the Project area for forage land and that these lands are of lesser value and importance for migratory bird foraging compared to lands closer to the River.

The Migratory Bird Treaty Act of 1918 (MBTA) is the main driver for protection of migratory birds in the United States. In the biological sense, a migratory bird is a bird that has a seasonal and somewhat predictable pattern of movement and includes some special-status species and more common species, as well. Based on the data reviewed and observations in the field, avian point count surveys were not conducted. Conducting a point count survey at this time would only provide a snapshot of the migratory species potentially using the site; the use by these species and numbers of species would vary widely each year. However, since it is expected that migratory species potentially use the Project site, preconstruction surveys are recommended. The purpose of the preconstruction survey is to avoid or minimize construction-related impacts on bird species that may be present or passing through the Project site. In addition, it is recommended that Best Management Practices be implemented prior to and during construction to further reduce and avoid construction-related impacts on bird species including nesting.

Bat risk: A reconnaissance survey was conducted to help determine the potential for bat species to occur within the Project area. Based on the results of the reconnaissance survey and lack of suitable habitat, no focused surveys were conducted or recommended.

Desert tortoise: Although desert tortoise was indicated as potentially occurring in the vicinity of the Project area, the only habitat initially deemed suitable occurred within the proposed transmission line corridor. During focused plant surveys, incidental observations of wildlife and wildlife sign were noted and no desert tortoise sign was detected. The habitat substrate was deemed too sandy for tortoise burrows, and vegetation was only marginally suitable to support tortoise foraging. Meetings with regulatory agencies confirmed that this area, and any of the other land within the proposed Project area, is unlikely to support desert tortoise; therefore, no protocol surveys are considered necessary. A preconstruction survey should be conducted. If desert tortoises are not observed during the preconstruction surveys, additional conservation measures will not be needed.

Golden eagle: Research conducted, including mapping of CNDDB records, shows that Golden eagle active nests are not located within 10 miles of the Project site. Existing data and reports from the Blythe Solar Power Project (AECOM 2010) also indicated no Golden eagles within 10 miles of their project site. Based on the existing records and the reconnaissance survey, no further survey is proposed for the Project.

Mojave fringe-toed lizard: During the spring rare plant survey, POWER recorded approximately 100 observations of Mojave fringe-toed lizard along the transmission line survey area. Based on the known presence of the species, focused surveys are not proposed for this species. Mitigation measures should be developed to avoid, minimize and mitigate impacts to the Mojave fringe-toed lizard.

American Badger and Desert Kit Fox: Based on the surrounding project survey results and no small mammal records within CNDDB, no additional surveys are proposed. A preconstruction clearance survey should be conducted to help identify and avoid any potential species that may be present within the Project footprint.

Bighorn Sheep: A bighorn sheep skull was found within the proposed solar array project footprint. It is unknown how long this skull had been here and if the animal died near this location, or if the skull was washed downstream from somewhere else. Focused surveys for this species were not conducted and this sign was noted incidentally during the reconnaissance surveys.

Jurisdictional waters: Based on delineations conducted for the Blythe Solar Power Project (AECOM 2010) and the Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route (CH2MHill 2010), review of watershed maps and inventories, and observations during field surveys, no jurisdictional waters are believed to be present within the Project area. No delineations are proposed.

3.3.2 Vegetation Communities

Vegetation mapping was conducted within the study area during April and May, 2011. Aerial photography and Project maps were utilized and vegetation community boundaries were recorded. Because most of the solar array footprint is agricultural, intensive ground surveys were not necessary for vegetation mapping. The transmission line footprint, which mostly comprises creosote bush scrub, was surveyed on foot, allowing more precise recording of habitat changes within the proposed corridor

3.3.3 Focused Rare Plant Survey

Based on observations made during the reconnaissance survey, a focused rare plant survey was conducted within a 500-foot corridor around the proposed transmission line on May 5 and May 6, 2011 by POWER biologists Ken McDonald, Melissa Lippincott, Tom Herzog, and Ryan Winkleman. The surveys were floristic, meaning that all plants observed were identified to the taxonomic level needed to determine whether they were special-status plant species. Exceptions to this included instances where characteristics essential for identification were not present during the field survey period. Botanists identified all plant species detected during field surveys using personal knowledge of the plants and keys in *The Jepson Manual* (Hickman 1993). Scientific nomenclature in this report mainly follows Hickman (1993). Common names are derived from Hickman (1993) and CalFlora (2008). The survey methodology generally followed the U.S. Fish and Wildlife Service's (USFWS) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996a), and the recommended botanical survey guidelines of the California Department of Fish and Game (CDFG 2000) and the California Native Plant Society (CNPS 2001).

Prior to going into the field, a list of potentially occurring sensitive plant species was compiled based on species information with known populations within/near the study area and results of the reconnaissance survey (refer to Table 3). POWER botanists prepared photographs and habitat descriptions for each potential special-status plant species prior to the surveys and trained the other biologists in their detection. Biologists walked approximately 30 feet apart in parallel transects on both sides of the proposed transmission centerline. The biologists all studied the first instances of special-status plants that were observed to obtain a survey image of the plants' current appearances. The survey was floristic in nature, in that each species of plant detected was either identified and recorded in the field to species level, or collected for later identification using standard taxonomic floral keys.

Wildlife sign and sightings were also recorded and special-status wildlife species incidentally observed during the plant surveys were mapped using global positioning system (GPS) units.

3.3.4 Protocol Western Burrowing Owl Survey

Protocol surveys were started on May 6 and extended through July 23, 2011. Survey methods were derived from generally accepted professional standards, the 1993 California Burrowing Owl Consortium (CBOC) Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC 1993), and the 1995

California Department of Fish and Game (CDFG) Staff Report on Burrowing Owl Mitigation (CDFG 1995). In summary, a methodical pedestrian survey for owl burrows was conducted by walking through areas of suitable habitat within the study area, including man-made structures.

POWER biologists Tom Herzog, Steve Hicks, Ken McDonald, Melissa Lippincott, and Garcia and Associates, Inc. biologists Andrew McCadden, Angelique Herman, and Laura Megill conducted pedestrian survey transects, spaced at approximately 100 feet to allow for 100% visual coverage of the study area. Where necessary, transect spacing was reduced or expanded to account for differences in terrain, vegetation density, and visibility. The locations of all potential owl burrows and sign were recorded and mapped using handheld global positioning devices and aerial imagery. Incidental observations of other avian species, plants and other wildlife were also noted. The presence of each observed wildlife species was based on direct observation of individual(s), sign, and/or vocalization. CBOC survey protocols and POWER's full methodology and results are described in the burrowing owl survey report (POWER 2011).

4.0 AFFECTED ENVIRONMENT

The results of the literature review, records search, GIS analysis, and field data are provided below.

4.1 ENVIRONMENTAL SETTING

The Project area is in the Palo Verde Valley, along the western edge of the Colorado River in the Sonoran Desert. This area is on Palo Verde Mesa, a series of ancient raised river terraces. The topography is relatively flat and slopes toward the southeast; elevations range from 260 to 400 feet above mean sea level (AMSL). The Project area is near the Big Maria Mountains on the northwest, the McCoy Mountains on the west, the Mule Mountains on the southwest, and the Colorado River on the east. These mountain ranges, trending northwest to southeast, create a natural barrier between the Colorado River and the greater Colorado Desert. Development in the Project vicinity includes agricultural fields and groves as well as the Blythe City Airport. The Project area also includes undeveloped open desert.

The subtropical climate of the Colorado Desert is characterized by dry, mild winters averaging 54 degrees Fahrenheit (°F) and dry, hot summers that average 90°F. Summer highs are known to reach 122°F. Yearly average precipitation is 3.83 inches (Western Regional Climate Center, 2011). Although rainfall is primarily in the winter months, the region is influenced by summer monsoons from July through September.

Surface water is minimal on Palo Verde Mesa, limited to seasonal and perennial sources. Perennial water comes from McCoy Springs in the McCoy Mountains west of the Project area and the Colorado River, which lies eight miles east of the Project area. The Colorado River is the source of irrigation water for agriculture in the area.

Vegetation communities within the Project area consisted of Creosote Bush Scrub, Desert Dunes, Desert Dry Wash Woodland, and Agricultural Land. Creosote bush (*Larrea tridentata)* was the dominant plant species in creosote bush scrub communities and was co-dominant with big galleta grass (*Pleuraphis rigida*) and indigo bush (*Psorothamnus emoryi*) in desert dune communities. Palo verde (*Cercidium floridum*), mesquite (*Prosopis* spp.), ironwood (*Olneya tesota*) and smoketree (*Psorothamnus spinosus*) occurred within Desert Dry Wash Woodland. Agricultural land use within the Project area included drip-irrigated citrus orchards, flood-irrigated alfalfa, non-irrigated winter wheat, abandoned jojoba orchards, and fallow fields. Approximately 70% of the Project area was actively cultivated agricultural land, 24% was previously disturbed by agricultural or military activities, and approximately 6% remained undisturbed.

The Project area borders or is in the vicinity of Nicholls Warm Springs/Mesa Verde, solar array facilities, Blythe Airport, the 520 MW natural gas-fired Blythe Generating Plant, electrical substations, electrical transmission lines, Interstate 10 (I-10), and other paved and dirt roads. The Project area is bound on the east by agricultural land use that extends to the Colorado River. Beyond the urban disturbances immediately adjacent, the Project area is bound on the other three compass bearings by undeveloped native desert habitat.

Wildlife species commonly observed within the Project area included round-tailed ground squirrel (*Spermophilus tereticaudus*), kangaroo rat (*Dipodomys* sp.), kit fox (*Vulpes macrotis*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), mourning dove (*Zenaida macroura*), white-wing dove (*Zenaida asiatica*), horned lark (*Eremophila alpestris*), greater roadrunner (*Geococcyx californianus*), Le Conte's thrasher (*Toxostoma lecontei*), western kingbird (*Tyrannus verticalis*), loggerhead shrike (*Lanius ludovicianus*), common zebra-tailed lizard (*Callisaurus draconoides draconoides*), desert iguana (*Dipsosaurus dorsalis*), common side-blotched lizard (*Uta stansburiana*), Mohave fringe-toed lizard (*Uma scoparia*), western diamondback (*Crotalus atrox*), and western whiptail (*Cnemidophorus tigris*).

4.1.1 Vegetation Communities

Eleven vegetation communities and other cover types were identified within the study area during the reconnaissance and focused surveys, including upland, riparian, and other cover types (Table 2; Figure 4). Vegetation communities are described in detail below and based on a classification system by R. Holland (1986). When appropriate, vegetation classification by J.O. Sawyer and T. Keeler-Wolf (1995) are also considered. Community types according to CDFG are listed where applicable. Of the vegetation communities listed in Table 2, desert riparian woodland wash is considered sensitive. Desert riparian woodland wash is sensitive because it is included with State waters under the jurisdiction of CDFG. In addition, desert riparian woodland wash is a special community type (e.g., high priority for inventory in the California Natural Diversity Database) per CDFG's Vegetation and Mapping Program.

TABLE 2. VEGETATION COMMUNITIES AND COVER TYPES (ACRES)

Vegetation Communities and Other Cover Types	Acreage
Desert Riparian Woodland Wash	2.83 acres
Creosote Scrub	4.80 acres
Dune, Blowsand Desert Pavement	52.52 acres
Bajada	18.07 acres
Disturbed Creosote Scrub	122.27 acres
Disturbed Creosote Scrub and Fallow Agriculture	720.61 acres
Irrigated Cropland	404.02 acres
Irrigation Pond	13.34 acres
Orchard	1299.49 acres
Row Crop	863.18 acres
Ruderal	171.82 acres
	(wildlife forage)

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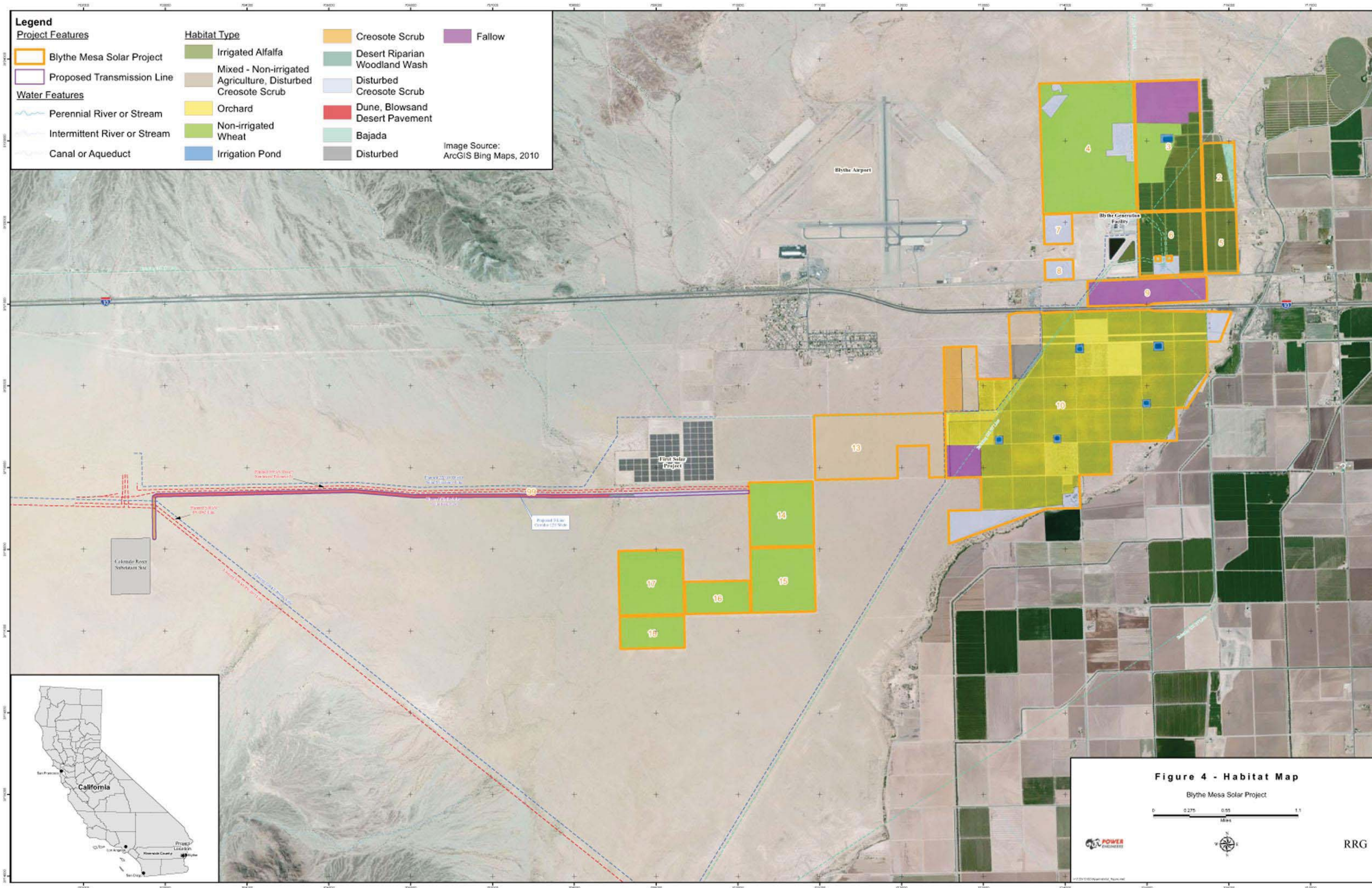
FIGURE 4. VEGETATION COMMUNITIES WITHIN THE STUDY AREA



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Desert Riparian Woodland Wash. This vegetation community consists of open, drought deciduous, riparian scrub woodland and is made up of three primary components: wash-dependent vegetation, vegetated ephemeral dry wash, and islands of Sonoran creosote bush scrub (e.g., riparian interfluves). Dominant and indicator plants of this community within the study area include honey mesquite (*Prosopis glandulosa*), palo verde (*Cercidium floridum*), desert ironwood (*Olneya tesota*), cat-claw acacia (*Acacia greggii*), and rush milkweed (*Asclepias subulata*). Creosote bush (*Larrea tridentata*) and burro brush (*Ambrosia dumosa*) were scattered throughout the canopy. The herbaceous layer was dominated by desert plantain (*Plantago ovata*), *Cryptantha* spp., and Mediterranean grass (*Schismus barbatus*). Desert riparian woodland wash is equivalent to Holland's desert dry wash woodland (Code 62200). It also approximates Sawyer and Keeler-Wolf's Catclaw Acacia Series.

Approximately 2.83 acres of desert riparian woodland wash occurs in the Project area, all located within the proposed transmission line disturbance area.

Creosote Bush. Within the study area, this community is characterized by sandy soils with a shallow clay pan on a broad gentle southeast trending slope. Dominant plants within the study area for this community include creosote bush, burro brush, brittlebush (*Encelia farinosa*), and cheesebush. This is the most common plant community within the study area, dominating the alluvial soil deposits. This plant community intergrades into the desert dry wash woodland. Within the study area, there are areas of desert pavement that are covered with rounded cobbles that range in size from one to three inches. Typically, these areas are higher than the surrounding landscape by three to 15 feet. These areas are within Sonoran creosote bush scrub, though the plant density is lower. Sonoran creosote bush scrub is designated by Holland as Code 33100 and Sawyer and Keeler-Wolf as the Ocotillo Series.

Within the utility corridor on the south side of I-10, fine sand drifts are interspersed within this community type. In these areas, Emory's indigo bush occurs in stands and was more prevalent than in other portions of the Sonoran creosote bush scrub.

Approximately 4.80 acres of relatively undisturbed Sonoran creosote bush scrub occurs within the Project area. This is present within the proposed transmission line disturbance area and is relatively undisturbed, except for occasional vehicle tracks. There are larger blocks of disturbed creosote bush scrub in the solar array disturbance area. Past disturbances in these areas consist of military training and agricultural use, including cultivation of jojoba (*Simmondsia chinensis*). These disturbances occurred in the past and the Sonoran creosote bush scrub within the study area has been recovering through natural recruitment. As a result, two invasive plant species, Russian thistle (*Salsola tragus*) and Sahara mustard (*Brassica tournefortii*), can be found in disturbed areas throughout the study area, especially near roads, and fallow and active agricultural areas. Another exotic plant, Mediterranean grass (*Schismus* sp.), is prevalent throughout the Sonoran creosote bush scrub. There are approximately 122.27 acres of disturbed creosote bush scrub within the Project area and an additional 720.61 acres of disturbed creosote bush scrub that is growing in fallow agricultural fields.

Dunes, Blowsand Desert Pavement. This community is characterized by sand that is locally stabilized by evergreen and/or deciduous shrubs, scattered low annuals, and perennial grasses, and that therefore is an actively changing part of the desert environment. Desert pavement is generally more stabilized and is covered with rock fragments to resemble a "pavement" surface. This group of communities was present throughout most of the proposed transmission line disturbance area. This community most closely resembles Holland's "Desert Dunes" community, designated by Holland as Code 22000.

Approximately 52.52 acres of dunes and blowsand desert pavement are present within the Project area.

Irrigated Cropland, Irrigation Pond, Orchard, and Row Crop. These community types fall into the broader category of agriculture. The majority of agricultural land is fallow and active agriculture within the proposed solar array disturbance area. It includes lands that are currently under cultivation and those that are abandoned (e.g., fallow). In the soils within abandoned agriculture areas, native vegetation is growing back; Russian thistle, Saharan mustard, and other exotic plants were observed interspersed with the native vegetation and are indicative of past agricultural disturbance. Irrigated cropland encompasses approximately 404.02 acres within the Project area, while irrigation ponds are 13.34 acres, orchards are 1,299.49 acres, and row crops are 863.18 acres. There is no associated Holland or Sawyer and Keeler-Wolf classification for this land cover type.

Bajada. Bajadas are essentially alluvial fans or desert washes. This community is present in the northeastern corner of the Project area and is typically characterized as the shallow, sandy, braided bottoms of wide canyons. Although much of this community is sparsely vegetated, it most closely resembles Holland's "Mojave Desert Wash Scrub," Code 63700.

Approximately 60.03 acres of bajada are present within the Project area.

Ruderal. Ruderal communities have been previously disturbed and have been converted to mostly non-native, weedy areas. Ruderal vegetation is that which grows quickly in disturbed areas and may consist of native species, such as fire-following plants, or non-native species, such as invasive grasses or forbs. Examples of invasive species that would occur in these areas include redstem filaree (*Erodium cicutarium*), Sahara mustard, and Mediterranean grass. Ruderal areas in the Project area are primarily concentrated within the proposed solar array area.

Approximately 219.83 acres of ruderal vegetation is present within the Project area.

4.1.2 Jurisdictional Waters

Delineation surveys conducted for the Blythe Solar Power Project, which overlaps the BMSP transmission line corridor, did not identify any jurisdictional waters within the overlapping area (AECOM 2010). Additionally, delineation surveys conducted for the Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route, which runs parallel to the BMSP transmission line corridor and is approximately one mile north and in the same hydrological flow route, did not identify the presence of jurisdictional waters within the area of the BMSP transmission line corridor (CH2MHill 2010). There is an agricultural irrigation ditch running close to the eastern edge of the proposed solar array, but it does not cross the Project area and is approximately 75 to 90 feet below the edge of the Project area. There are several palustrine open-water wetlands (POWs), likely stock ponds, located in a block in an area that is surrounded by the Project east of the Blythe Airport and north of I-10, but there are no POWs within the Project boundaries.

Through field reconnaissance surveys and analyses of National Wetlands Inventory (NWI) and watershed data, it is unlikely that there are any jurisdictional waters of the U.S. within the Project area. It is anticipated that USACE will not assert jurisdiction over any waters and/or aquatic features occurring within the disturbance area.

4.1.3 Flora

This section discusses plant species detected or with potential to occur within the study area. In total, 79 plant species were detected in the study area during vegetation mapping and rare plant surveys, including 15 non-native plant species (Appendix A). A total of 18 special-status plant species have potential to occur within the study area (Table 3). Harwood's woollystar (*Eriastrum sparsiflorum* ssp. *harwoodii*) and desert unicorn (*Proboscidea althaeifolia*) were observed within the study area. Harwood's woollystar, a CNPS List 1B.2 (rare, threatened, or endangered in California and elsewhere) species, was detected in the transmission line footprint and in the buffer, while desert unicorn plant, a CNPS List 4.3 (limited distribution, not very endangered in California) species, was detected in the solar array area. No other federal-listed, State-listed, or other special-status plant species was observed within the study area. More detail on special-status species that occur or have the potential to occur within the study area is provided in Table 5.

Plant species observed during the individual reconnaissance and focused surveys are listed in Appendix A. Species most commonly observed during biological surveys included burro bush, Sahara mustard, creosote bush, and galleta grass (*Pleuraphis rigida*). Other common species that occurred less frequently included desert pincushion (*Chaenactis stevioides*), Spanish needles (*Palafoxia arida*), several *Cryptantha* species, four-wing saltbush (*Atriplex canescens*), Russian thistle, palo verde, and bottlebrush primrose (*Camissonia boothii*).

Species accounts are provided below for the special-status plant species that could occur within the Project area. This includes both species that were and were not detected during surveys. These species are based on records searches with the CNDDB (CDFG 2011) and CNPS (2011), and reviews of documentation from other nearby projects, such as the Blythe Solar Power Project (AECOM 2010).

Federal Listed Plant Species. No federal-listed plant species were detected within the study area during spring 2011. Based on a CNDDB search, no federal endangered plant species have potential to occur within the study area.

State-listed Plant Species. Based on regional databases, no State-listed plant species were determined to have potential to occur within the study area. Based on site-specific habitat evaluations conducted by Project biologists and a literature review, including a CNDDB record search and a compiled list, it was determined that no State-listed plant species have been recorded near the study area or have potential to occur in the study area. No State-listed plant species were detected within the study area.

Other Special-Status Plant Species. Harwood's woollystar was observed within the study area. Harwood's woollystar, a CNPS List 1B.2 (rare, threatened, or endangered in California and elsewhere) species, was detected in the transmission line Project area and in the buffer. Forty-nine individuals were observed in flower within the survey area. These individuals are displayed as point locations on Figure 5. Based on a CNDDB search, Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*), a CNDDB List 2.2 species, has a high potential to occur within the proposed transmission line disturbance area. There are numerous records in the vicinity and several that are just outside the survey buffer area.

Species accounts are provided below for special-status plant species that occur or have potential to occur in the Project area. Table 3 provides a summary of the special-status plant species with the potential to occur within the Project area.

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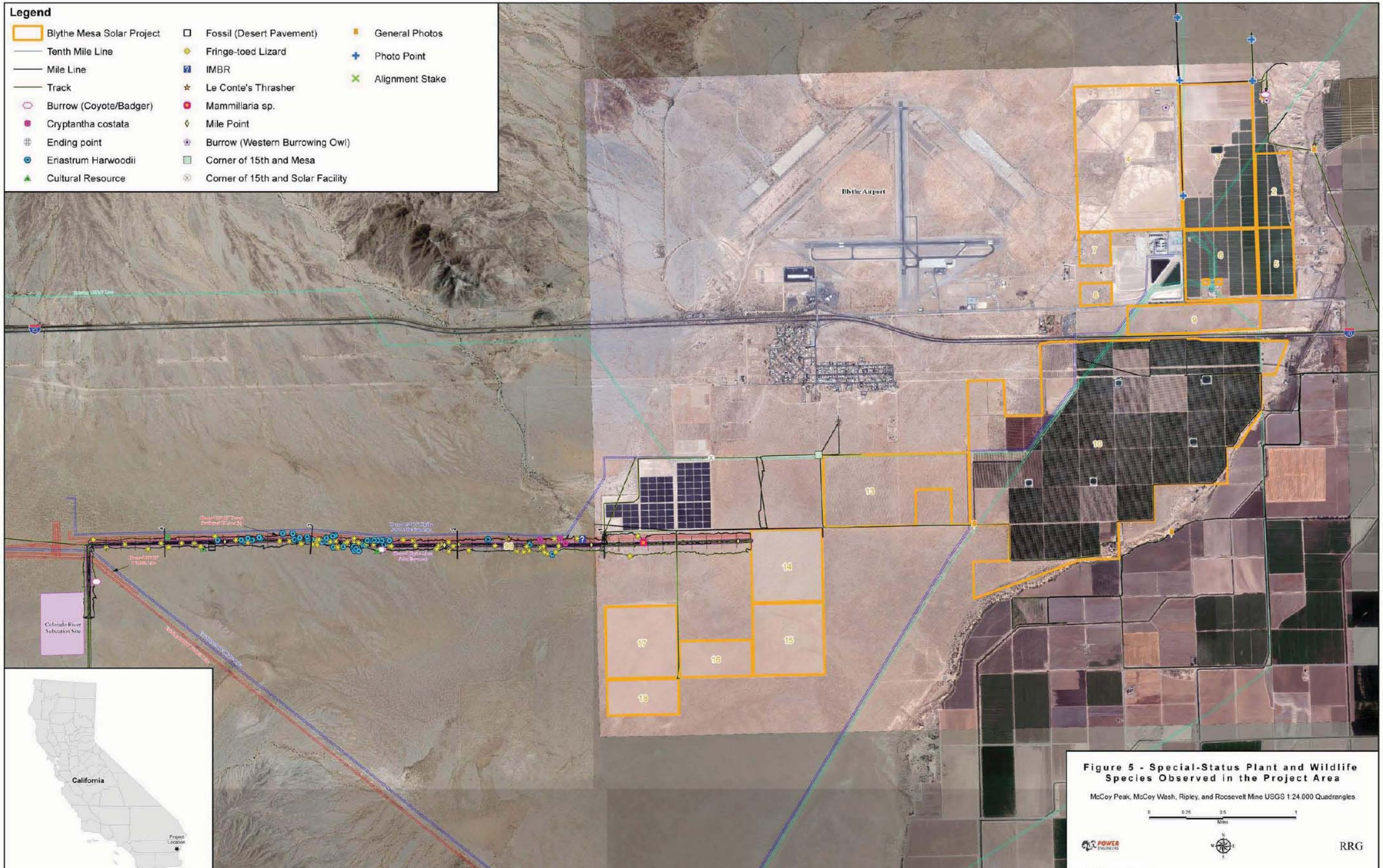
FIGURE 5. SPECIAL-STATUS PLANT AND WILDLIFE SPECIES OBSERVED IN THE PROJECT AREA



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Special-Status Plant Species Accounts

Angel Trumpet

Angel trumpet (*Acleisanthes longiflora*) is a thick-taprooted perennial herb in the *Nyctaginaceae* family. Angel trumpet is a CNPS list 2.3 species, meaning that it is rare, threatened or endangered in California. It occurs in carbonate soils within Sonoran Desert creosote bush scrub from 30 to 8,000 feet and flowers during May (Jepson Interchange 2011, CNPS 2011). This species is known from only one occurrence in California in eastern Riverside County near the southern edge of Big Maria Mountain, North of Blythe and north east of the Project area (CalFlora 2011).

Soils in the majority of the Project area are composed of sandy decomposed granite. Potentially suitable habitat for angel trumpet could occur in the northeast corner of the site in the Bajada vegetation area. However, based on soils in the Project area and known records for this species, there is low potential for it to occur within the Project area. Furthermore, angel trumpet was not observed during focused surveys conducted within the appropriate blooming period for this species.

Coachella Valley Milkvetch

Coachella valley milkvetch (*Astragalus lentiginosus* var. *coachellae*) is federally listed as an endangered species, is a BLM sensitive species, and is included in the CNPS Inventory of Rare and Endangered Plants on list 1B.2. It is also covered under the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP). Coachella Valley milkvetch is an annual or perennial herb historically known to occur in Sonoran Desert scrub in sandy soils at elevations ranging from 131 to 2,149 feet (CNPS 2011). Coachella Valley milkvetch blooms from February to May. There are 81 recorded occurrences for this species in Riverside County. Coachella Valley milkvetch is known to occur in the Coachella Valley; the record nearest the Project area is east of Victory Pass, approximately five miles north of Desert Center along State Highway 177, approximately 49 miles west of the Project area (CalFlora 2011).

Suitable Sonoran Desert scrub with sandy soils occurs throughout the Project area. Coachella Valley milkvetch was not observed during focused surveys conducted within the blooming period (surveys were conducted May 4 and 5, 2011).

Harwood's Milk-vetch

Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*) is a CNPS 2.2 species, meaning that is it fairly threatened in California. It is also a covered species under the NECO Plan. It mainly occurs in Sonoran desert scrub habitat throughout the Colorado Desert (BLM 2002). This species is found in desert dunes and sandy or gravelly areas throughout the Mojavean and Sonoran Deserts covering portions of Imperial, Riverside, and San Diego counties (CNPS 2011). There are known occurrences of this species from Elephant Tree Nature Trail in San Diego County and Carrizo Station. Herbarium collections occur for this species from Ogilby Road in Imperial County and three locales west of Blythe, the Pinto Basin, and Chuckwalla Basin in Riverside County. Harwood's milk-vetch has also been reported from Baja California, Sonora Mexico, and portions of Yuma County, Arizona (Reiser 1994). There are several CNDDB records for this species outside of the Project area (CNDDB 2010) within a 10-mile radius. There is a record in the Consortium of California Herbaria database from Wiley's Well Road between McCoy and Mule Mountains from 400 feet elevation (CCH 2010). The Harwood's milk-vetch populations on the southern deserts are presumed stable given limited disturbance to their desert habitats (Reiser 1994).

Harwood's milk-vetch was not found within the Project area, although it is known to occur just north of the proposed transmission line (CNDDB 2011). Suitable habitat for this species occurred along the proposed transmission line corridor in the southern portion of the study area.

Pink Fairyduster

Fairyduster (*Calliandra eriophylla*) is a deciduous, perennial subshrub in the *Fabaceae* family. Pink fairyduster is a CNPS List 2.3 species (rare, threatened or endangered in California) inhabiting sandy washes, slopes and mesas in the Sonoran Desert from 390 to 5,000 feet elevation and blooms from March to April (CNPS 2011) but may flower from January to March depending on site and seasonal rainfall (Jepson Interchange 2011). There are 12 records of pink fairyduster in San Diego County west of Blythe, southwest of McCoy Mountain, north, west and south of Mule Mountain, and north of Black Hill. The closest record of this species occurs approximately 10 miles from the Project area (CalFlora 2011).

Although suitable habitat occurs within the desert riparian woodland wash along the proposed transmission line and in the northeast Bajada portion of the site, pink fairyduster was not observed during surveys conducted in May. Surveys were conducted outside of the blooming period for this species.

Crucifixion Thorn

Crucifixion thorn (*Castela emoryi*) is a CNPS List 2.3 deciduous shrub in the *Simaroubaceae* family. This species blooms from April through May and is known to occur in gravelly soils in Mojave and Sonoran Desert scrub, and playas at elevations ranging from 295 to 2,198 feet (CNPS 2011). The nearest recorded occurrence of this species is along the Bradshaw Trail, 2.5 miles west of Wiley's Well Camp, approximately 12 miles south west of the Project area (CalFlora 2011).

Crucifixion thorn was not observed during surveys conducted during the appropriate blooming period. Furthermore, this large, obvious shrub would be difficult to miss while conducting walking transects during focused surveys. This species does not occur at the Project site.

Abram's Spurge

Abram's spurge (*Chamaesyce platysperma*) is a CNPS List 2.2 species, meaning it is fairly rare in California but more common elsewhere (CNPS 2011). Habitat consists of sandy flats in creosote bush scrub habitat from approximately 600 to 2,700 feet above mean sea level. Based on fourteen Consortium of California Herbaria database records for this species, habitats in Riverside, San Diego, and Imperial counties consist of sandy soil habitats often along dry lake margins, whereas record locations in San Bernardino County occur on coarser, possibly sandy loams.

Abram's spurge occurs from San Bernardino County to Imperial and eastern San Diego counties to Arizona, Nevada, Mexico, and Baja California (GSEP 2009f). A recent 2000 CNDDB record is from a location approximately 0.50 mile east of Ford Dry Lake on Gasline Road just south of I-10, and the occurrence was reported as a "substantial population" (CNDDB 2010).

The blooming period is identified by CNPS as September through November (CNPS 2011).

Abram's spurge is a late-summer, early-fall blooming plant species and was therefore not targeted or detectable during field surveys, which were performed during May 2011. Suitable habitat for this species is present along the proposed transmission line, in the Bajada area in the northeast corner of the Project site, and within intact creosote scrub throughout the Project area. Focused surveys for this species should be conducted during the appropriate blooming period.

Flat-seeded Spurge

Flat-seeded Spurge (*Chamaesyce platysperma*) is an annual, prostrate herb that blooms from February to September but typically in May (CNPS 2011). This is a CNPS list 1B.2 species. Flat-seeded Spurge occurs in the Sonoran Desert in dunes and desert scrub with sandy soils below 330 feet elevation. Flat-seeded Spurge is known to occur in Imperial, Riverside, San Bernardino Counties and in Arizona and Mexico. It is known in California from only four herbarium collections near Cathedral City.

Suitable sandy soils and Sonoran Desert scrub exists throughout the site. Flat-seeded Spurge was not observed during focused surveys conducted within the appropriate blooming period.

Las Animas Colubrina

Las Animas colubrina (*Colubrina californica*) is a CNPS List 2.3 species, indicating it is not very endangered in California and more common elsewhere (CNPS 2011). This is a covered species under the NECO Plan. This species is an evergreen shrub and occurs in Mojavean and Sonoran Desert creosote bush scrub and at elevations from approximately 30 to 3,000 feet above mean sea level. Dry canyon lands in Mojavean Desert scrub is the preferred habitat of this species. This species has also been reported from Joshua tree woodland habitats, but primarily occurs in dry canyons with gravelly, sandy soils (TetraTech 2010).

The distribution of this species includes San Diego, Imperial, and Riverside counties; portions of Arizona; Baja California; and Sonora, Mexico. This species has been reported from isolated desert locales in Joshua Tree National Monument, the Eagle Mountains, and the Chuckwalla Mountains (TetraTech 2010). There are approximately 27 occurrences primarily from the Chocolate Mountains area (BLM 2002). The nearest CNDDB record is from McCoy Springs in the McCoy Mountains in 1976 from approximately 2,800 feet elevation (CNDDB 2010). This species typically blooms from April through June.

This species was not observed during May 2011 surveys; however, habitat for this species occurs within the Project area. Although deciduous, this small shrub would have been easy to locate and identify during surveys conducted in early May.

Glandular Ditaxis

Glandular ditaxis (*Ditaxis claryana*) is a CNPS List 2 perennial herb covered under the NECO Plan. Glandular ditaxis is in the *Euphorbiaceae* family and occurs in Mojavean and Sonoran Desert creosote bush scrub with sandy soils at elevations below 1,526 feet; the flowering period ranges from October to March depending on seasonal rainfall (CNPS 2011). The nearest known location occurs near Desert Center, approximately 25 miles west of the Project area (CalFlora 2011).

This species has moderate potential to occur based on habitat suitability. Appropriate vegetation and soil conditions exist throughout the Project site in relatively undisturbed areas. Glandular ditaxis was not observed during surveys conducted in May 2011, outside of the appropriate blooming period for this species.

Harwood's Woollystar

Harwood's woollystar (*Eriastrum harwoodii*) is an annual herb in the *Polemoniaceae* family that flowers from March to June. Harwood's woollystar is a CNPS List 1B.2 species occurring on desert dunes and loose sand in Sonoran Desert scrub below 3,000 feet in elevation.

Harwood's woollystar was observed in stabilized desert dunes and creosote bush scrub with loose sandy soils throughout the proposed transmission line corridor south of I-10. This species was found in the same loose, sandy habitat as ribbed cryptantha and was limited to the transmission line portion of the proposed Project (Figure 3).

Bitter Rubberweed

Bitter rubberweed (*Hymenoxys odorata*) is an annual herb in the *Asteraceae* family that blooms from March to June. It is a CNPS List 2 species. Bitter rubberweed occurs in seeps and riparian zones within Mojavean and Sonoran Desert scrub in mesic sandy or alkaline soils, from 145 to 500 feet elevation, and blooms from February to November (CNPS 2011). Hickman (1993) gives the blooming period from

February to May for this species, so the actual blooming period may vary based on location and seasonal rainfall. There are only 10 occurrences of Bitter rubberweed in California. One known occurrence south of I-10 lies just south of the Project area in the Ripley USGS quadrangle (CalFlora 2011). Bitter rubberweed is threatened by agriculture; most of the sandy flats along the Colorado river where this species historically occurred have been converted to agriculture.

Suitable habitat for this species is limited to the desert riparian woodland wash located in the easternmost portion of the proposed transmission line. Surveys were conducted in the Project area within the blooming period for bitter rubberweed. The species was not observed.

<u>California Satintail</u>

California satintail (*Imperata brevifolia*) is a CNPS List 2.1 species. This perennial, rhizomatous grass is found in wet alkaline meadows, stream sides and floodplains below 4,000 feet elevation. Known occurrences exist several miles north of Blythe Airport, between the McCoy Mountains and Midland Road.

Habitat for California satintail does not occur within the Project area.

<u>Lobed Ground-cherry</u>

Lobed ground-cherry (*Physalis lobata*) is a CNPS List 2.3 perennial herb in the *Solanaceae* family. It occurs in Mojavean Desert scrub on decomposed granitic soils and playas from 1,640 to 2,625 feet elevation and blooms from September to January. There are no records of lobed ground-cherry in Riverside County. The nearest records are located north in San Bernardino County near the Calumet Mountains and Old Woman Mountains, well outside of the Project vicinity.

Based on elevation criteria and known occurrences, there is no potential for lobed ground-cherry to occur at the Project site. Focused surveys should not be required for this species.

<u>Orocopia Sage</u>

Orocopia sage (*Salvia greatae*) is a CVMSHCP-listed, CNPS List 1B.3 evergreen shrub that blooms from March to April. This species occurs in Mojavean and Sonoran Desert scrub habitats on alluvial slopes at elevations ranging from 131 feet to 2,706 feet and is known to occur in the Orocopia and Chocolate Mountains in the southeast Sonoran Desert. The nearest known occurrence lies approximately 35 miles west of the Project area, near Desert Center. Orocopia sage is known from Imperial, Riverside and San Bernardino Counties.

Orocopia sage was not observed during recent surveys, which fell outside of the blooming period for this species. However, an evergreen shrub in the *Lamiaceae* family would have been observed and identified during surveys conducted in May 2011. There is low potential for this species to occur based on habitat requirements and occurrence records.

<u>Desert Spike-moss</u>

Desert spike-moss (*Selaginella eremophila*) is a CNPS List 2.2 rhizomatous mat-forming herb that occurs in shaded sites among rocks and in crevices in gravelly soils. It is found in the eastern peninsular ranges of the Sonoran Desert below 3,000 feet elevation.

Suitable habitat for desert spike-moss was not present at the Project site.

Cove's Cassia

Cove's cassia (*Senna covesii*) is a CNPS List 2.2 perennial herb in the *Fabaceae* family that blooms from March to June, but typically blooms in April (CNPS 2011). It occurs in dry, sandy desert washes and along sandy slopes in the Sonoran desert in the Chuckwalla Mountains at elevations ranging from 1,000 to 3,510 feet. The nearest known occurrence is one mile northwest of the Cottonwood Springs Road and I-10 interchange, approximately 45 miles west of the proposed Project.

Habitat for Cove's cassia is not present based on elevation criteria. Furthermore, it was not observed during focused surveys conducted within the appropriate blooming period for this species.

Jackass Clover

Jackass clover (*Wislizenia refracta* ssp. *refracta*) is a CNPS List 2.2 species covered by the NECO Plan. Jackass clover is an annual herb in the *Capparaceae* family that blooms between April and October and occurs in sandy washes, roadsides, alkaline flats, desert dunes and scrub in the Mojave and Sonoran Deserts from 1,600 to 2,000 feet elevation. There are five records for this species in Riverside County; however, there are no records in the vicinity of the Project area. The nearest occurrence lies northwest of the site in the Palen Mountains, approximately 30 miles from the site (CalFlora 2011).

Based on elevation criteria and known records, jackass clover is not likely to occur within the Project area.

Orcutt's Woody Aster

Orcutt's woody aster (*Xylorhiza orcuttii*), a perennial herb in the *Asteraceae* family, blooms from March to April in arid canyons with creosote bush scrub from 60 to 1,000 feet elevation. It is a CNPS List 1B.2 species and a BLM sensitive species. According to California Energy Commission (CEC) data, one plant was recorded in Riverside County north of the San Diego/Imperial County border in Indio.

Surveys were conducted outside of the blooming window for Orcutt's woody aster; however, only marginal habitat for this species occurs in the Bajada area in the northeast portion of the Project site, north of I-10.

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TABLE 3. SPECIAL-STATUS PLANT SPECIES RELEVANT TO THE PROPOSED PROJECT POTENTIALLY OCCURRING IN THE STUDY AREA

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Discussion	Potential for Occurrence within the Solar Array[2]	Potential for Occurrence within the Transmission Line (BLM Jurisdiction)[2]
Angel trumpets *(Acleisanthes longiflora)*	CNPS: List 2.3 NECO Plan	Dry places, generally on carbonate or limestone derived soils in mountainous areas 30 to 8,000 feet	Prostrate to ascending perennial stems less than three feet. Flowers produced during May.	The closest record of this species is in the Big Maria Mountains.	Low	Low
Coachella Valley Milkvetch *(Astragalus lentiginosus var. coachellae)*	ESA: Endangered CNPS: List 1B.2 BLM: Sensitive	Sonoran Desert, in sandy areas growing at elevations of 0 to 1,150 feet.	Annual or perennial herb that flowers February to May	Habitat for this species occurs within the sandy washes. Most populations are restricted to the Coachella Valley, approximately 50 miles west of the airport.	Low	Low
Harwood's milkvetch *(Astragalus insularis var. harwoodii)*	CNPS: List 2.2 NECO Plan	Sonoran Desert, sandy to gravely areas 0 to 1,000 feet.	Annual that blooms January – May	This species was detected in the Project vicinity toward the northwestern limits in 2009 (CEC).	Moderate	High
Fairyduster *(Calliandra eriophylla)*	CNPS: List 2.3 NECO Plan	Sonoran Desert, sandy washes, slopes and mesas typically between 390 and 5,000 feet.	Shrubs less that 1 foot in height; blooms March to April	Minimal potential habitat present. Site elevation is approximately 500 feet.	Low	Low
Crucifixion horn *(Castela emoryi)*	CNPS: List 2.3 NECO Plan	Desert areas on dry, gravelly washes, slopes, plains ±2,150 feet.	Shrub less than 10 feet in height; blooms April to May	Site elevation is approximately 500 feet. This large shrub was not observed in the surveys, which were conducted within the appropriate blooming period.	None	None
Abrams' spurge *(Chamaesyce abramsiana)*	CNPS List 2.2	Mojavean Desert scrub and Sonoran Desert scrub on sandy soils up to 3,000 feet.	Annual herb that blooms from September to November		Moderate	High

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Discussion	Potential for Occurrence within the Solar Array[2]	Potential for Occurrence within the Transmission Line (BLM Jurisdiction)[2]
Flat-seeded spurge *(Chamaesyce platysperma)*	CNPS List 1B.2	Desert dunes and Sonoran desert scrub on sandy soils from 210 to 330 feet.	Annual herb that blooms from February to September but typically in May		Moderate	High
Las Animas colubrine *(Colubrina californica)*	CNPS: List 2.3 NECO Plan	Sonoran creosote bush scrub less than 3,500 feet.	Plants are generally less than 3 feet; blooms April to June	According to CEC 2009 data, specimens were observed in flower during April; an early blooming period for this species. Similar habitat is expected to occur in the Project area.	Low	High
Glandular ditaxis (*Ditaxis claryana)*	CNPS List 2.2 NECO Plan	Sonoran Desert at elevations less than 350 feet; sandy soils in creosote bush scrub	Annual or perennial herb that blooms from December to May.	Sandy soils at low elevations are present. Site elevation is approximately 500 feet.	Low	Moderate
Harwood's woollystar *(Eriastrum harwoodii)*	CNPS List 1B.2	Desert dunes and Sonoran Desert scrub on sandy soils from 655 to 3,000 feet.	Annual herb that blooms from March to June	Observed throughout the transmission line portion of the Project area.	Low	Present
Bitter hymenoxys *(Hymenoxys odorata)*	CNPS List 2	Chaparral, coastal scrub, Mojavean Desert scrub, and meadows and seeps, often in alkali soils, and riparian scrub with mesic soils. Most often found on sandy sites from 145 to 490 feet.	Annual herb that blooms from February to November (CNPS, 2011); February to May (Hickman, 1993)	Habitat for this species is limited to the desert riparian woodland wash located in the easternmost portion of the proposed transmission line.	Low	Low
California satintail *(Imperata brevifolia)*	CNPS List 2.1	San Bernardino Mountains, Mojave Desert, in cultivation. Found up to 1,700 feet	Perennial grass found near wet springs, meadows, streamsides and flood plains. Flowering September to May.	The habitat for this species (wet springs, meadows, stream sides and flood plains) does not occur	Low	Low

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Discussion	Potential for Occurrence within the Solar Array[2]	Potential for Occurrence within the Transmission Line (BLM Jurisdiction)[2]
Lobed ground-cherry *(Physalis lobata)*	CNPS List 2.3	Mojavean Desert scrub on decomposed granitic soils, and on playas. From 1,640 to 2,625 feet.	Perennial herb that blooms from September to January	Suitable habitat is not present based on elevation criteria.	None	None
Orocopia sage *(Salvia greatae)*	CNPS List 1B.3 NECO Plan	Southeast Sonoran Desert (Orocopia, Chocolate Mtns.) on alluvial slopes between 100 to 800 feet.	Evergreen shrubs less than 3 feet in height with white blooms from March to April.	Nearest known occurrence near Desert Center; 35 miles west of the Project.	Low	Low
Desert spikemoss *(Selaginella eremophila)*	CNPS List 2.2	Eastern Peninsular Ranges to the Sonoran Desert at elevations less than 3,000 feet. Shaded sites among rocks, in crevices and gravelly soils.	Rhizomatous mat-forming non-flowering herb.	The habitat for this species (shaded gravel soil in crevices and rocks) is limited in the Project area.	Low	Low
Coves' cassia *(Senna covesii)*	CNPS List 2.2 NECO Plan	Dry, sandy desert washes, slopes of the Sonoran Desert between 1,600 to 2,000 feet.	Small perennial herb up to 2 feet tall blooming in April.	This species occurs in desert washes and slopes. Occurs in the Chuckwalla mountains. Habitat is not present based on elevation criteria.	None	None
Dwarf germander *(Teucrium cubense ssp. depressum)*	CNPS List 2.2	Sandy soils, washes and fields in the Sonoran Desert below 1,200 feet.	Annual plants up to 6 inches tall; blooms March to May.	Habitat for this species is present within the Project area and vicinity.	Low	High
Jackass clover *(Wislizenia refracta ssp. refracta)*	CNPS List 2.2 NECO Plan	Sandy washes, roadsides, alkaline flats in the Mojave Desert, and northern Sonoran Desert between 1,600 to 2,000 feet	Annual; flowers between April and November.	Habitat is not present based on elevation criteria.	None	None
Orcutt's woodyaster *(Xylorhiza orcuttii)*	CNPS List 1B.2 BLM Sensitive	Arid canyons between 60 to 1000 feet.	Shrubs less than 5 feet in height; blooms March to April.	According to California Energy Commission data, one plant recorded north of the San Diego / Imperial County border in Indio (Riverside County).	Low	Low

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Discussion	Potential for Occurrence within the Solar Array[2]	Potential for Occurrence within the Transmission Line (BLM Jurisdiction)[2]

[1]Sensitivity Status Key

ESA Endangered
CNPS California Native Plant Society Lists:
1B: Considered rare, threatened, or endangered in California and elsewhere.
2: Plants rare, threatened, or endangered in California, but more common elsewhere
Decimal notations: .1 - Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California
BLM Special-Status Plants
NECO Plan: Northern and Eastern Colorado Desert Coordinated Management Plan special-status species

[2]Species Potential for Occurrence
Low Potential –low potential to occur because suitable habitat expected, but of marginal quality
Moderate Potential –has moderate potential to occur because suitable habitat expected to be present but was not found during focused plant surveys
High Potential –has high potential to occur because suitable habitat expected to be present, and species known to occur within the vicinity but was not found during focused plant surveys
Present – if detected during surveys

4.1.4 Fauna

This section discusses special-status wildlife species detected within the study area or with potential to occur on site. In total, 57 wildlife species were detected during general reconnaissance and protocol wildlife surveys (Appendix B). Of these, seven special-status wildlife species or their sign were observed within the study area (Table 6), including Mojave fringe-toed lizard, western burrowing owl, Le Conte's thrasher, loggerhead shrike, American badger, desert kit fox, and Nelson's bighorn sheep. In total, 11 insect, 9 reptile, 28 bird, and 9 mammal species were detected during biological surveys.

Wildlife species observed during the individual reconnaissance and focused surveys are listed in Appendix B. The species most commonly observed during biological surveys included lizards, such as the common side-blotched lizard (*Uta stansburiana*), desert iguana (*Dipsosaurus dorsalis)* and western whiptail (*Aspidoscelis tigris*), along with desert ironclad beetle (*Asbolus verrucosus*), common raven (*Corvus corax*), great-tailed grackle (*Quiscalus mexicanus*), and white-tailed antelope squirrel (*Ammospermophilus leucurus*).

Species accounts are provided below for the special-status species that could occur within the Project area. This includes species that both were and were not detected during surveys. Razorback sucker, while listed with a record in CNDDB (CDFG 2011), is expected to be absent due to a lack of habitat within the Project area and is not discussed below. Table 4 provides a summary of the species accounts and potential to occur.

Federal Listed Wildlife Species

No federal listed wildlife species or their sign were detected during surveys.

Desert Tortoise

Desert tortoise (DT) is a federal- and State-listed as Threatened species. Its range includes the Mojave and Sonoran Deserts. It is most common in desert scrub, creosote bush scrub, desert wash, and Joshua tree habitats. It occurs from near sea level to up to 5,241 feet in elevation (Stebbins 2003). Tortoises typically inhabit soft sandy loams and loamy sands, although they are also found on rocky slopes and in rimrock that provide natural-cover sites in crevices. These may include desert oases, riverbanks, washes, dunes, rocky slopes, creosote bush flats, juniper woodland, or other desert habitats (Stebbins 2003). It requires friable soil for burrowing and nest construction. Tortoises will construct burrows in firm sand, typically at the base of bushes, or else use rocks for shelter or caves in well-developed calcic layers. In some instances, burrows and caves will be used communally or constructed in a group. A typical year consists of hibernation during the winter; feeding, courting, and mating in the spring; feeding and courting in the summer; and mating and hibernation in the fall (Berry 2008, USFWS 2008). Juveniles are typically active during more of the year than adults, as their smaller mass allows them to respond faster to temperature changes. DTs emerge from hibernation and begin the reproductive process in March and April. Nests are often constructed at the opening or just inside of burrows. If conditions are unfavorable for egg-laying, females may carry sperm in the albumen gland in their oviducts for two to three years, and sometimes for as long as 15 years. Eggs are usually laid between May and July in clutches of 1 to 12 eggs. DTs reach sexual maturity between 12 to 25 years of age, or at around 180 mm (Berry 2008). DTs will typically forage on winter and summer annuals, herbaceous perennials, succulents, and grasses, usually found in intershrub spaces, washes, and washlets. Preferred vegetation includes lupines, lotuses, vetches, evening primroses, and other native plants.

No individuals or sign were detected during surveys. Suitable habitat to support this species is present within the Project area, primarily in the proposed transmission line corridor. This species is expected to have a low to moderate potential to occur within the Project area, with higher potential to occur within the proposed transmission line corridor, which presents more suitable habitat than the proposed solar array area. The agricultural fields or recovering fields that make up much of the proposed solar array do not present suitable habitat for this species. Although DT is present in the general Project vicinity and designated critical habitat (Chuckwalla Unit; 59 FR 5820 5866) is located approximately 15 miles west of the Project area, based on surveys conducted for the Blythe Solar Power Project in areas that overlap the BMSP, occurrences and detections of sign seem to primarily be located in the foothills (AECOM 2010), not in the areas immediately surrounding the Project area. Thus, while it's possible that DT may occur in or near the Project area, it is much more likely to be found, based on recent surveys, in areas northwest of the BMSP.

State-listed Wildlife Species

No State-listed wildlife species or their sign were detected during surveys.

<u>Swainson's Hawk</u>

Swainson's hawk is a State-listed Threatened and Forest Service Sensitive species, as well as a USFWS Bird of Conservation Concern. Its breeding habitat includes grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural fields and ranches. It also requires adjacent suitable foraging areas, such as grasslands or alfalfa or grain fields that support rodent populations. It is not known to breed or winter in the southeastern California area, but may pass through the area as a migrant (Stokes and Stokes 2010).

Swainson's hawk is expected to have a low potential to occur within the Project area. It is not expected to be nesting or breeding in the area and may pass through on its migration route.

<u>Gilded Flicker</u>

The gilded flicker is a State-listed Endangered species and USFWS Bird of Conservation Concern. It is a year-round resident of the Colorado Desert area (CDFG 2008, Stokes and Stokes 2010), typically inhabiting cottonwood and riparian areas near the Colorado River, as well as washes and Joshua tree habitats (CDFG 2008). It requires snags and hollow trees for nesting and uses trees, shrubs, nests, and roost cavities for cover (CDFG 2008). Its breeding period is during April and May (CDFG 2008). Its diet is composed primarily of insects, but it also consumes a large amount of plant matter.

Gilded flicker was not detected within the Project area during surveys and is expected to have a low potential for occurrence based on the availability of habitat within the Project area.

<u>Gila Woodpecker</u>

The Gila woodpecker is a State-listed Endangered species and USFWS Bird of Conservation Concern. It is found in cottonwood trees and other desert riparian areas and nests in cavities in riparian trees or in saguaro (*Carnegiea gigantea*), breeding from April to July and peaking in April and May (CDFG 2008). It may occasionally raise two broods in a single season (CDFG 2008). This species feeds on insects pecked or probed out of bark, crevices in trees, or inside cacti. It also eats certain cactus fruits.

Gila woodpecker was not detected within the Project area. It is expected to have a low potential to occur based on a general lack of suitable habitat within the Project area.

Non-listed Special-Status Wildlife Species

Seven non-listed special-status wildlife species or their sign were detected on site, including the Mojave fringe-toed lizard, western burrowing owl, Le Conte's thrasher, loggerhead shrike, desert kit fox, Nelson's bighorn sheep, and American badger. These detections are discussed in detail below.

Special Status Wildlife Species Accounts

Mojave Fringe-toed Lizard

Mojave fringe-toed lizard (MFTL) is a Species of Special Concern and a BLM Sensitive species that occurs on wind-blown sandy areas with creosote bush scrub cover in the Mojave and northern Colorado Deserts. It can usually be found in dunes, in margins of dry lakebeds and washes, or in isolated dune pockets against hillsides at elevations below sea level to up to 900 meters (Espinoza 2009). They are most active from March to October and typically brumate from November to February, usually depositing one to five eggs in the sand from May to July (Stebbins 2003, Espinoza 2009). While they will often produce multiple clutches of eggs in wet years, in dry years they may skip breeding entirely (Espinoza 2009). Their home ranges are typically 0.25 acre for males, and one-third that size for females (Espinoza 2009).

Mojave fringe-toed lizards were detected throughout the Project area, mainly in the transmission line portion both under the centerline and in the adjacent survey buffer zones. A total of 64 detections were made during the transmission line surveys. MFTL was the most common reptile species observed during surveys. No MFTL were observed within the solar array footprint.

Couch's Spadefoot Toad

Couch's spadefoot toad is a Species of Special Concern and a BLM Sensitive species. In California, it is found in the extreme southeast, including southeastern San Bernardino County and eastern Riverside and Imperial Counties (Jennings and Hayes 1994). They are found in desert washes, creosote bush scrub, alkali sink scrub, palm oases, and other vegetated areas that can support their habitat needs (CDFG 2008). They require areas that have substrate capable of sustaining temporary pools for breeding but that are still loose enough for burrowing (Jennings and Hayes 1994, BLM and CDFG 2002). Their breeding habitat includes temporary impoundments at the base of dunes as well as road or railroad embankments, temporary pools in washes or channels, pools that form at the downstream end of culverts, and playas (BLM and CEC 2010). Possibly due to the difficulty of locating naturally occurring ponds within the short retaining periods, most of the known Couch's spadefoot toad breeding ponds are artificial. This species is dormant from 8 to 10 months of the year, emerging from burrows after summer rains typically anywhere between May and September (Stebbins 2003, CDFG 2008). Couch's spadefoot toads typically eat termites, but will also eat beetles, ants, spiders, moths, or other insects (CDFG 2008).

Couch's spadefoot toad was not observed in the Project area during surveys. It is expected to have a low potential to occur in the Project area, although it is difficult to be certain where they may be present due to their long dormancies each year.

Golden Eagle

The golden eagle is a CDFG Fully Protected Species and Watch List Species and a USFWS Bird of Conservation Concern. It breeds throughout the United States and in Canada, Europe, and Asia, and is a year-round resident of much of the western United States (Kochert et al. 2002). It is more rare in California's Central Valley and southeastern deserts from the Salton Sea and east. In California, the golden eagle typically nests in open grasslands and oak savannas and less frequently in oak woodlands and open shrublands (Kochert et al. 2002). Preferred nesting sites are on cliffs or in large trees surrounded by open habitat (CDFG 2008). Foraging also typically occurs in open grassland habitats, and winter habitat in Southern California is primarily in mountainous areas (Kochert et al. 2002). Territories in Southern California are around 36 square miles on average, and home ranges are believed to be the same (CDFG 2008). Breeding occurs from late January through August, peaking from March to July (CDFG 2008).

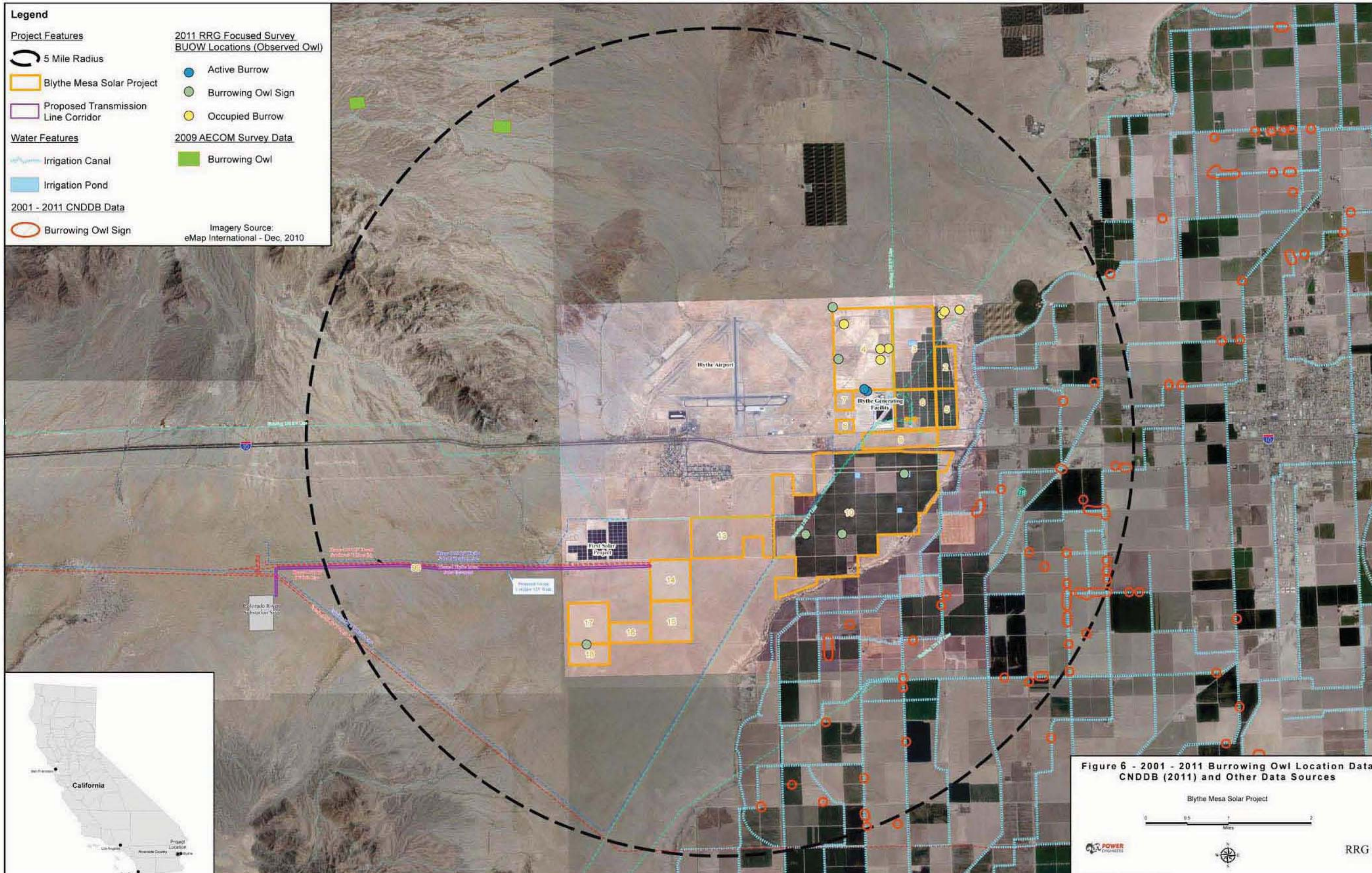
Golden eagles or their nests were not observed during surveys for this Project. While the Project area is generally inadequate to support nesting, there is adequate foraging habitat for this species in the area and it is expected to have a moderate potential to occur as a forager. There are no known golden eagle nests in the general vicinity of the Project area (AECOM 2010).

Western Burrowing Owl

Western burrowing owl (WBO) is designated as a Priority 2 Bird Species of Special Concern by CDFG due to rapid habitat loss and degradation from urbanization. It is also designated as a BLM Sensitive species and a USFWS Bird of Conservation Concern. Its range extends through all states west of the Mississippi Valley and into Mexico, Central America, and South America. In California, it typically inhabits lowlands, including those in the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. For shelters, the burrowing owl uses rodent burrows in sparse grassland, desert, and agricultural habitats, as well as open areas of pinyon-juniper or ponderosa pine habitats (CDFG 2008). Breeding populations generally display greater site fidelity than winter populations, which tend to move about more, even taking refuge into vegetation instead of nearby burrows (Poulin et al. 2011). Individuals in California, particularly Southern California, are mostly residents (CDFG 2008). Nesting begins from late March to August, peaking in April and May (CDFG 2008). While some pairs have been observed to have double broods within a single breeding season, it is considered to be uncommon and is not always successful (Poulin et al. 2011). Burrowing owls are typically active at dusk and dawn, but can sometimes be active at night, as well.

Two WBO burrows were detected in the northeastern section of the Project, with a single individual observed outside one of the burrows, during the Project reconnaissance surveys. The individual and its burrow were observed in a disturbed creosote field previously used for military purposes. During the protocol burrowing owl surveys, six owls were observed within the Project area, and an additional two owls were observed outside the Project area in an area that could be indirectly affected.

FIGURE 6. BURROWING OWL LOCATION DATA



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Ferruginous Hawk

Ferruginous hawk is a CDFG Watch List species. It does not breed in California, but is a winter resident of most of the state, including the Project area (Stokes and Stokes 2010). In California, it is most common in open areas, such grasslands, agricultural areas, and deserts, and is typically associated with small mammal populations.

Ferruginous hawks were not observed during Project surveys, which did not occur within the winter. It has a low potential to occur within the Project area, which it may use for wintering habitat, but not for breeding.

Yellow Warbler

The Sonoran subspecies of yellow warbler is a Species of Special Concern and USFWS Bird of Conservation Concern. It is a winter resident of the Colorado River valley (CDFG 2008). It inhabits riparian woodlands, montane chaparral, ponderosa pine and mixed conifer habitats, and desert lowlands. It typically eats insects and spiders from the upper canopy of deciduous trees and shrubs, but will occasionally take insects from the air or eat berries (CDFG 2008).

Yellow warbler was not detected during surveys within the Project area. It is expected to have a low potential for occurrence based on a lack of suitable habitat. No breeding is expected within the Project area, but migrants may be passing through or overwintering in the area.

Loggerhead Shrike

The loggerhead shrike is listed as a CDFG Species of Special Concern and USFWS Bird of Conservation Concern. Their range in California extends throughout most of the state, except for the northwest. Habitats typically occupied by loggerhead shrike include those possessing open space with patchily distributed trees, shrubs, or other areas to perch (Yosef 1996, CDFG 2008). Deserts possessing spiny shrubs and scrubby vegetation as well as pastoral, agricultural, valley-foothill hardwood or hardwood-conifer, pinyon-juniper, juniper, Joshua tree woodland, or suburban settings are frequently occupied (Yosef 1996, CDFG 2008). They are often found near water (CDFG 2008). Nests will usually be constructed in isolated trees or large shrubs within the occupied habitat. Pairs in California remain together year-round and defend their territories from other individuals of their kind. They typically nest earlier than most other passerines, perhaps as a result of their year-round association with mates (Yosef 1996). This bird species preys mainly on arthropods, but will also feed on reptiles, amphibians, fish, small mammals, and other small birds (CDFG 2008).

Loggerhead shrikes were detected on both the proposed solar array and transmission line areas.

Vermilion Flycatcher

The vermillion flycatcher is a Species of Special Concern. It is found in desert, cropland, savanna, chaparral, and other desert riparian and woodland habitats adjacent to irrigated fields, ditches, pastures, or other open mesic areas (CDFG 2008). Its peak nesting time is in April and May, when it nests in willows, cottonwoods, mesquite, or other large trees or shrubs. It often raises two broods. Its diet mainly comprises insects caught by flycatching, particularly bees, and from the ground surface (CDFG 2008).

Vermilion flycatcher was not observed during surveys in the Project area. It is expected to have a low to moderate potential to occur within the Project area, as some suitable habitat can be found in the solar array area, but available ground water and mesic areas are somewhat restricted.

Crissal Thrasher

Crissal thrasher is a Species of Special Concern. It is a non-migratory resident of southern Nevada and southeastern California to western Texas and central Mexico. It typically prefers riparian brush at lower elevations within its northwestern range in the Colorado River valley (Martin 1999). In the summer around the Colorado River, it has a greater utilization of mesquite and other native habitat, but also frequents habitat dominated by non-native species such as tamarisk (*Tamarix* sp.) (Martin 1999). Breeding typically occurs from mid-January to late July or early August (Martin 1999).

Crissal thrasher has a low to moderate potential to occur in the Project area. While no individuals were observed during surveys, some habitat is present in the area that could support foraging, although the available habitat is less likely to support nesting.

Le Conte's Thrasher

Le Conte's thrasher is a Species of Special Concern and a USFWS Bird of Conservation Concern. In California, Le Conte's thrasher is a resident species in the San Joaquin Valley and the Mojave and Colorado Deserts in southeastern California. It occurs in desert washes, desert scrub, alkali desert scrub, and desert succulent shrub habitat (CDFG 2008). Because creosote bush is unable to sufficiently support nests, Le Conte's thrashers typically do not occur in monotypic creosote bush scrub habitat or in massive Sonoran Desert woodlands (Prescott 2005). Preferred nest substrate includes thorny shrubs or cholla cactus (Shepard 1996). Breeding activity occurs from January to early June, peaking from mid-March to mid-April (CDFG 2008). Pairs typically attempt up to three broods each year. Le Conte's thrashers forage for food by digging and probing in the soil with their bills, searching for arthropods (the majority of their diet), small lizards and snakes, other vertebrates, and seeds and fruit (Sheppard 1996, CDFG 2008).

Two Le Conte's thrashers were detected during the transmission line ROW surveys.

Pallid Bat

The pallid bat is a Species of Special Concern, Forest Service Sensitive species, and BLM Sensitive species. Pallid bats inhabit low elevation (less than 6,000 feet) rocky arid deserts and canyonlands, and shrub-steppe grasslands, but also occur in higher elevation coniferous forests (greater than 7,000 feet). They are most abundant in xeric ecosystems, including the Great Basin, Mojave, and Sonoran Deserts (Hermanson and O'Shea 1983). Pallid bats roost alone, in small groups, or in large groups composed of hundreds of individuals (Rambaldini 2005). Day and feeding roosts include escarpments and cliffs, caves, mines, trees (especially oak cavities, exfoliating bark, and deciduous trees in riparian areas) and man-made structures such as bridges, barns, porches, bat boxes, and buildings. Roosts are generally warmer than ambient temperature, have unobstructed entrances/exits, and are at such a height that access by terrestrial predators is dissuaded (Rambaldini 2005). Although roost fidelity is common, they may switch day roosts on a daily or seasonal basis. Females typically have one or two pups each year, although incidences of three pups have been reported. Mating generally occurs between October and February, followed by parturition from late April to July, and finally weaning in August. Timing of these events varies across latitudes and between years, and is probably influenced by prey availability and temperature. Populations at higher latitudes and in cooler climates give birth later in the season. Maternity colonies dissolve between weaning in August and the next mating season in October (Rambaldini 2005). Pallid bats forage over many habitat types, including shrub-steppe or oak savannah grasslands, Ponderosa pine forests, talus slopes, gravel roads, lava, orchards, and vineyards (Rambaldini 2005). Known prey include a large variety of beetles, centipedes, lepidopterans, moths, praying mantids, scorpions, and termites, as well as vertebrates such as geckos, lizards, skink, and small rodents (Whitaker et al. 1981).

Pallid bats are expected to have a moderate potential to occur within the Project area. Although suitable roosting habitat is present, particularly in the area around the desert riparian woodland wash, the closest documented occurrence of this species is from 1992 and is approximately 30 miles away (CDFG 2011).

Hoary Bat

The hoary bat is tracked by the CNDDB and does not have any particular agency protection status (CDFG 2011). It is present throughout most of California, but is patchily distributed in southeastern California (CDFG 2008). In migration events, males are typically found in foothills, deserts, and mountains, while females are found in lowlands and coastal valleys. Water is required. Its roost sites are usually in large trees with dense foliage that are obscured from above and relatively open below. Although breeding occurs in the fall, fertilization is delayed and young are born from mid-May through July (CDFG 2008). Food is primarily composed of moths and other flying insects.

The hoary bat was not detected within the Project area during surveys. It is expected to have a low potential to occur in the Project area, as water is generally limited in availability. The closest documented occurrence is from 1919, less than two miles from the Project area (CDFG 2011).

California Leaf-nosed Bat

The California leaf-nosed bat is a Species of Special Concern, BLM Sensitive, and Forest Service Sensitive species. It is found in desert riparian, desert wash, desert scrub, desert succulent scrub, alkali desert scrub, and palm oasis habitats (CDFG 2008). It roosts in caves, old buildings, and abandoned mines. While mating occurs in September and November, implantation is delayed until the following May and June (CDFG 2008). Diet for this species consists of large insects, insect larvae, and fruit.

California leaf-nosed bat was not detected within the Project area. It is expected to have a moderate potential to occur within the Project area due to the availability of suitable habitat within the Project area and a 2002 CNDDB record (CDFG 2011) that is located in an adjacent quadrangle (specific location information is suppressed).

Arizona Myotis

The Arizona myotis is a Species of Special Concern. Its California range is restricted to the Colorado River valley and the surrounding desert areas, where it inhabits the lowlands and mountain ranges around the Colorado River and forages in desert riparian areas. Its daily roosts may be in buildings, trees, caves, or under rocks or wood, though its hibernation roosts are typically in caves or mines (CDFG 2008). Although mating occurs in the fall, fertilization is delayed until the following spring, with birth occurring between May and August, typically only one young each year (CDFG 2008). This species tends to feed on small, flying insects, but may take larger prey in some circumstances.

Arizona myotis was not detected within the Project area during surveys. It is expected to have a moderate potential to occur based on the availability of roosting and foraging habitat in the Project area. The closest documented record from the CNDDB (CDFG 2011) is from 1942, approximately five miles south of the Project area.

Cave Myotis

The cave myotis is a Species of Special Concern and BLM Sensitive species. It is restricted in California to the Colorado River and its adjacent mountain ranges, inhabiting desert scrub, desert succulent scrub, desert wash, and desert riparian habitats (CDFG 2008). It utilizes caves primarily, but will also use mines and buildings. Mating typically occurs in the fall and winter, with one young born in June and July (CDFG 2008). The diet of the cave myotis consists of mostly flying insects, which are generally caught near water.

Cave myotis was not detected within the Project area during surveys. It is expected to have a moderate potential to occur based on the availability of foraging habitat. However, roosting habitat within the

Project area is limited. The closest documented potential occurrence is a colony in an adjacent quadrangle from 2002, although the specific species present is unknown and the location is suppressed (CDFG 2011).

Nelson's Bighorn Sheep

The Nelson's bighorn sheep is a BLM sensitive species. It occurs from the Transverse Ranges into the desert mountain ranges of California, Nevada, and northern Arizona to Utah. Bighorn sheep require steep, rocky slopes for escape routes from predators. They may be found in mountains, high meadows, deserts, or other areas that provide quick access to these steep escape routes (Reid 2006). Surface water is also essential. In the spring and summer, bighorn tend to disperse downhill to bajadas and alluvial fans and forage on grasses and sedges; alternately, in the winter when annual plants are not blooming, bighorn sheep will tend to forage on woody plants instead (Reid 2006). While rutting begins in November and December, young are not typically born until the following May or June (Reid 2006). Two metapopulations of bighorn sheep, the Southern Mojave and Sonoran metapopulations, occur within the NECO Planning Area. Within these metapopulations are demes, or smaller subpopulations of bighorn sheep, nine of which occur in the Sonoran metapopulation (BLM and CDFG 2002). These metapopulations have been fragmented by transportation corridors (roads and highways), aqueducts, and other types of linear development, such as fences or transmission lines. While these present potentially major barriers to bighorn sheep movements, bighorn sheep are also known to be able to cross many linear features.

A bighorn sheep skull was found within the proposed solar array disturbance area. It is unknown how long this skull had been there and if the animal died near this location or if the skull was washed downstream from somewhere else. Focused surveys for this species were not conducted and this sign was noted incidentally during the reconnaissance surveys.

American Badger

The American badger is listed as a CDFG Species of Special Concern. This species is distributed throughout California in open habitats containing friable soil for burrowing, except for the northern coast regions. It occurs in highest densities in relatively dry, open stages of shrub, forest, and herbaceous habitats, including plains, prairies, deserts, open valleys, woodland edges, and alpine meadows (Reid 2006, CDFG 2008). American badger ranges average from 400 acres for females to 600 acres for males in Idaho, whereas in Utah they have been measured ranging from 338 to 751 acres for females and 1,327 to 1,549 acres for males (CDFG ND). Although they mate in the summer and fall, actual implantation is delayed until the following March or April (Reid 2006). This species functions to control rodent populations in their respective ecosystems (CDFG 2008). American badgers are vertically compressed mustelids that prey chiefly on fossorial rodents, though reptiles, insects, birds and their eggs, carrion, and other items are also taken (Reid 2006).

Potential American badger burrows were observed in both the proposed transmission line and solar array portions of the Project area. One burrow was located in the northeast corner of the Project in the bajada habitat, another near the center of the four-mile proposed transmission line, and the third in the southwest corner of the Project just north of the alternative Colorado River Substation site. American badger prey species were observed during surveys (white-tailed antelope ground squirrels, kangaroo rats, etc.). Most of the study area is suitable for this species.

Desert Kit Fox

This particular subspecies of kit fox is a Protected Furbearing Mammal. Desert kit fox range in the U.S. extends from Southern California to western Colorado and west into Texas. Its northern range includes southern Oregon and Idaho. The kit fox is associated with multiple habitats, including desert scrub, saltbush, chaparral and grassland. They are mainly nocturnal, and use multiple burrows in their home range. Natal dens possess multiple entrances (Egoscue 1962). While the species is territorial, the primary resource of concern is the natal den, which requires a significant level of energy to excavate compared to a single burrow. Litters are born in February or March (Reid 2006). Kit foxes are small canids that feed primarily on black-tailed jackrabbits, desert cottontails, kangaroo rats, ground squirrels, insects, reptiles, birds and bird eggs.

Potential desert kit fox scat and tracks were found scattered throughout the proposed solar array disturbance area.

4.1.5 Critical Habitat

The study area does not include any designated critical habitat for special-status plant or wildlife species. The Chuckwalla Unit, an area of designated critical habitat for the desert tortoise (59 FR 5820 5866), is approximately 15 miles west of the Project area.

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TABLE 4. SPECIAL-STATUS WILDLIFE SPECIES RELEVANT TO THE PROPOSED PROJECT POTENTIALLY OCCURRING IN THE STUDY AREA

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array[2]	Potential for Occurrence within the Transmission Line (BLM Jurisdiction)[2]
Reptiles					
Desert tortoise (*Gopherus agassizii*)	ESA: Threatened CESA: Threatened	Various desert scrubs and desert washes up to about 5,000 feet, but not including playas.	Desert tortoise is present to north and west of project areas but in foothill habitat. POWER walked 8 transects along 4 miles of the proposed transmission line corridor in suitable habitat but did not observe desert tortoise or its sign.	Low	Low
Mojave fringe-toed lizard (*Uma scoparia*)	CDFG: Species of Special Concern, BLM: Sensitive	Fine, wind-blown sand in creosote bush scrub of the Mojave and northern Colorado Deserts. From below sea level to 2,952 feet.	Species detected throughout the transmission line ROW during rare plant surveys. Suitable habitat is present within the solar array, though no individuals were detected.	High	Present
Amphibians					
Couch's spadefoot toad (*Scaphiopus couchii*)	CDFG: Species of Special Concern, BLM: Sensitive	Various arid and semiarid environments. Breeds in desert ponds quickly following rainfall.	Suitable habitat is not known to be present, but some areas may still support ponded water.	Low	Low
Birds					
Golden eagle (*Aquila chrysaetos*)	Eagle Protection Act, CDFG: Species of Special Concern, BLM Sensitive	Nest in rock cliff aerie.	Known to region. According to BLM and California Energy Commission reports (,AECOM 2010) no known nest within 10 miles of proposed Project (2009 data) but expected to use area for foraging.	Moderate (forage habitat)	Moderate
Western burrowing owl (*Athene cunicularia hypugaea*)	CDFG: Species of Special Concern Priority 2, BLM: Sensitive, USFWS: Bird of Conservation Concern	Found mainly in grassland and open scrub from the seashore to foothills. Also found in deserts and scrublands.	The northern portion of the Project area and vicinity is considered suitable western burrowing owl foraging and nesting habitat. Two burrows and a single owl were found in the proposed solar array disturbance area during reconnaissance surveys, and eight owls were detected during protocol burrowing owl surveys.	Present	Low
Ferruginous hawk (*Buteo regalis*)	CDFG: Watch List (wintering)	Open country, primarily plains, prairies, badlands, sagebrush, shrubland, desert.	The species is known to winter in the Colorado River Valley. They are most often seen in agricultural fields around Blythe, but occasionally in the open desert as well. There is no breeding habitat on site.	Low (non-breeding only)	Low (non-breeding only)

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array[2]	Potential for Occurrence within the Transmission Line (BLM Jurisdiction)[2]
Swainson's hawk (*Buteo swainsoni*)	CESA: Threatened, USFWS: Bird of Conservation Concern, USFS: Sensitive	Nesting habitat consists of open habitats with trees, either isolated, scattered or in windrows.	Migrants more frequently occur near western edge of desert such as Borrego and Morongo valleys, as reflected in annual data from the various regional hawk-watch reports. No suitable breeding habitat exists on site.	Low (non-breeding only)	Low (non-breeding only)
Gilded flicker (*Colaptes chrysoides*)	CESA: Endangered, USFWS: Bird of Conservation Concern	Found in habitats with giant cactus, Joshua trees (Yucca brevifolia), and riparian groves in desert lowlands and foothills (AOU 1995).	Within California, now confined to a small area of Joshua tree woodland in the eastern Mojave Desert (Cima Dome).	None	None
Yellow warbler (*Dendroica petechia sonorana*)	CDFG: Species of Special Concern, USFWS: Bird of Conservation Concern	Found along mature riparian woodlands that consist of cottonwood, willow, alder, and ash trees.	There is no breeding habitat for this species based on breeding range, but migrants are recorded in the vicinity and migratory habitat is expected to be present on site.	Low (non-breeding only)	Low (non-breeding only)
Loggerhead shrike (*Lanius ludovicianus*)	CDFG: Species of Special Concern Priority 2, USFWS: Bird of Conservation Concern	Occurs in semi-open country with utility posts, wires, and trees to perch on.	Suitable habitat occurs throughout the Project vicinity. Although declining over most of the range in California and elsewhere and now absent over large areas, this species is still common in the California deserts.	Present	Present
Gila Woodpecker (*Melanerpes uropygialis*)	CESA: Endangered, USFWS: Bird of Conservation Concern	Requires live tree-size cactus or dead trees (Winkler et al. 1995).	Nearest occupied habitat is near Blythe on the Colorado River.	Low	Low
Vermilion flycatcher (*Pyrocephalus rubinus*)	CDFG: Species of Special Concern	Open farmlands, shrubby grasslands, and streamsides and small wooded ponds in desert habitat. Found in diverse areas near open water.	Some suitable habitat is present within the agricultural areas of the Project, but available surface water is mainly restricted to irrigation channels.	Moderate	Low
Crissal thrasher (*Toxostoma crissale*)	CDFG: Species of Special Concern Priority 3	Occurs in dense riparian and mesquite scrub, microphyll woodland, and riparian washes with a dense understory of shrubs	Some habitat present that could support species foraging but not typical for nesting.	Low	Moderate

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array[2]	Potential for Occurrence within the Transmission Line (BLM Jurisdiction)[2]
Le Conte's thrasher (*Toxostoma lecontei*)	CDFG: Species of Special Concern, USFWS: Bird of Conservation Concern	Arid and open plains that are sparsely vegetated and dominated by saltbush and creosote bush	Suitable habitat for this species is present mainly in the creosote bush areas of the Project. Two individuals were detected in the proposed transmission line disturbance area.	High	
Mammals					
Pallid bat (*Antrozous pallidus*)	CDFG: Species of Special Concern	This gregarious species usually roosts in small colonies in rock crevices and buildings, but may nest in caves, mines, rock piles and tree cavities.	Roosting habitat for pallid bats is present in tree cavities in desert riparian woodland wash in the southeastern portion of the site. The closest documented occurrence in the CNDDB is from 1992, approximately 30 miles to the southwest of the airport near Corn Springs.	Present Low	Low
California leaf-nosed bat (*Macrotus californicus*)	CDFG: Species of Special Concern, BLM: Sensitive, USFS: Sensitive	Lowland desert scrub, desert riparian and wash areas, alkali scrub, or palm oases. Requires rugged or rocky terrain with mines or caves for roosting.	Suitable foraging habitat is present throughout the Project area, although roosting habitat is limited in the immediate region. A 2002 CNDDB record lists a colony of bats in the general vicinity (in the Roosevelt Mine quad), but specific location information is suppressed and it is unclear which species of bat may be present.	Low	Low
Arizona myotis (*Myotis occultus*)	CDFG: Species of Special Concern	Lowlands of the Colorado River and adjacent desert mountain ranges. Roosts in tree hollows, rock crevices, and similar areas.	The closest documented occurrence in the CNDDB is from 1942, approximately 5 miles south of the Project.	Low	Low
Cave myotis (*Myotis velifer*)	CDFG: Species of Special Concern, BLM: Sensitive	Low elevation arid regions near the Colorado River and in adjacent mountains. Requires caves or mines for roosting.	Suitable foraging habitat is present throughout the Project area, although roosting habitat is limited in the immediate region. A 2002 CNDDB record lists a colony of bats in the general vicinity (in the Roosevelt Mine quad), but specific location information is suppressed and it is unclear which species of bat may be present.	Low	Low
Nelson's bighorn sheep (*Ovis canadensis nelson*)	BLM: Sensitive	Mountain slopes with sparse growth of trees above the desert floor in California.	Nelson's bighorn sheep is known within the region. While the species is generally associated with mountainous areas, desert floor areas are important for dispersal and seasonal movement. A bighorn sheep skull was found in the proposed solar array area.	Low	Low

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array[2]	Potential for Occurrence within the Transmission Line (BLM Jurisdiction)[2]
American badger (*Taxidea taxus*)	CDFG: Species of Special Concern	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.	Suitable badger habitat occurs throughout the vicinity in undeveloped areas. Badger is present in adjacent areas surveyed for other projects (CEC 2009). Suitable burrows were observed within the Project area.	High	High
Desert kit fox (*Vulpes macrotis arsipus*)	Calif. Code of Regulations: PFM	Suitable habitat for this fossorial mammal consists of arid open areas, shrub grassland, and desert ecosystems.	Suitable kit fox habitat occurs throughout the vicinity in undeveloped areas. Kit fox is present in adjacent areas surveyed for other projects (CEC 2009).	High	High
Fish					
Razorback sucker (Xyrauchen texanus)	ESA: Endangered, CESA: Endangered, CDFG: Fully Protected	Colorado River. Uses both quiet and swift waters and spawns in shallow water where there is abundant sand, gravel, and rocks.	There is no suitable habitat to support this species within the Project area.	None	None

[1]Sensitivity Status Key

Federal Endangered Species Act (ESA)
State California Department of Fish and Game (CDFG)
California Endangered Species Act (CESA)
BLM Sensitive

[2]Species Potential for Occurrence

Low Potential –low potential to occur because suitable habitat present, but of marginal quality
Moderate Potential –moderate potential to occur because suitable habitat present; not found during surveys
High Potential –high potential to occur because suitable habitat present, and species known to occur within the vicinity; not found during surveys
Present – Species detected during Project surveys on adjacent areas.

5.0 REFERENCES

AECOM. 2010. Blythe Solar Power Project Biological Resources Technical Report. Prepared for Palo Verde Solar I, LLC. June 2010.

Aspen Environmental Group (Aspen). 2006. Devers-Palo Verde No. 2 500 kV Transmission Line Project Final Environmental Impact Report/Environmental Impact Statement. Prepared for California Public Utilities Commission. October 2006.

_____. 2011. Draft Supplemental Environmental Impact Report, Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion. Prepared for Southern California Edison. February 2011.

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

Bates, C. 2006. Burrowing Owl (*Athene cunicularia*). *In* The Draft Desert Bird Conservation Plan: a strategy for reversing the decline of desert-associated birds in California. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/desert.html

Berry, K.H. 2008. Threats to Desert Tortoises and Their Habitats. Introduction to Desert Tortoise Surveying, Monitoring, and Handling Techniques Workshop. The Desert Tortoise Council. Ridgecrest, CA. October 25-26, 2008.

Bevanger, K. 1998. Biological and conservation aspects of birds mortality caused by electricity power lines: a review. Biological Conservation 86: 67-76.

Bureau of Land Management and California Energy Commission (BLM and CEC). 2010. Genesis Solar Energy Project Staff Assessment and Environmental Impact Statement. March 2010.

Bureau of Land Management and California Department of Fish and Game (BLM and CDFG). 2002. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan. An amendment to the California Desert Conservation Area Plan 1980 and Sikes Act Plan with the California Department of Fish and Game and Final Environmental Impact Statement. U.S. Department of Interior Bureau of Land Management California Desert District and California Department of Fish and Game Inland, Deserts, and Eastern Sierra Region.

Calflora: Information on California plants for education, research and conservation. [web application]. 2011. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/ (Accessed: Sep 09, 2011).

California Burrowing Owl Consortium (CBOC). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Tech. Rep. Burrowing Owl Consortium, Alviso, California.

California Department of Fish and Game (CDFG). 2008. California Interagency Wildlife Task Group. CWHR version 8.2 personal computer program. Sacramento, CA.

_____. 2011. California Natural Diversity Database, Rare Find3, commercial version 3.1.1.

_____. ND. American Badger species account. California Wildlife Habitat Relationships System. California Interagency Wildlife Task Group.

_____. 2011a. State and federally listed endangered, threatened and rare plants of California. Accessed at: http://www.dfg.ca.gov/hcpb/species/lists.shtml

_____. 2011b. Special Animals List. Accessed online at http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

California Native Plant Society (CNPS). 2001. Inventory of rare and endangered plants of California. California Native Plant Society. Special Publication #1, Sixth Edition.

_____. 2011. Inventory of Rare and Endangered Plants (online edition, v7-11aug). California Native Plant Society. Sacramento, CA. Accessed on Sep. 8, 2011 from http://www.cnps.org/inventory

CH2MHill. 2010. Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunication System Route Biological Review. Prepared for Southern California Edison. November 2010.

Dorin, M. and L. Spiegel. 2005. Assessment of Avian Mortality from Collisions and Electrocutions. California Energy Commission. CEC-700-2005-015.

Dunn, J.L. and J. Alderfer, editors. 2006. Field Guide to the Birds of North America, Fifth Edition. National Geographic Society; Washington, D.C.

Egoscue, H. J. 1962. Ecology and life history of the kit fox in Tooele County, Utah. Ecology 3:481-497.

Elliott, L., Gerhardt, C. and C. Davidson. 2009. The Frogs and Toads of North America. Houghton Mifflin Harcourt: Boston.

Espinoza, R.E. 2009. Mohave Fringe-toed Lizard. In: Jones, L.C. and R.E. Lovich, editors. Lizards of the American Southwest: A Photographic Field Guide. Tucson: Rio Nuevo Publishers, p. 278 – 281.

Ferrer, M., M. de la Riva, and J. Castroviejo. 1991. Electrocution of Raptors on Power Lines in Southwestern Spain. Journal of Field Ornithology 62(2): 181-190.

First Solar Electric, LLC (First Solar). No Date. First Solar Electric Blythe Solar 1 Project Environmental Assessment Form: Initial Study. Environmental Assessment Number 42019.

Hickman, J.C. (ed). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley

Jaeger, Edmund, C. 1965. The California Deserts, fourth edition. Stanford University Press, Stanford, California.

Janss, G.F.E. and M. Ferrer. 2001. Avian electrocution mortality in relation to pole design and adjacent habitat in Spain. Bird Conservation International 11: 3-12.

Kochert, M. N., K. Steenhof, C. L. Mcintyre and E. H. Craig. 2002. Golden Eagle (*Aquila chrysaetos*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/684

Cody, Martin L. 1999. Crissal Thrasher (*Toxostoma crissale*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/419

Norris, R. M., and R. W. Webb. 1990. Geology of California, second edition. John Wiley & Sons, New York, p. 277– 300.

Poulin, Ray, L. Danielle Todd, E. A. Haug, B. A. Millsap and M. S. Martell. 2011. Burrowing Owl (*Athene cunicularia*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/061

POWER Engineers, Inc. (POWER). 2011. Western Burrowing Owl 2011 Survey. Prepared for Renewable Resources Group. September 2011.

Prescott B.G. 2005. Le Conte's Thrasher Species Account, West Mojave Plan, Bureau of Land Management. Final environmental impact report and statement for the West Mojave plan: a habitat conservation plan and California desert conservation area plan amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District.

Reid, F.A. 2006. *A Field Guide to Mammals of North America, Fourth Edition*. Houghton Mifflin Company: Boston.

Ryan, R. Mark. 1968. Mammals of Deep Canyon, Colorado Desert, California, The Desert Museum, Palm Springs, California.

Sheppard, Jay M. 1996. Le Conte's Thrasher (*Toxostoma lecontei*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/230

Sibley, D.A. 2000. National Audubon Society The Sibley Guide to Birds. Alfred A. Knopf, Inc.; New York, NY.

Stebbins, R.C. 2003. Western reptiles and amphibians. Third Edition. Houghton Mifflin Co.: Boston.

Stokes, D. and L. Stokes. 2010. The Stokes Field Guide to the Birds of North America. Little, Brown and Company: New York.

TetraTech EC, Inc. (TetraTech). 2010a. Fall 2009 and Spring 2010 Biological Resources Technical Report, Genesis Solar Energy Project. Prepared for Genesis Solar, LLC. June 2010.

_____. 2010b. Supplemental Information, Genesis Solar Energy Project. Prepared for Genesis Solar, LLC. June 2010.

U.S. Department of the Interior, Bureau of Land Management (BLM). 2007. California BLM Special Status Plants. Available at: http://www.blm.gov/ca/pa/ssp/lists/by_species/ssplist_all.html

United States Fish and Wildlife Service (USFWS). 2008. Draft revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California. 209 pp.

US Solar Holdings, LLC (US Solar). No Date. Blythe Airport Solar Project Environmental Assessment Form: Initial Study. Environmental Assessment Number 42340.

Van Devender, Thomas R., and W. Geoffrey Spaulding. 1979. Development of Vegetation and Climate in the Southwestern United States. Science 294:701-710.

Western Regional Climate Center. 2011. Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?cablyt+sca (Accessed: Sep., 20, 2011).

Yosef, Reuven. 1996. Loggerhead Shrike (*Lanius ludovicianus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/231

APPENDIX A – PLANT SPECIES OBSERVED DURING SURVEYS

Scientific Name	Common Name	Observed in Solar Array	Observed in Transmission Line
ANGIOSPERMS (DICOTYLEDONS)			
AMARANTHACEAE	**AMARANTH FAMILY**		
Tidestromia oblongifolia	honeysweet	X	X
APIACEAE	**CARROT FAMILY**		
Lomatium sp.	lomatium	X	X
ASCLEPIADACEAE	**MILKWEED FAMILY**		
Asclepias sp.	milkweed	X	
Asclepias subulata	rush milkweed		X
Sarcostemma cynanchoides ssp. hartwegii	climbing milkweed		X
ASTERACEAE	**SUNFLOWER FAMILY**		
Ambrosia dumosa	burro bush	X	X
Baileya pauciradiata	Colorado Desert marigold		X
Bebbia juncea	sweetbush		X
Chaenactis sp.	pincushion	X	
Chaenactis stevioides	desert pinchushion		X
Dicoria canescens	bugseed	X	X
Geraea canescens	desert sunflower	X	X
Hymenoclea salsola	cheesebush		X
Palafoxia arida	Spanish needles	X	X
Pluchea sericea	arrow weed	X	
Stephanomeria pauciflora	wire lettuce	X	X
BORAGINACEAE	**BORAGE FAMILY**		
Cryptantha sp.	cryptantha	X	X
Cryptantha angustifolium	narrowleaf cryptantha		X
Cryptantha costata	ribbed cryptantha		X
Cryptantha maritime	Guadalupe cryptantha		X
Cryptantha nevadensis	cryptantha		X
Cryptantha pterocarya	wing nut cryptantha		X
Nama demissum	purple desert mat		X
Pectocarya sp.	pectocarya	X	X
Tiquilia palmeri	Palmer's tiquilia	X	
Tiquilia plicata	plicate tiquilia	X	X
BRASSICACEAE	**MUSTARD FAMILY**		
*Brassica tournefortii**	Sahara mustard	X	X
*Buxus microphylla**	Japanese box	X	
Lepidium sp.	peppergrass	X	X
Lepidium lasiocarpum	peppergrass		X
Simmondsia chinensis	jojoba	X	
CASUARINACEAE	**SHE OAK FAMILY**		
Casuarina sp.*	she oak	X	
CACTACEAE	**CACTUS FAMILY**		
Cylindropuntia echinocarpa	golden cholla		X
Mammillaria sp.	fish-hook cactus		X
CHENOPODIACEAE	**GOOSEFOOT FAMILY**		

Scientific Name	Common Name	Observed in Solar Array	Observed in Transmission Line
Atriplex canescens	four-wing saltbush	X	
Atriplex lentiformis	quail brush	X	
*Bassia hyssopifolia**	five-hooked bassia	X	
Salsola tragus	Russian thistle		X
CUCURBITACEAE	**GOURD FAMILY**		
Cucurbita sp.*	squash	X	
EUPHORBIACEAE	**SPURGE FAMILY**		
Stillingia spinulosa	annual stillingia		X
FABACEAE	**LEGUME FAMILY**		
Acacia greggii	cat claw acacia	X	X
Astragalus sp.	astragalus	X	
Cercidium floridum	palo verde	X	X
Dallea mollissima	downy dalea		X
*Medicago sativa**	alfalfa	X	
Olneya tesota	desert ironwood		X
Prosopis sp.	mesquite	X	
Prosopis glandulosa	Honey mesquite		X
Psorothamnus emoryi	indigobush		X
Psorothamnus schottii	indigobush	X	X
GERANIACEAE	**GERANIUM FAMILY**		
*Erodium cicutarium**	red-stemmed filaree	X	X
LOASACEAE	**LOASA FAMILY**		
Eucnide urens	rock nettle	X	
Mentzelia sp.	blazing star	X	X
Mentzelia multiflora	blazing star		
Petalonyx thurberi ssp. thurberi	sandpaper plant		X
MARTYNIACEAE	**UNICORN PLANT FAMILY**		
Proboscidea althaeifolia	desert unicorn plant	X	
MYRTACEAE	**MYRTLE FAMILY**		
Eucalyptus sp.*	gum tree	X	X
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**		
Abronia villosa	sand verbena	X	
ONAGRACEAE	**EVENING PRIMROSE FAMILY**		
Camissonia boothii	bottlebrush primrose	X	X
Oenothera deltoids ssp. deltoides	bird-cage primrose		X
PLANTAGINACEAE	**PLANTAIN FAMILY**		
Plantago erecta	western plantain	X	
Plantago ovata	wooly plantain		X
POLEMONIACEAE	**PHLOX FAMILY**		
Eriastrum harwoodii	Harwood's woollystar		X
Gilia sp.			X
Langloisia setosissima	lilac sunbonnet		X
POLYGONACEAE	**BUCKWHEAT FAMILY**		
Chorizanthe brevicornu	brittle spineflower		X
Chorizanthe rigida	rigid spineflower	X	X
Eriogonum sp.			X
RESDACEAE	**MIGNONETTE FAMILY**		

Scientific Name	Common Name	Observed in Solar Array	Observed in Transmission Line
Oligomeris linifolia	Narrow-leaf oligomeris		X
ROSACEAE	**ROSE FAMILY**		
*Prunus persica**	peach	X	
RUTACEAE	**RUE FAMILY**		
*Citrus limon**	lemon	X	
*Citrus sinensis**	orange	X	
TAMARICACEAE	**TAMARISK FAMILY**		
*Tamarix ramosissima**	Mediterranean tamarisk	X	
VISCACEAE	**MISTLETOE FAMILY**		
Phoradendron californicum	desert mistletoe	X	
ZYGOPHYLLACEAE	**CALTROP FAMILY**		
Larrea tridentata	creosote bush	X	X
ANGIOSPERMS (MONOCOTYLEDONS)			
ARECACEAE	**PALM FAMILY**		
Phoenix sp.*	date palm	X	
LILIACEAE	**LILY FAMILY**		
Hesperocaulis undulata	desert lily		X
POACEAE	**GRASS FAMILY**		
Pleuraphis rigida	galleta grass	X	X
*Schismus barbatus**	Mediterranean schismus	X	X
*Triticum aestivum**	wheat		

* = nonnative species

APPENDIX B – WILDLIFE SPECIES OBSERVED DURING RECONNAISSANCE AND FOCUSED SURVEYS

Scientific Name	Common Name	Observed in Reconnaissance Survey	Observed in Focused Survey
CLASS INSECTA	**INSECTS**		
MELOIDAE	**BLISTER BEETLES**		
Lytta auriculata	red-eared blister beetle	X	X
TENEBRIONIDAE	**DARKLING BEETLES**		
Asbolus verrucosus	desert ironclad beetle	X	X
Eleodes spinipes	darkling beetle	X	
MANTIDAE	**MANTIDS**		
Litaneutria minor	ground mantis	X	
PIERIDAE	**WHITE & SULPHUR BUTTERFLIES**		
Pieris rapae	cabbage white	X	
Pontia protodice	checker-white		X
NYMPHALIDAE	**BRUSH-FOOTED BUTTERFLIES**		
Vanessa virginiensis	Virginia lady	X	
LYCAENIDAE	**GOSSAMER WING BUTTERFLIES**		
Brephidium exilis	pygmy blue	X	
FORMICIDAE	**ANTS**		
Messor pergandei	desert harvester ant	X	
MUTILLIDAE	**VELVET ANTS**		
Dasymutilla sp.	velvet ant	X	X
POMPILIDAE	**SPIDER WASPS**		
Pepsis formosa	tarantula wasp	X	X
CLASS REPTILIA	**REPTILES**		
TRIONYCHIDAE	**SOFTSHELL TURTLES**		
Apalone spinifera	spiny softshell turtle	X	
IGUANIDAE	**IGUANID LIZARDS**		
Callisaurus draconoides draconoides	common zebra-tailed lizard	X	X
Dipsosaurus dorsalis	desert iguana	X	X
Phrynosoma sp.	horned lizard	X	
Uma scoparia	Mojave fringe-toed lizard	X	X
Uta stansburiana	common side-blotched lizard	X	X
TEIIDAE	**WHIPTAIL LIZARDS**		
Cnemidophorus sp.	whiptail	X	X
COLUBRIDAE	**COLUBRID SNAKES**		
Arizona elegans occidentalis	Glossy snake		X
Chinoactis occipitalis	shovel-nosed snake	X	
VIPERIDAE	**VIPERS**		
Crotalus cerastes	sidewinder	X	X

Scientific Name	Common Name	Observed in Reconnaissance Survey	Observed in Focused Survey
CLASS AVES	**BIRDS**		
CATHARTIDAE	**NEW WORLD VULTURES**		
Cathartes aura	turkey vulture	X	X
ACCIPITRIDAE	**HAWKS, KITES, EAGLES**		
Buteo jamaicensis	red-tailed hawk	X	
FALCONIDAE	**FALCONS**		
Falco sparverius	American kestrel	X	
ODONTOPHORIDAE	**NEW WORLD QUAIL**		
Callipepla gambelii	Gambel's quail	X	X
CHARADRIIDAE	**PLOVERS**		
Charadrius vociferus	killdeer	X	
COLUMBIDAE	**PIGEONS & DOVES**		
Columba livia	rock pigeon	X	
Streptopelia risoria	ringed turtle-dove	X	
Zenaida aurita	white-winged dove	X	X
Zenaida macroura	mourning dove	X	
CUCULIDAE	**CUCKOOS & ROADRUNNERS**		
Geococcyx californianus	greater roadrunner	X	X
STRIGIDAE	**TRUE OWLS**		
Athene cunicularia	burrowing owl	X	
APODIDAE	**SWIFTS**		
Aeronautes saxatalis	white-throated swift	X	
TYRANNIDAE	**TYRANT FLYCATCHERS**		
Tyrannus verticalis	western kingbird	X	X
ALAUDIDAE	**LARKS**		
Eremophila alpestris	horned lark	X	X
HIRUNDINIDAE	**SWALLOWS**		
Petrochelidon pyrrhonota	cliff swallow	X	
CORVIDAE	**JAYS & CROWS**		
Corvus corax	common raven	X	X
LANIIDAE	**SHRIKES**		
Lanius ludovicianus	loggerhead shrike	X	X
STURNIDAE	**STARLINGS**		
Sturnus vulgaris	European starling	X	
ICTERIDAE	**BLACKBIRDS**		
Agelaius phoeniceus	red-winged blackbird	X	
Euphagus cyanocephalus	Brewer's blackbird	X	
Icterus cucullatus	hooded oriole		X
Xanthocephalus xanthocephalus	yellow-headed blackbird	X	
Quiscalus mexicanus	great-tailed grackle	X	X

Scientific Name	Common Name	Observed in Reconnaissance Survey	Observed in Focused Survey
MIMIDAE	**MOCKINGBIRDS & THRASHERS**		
Toxostoma lecontei	Le Conte's thrasher		X
THRAUPIDAE	**TANAGERS**		
Piranga ludoviciana	Western tanager		X
SYLVIIDAE	**GNATCATHERS**		
Polioptila caerulea	black-tailed gnatcatcher		X
EMBERIZIDAE	**EMBERIZIDS**		
Zonotrichia leucophrys	white-crowned sparrow	X	
FRINGILLIDAE	**FINCHES**		
Carduelis tristis	American goldfinch	X	
CLASS MAMMALIA	**MAMMALS**		
LEPORIDAE	**HARES & RABBITS**		
Lepus californicus	black-tailed jackrabbit	X	
Sylvilagus audubonii	desert cottontail	X	
SCIURIDAE	**SQUIRRELS**		
Ammospermophilus leucurus	white-tailed antelope squirrel	X	X
Spermophilus tereticaudus	Round-tailed ground squirrel		X
HETEROMYIDAE	**POCKET MICE & KANGAROO RATS**		
Dipodomys sp.	kangaroo rat	X	
CANIDAE	**WOLVES & FOXES**		
Canis familiaris	domestic dog	X	
Canis latrans	coyote	X	
Vulpes macrotis	kit fox	X	X
MUSTELIDAE	**WEASELS, SKUNKS & OTTERS**		
Taxidea taxus	American badger	X	
BOVIDAE	**BISON, GOATS & SHEEP**		
Ovis canadensis	bighorn sheep	X (bones and skull)	
CHIROPTERA	**BATS**		
Myotis sp.	Myotis	X	X

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APPENDIX C – USFWS SPECIES INFORMATION FOR THE PROJECT AREA

From: Tony_McKinney@fws.gov
To: Ryan Winkleman 2731;
Subject: spp. list
Date: Friday, July 01, 2011 7:02:34 PM
Attachments: McCoy_Wash.htm
Ripley.htm
Roosevelt_Mine.htm

Tony McKinney, GIS Coordinator
USFWS Carlsbad Fish and Wildlife Office
6010 Hidden Valley Rd.
Carlsbad, CA 92011
760.431.9440.x259

(See attached file: McCoy_Wash.htm)(See attached file: Ripley.htm)(See attached file: Roosevelt_Mine.htm)

==

Listed/Proposed Threatened and Endangered Species for the MCCOY WASH Quad

November 9, 2010

==

KEY:

Category:

E = Endangered - Listed in the Federal Register as being in danger of extinction
PE = Proposed Endangered - Proposed in the Federal Register as being in danger of extinction
T = Threatened Listed as likely to become endangered within the foreseeable future

Critical Habitat:

N = None Designated
P = Proposed
Y = Designated

Type	Scientific Name	Common Name	Category	Critical Habitat
Reptiles	*Gopherus agassizii*	desert tortoise	T	Y

Last updated: May 3, 2011

Listed/Proposed Threatened and Endangered Species for the RIPLEY Quad

November 23, 2010

KEY:

Category:

E = Endangered - Listed in the Federal Register as being in danger of extinction

PE = Proposed Endangered - Proposed in the Federal Register as being in danger of extinction

T = Threatened Listed as likely to become endangered within the foreseeable future

Critical Habitat:

N = None Designated

P = Proposed

Y = Designated

Type	Scientific Name	Common Name	Category	Critical Habitat
Reptiles	*Gopherus agassizii*	desert tortoise	T	Y

Last updated: May 3, 2011

U.S. Fish & Wildlife Service

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Listed/Proposed Threatened and Endangered Species for the ROOSEVELT MINE Quad

November 23, 2010

KEY:

Category:

E = Endangered - Listed in the Federal Register as being in danger of extinction
PE = Proposed Endangered - Proposed in the Federal Register as being in danger of extinction
T = Threatened Listed as likely to become endangered within the foreseeable future

Critical Habitat:

N = None Designated
P = Proposed
Y = Designated

Type	Scientific Name	Common Name	Category	Critical Habitat
Reptiles	*Gopherus agassizii*	desert tortoise	T	Y

Last updated: May 3, 2011

APPENDIX C2
230 KV TRANSMISSION LINE ALTERNATIVES
HABITAT ASSESSMENT REPORT

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August 2012

BLYTHE MESA SOLAR PROJECT

230 kV Transmission Line Alternatives
Habitat Assessment Report

PROJECT NUMBER:
122512

PROJECT CONTACT:
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POWER ENGINEERS

BLYTHE MESA SOLAR PROJECT

230 KV TRANSMISSION LINE ALTERNATIVES HABITAT ASSESSMENT REPORT

PREPARED FOR:

Renewable Resources Group, Inc.

PREPARED BY:

POWER Engineers, Inc.

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ACRONYMS AND ABBREVIATIONS

ABBREVIATION	DEFINITION
BLM	U.S. Department of the Interior, Bureau of Land Management
CDFG	California Department of Fish and Game
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
ESA	Endangered Species Act
F	Fahrenheit
kV	Kilovolt
MW	Megawatt
NECO Plan	Northern and Eastern Colorado Desert Coordinated Management Plan
PV	Photovoltaic
ROW	Right-of-way
USGS	U.S. Geological Survey

1.0 INTRODUCTION

The proposed Blythe Mesa Solar Project (Project) consists of construction and operation of a 485 megawatt (MW) alternating current solar photovoltaic (PV) electrical generating facility and associated infrastructure and connection to the statewide electricity transmission grid. In 2011, a Habitat Assessment, Protocol Rare Plant Surveys, and burrowing owl surveys were conducted on the solar array field and proposed 8.4-mile 230 kilovolt (kV) transmission line (73 acres). Two new transmission line corridor alternatives, a Northern Alternative and a Southern Alternative to the proposed alignment, were introduced in 2012. This report documents the results of the habitat assessment that was conducted on the new 230 kV alternatives. The habitat assessment consisted of a review of published peer-reviewed documents, databases, and biological reports in conjunction with biological field surveys. This data was used to determine areas that have suitable habitat to potentially support listed, proposed for listing, and candidate threatened and endangered species, and other identified sensitive species.

1.1 Project Overview

The Proposed Project is a 485 MW PV electrical generating facility and 230 kV transmission line that would occupy a total of 3,660 acres. The Proposed Project would produce enough energy to power approximately 180,000 households, and would consist of the following two major components: 1) a solar array field utilizing single-axis solar PV trackers (3,587 acres); and 2) 8.4 miles of 230 kV transmission (4.2 miles of this line would be located outside of the solar array site within a 125-foot-wide Right-of-Way (ROW) totaling approximately 73 acres).

This habitat assessment analyzes only the 230 kV northern and southern alternative transmission line alignments, as the proposed solar array field remains the same for all transmission alternatives. The 230 kV alternatives are described below and illustrated in Figure 1.

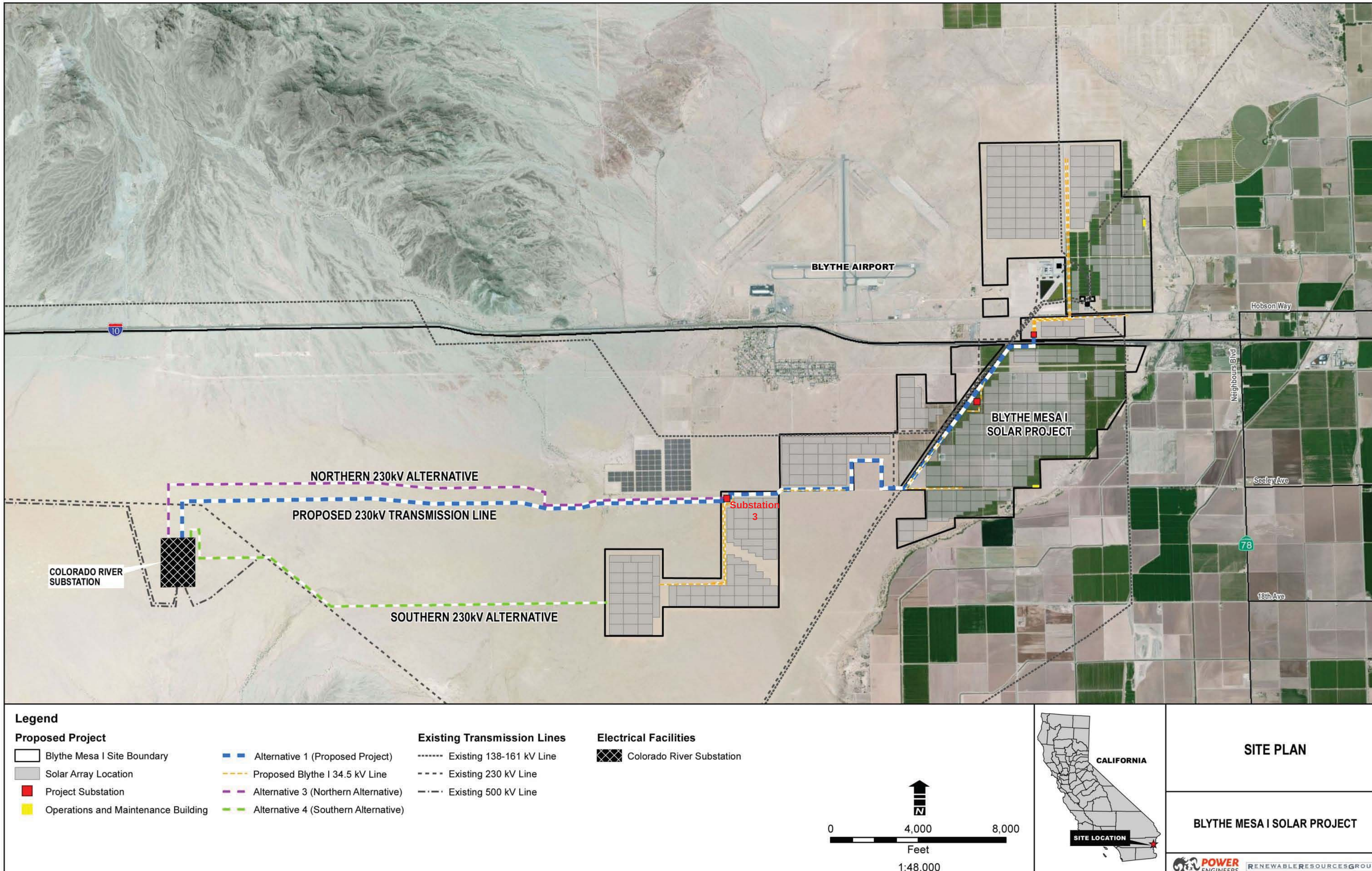
1.1.1 Northern Alternative 230 kV Transmission Line

Similar to the proposed alignment, the Northern Alternative would include the construction, operation, and decommissioning of a 485 MW solar PV electrical generating facility and associated infrastructure. It would occupy a total of 3,588 acres and would utilize the same solar array field as the Proposed Project. The primary difference between the Northern Alternative and the proposed Project is the location of the 230 kV transmission line that extends outside of the solar array field to the Colorado River Substation; the same 230 kV transmission alignment within the solar array field would be utilized for both the proposed Project and Northern Alternative. Both the Proposed alignment and the Northern Alternative would be located within the same BLM utility corridor; however, the Northern Alternative would be located on the north side of the corridor and within a 125-foot ROW entirely on BLM-managed lands. Under this alternative, the total length of the 230 kV transmission line both on-site and off-site would be 8.8 miles; 3.6 miles would be located on private lands within the array site boundary and 5.2 miles would be located entirely off-site on BLM-managed lands. The BLM portion of the ROW would contain 79 acres.

1.1.2 Southern Alternative 230 kV Transmission Line

Also similar to the proposed alignment, the Southern Alternative would include the construction, operation, and decommissioning of a 485 MW solar PV electrical generating facility and associated infrastructure. The Southern Alternative would occupy a total of 3,647 acres and would utilize the same solar array field location as the Proposed Project. The primary difference between the proposed Project and the Southern Alternative is the location of the 230 kV transmission line that extends between the solar array field to the Colorado River Substation. The Southern Alternative would exit the southwestern portion of the solar array field and extend approximately four miles west to the Colorado River Substation within a 125-foot ROW. To facilitate this alignment, an additional 10,000 feet of 230 kV transmission line would need to be built on the solar array field extending south from the proposed substation 3 and angling west to the site boundary. The transmission line would continue westerly off-site across 3.4 miles of BLM-managed lands and 0.6 mile of private lands before reaching the Colorado River Substation. Under this alternative, the total length of the 230 kV transmission line both on-site and off-site would be 9.5 miles; 5.5 miles would be located on private lands within the array site boundary and 4.0 miles would be located off-site on private land. The total area of the ROW offsite would be about 60 acres (50 acres of BLM-managed land and 10 acres of private land).

FIGURE 1. SITE PLAN



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2.0 METHODS

Prior to initiating the reconnaissance survey, available data was reviewed from resource management plans and other relevant documents to determine the locations and types of biological resources that have the potential to exist within and adjacent to the biological resources survey area. The California Natural Diversity Database (CNDDB), maintained by the California Department of Fish and Game (CDFG 2012), and California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Plants of California (CNPS 2012) were also accessed for records of occurrence of special-status species and habitats within the Roosevelt Mine, Ripley, McCoy Spring, McCoy Peak, McCoy Wash, Blythe NE, Blythe, Mule Wash, Palo Verde, Thumb Peak, Wiley Well, and Hopkins Well U.S. Geological Survey (USGS) 7.5-minute quadrangles. These search parameters encompass an approximately 10-mile buffer around the Project area.

Habitat mapping was conducted within the two alternative transmission line routes by POWER Engineers, Inc. (POWER) biologists Ken McDonald and Ryan Winkleman from May 1 through May 3, 2012. Surveys were commenced between 6:30 and 7:00 a.m., when temperatures were approximately 60-70° F. The biologists walked transects approximately 30 feet apart and noted vegetation communities, plant species observed, and wildlife observed or detected. Surveys were conducted within the 500-foot biological survey corridor. No pedestrian surveying was conducted outside of the ROW.

The habitat mapping survey was conducted to assess general and dominant vegetation types, community sizes, habitat types, and species present within communities. Community types were based on observed dominant vegetation composition and density. Vegetation communities were classified based on Holland (1986). Sawyer and Keeler-Wolf (1995), and CDFG classifications were used to provide additional detail when needed, such as denoting special vegetation communities that are either known or believed to be of high priority for inventory in CNDDB due to significance or rarity. Plants of uncertain identity were collected and subsequently identified from taxonomic keys (Hickman 1993) and field guides (Stuart & Sawyer 2001). Scientific and common species names were recorded according to The Jepson Manual: Higher Plants of California. A list of observed plant species is provided in Appendix D.

The presence of a wildlife species was based on direct observation, wildlife sign (e.g., tracks, burrows, nests, scat), or vocalization. Field data compiled for wildlife included the species scientific name, common name, and evidence of sign when no direct observations were made. Wildlife were identified and named based on field guides and other related literature (Burt & Grossenheider 1980, Elbroch 2003, Sibley 2000, and Stebbins 2003). A list of observed animal species is presented in Appendix E.

The potential for occurrence of special-status species was also determined for the biological survey area. The survey area was assessed in the field for its potential to support both common and special-status plant and animal species based on habitat suitability comparisons with reported occupied habitats.

3.0 RESULTS

3.1 Vegetation Communities

Three vegetation communities and other cover types were identified within the survey area during the reconnaissance and focused surveys (see Table 1 below and Appendix A). Vegetation communities are described in detail below and based on a classification system by R. Holland (1986). When appropriate, vegetation classification by J.O. Sawyer and T. Keeler-Wolf (1995) are also considered. Community types according to CDFG are listed where applicable. Of the vegetation communities listed in Table 1, desert dry wash woodland is considered sensitive. Desert dry wash woodland is sensitive because it is included with State waters under the jurisdiction of CDFG. In addition, desert dry wash woodland is a special community type (e.g., high priority for inventory in the CNDDB) per CDFG's Vegetation and

Mapping Program. The elevation of both alternative transmission line corridors ranges between 380 and 480 feet.

Table 1. Vegetation Communities and Cover Types (Acres)

Vegetation Communities and Other Cover Types	Acreage on Northern Alternative	Acreage on Southern Alternative
Sonoran Creosote Bush Scrub	303.07 acres	231.01 acres
Desert Dry Wash Woodland	22.87 acres	11.39 acres
Developed/Disturbed	0.51 acre	0.33 acre

Note: solar array field acreage is not included in this analysis.

Sonoran Creosote Bush Scrub. Sonoran creosote bush scrub is an open, sparsely vegetated community, usually with bare ground between plants, and is the most common vegetation community of the Sonoran desert. This community experiences growth during the winter and spring seasons, if rainfall is sufficient. Many annual species occur in early to late spring during years of adequate rainfall. Sonoran creosote bush scrub occurs on well-drained secondary soils of slopes, fans, and valleys, with thin residual soils or on sites with high soil salinity, and intergrades with Mojave creosote bush scrub. This plant community intergrades into the desert dry wash woodland community within the survey area.

Creosote bush (*Larrea tridentata*) is the dominant species within the Sonoran creosote bush scrub community observed with the survey area. Other species observed that varied from abundant to common within this community included burro bush (*Ambrosia dumosa*), big galleta grass (*Pleuraphis rigida*), and Sahara mustard (*Brassica tournefortii*). Within the survey area, this community is characterized by either sandy soils with pockets of stabilized desert sand fields, or by weakly developed desert pavement. In areas within the creosote bush scrub vegetation where the weakly developed desert pavement occurs, the topography is generally very flat, and plant species abundance and diversity is very low.

Approximately 303.07 acres of Sonoran creosote bush scrub occur within the survey area of the Northern Alignment, and 231.01 acres in the Southern Alignment.

Desert Dry Wash Woodland. Desert dry wash woodland is an open to dense, drought-deciduous microphyllous thorn scrub woodland, dominated by leguminous trees. This community occurs in sandy or gravelly washes and arroyos of the lower Mojave, Sonoran, and Colorado deserts, generally in areas that do not experience frost. These washes typically have braided channels that may be changed substantially with each surface flow event. This plant community intergrades into the Sonoran creosote bush scrub community within the survey area.

Where the observed washes were more obvious, Palo Verde (*Cercidium floridum*), honey mesquite (*Prosopis glandulosa*), and ironwood (*Olneya tesota*) were the dominant species, with abundant to common big galleta grass, burrobush, and Sahara mustard. As washes become more shallow and less obvious, the dominant species was big galleta grass and Sahara mustard. Other perennial and annual species were observed occasionally throughout this community.

Approximately 22.87 acres of desert dry wash woodland occur within the survey area of the Northern Alignment, and 11.39 acres in the Southern Alignment.

Developed/Disturbed. Developed and disturbed areas consist of dirt access roads, active or fallow agriculture, and areas mechanically cleared of native vegetation. Approximately 0.51 acre of developed/disturbed occurs within the survey area of the Northern Alignment, and 0.33 acre in the Southern Alignment.

3.2 Flora

This section discusses plant species detected or with potential to occur within the survey area. No federal-listed, State-listed, or other special-status plant species were observed within the biological survey area. In total, 15 plant species were determined to have a potential to occur within the vicinity of the Project, based on records searches with the CNDDB (CDFG 2012) and CNPS (2012) and reviews of documentation from other nearby projects, such as the Blythe Solar Power Project (AECOM 2010) and previous surveys in the vicinity conducted by POWER biologists. These include one BLM sensitive species and eight species listed as present within the area covered by the Northern & Eastern Colorado Desert (NECO) Plan (BLM and CDFG 2002). No federal- or State-listed plant species have the potential to occur within the Project area.

Plant species observed during the initial habitat mapping surveys are listed in Appendix D. Species most commonly observed during biological surveys included burro bush, Sahara mustard, creosote bush, and galleta grass. Other common species that occurred less frequently included four-wing saltbush (*Atriplex canescens*), Palo Verde, ironwood, Russian thistle (*Salsola tragus*), Mediterranean grass (*Schismus barbatus*), and devil's spineflower (*Chorizanthe rigida*).

Federal-listed Plant Species. No federal-listed plant species were detected within the survey area during spring 2012 habitat mapping surveys. Based on regional databases, no federal-listed as endangered plant species have potential to occur within the survey area (CNDDB 2012, CNPS 2012).

State-listed Plant Species. No State-listed plant species were detected within the survey area during 2012 habitat mapping surveys. Based on regional databases, no State-listed plant species were determined to have potential to occur within the survey area (CNDDB 2012, CNPS 2012).

BLM-listed Plant Species: Based on the BLM's Palm Springs Field Office list of sensitive plant species, only one BLM sensitive plant species is documented as being present in and adjacent to the Project area. Harwood's woolystar (*Eriastrum harwoodii*) was detected by POWER in 2011 in a potential transmission line corridor located between the northern and southern alternatives. It was not detected during POWER's 2012 habitat mapping surveys on the northern and southern alternatives.

Other Special-status Plant Species. No other special-status plant species were detected during habitat mapping surveys in spring 2012. Based on a CNDDB search, Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*), a CNDDB List 2.2 species, has a high potential to occur within the proposed transmission line disturbance area and has numerous records in the vicinity, with several that are within the immediate vicinity of the survey area.

Table 2 provides a summary of the special-status plant species with the potential to occur within the Project area.

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Table 2. Special-status Plant Species with Potential to Occur within the Project Area

Common Name Scientific Name	Sensitivity Status[1]	Plant Habit and General Habitat Description (CNPS 2012)	Flowering Period (CNPS 2012)	Discussion	Potential for Occurrence within the Northern Transmission Line (BLM Jurisdiction)[2]	Potential for Occurrence within the Southern Transmission Line (BLM Jurisdiction)[2]
Angel trumpets *(Acleisanthes longiflora)*	CNPS: List 2.3 NECO Plan	Prostrate to ascending perennial stems less than three feet. Occurs in dry places, generally on carbonate or limestone derived soils in mountainous areas 30 to 8,000 feet.	May	The closest record of this species is in the Big Maria Mountains.	Low	Low
Harwood's milkvetch *(Astragalus insularis* var. *harwoodii)*	CNPS: List 2.2 NECO Plan	Annual plant. Occurs in the Sonoran Desert in sandy to gravely areas 0 to 1,000 feet.	January to May	This species was detected in the Project vicinity toward the northwestern limits in 2009 (CEC).	High	High
Gravel milkvetch *(Astragalus sabulonum)*	CNPS List 2.2	Annual and perennial herb. Occurs in desert dunes and Mojavean and Sonoran desert scrub in sandy or gravelly areas. Also in washes or along roadsides. Occurs between 195 and 3,050 feet.	February to June	The closest CNDDB record is approximately 1.5 miles north of the Project area in a "best guess" location.	Moderate	Moderate
Pink fairyduster *(Calliandra eriophylla)*	CNPS: List 2.3 NECO Plan	Shrubs less than one foot in height. Occurs in Sonoran Desert, sandy washes, slopes, and mesas typically between 390 and 5,000 feet.	January to March	Some suitable habitat is present. Species most often occurs at sites above 500 feet.	Low	Low
Saguaro *(Carnegiea gigantea)*	CNPS: List 2.2 NECO Plan	Perennial stem succulent. Occurs in Sonoran desert scrub in rocky areas, typically between 165 and 4,920 feet.	May to June	The only CNDDB record is approximately 15 miles south of the Project area.	None	None
Crucifixion horn *(Castela emoryi)*	CNPS: List 2.3 NECO Plan	Shrub less than 10 feet in height. Occurs in Mojavean and Sonoran desert scrub on dry, gravelly washes from 295 to 3,000 feet.	April to May	This large shrub was not observed in the surveys, which were conducted within the appropriate blooming period.	None	None
Abrams' spurge *(Chamaesyce abramsiana)*	CNPS: List 2.2	Annual herb. Occurs in Mojavean and Sonoran desert scrub on sandy soils up to 3,000 feet.	September to November	The only CNDDB record is approximately 9.5 miles west of the Project area.	Moderate	Moderate
Las Animas colubrine *(Colubrina californica)*	CNPS: List 2.3 NECO Plan	Perennial, deciduous shrub generally less than three feet. Occurs in Sonoran creosote bush scrub less than 3,500 feet.	April to June	According to CEC 2009 data, specimens were observed in flower during April; an early blooming period for this species. Similar habitat is expected to occur in the Project area.	Moderate	Moderate
Alverson's foxtail cactus *(Coryphantha alversonii)*	CNPS: List 4.3 NECO Plan	Perennial stem succulent. Occurs in sandy, rocky, or granitic areas of Mojavean and Sonoran desert scrub, usually from 245 to 5,005 feet.	April to June	All CNDDB records are mapped north of Blythe in the Big Maria Mountains.	Low	Low

Common Name Scientific Name	Sensitivity Status[1]	Plant Habit and General Habitat Description (CNPS 2012)	Flowering Period (CNPS 2012)	Discussion	Potential for Occurrence within the Northern Transmission Line (BLM Jurisdiction)[2]	Potential for Occurrence within the Southern Transmission Line (BLM Jurisdiction)[2]
Harwood's woollystar *(Eriastrum harwoodii)*	CNPS: List 1B.2 BLM: Sensitive	Annual herb. Occurs in desert dunes and Sonoran Desert scrub on sandy soils from 400 to 3,000 feet.	March to June	Observed in abundance in an area between the northern and southern alternatives in 2011. Not observed in 2012.	High	High
Bitter hymenoxys *(Hymenoxys odorata)*	CNPS: List 2	Annual herb. Occurs in chaparral, coastal scrub, Mojavean Desert scrub, and meadows and seeps, often in alkali soils, and riparian scrub with mesic soils. Most often found on sandy sites from 145 to 490 feet.	February to November	Habitat for this species is limited to the desert riparian woodland wash located in the easternmost portion of the proposed transmission line.	Low	Low
California satintail *(Imperata brevifolia)*	CNPS: List 2.1	Perennial grass. Occurs in San Bernardino Mountains and Mojave Desert in cultivation. Found near wet springs, meadows, streamsides and flood plains up to 1,700 feet.	September to May	The habitat for this species (wet springs, meadows, stream sides and flood plains) does not occur within the Project area.	Low	Low
Darlington's blazing star *(Mentzelia puberula)*	CNPS: List 2.2	Perennial herb. Occurs in sandy or rocky areas of Mojavean and Sonoran desert scrub, between 295 and 4,200 feet.	March to May	The only CNDDB record is approximately 14.5 miles south of the Project area.	Low	Low
Wiggins' cholla *(Opuntia wigginsii)*	CNPS: List 3.3 NECO Plan	Perennial stem succulent. Occurs in sandy Sonoran desert scrub from 100 to 2,905 feet.	March	The only CNDDB record is approximately 13.75 miles south of the Project area.	Low	Low
Dwarf germander *(Teucrium cubense* ssp. *depressum)*	CNPS: List 2.2	Annual plant up to six inches tall. Occurs in sandy soils, washes and fields in the Sonoran Desert below 1,200 feet.	March to November	Habitat for this species is present within the Project area and vicinity.	Moderate	Moderate

[1]Sensitivity Status Key

ESA Endangered
CNPS California Native Plant Society Lists:
1B: Considered rare, threatened, or endangered in California and elsewhere.
2: Plants rare, threatened, or endangered in California, but more common elsewhere
Decimal notations: .1 - Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California
BLM Special-Status Plants
NECO Plan Northern and Eastern Colorado Desert Coordinated Management Plan special-status species

[2]Species Potential for Occurrence

Low – low potential to occur, because suitable habitat was observed, but was of marginal quality, or the area may be at the limits of the known ranges, and the species was not observed during the survey.
Moderate – has moderate potential to occur because suitable habitat was observed to be present, but the species was not found during focused plant surveys
High – has high potential to occur because suitable habitat was present, and species is known to occur within the vicinity, but it was not found during focused plant surveys
Present – if detected during surveys

3.3 Wildlife

This section discusses special-status wildlife species detected within the survey area or with potential to occur on site. Thirty-two special-status wildlife species were determined to have the potential to occur within the Project area or its vicinity. In total, 35 wildlife species or their sign were detected during the habitat mapping surveys (see Appendix E). Of these, three special-status wildlife species or their sign were observed within the survey area (see Table 3), including Mojave fringe-toed lizard, loggerhead shrike, and desert kit fox. In addition, a thrasher species was detected by call but was not identified. In total, five insect, seven reptile, 17 bird, and six mammal species or their sign were detected during biological surveys.

Wildlife species observed during the survey are listed in Appendix E. The species most commonly observed during biological surveys included Mojave fringe-toed lizard (*Uma scoparius*), western whiptail (*Aspidoscelis tigris*), Wilson's warbler (*Wilsonia pusilla*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert ironclad beetle (*Asbolus verrucosus*), and tarantula hawk (*Pepsis formosa*).

Table 3 provides a summary of the species accounts and potential to occur. Habitat requirements are taken primarily from the CNDDB (CDFG 2012) and sensitivity status is current to the 2011 CDFG Special Animals List (CDFG 2011).

Federal-listed Wildlife Species: No federal-listed wildlife species or their sign were detected during surveys. Based on a CNDDB (CDFG 2012) search, four federal-listed species and one federal candidate species have records in the Project vicinity. These include desert tortoise (*Gopherus agassizii*), southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris yumanensis*), razorback sucker (*Xyrauchen texanus*), and the candidate species western yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

State-listed Wildlife Species: No State-listed wildlife species or their sign were detected during surveys. Based on a CNDDB (CDFG 2012) search, seven State-listed species have records in the Project vicinity. These include desert tortoise, western yellow-billed cuckoo, southwestern willow flycatcher, Gila woodpecker (*Melanerpes uropygialis*), elf owl (*Micrathene whitneyi*), Yuma clapper rail, and razorback sucker.

BLM-listed Wildlife Species: One BLM sensitive species was detected during POWER's 2012 habitat mapping surveys. Mojave fringe-toed lizard was detected on the northern alternative, but was not detected on the southern alternative. However, based on habitat present in the southern alternative and the large number of Mojave fringe-toed lizards that POWER detected in 2011 in a proposed transmission line corridor located between the northern and southern alternatives, this species has a high potential to occur on the southern alternative.

Other Special-Status Wildlife Species: Two other special-status wildlife species or their sign were positively identified on site, including the loggerhead shrike (*Lanius ludovicianus*) and desert kit fox (*Vulpes macrotis arsipus*). In addition, an unidentified thrasher species (*Toxostoma* sp.) was detected aurally during surveys.

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Table 3. Special-status Wildlife Species with Potential to Occur within the Project Area

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Northern Transmission Line (BLM Jurisdiction)[2]	Potential for Occurrence within the Southern Transmission Line (BLM Jurisdiction)[2]
Amphibians					
Couch's spadefoot toad (*Scaphiopus couchii*)	CDFG: Species of Special Concern BLM: Sensitive NECO Plan	Various arid and semiarid environments. Breeds in desert ponds quickly following rainfall.	Suitable habitat is not known to be present, but some areas may still support ponded water after rain events.	Low	Low
Reptiles					
Desert tortoise (*Gopherus agassizii*)	ESA: Threatened CESA: Threatened NECO Plan	Various desert scrubs and desert washes up to about 5,000 feet, but not including playas.	Desert tortoise was documented approximately 0.5 mile south of the southern alignment (CH2M Hill 2010) and sign was scattered around the Colorado River Substation (AECOM 2010). POWER walked transects along both alternatives in suitable habitat but did not observe desert tortoise or its sign.	Low	Moderate
Mojave fringe-toed lizard (*Uma scoparia*)	CDFG: Species of Special Concern BLM: Sensitive NECO Plan	Fine, wind-blown sand in creosote bush scrub of the Mojave and northern Colorado Deserts. From below sea level to 2,952 feet.	Species detected in the northern alternative during habitat mapping. Suitable habitat is present within the southern alternative, though no individuals were detected during the survey.	Present	High
Birds					
Western burrowing owl (*Athene cunicularia hypugaea*)	CDFG: Species of Special Concern BLM: Sensitive USFWS: Bird of Conservation Concern NECO Plan	Found mainly in grassland and open scrub from the seashore to foothills. Also found in deserts and scrublands.	Habitat marginally suitable for this species. May be occasionally present as foragers but unlikely to be present as residents.	High	High

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Northern Transmission Line (BLM Jurisdiction)[2]	Potential for Occurrence within the Southern Transmission Line (BLM Jurisdiction)[2]
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	ESA: Candidate CESA: Endangered USFWS: Bird of Conservation Concern	Nests along large river systems, typically in areas dominated by willows and cottonwoods.	No suitable habitat observed in Project area.	None	None
Sonoran yellow warbler (*Dendroica petechia sonorana*)	CDFG: Species of Special Concern USFWS: Bird of Conservation Concern NECO Plan	Occurs in riparian deciduous habitat, such as cottonwood and willow areas, nesting in understories. Summer resident of the Colorado River Valley.	No suitable habitat observed in Project area.	None	None
Southwestern willow flycatcher (*Empidonax traillii extimus*)	ESA: Endangered CESA: Endangered NECO Plan	Riparian woodlands.	No suitable habitat observed in Project area.	None	None
Yellow-breasted chat (*Icteria virens*)	CDFG: Species of Special Concern	Inhabits riparian willow thickets near watercourses. Nests in low, dense riparian areas. Summer resident.	No suitable habitat observed in Project area.	None	None
Loggerhead shrike (*Lanius ludovicianus*)	CDFG: Species of Special Concern USFWS: Bird of Conservation Concern	Occurs in semi-open country with utility posts, wires, and trees to perch on.	Pair detected just north of the northern alternative. Suitable habitat occurs along the southern alternative but no individuals were detected.	Present	High
Gila Woodpecker (*Melanerpes uropygialis*)	CESA: Endangered USFWS: Bird of Conservation Concern NECO Plan	Nests in cottonwoods or other desert riparian trees, shade trees, or date palms.	Limited suitable habitat available in the Project area. Nearest occupied habitat is near Blythe on the Colorado River.	Low	Low

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Northern Transmission Line (BLM Jurisdiction)[2]	Potential for Occurrence within the Southern Transmission Line (BLM Jurisdiction)[2]
Elf owl (*Micrathene whitneyi*)	CESA: Endangered USFWS: Bird of Conservation Concern NECO Plan	In California, nests only in cottonwood-willow and mesquite riparian areas along the Colorado River.	No suitable nesting habitat in Project area. May forage in or near the Project area.	Low	Low
Summer tanager (*Piranga rubra*)	CDFG: Species of Special Concern	Requires cottonwood-willow riparian forests for nesting and foraging. Summer resident on the Colorado River.	No suitable habitat present in the Project area.	None	None
Vermilion flycatcher (*Pyrocephalus rubinus*)	CDFG: Species of Special Concern NECO Plan	Open farmlands, shrubby grasslands, streamsides, and small wooded ponds in desert habitat. Found in diverse areas near open water.	Limited suitable habitat within the proposed alternatives.	Low	Low
Yuma clapper rail (*Rallus longirostris yumanensis*)	ESA: Endangered CESA: Threatened CDFG: Fully Protected	Nests in freshwater marshes surrounded by tules and cattails. Found along the Colorado River.	No suitable habitat within the Project area.	None	None
Crissal thrasher (*Toxostoma crissale*)	CDFG: Species of Special Concern NECO Plan	Occurs in dense riparian and mesquite scrub, microphyll woodland, and riparian washes with a dense understory of shrubs	Some habitat present that could support species foraging but not typical for nesting. Riparian wash present south of the southern alternative. An unidentified thrasher was heard calling during the survey on the northern alternative.	Moderate	Moderate
Le Conte's thrasher (*Toxostoma lecontei*)	CDFG: Species of Special Concern USFWS: Bird of Conservation Concern NECO Plan	Arid and open plains that are sparsely vegetated and dominated by saltbush and creosote bush	This species was previously detected in 2011 in an area between the northern and southern alternatives. Suitable habitat for this species is present mainly in the creosote bush areas of the Project. An unidentified thrasher was heard calling during the survey on the northern alternative.	High	High

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Northern Transmission Line (BLM Jurisdiction)[2]	Potential for Occurrence within the Southern Transmission Line (BLM Jurisdiction)[2]
Mammals					
Pallid bat (*Antrozous pallidus*)	CDFG: Species of Special Concern BLM: Sensitive NECO Plan	This gregarious species usually roosts in small colonies in rock crevices and buildings, but may nest in caves, mines, rock piles, and tree cavities.	Roosting habitat for pallid bats is present in tree cavities in desert riparian woodland wash in the southeastern portion of the survey area. The closest documented occurrence in the CNDDB is from 1992, approximately 30 miles to the southwest of the airport near Corn Springs.	Low	Low
Pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*)	CDFG: Species of Special Concern	Along desert borders in eastern San Diego County in desert washes, desert scrub, desert succulent scrub, and pinyon-juniper areas. Usually in rocky or gravelly areas.	Very little habitat observed within the Project area. Closest CNDDB occurrence is from 1957 approximately 11 miles southwest.	Low	Low
Townsend's big-eared bat (*Corynorhinus townsendii*)	CDFG: Species of Special Concern BLM: Sensitive NECO Plan	Occurs in a wide variety of habitats but most commonly in mesic areas. Roosts in open areas.	Suitable foraging habitat within the Project area but limited roosting habitat. The closest CNDDB record is from 1919 and is approximately seven miles southeast of the surveyed areas.	Low	Low
Western yellow bat (*Lasiurus xanthinus*)	CDFG: Species of Special Concern	Occurs in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees and forages over water and in trees.	Limited roosting habitat available in the Project area; no water observed during surveys. The only CNDDB record is from 1980 and is mapped in Blythe.	Low	Low
California leaf-nosed bat (*Macrotus californicus*)	CDFG: Species of Special Concern BLM: Sensitive NECO Plan	Lowland desert scrub, desert riparian and wash areas, alkali scrub, or palm oases. Requires rugged or rocky terrain with mines or caves for roosting.	Suitable foraging habitat is present throughout the Project area, although roosting habitat is limited in the immediate region. A 2002 CNDDB record lists a colony of bats in the general vicinity (in the Roosevelt Mine quad), but specific location information is suppressed and it is unclear which species of bat may be present.	Low	Low
Arizona myotis (*Myotis occultus*)	CDFG: Species of Special Concern	Lowlands of the Colorado River and adjacent desert mountain ranges. Roosts in tree hollows, rock crevices, and similar areas.	The closest documented occurrence in the CNDDB is from 1942, approximately five miles south of the Project.	Low	Low

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Northern Transmission Line (BLM Jurisdiction)[2]	Potential for Occurrence within the Southern Transmission Line (BLM Jurisdiction)[2]
Cave myotis (*Myotis velifer*)	CDFG: Species of Special Concern BLM: Sensitive NECO Plan	Low elevation arid regions near the Colorado River and in adjacent mountains. Requires caves or mines for roosting.	Suitable foraging habitat is present throughout the Project area, although roosting habitat is limited in the immediate region. A 2002 CNDDB record lists a colony of bats in the general vicinity (in the Roosevelt Mine quad), but specific location information is suppressed and it is unclear which species of bat may be present.	Low	Low
Yuma myotis (*Myotis yumanensis*)	BLM: Sensitive	Prefers open forests and woodlands. Requires water for foraging. Roosts in mines, caves, buildings, and crevices.	No roosting or foraging habitat available within the Project area.	None	None
Colorado Valley woodrat (*Neotoma albigula venusta*)	NECO Plan	Low-lying deserts in southeastern California, particularly those with beavertail cactus (*Opuntia basilaris*) and mesquite (*Prosopis* sp.).	While there is ample foraging habitat for this species, there is very little rocky habitat for constructing middens into. There were no obvious signs of woodrat at the burrows that were observed.	Low	Low
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	CDFG: Species of Special Concern NECO Plan	Occurs in rocky areas with high cliffs in pine-juniper woodland, desert scrub, palm oasis, desert wash, and desert riparian habitat.	No suitable habitat in Project area.	None	None
Nelson's bighorn sheep (*Ovis canadensis nelson*)	BLM: Sensitive NECO Plan	Mountain slopes with sparse growth of trees above the desert floor in California.	Nelson's bighorn sheep is known within the region. While the species is generally associated with mountainous areas, desert floor areas are important for dispersal and seasonal movement.	Low	Low
Colorado River cotton rat (*Sigmodon arizonae plenus*)	CDFG: Species of Special Concern	Occurs in alluvial areas along the Colorado River in areas supporting marshy vegetation.	No suitable habitat in Project area.	None	None
American badger (*Taxidea taxus*)	CDFG: Species of Special Concern	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.	Suitable badger habitat occurs throughout the vicinity in undeveloped areas. Some large burrows were observed within the Project area but were likely kit fox and/or coyote.	High	High
Desert kit fox (*Vulpes macrotis arsipus*)	Calif. Code of Regulations: PFM	Suitable habitat for this fossorial mammal consists of arid open areas, shrub grassland, and desert ecosystems.	Suitable kit fox habitat occurs throughout the vicinity in undeveloped areas. A kit fox den was detected on the southern alternative.	High	Present

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Northern Transmission Line (BLM Jurisdiction)[2]	Potential for Occurrence within the Southern Transmission Line (BLM Jurisdiction)[2]
Fish					
Razorback sucker (*Xyrauchen texanus*)	ESA: Endangered CESA: Endangered CDFG: Fully Protected	Colorado River. Uses both quiet and swift waters and spawns in shallow water where there is abundant sand, gravel, and rocks.	There is no suitable habitat to support this species within the Project area.	None	None

[1]Sensitivity Status Key

<u>Federal</u> Endangered Species Act (ESA)
<u>State</u> California Department of Fish and Game (CDFG)
California Endangered Species Act (CESA)
<u>BLM</u> Sensitive
<u>NECO Plan</u> Northern and Eastern Colorado Desert Coordinated Management Plan special-status species

[2] Species Potential for Occurrence
Low – low potential to occur because suitable habitat is present, but is of marginal quality
Moderate – moderate potential to occur because suitable habitat is present, but the species was not found during surveys
High – high potential to occur because suitable habitat is present, and the species is known to occur within the vicinity, but it was not found during surveys
Present – Species detected during Project surveys on adjacent areas.

4.0 REFERENCES

AECOM. 2010. Blythe Solar Power Project Biological Resources Technical Report. Prepared for Palo Verde Solar I, LLC. June 2010.

Bureau of Land Management and California Department of Fish and Game (BLM and CDFG). 2002. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan. An amendment to the California Desert Conservation Area Plan 1980 and Sikes Act Plan with the California Department of Fish and Game and Final Environmental Impact Statement. U.S. Department of Interior Bureau of Land Management California Desert District and California Department of Fish and Game Inland, Deserts, and Eastern Sierra Region.

Burt, W. and R. Grossenheider. 1980. *Peterson Field Guide: Mammals*. New York: Houghton Mifflin Co.

California Department of Fish and Game (CDFG). 2011. Special Animals List. Accessed online at http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

_____. 2012. California Natural Diversity Database, Rare Find3, commercial version 3.1.1.

California Native Plant Society (CNPS). 2011. Inventory of Rare and Endangered Plants (online edition, v7-11aug). California Native Plant Society. Sacramento, CA. http://www.cnps.org/inventory

CH2MHill. 2010. Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunication System Route Biological Review. Prepared for Southern California Edison. November 2010.

Elbroch, Mark. 2003. *Mammal Tracks and Sign: A Guide to North American Species*. Stackpole Books: Mechanicsburg, PA.

Hickman, J.C. (ed). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley.

POWER Engineers, Inc. (POWER). 2011. Blythe Mesa Solar Project Biological Resource Technical Report. Prepared for Renewable Resources Group, Inc. September 2011.

Sawyer, J. O., and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, California.

Sibley, D.A. 2000. National Audubon Society: *The Sibley Guide to Birds*. Alfred A. Knopf, Inc.; New York, NY.

Stebbins, R.C. 2003. *Western Reptiles and Amphibians*. Third Edition. Houghton Mifflin Co.: Boston, MA.

Stuart, J.D., and J.O. Sawyer. 2001. *Trees and Shrubs of California*. University of California Press, Berkeley, CA. 467 p.

United States Department of the Interior, Fish and Wildlife Service (USFWS). 2010. Mojave Population of the Desert Tortoise (*Gopherus agassizii*): 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Desert Tortoise Recovery Office, Reno, NV.

_____. 2011. Section 7 Biological and Conference Opinion on the Devers to Palo Verde No. 2 Transmission Line Project, Riverside County, CA. FWS-ERIV-07B0060-10F0884.

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APPENDIX A: VEGETATION COMMUNITIES AND BOTANICAL SURVEY RESULTS

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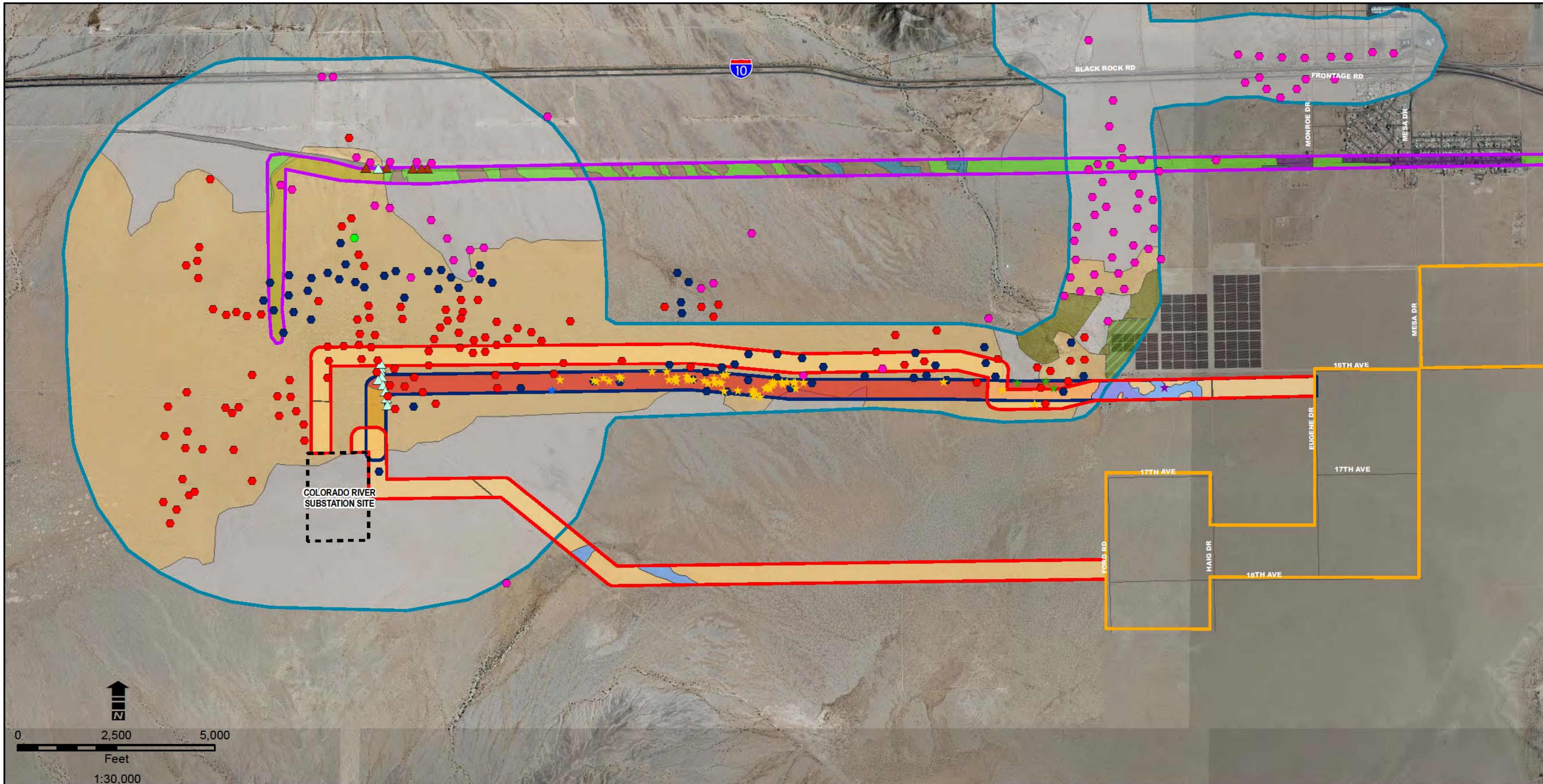

Legend

Project
- Blythe Mesa I Site Boundary

Survey Corridor
- Power Engineers 2012
- Power Engineers 2011
- AECOM 2010
- CH2M Hill 2010

Blythe Mesa Solar Project 2012
- Mammalaria (sp.) cactus
- Desert Dry Wash Woodland
- Sonoran Creosote Bush Scrub
- Developed/Disturbed

Blythe Mesa Solar Project 2011
- Ribbed Cryptantha
- Harwood's Woolystar
- Desert Pavement
- Mammallaria (sp.) cactus
- Creosote Scrub
- Desert Riparian Woodland Wash
- Disturbed Creosote Scrub
- Dune, Blowsand Desert Pavement

Blythe Solar Power Project
- Winged Cryptantha
- Harwood's Milkvetch
- Ribbed Cryptantha
- Harwood's Woolystar
- Agriculture (Active and Fallow)
- Desert Dry Wash Woodland
- Disturbed
- Sonoran Creosote Bush Scrub
- Stabilized/Partially Stabilized Desert Dunes

Devers-Palo Verde No. 2 Transmission Line Project
- Harwood's Milkvetch
- Ribbed Cryptantha
- Agriculture
- Creosote Bush Scrub
- Creosote Bush Scrub - Big Galleta
- Developed
- Ironwood Woodland
- Open Pavement
- Partially Stabilized Desert Dune

VEGETATION COMMUNITIES AND BOTANICAL SURVEY RESULTS

BLYTHE MESA SOLAR PROJECT

POWER ENGINEERS
RENEWABLERESOURCESGROUP

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APPENDIX B: VEGETATION COMMUNITIES AND WILDLIFE SURVEY RESULTS

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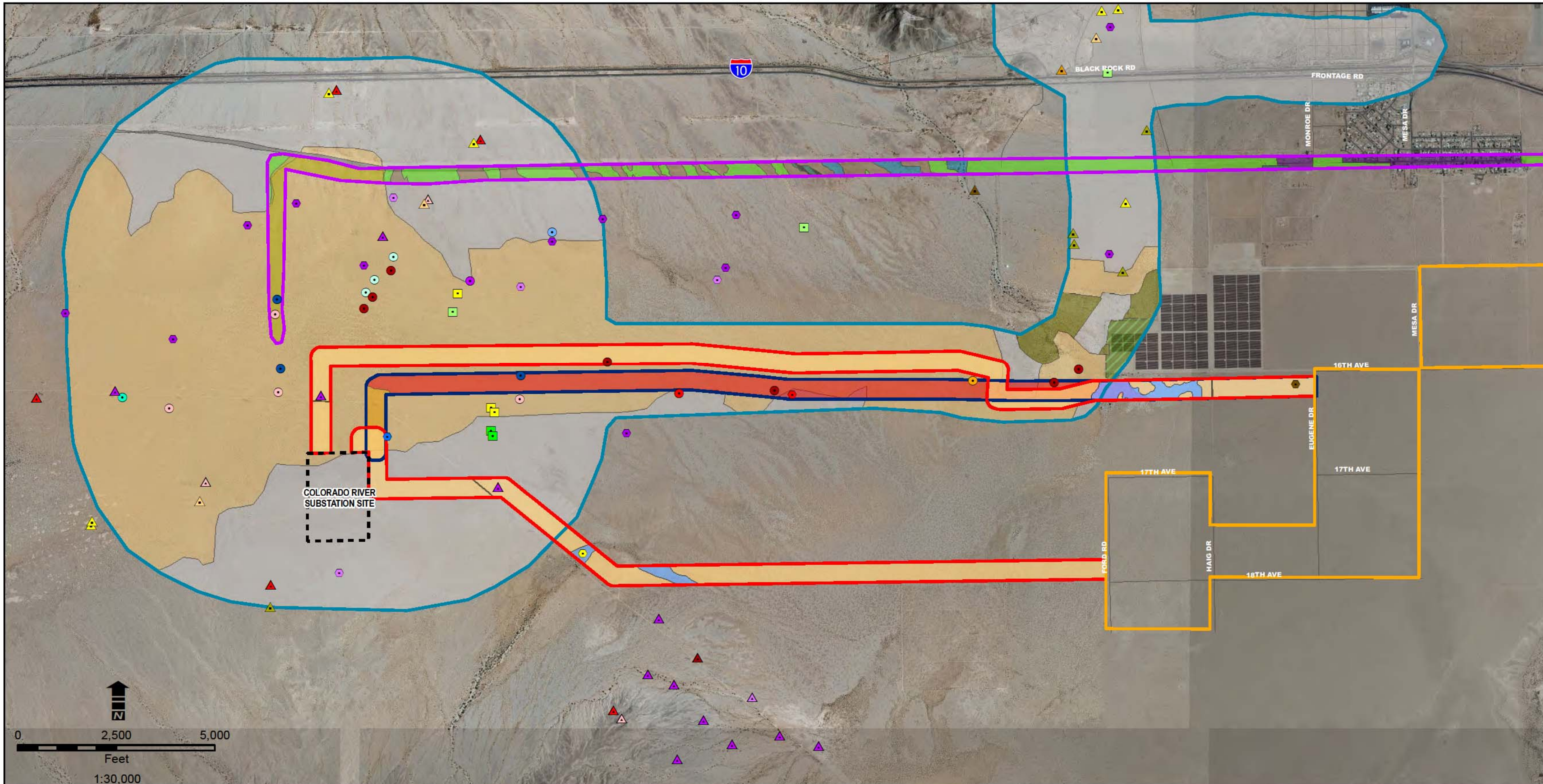

Legend

Project
- Blythe Mesa I Site Boundary

Survey Corridor
- Power Engineers 2012
- Power Engineers 2011
- AECOM 2010
- CH2M Hill 2010

Blythe Mesa Solar Project 2012
- Kit Fox Burrow
- Potential Coyote or Kit Fox Den
- Desert Dry Wash Woodland
- Sonoran Creosote Bush Scrub
- Developed/Disturbed

Blythe Mesa Solar Project 2011
- Burrowing Owl Burrow
- Burrow
- Coyote Burrow
- Coyote/Badger Burrow
- Le Conte's Thrasher
- Creosote Scrub
- Desert Riparian Woodland Wash
- Disturbed Creosote Scrub
- Dune, Blowsand Desert Pavement

Blythe Solar Power Project
- Desert Tortoise Bone Fragment (Class 5) - Mineral*
- Desert Tortoise Bone Fragment (Class 5) - Non-min*
- Desert Tortoise Burrow (Class 3)
- Desert Tortoise Burrow (Class 4)
- Desert Tortoise Pallet (Class 5)
- Desert Tortoise Tracks
- Burrowing Owl Active Burrow
- Burrowing Owl Burrow with Sign
- Ferruginous Hawk
- Loggerhead Shrike
- Northern Harrier
- Swainson's Hawk
- Kit Fox Burrow
- Kit Fox Burrow Complex
- Agriculture (Active and Fallow)
- Desert Dry Wash Woodland
- Disturbed
- Sonoran Creosote Bush Scrub
- Stabilized/Partially Stabilized Desert Dunes

Devers-Palo Verde No. 2 Transmission Line Project
- Adult Desert Tortoise
- Desert Tortoise Bone Fragment
- Desert Tortoise Burrow
- Desert Tortoise Occupied Burrow
- Desert Tortoise Scat
- Burrowing Owl
- Loggerhead Shrike
- Northern Harrier
- Swainson's Hawk
- Unknown Raptor Nest
- Agriculture
- Creosote Bush Scrub
- Creosote Bush Scrub - Big Galleta
- Developed
- Ironwood Woodland
- Open Pavement
- Partially Stabilized Desert Dune

VEGETATION COMMUNITIES AND WILDLIFE SURVEY RESULTS

BLYTHE MESA SOLAR PROJECT

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APPENDIX C: VEGETATION COMMUNITIES AND MOJAVE FRINGE-TOED LIZARD SURVEY RESULTS

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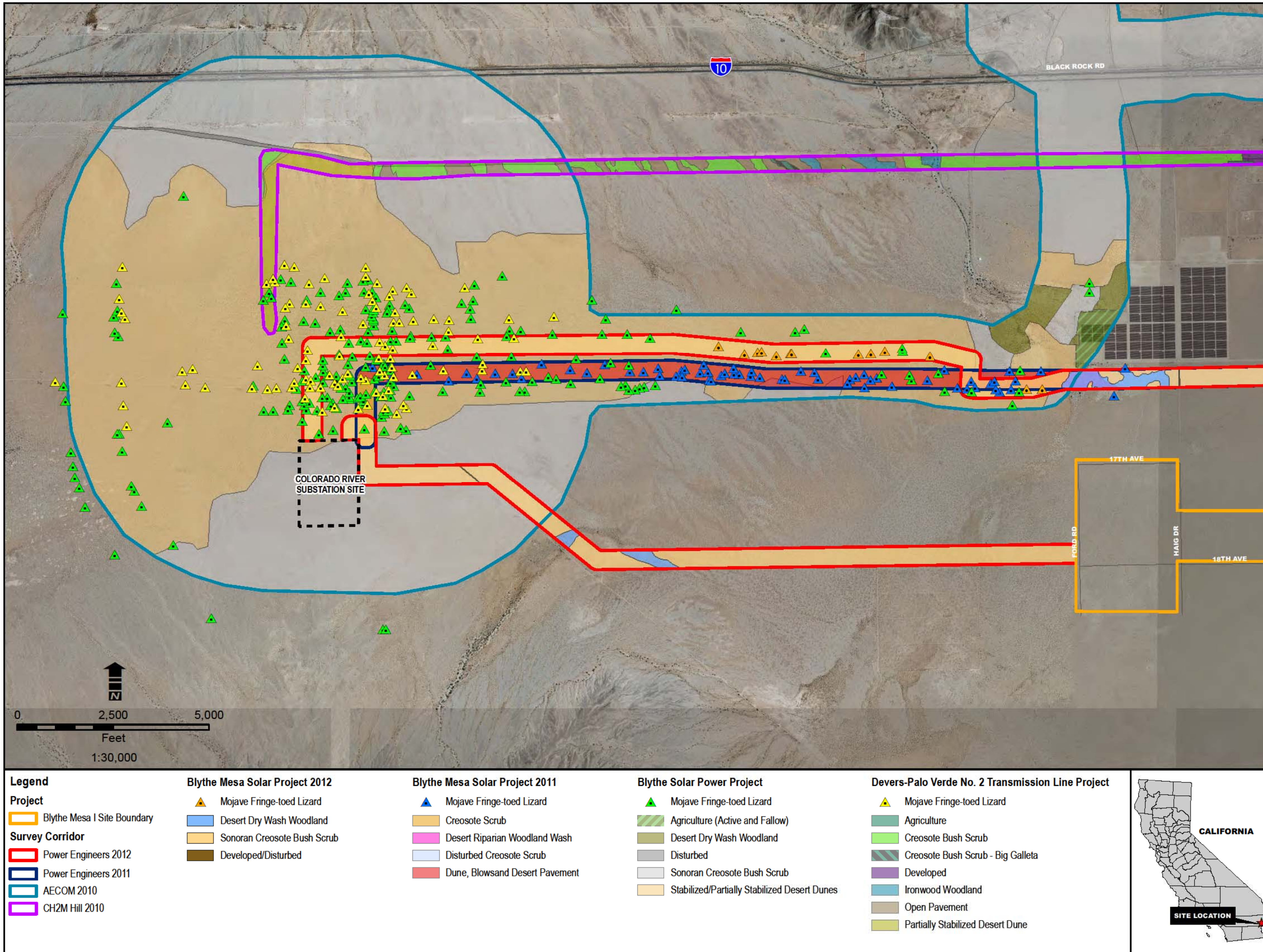

VEGETATION COMMUNITIES AND MOJAVE FRINGE-TOED LIZARD SURVEY RESULTS

BLYTHE MESA SOLAR PROJECT

POWER ENGINEERS

RENEWABLE RESOURCES GROUP

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APPENDIX D: OBSERVED PLANTS

Scientific Name	Common Name	Northern Alternative	Southern Alternative
ANGIOSPERMS (DICOTYLEDONS)			
AMARANTHACEAE	AMARANTH FAMILY		
Tidestromia oblongifolia	honeysweet	X	
ASCLEPIADACEAE	MILKWEED FAMILY		
Asclepias sp.	milkweed	X	
ASTERACEAE	SUNFLOWER FAMILY		
Ambrosia dumosa	burro bush	X	X
Bebbia juncea	sweetbush	X	
Dicoria canescens	desert dicoria	X	
Encelia farinosa	brittlebush	X	
Hymenoclea salsola	cheesebush	X	
Palafoxia arida	Spanish needles	X	
Stephanomeria pauciflora	wire lettuce	X	X
BORAGINACEAE	BORAGE FAMILY		
Cryptantha circumscissa	cushion cryptantha	X	
Tiquilia plicata	plicate tiquilia	X	
BRASSICACEAE	MUSTARD FAMILY		
Brassica tournefortii	wild turnip	X	X
Lepidium sp.	peppergrass	X	X
CACTACEAE	CACTUS FAMILY		
Cylindropuntia echinocarpa	golden cholla	X	
Cylindropuntia sp.	cholla	X	
Mammillaria tetrancistra	fish hook cactus	X	
CHENOPODIACEAE	GOOSEFOOT FAMILY		
Atriplex polycarpa	allscale	X	
*Salsola tragus**	Russian thistle	X	
EUPHORBIACEAE	SPURGE FAMILY		
Stillingia spinulosa	Mohave stillingia	X	
FABACEAE	LEGUME FAMILY		
Cercidium floridum	palo verde	X	X
Olneya tesota	ironwood	X	X
Psorothamnus sp.	indigo bush	X	X
GERANIACEAE	GERANIUM FAMILY		
*Erodium cicutarium**	red-stemmed filaree	X	
MARTYNIACEAE	UNICORN-PLANT FAMILY		
Proboscidea althaeifolia	desert unicorn plant	X	
NYCTAGINACEAE	FOUR O'CLOCK FAMILY		
Abronia villosa	sand verbena	X	X
ONAGRACEAE	EVENING PRIMROSE FAMILY		
Camissonia bistorta	California sun cup		X
Camissonia boothii	bottlebrush primrose	X	
Camissonia sp.	camissonia	X	X
POLEMONIACEAE	PHLOX FAMILY		
Langloisia setosissima	langlosia	X	
POLYGONACEAE	BUCKWHEAT FAMILY		

Scientific Name	Common Name	Northern Alternative	Southern Alternative
Chorizanthe rigida	rigid spineflower		X
ZYGOPHYLLACEAE	CALTROP FAMILY		
Larrea tridentata	creosote bush	X	X
ANGIOSPERMS (MONOCOTYLEDONS)			
POACEAE	GRASS FAMILY		
Pleuraphis rigida	galleta grass	X	X
*Schismus barbatus**	Mediterranean schismus	X	X

* - non-native species

APPENDIX E: OBSERVED WILDLIFE

Scientific Name	Common Name	Northern Alternative	Southern Alternative
CLASS INSECTA	**INSECTS**		
TENEBRIONIDAE	**DARKLING BEETLES**		
Asbolus verrucosus	desert ironclad beetle	X	X
Eleodes sp.	stink beetle	X	X
MUTILLIDAE	**VELVET ANTS**		
Dasymutilla sp.	velvet ant	X	X
POMPILIDAE	**SPIDER WASPS**		
Pepsis formosa	tarantula hawk	X	X
THERAPHOSIDAE	**TARANTULAS**		
Aphonopelma sp.	tarantula		X (tracks)
CLASS REPTILIA	**REPTILES**		
IGUANIDAE	**IGUANAS AND CHUCKWALLAS**		
Dipsosaurus dorsalis	desert iguana	X	
PHRYNOSOMATIDAE	**PHRYNOSOMATID LIZARDS**		
Callisaurus draconoides	zebra-tailed lizard	X	
Phrynosoma platyrhinos	desert horned lizard	X (scat)	
Uma scoparia	Mojave fringe-toed lizard	X	
Uta stansburiana	side-blotched lizard	X	
TEEIDAE	**WHIPTAILS, ALLIES**		
Aspidoscelis tigris	western whiptail	X	X
VIPERIDAE	**PIT VIPERS**		
Crotalus cerastes	sidewinder		X (tracks)
CLASS AVES	**BIRDS**		
ODONTOPHORIDAE	**NEW WORLD QUAIL**		
Callipepla gambelii	Gambel's quail	X (call)	
CATHARTIDAE	**NEW WORLD VULTURES**		
Cathartes aura	turkey vulture	X	X
ACCIPITRIDAE	**HAWKS, KITES, EAGLES**		
Buteo jamaicensis	red-tailed hawk	X	X
FALCONIDAE	**CARACARAS, FALCONS**		
Falco sparverius	American kestrel		X
COLUMBIDAE	**PIGEONS, DOVES**		
Zenaida asiatica	white-winged dove	X	
Zenaida macroura	mourning dove	X	
TYRANNIDAE	**TYRANT FLYCATCHERS**		
Tyrannus verticalis	western kingbird	X	
LANIIDAE	**SHRIKES**		
Lanius ludovicianus	loggerhead shrike	X	
CORVIDAE	**CROWS, JAYS**		
Corvus corax	common raven	X	X
ALAUDIDAE	**LARKS**		
Eremophila alpestris	horned lark	X	X
HIRUNDINIDAE	**SWALLOWS**		
Hirundo rustica	barn swallow		X
TROGLODYTIDAE	**WRENS**		
Campylorhynchus brunneicapillus	cactus wren	X (song)	
SYLVIIDAE	**OLD WORLD WARBLERS, GNATCATCHERS**		
Polioptila melanura	black-tailed gnatcatcher	X	
MIMIDAE	**MOCKINGBIRDS, THRASHERS**		

Scientific Name	Common Name	Northern Alternative	Southern Alternative
Toxostoma sp.	thrasher	X (song)	
PARULIDAE	**WOOD-WARBLERS**		
Wilsonia pusilla	Wilson's warbler	X	
ICTERIDAE	**BLACKBIRDS**		
Icterus bullockii	Bullock's oriole	X	
FRINGILLIDAE	**FRINGILLINE AND CARDUELINE FINCHES, ALLIES**		
Carpodacus mexicanus	house finch	X (song)	
CLASS MAMMALIA	**MAMMALS**		
SCIURIDAE	**SQUIRRELS AND ALLIES**		
Ammospermophilus leucurus	white-tailed Antelope ground squirrel (probable call)	X (probable call)	
Spermophilus tereticaudus	round-tailed ground squirrel	X	X
HETEROMYIDAE	**POCKET MICE AND KANGAROO RATS**		
Dipodomys sp.	kangaroo rat	X (tracks and burrow)	
LEPORIDAE	**RABBITS AND HARES**		
Lepus californicus	black-tailed jackrabbit	X	
CANIDAE	**WOLVES AND FOXES**		
Canis latrans	coyote (potential den)	X (potential den)	
Vulpes macrotis arsipus	desert kit fox (tracks)	X (tracks and scat)	X (burrow, scat, and tracks)

APPENDIX C3
WESTERN BURROWING OWL
SURVEY REPORT

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January, 2012

BLYTHE MESA I SOLAR PROJECT

Western Burrowing Owl Survey Report

PROJECT NUMBER:
122512

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ACRONYMS AND ABBREVIATIONS

˚F	Fahrenheit
AMSL	above mean sea level
BLM	United States Department of the Interior, Bureau of Land Management
CBOC	California Burrowing Owl Consortium
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNWR	Cibola National Wildlife Refuge
GPS	Global Positioning System
km	kilometers
kV	kilovolt
MBTA	Migratory Bird Treaty Act
mph	miles per hour
MW	megawatt
POWER	POWER Engineers, Inc.
PV	photovoltaic
RRG	Renewable Resources Group, LLC
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Power Engineers, Inc. (POWER) conducted a western burrowing owl (*Athene cunicularia hypugaea*) protocol-level survey for the Renewable Resources Group, LLC (RRG) as part of the proposed Blythe Mesa I Solar Project (BMSP, Project). The primary purpose of the surveys was to determine the presence or absence of burrowing owls within the defined study area. The study area is located within Riverside County, California near the community of Blythe; on approximately 3,679 acres in the Palo Verde Mesa (Figure 1). The study area for the purposes of this document is delineated on Figure 2 and includes a 125-foot proposed right-of-way along the transmission line.

1.1 PROJECT OVERVIEW

The proposed Project consists of construction and operation of a 485 megawatt (MW) alternating current solar photovoltaic (PV) electrical generating facility and associated infrastructure to provide site access and connection to the statewide electricity transmission grid. The Project footprint is proposed to be located on approximately 3,660 acres in the Palo Verde Mesa region of Riverside County—3,587 for the solar field and 73 acres for the 230 kilovolt (kV) transmission line interconnect. POWER conducted the surveys within proposed Project transmission line footprint which included a 500 feet wide corridor centered on the 125-foot wide project right-of-way. The survey area of array parcels included a 500-foot (150-meter) wide buffer around the project limits. The proposed project would occupy a total of 3,660 acres and consist of the following components:

- Solar array field utilizing single axis solar PV trackers
- System of interior collection power lines located between inverters and substations
- Three on-site substations (approximately 300 feet long by 300 feet wide)
- Two operation and maintenance (O&M) buildings (approximately 3,500 square feet each)
- Two primary off-site access roads and several interior access roads
- 4.8 miles of 230 kV double-circuit transmission line between the solar field and Colorado River Substation

1.2 REGIONAL SETTING

The 3,660-acre site is five miles west of Blythe and consists mostly of agricultural land, including lemon orchards. The location is depicted on the Roosevelt Mine, Ripley, and McCoy Wash 7.5' U.S. Geological Survey (USGS) Topographic Quadrangles (see Figure 1). The Project is located on:

- Sections 11 and 12 of Township 7 South, Range 21East
- Sections 3, 4, 5, 6, 8, 9 of Township 7S, South, Range 22 East
- Sections 27, 28, 29, 32, 33, 34 of Township 6 South, Range 22 East, of the San Bernardino Base Meridian

State Highway 10 bisects the Project area, which is bounded on the north and south by undeveloped open desert, on the east by agricultural lands and on the west by the Blythe City Airport and open desert lands.

The Project area is located on the western mesa of the Palo Verde Valley. The topography is relatively flat and slopes toward the southeast; elevations range from 260 to 400 feet above mean sea level (AMSL). The subtropical climate of the Colorado Desert is currently characterized by dry, mild winters averaging 45 degrees Fahrenheit (˚F) and dry, hot summers that average 104˚F. Summer highs are known to reach up to 120˚F. Precipitation ranges between two and ten inches per year, with most of the precipitation occurring between November and March. Although rainfall occurs primarily in the winter months, the region is periodically influenced by tropical weather conditions, including sudden monsoonal summer storms which typically occur from July to later September.

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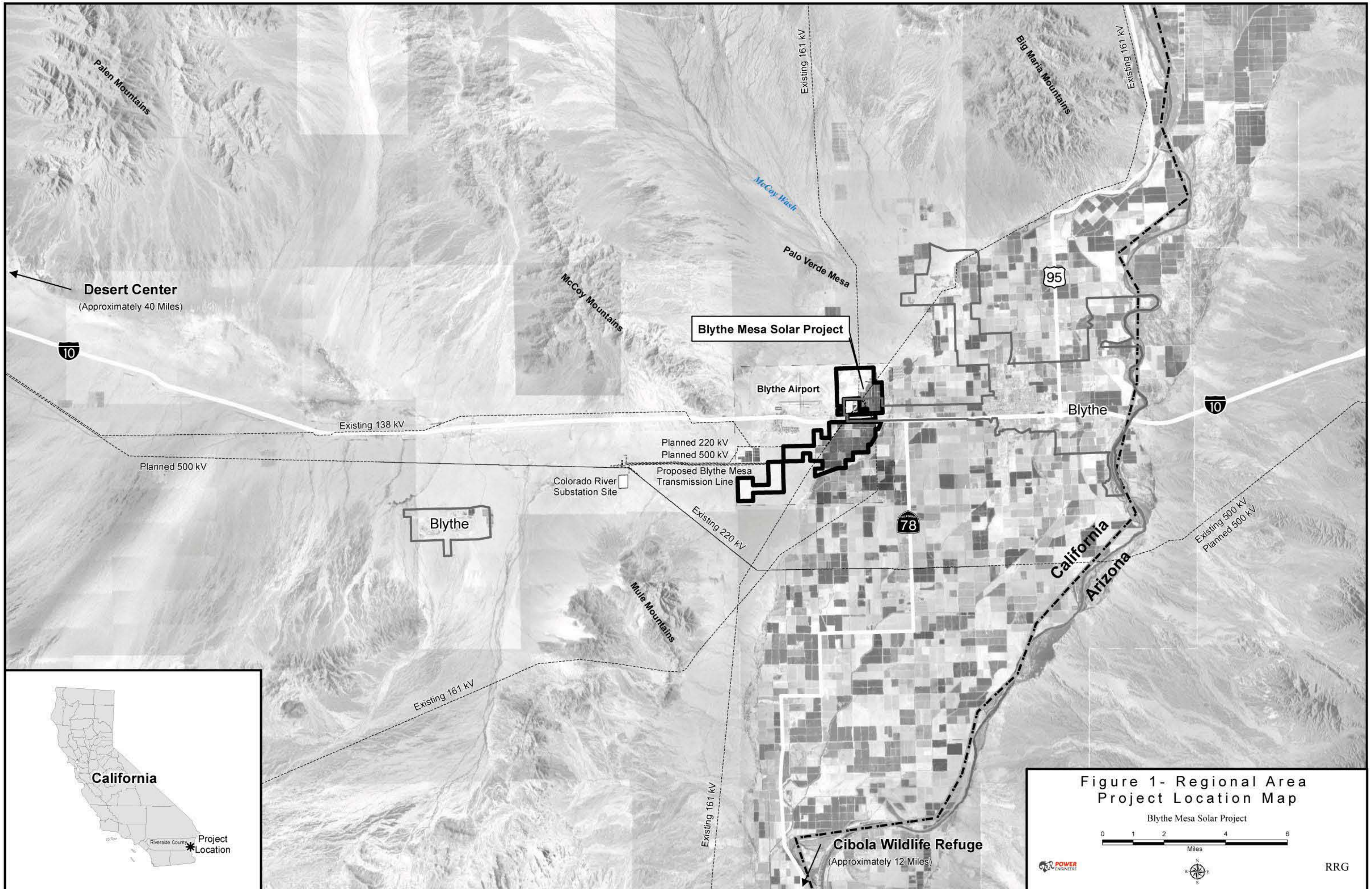
FIGURE 1 - REGIONAL AREA PROJECT LOCATION MAP



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1.3 EXISTING CONDITIONS

The proposed project consists primarily of desert scrub and agricultural lands. Along the four mile transmission line route and eastern and southern ends of the project limits there are discrete areas of disturbed native creosote scrub and disturbed stabilized dune and blow sand habitats. Table 1 presents the estimated acreage observed for each habitat type within the study area. This data does not represent the actual proposed project disturbance footprint for the solar areas, transmission lines, substations, and facility buildings and roads.

TABLE 1. OBSERVED HABITAT ACREAGE WITHIN THE STUDY AREA

Habitat	Acres	Percentage Within the Project Site
Bajada	18.07	0.5%
Creosote Scrub	46.74	1.3%
Desert Riparian Woodland Wash	2.83	0.1%
Disturbed	31.15	0.8%
Disturbed Creosote Scrub	233.44	6.3%
Disturbed Creosote Scrub and Fallow Agricultural	271.10	7.4%
Dune, Blowsand Desert Pavement	52.52	1.4%
Fallow	249.72	6.8%
Irrigated Cropland	404.02	11.0%
Irrigation Pond	17.21	0.5%
Mixed	75.92	2.1%
Non-Irrigated Cropland	1088.15	29.6%
Orchard	1188.36	32.3%
Total Project Area Acreage (Includes 125 ft right-of-way)	**3679.24**	**100.0%**

As listed above, the Project area comprises mainly agricultural land and desert scrub. Existing land consists of farmland, fallow farmland, creosote bush scrub, or stabilized desert dune and blowsand habitat. Active agricultural uses include citrus orchard and ornamental date palms, and wheat and alfalfa fields. Jojoba was previously grown for commercial purposes in some portions of the project area. The jojoba fields have been abandoned at some point in the recent past and are currently a mix of jojoba and reestablishing creosote bush scrub.

The study area is also situated among energy generating facilities (i.e., solar and natural gas-fired), active transmission lines, and electrical substations. Given the extent of the existing human-influenced environment (e.g., active agricultural operations [harvesting, discing, and planting]; high levels of automobile traffic [Interstate 10 bisects the Project]; energy generation, distribution and maintenance facilities; and ongoing aviation related activities) within the study area, any animals currently using these lands are assumed to be acclimated to the disturbance regime present.

2.0 SPECIES DESCRIPTION

Western burrowing owl is designated as a Priority 2 Bird Species of Special Concern by the California Department of Fish and Game (CDFG) due to rapid habitat loss and degradation from urbanization. It is also designated as a U.S. Department of the Interior, Bureau of Land Management (BLM) Sensitive species and a U.S. Fish and Wildlife Service (USFWS) Bird of Conservation Concern. Its range extends through all states west of the Mississippi Valley and into Mexico, Central America, and South America.

In California, it typically inhabits lowlands, including those in the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. For shelters, the burrowing owl uses rodent burrows in sparse grassland, desert, and agricultural habitats, as well as open areas of pinyon-juniper or ponderosa pine habitats (CDFG 2008). Breeding populations generally display greater site fidelity than winter populations, which tend to move about more, even taking refuge into vegetation instead of nearby burrows (Poulin et al. 2011). Individuals in California, particularly Southern California, are mostly residents (CDFG 2008). Nesting begins from late March to August, peaking in April and May (CDFG 2008). While some pairs have been observed to have double broods within a single breeding season, it is considered to be uncommon and is not always successful (Poulin et al. 2011). Burrowing owls are typically active at dusk and dawn, but can sometimes be active at night, as well.

3.0 SURVEY METHODOLOGY

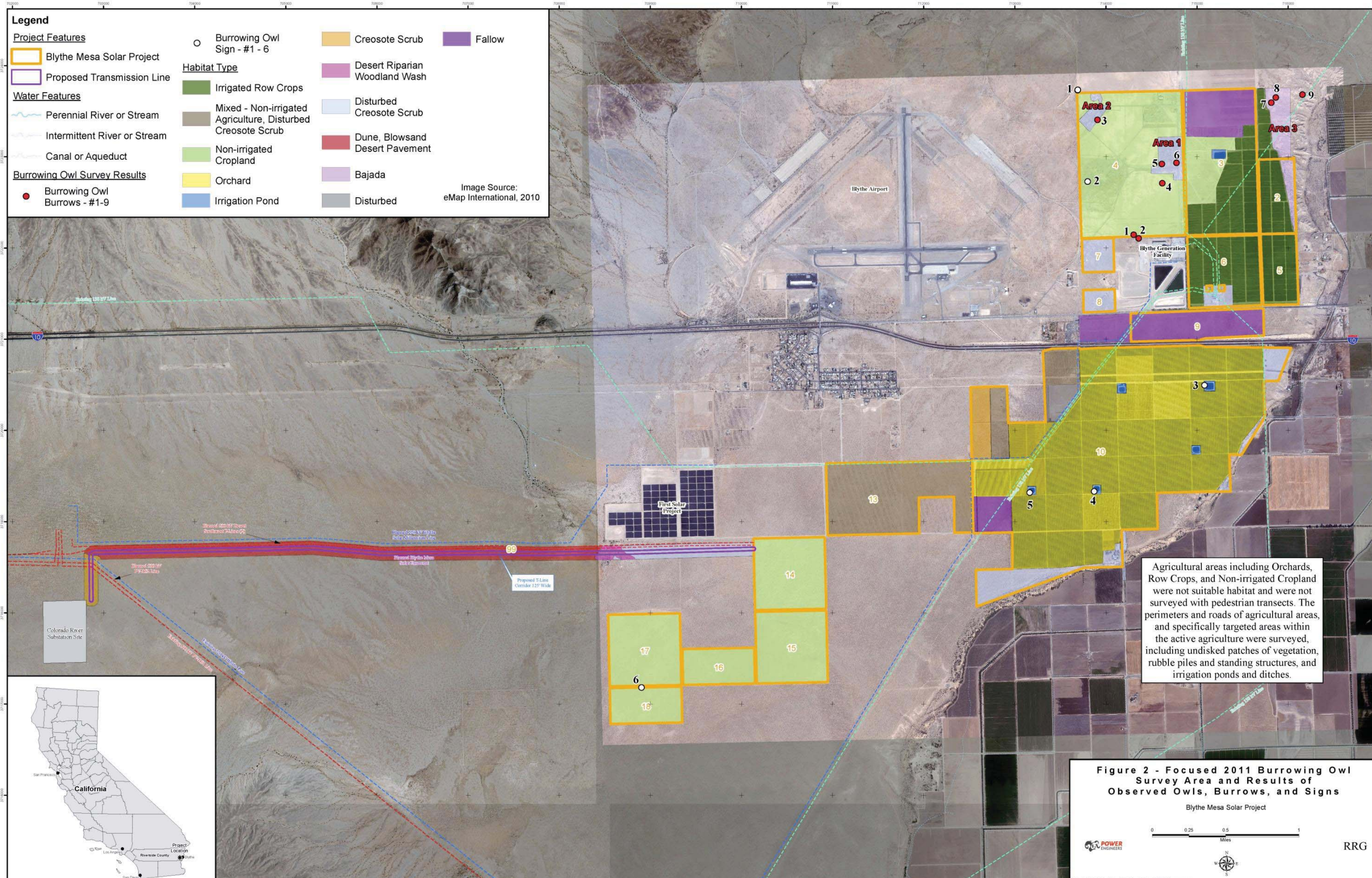
Collection of burrowing owl baseline data in the Project area included a review of the California Natural Diversity Database (CNDDB) records and of applicable biological documents, including several solar projects that have completed burrowing owl surveys. Additionally, a systematic pedestrian assessment of the study area to determine the habitat suitability for burrowing owls was conducted on the 5th and 6th of May 2011.

Protocol surveys were started on May 6 and extended through July 23, 2011. Survey methods were derived from generally accepted professional standards, the 1993 California Burrowing Owl Consortium (CBOC) Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC 1993), and the 1995 CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995). In summary, a methodical pedestrian survey for owl burrows was conducted by walking through areas of suitable habitat within the study area, including man-made structures. In addition, biologists visited the Cibola National Wildlife Refuge (CNWR) 12 miles to the south of the Project limits to view the known burrowing owls there as a reference population; biologists saw six burrowing owls foraging near an agricultural field at the CNWR, which confirmed activity in middle to late July in this region of the owls' range.

POWER biologists Tom Herzog, Steve Hicks, Ken McDonald, and Melissa Lippincott, and Garcia and Associates, Inc. biologists Andrew McCadden, Angelique Herman, and Laura Megill conducted pedestrian survey transects, spaced at approximately 100 feet to allow for 100% visual coverage of the study area. Where necessary, transect spacing was reduced or expanded to account for differences in terrain, vegetation density, and visibility. The locations of all potential owl burrows and sign were recorded and mapped using handheld global positioning devices and aerial imagery. Figure 2 presents the protocol burrowing owl survey areas for the Project area.. Incidental observations of other avian species, plants and other wildlife were also noted. The presence of each observed wildlife species was based on direct observation of individual(s), sign, and/or vocalization.

Field surveys were conducted when weather conditions were conducive to observing owls and other avian species. The surveys were not performed during rain, high winds (greater than 20 mph), dense fog, or temperatures over 90 ºF. Observations were made from the nearest appropriate vantage points with the use of binoculars when access to discrete portions of the study area were not possible due to private property, topographic relief, physical barriers, health and safety considerations, etc.

FIGURE 2 – FOCUSED BURROWING OWL SURVEY AREA, OBSERVED OWLS, BURROWS AND SIGN



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4.0 SURVEY RESULTS

A nine-quad search of the CNDDB (CNDDB, 2011a) including USGS quadrangles McCoy Peak, McCoy Wash, Blythe NE, Roosevelt Mine, Ripley, Blythe, Thumb Peak, Palo Verde, and Mule Wash identified 46 occurrences of burrowing owls in the Blythe area, with two occurrences on the Project site. In addition to the CNDDB records search, recent surveys and reports for similar projects near the Project area were also reviewed (Table 2).

TABLE 2. ADJACENT PROJECT SURVEY INFORMATION

Species	Project	Species Detected	BMSP Survey Area Overlap
Burrowing Owl	Blythe Solar Power Project	Yes, two within solar site, four in transmission line and multiple sign. Not determined how sign was confirmed.	Overlaps with BMSP transmission line and Colorado River Substation (CRS) survey areas.
	Genesis Solar Energy Project	Yes, three individuals detected around the generation tie line and one burrow around the main site.	No overlap
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	Burrow sites detected along project segment that encompasses Colorado River Substation, but specific locations not mapped.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, burrowing owls detected along southern telecom route. Three owls detected just east of Colorado River Substation.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.

4.1 FIELD RESULTS

During the habitat assessment survey, biologists determined that the Project area contained suitable habitat conditions to support burrowing owls. Of the 3,679 acres in the study area, approximately 1,970 acres (54%) of suitable burrowing owl habitat were identified (Figure 2). Suitable habitat consisted of both fallow and active agricultural fields, irrigation ponds and canals, and creosote bush scrub. Suitable habitat also occurred along the edges of orchards. The remaining 1,703 acres consisted of orchards and alfalfa fields. Orchards within the project area did not contain suitable habitat; burrowing owls prefer open areas and do not inhabit areas with dense vegetation (U.S. Fish and Wildlife Service, 2003). Alfalfa fields provide suitable forage areas for burrowing owls, but heavy and frequent disturbance of the fields by disking and harvesting decreases burrow availability. Burrows can occur along the edges of agricultural fields, orchards and road banks; all road banks, field edges and irrigation ditches along the agricultural areas throughout the Project site were surveyed. Six irrigation ponds located in the orchard area and irrigation channels throughout the agricultural area and to the east of the project limits provide accessible fresh water for wildlife.

The field data from the protocol surveys identified the presence of six burrowing owls during the May survey and eight owls during the July surveys, and an additional two owls were observed outside the project site but within the survey buffer. Nine suitable burrows or burrow complexes were observed in the northern portion of the site (Figure 2). No suitable burrows were observed in the southern portion of the site. Soil conditions in the southern half of the site within Project Parcels 4, 13-18 and the transmission corridor were very sandy and unstable. However, burrowing owl sign (white wash, pellets, feathers) was observed in five locations in the southern region of the Project area. Burrows observed in the southern half of the site belonged to either kit fox (*Vulpes macrotis*) or kangaroo rat (*Dipodomys* sp.). No burrowing owl sign was observed near the kit fox burrows. Several of the kit fox burrows were recent and active kit fox sign was documented; however, most of the burrows were old and collapsed and would not support burrowing owl because the instability of the soil.

During the July surveys (14-19 and 21-23) burrowing owl activity and use was determined to the extent possible. Burrows were monitored at sunrise or sunset on different days to ensure a complete activity period was evaluated for each observed bird. The northern end of the Project site was divided into three burrowing owl monitoring sites. Please refer to Figure 2 for the location of Areas 1, 2, and 3.

Area 1 supported four burrowing owls. The four burrowing owls were observed flying in and out of three separate concrete / brick lined cylindrical, man-made structures, which have concrete collars above ground level and are open to below ground level to a depth of approximately four feet. Appendix C includes site photographs and images of the well location burrows and these described elements. In Area 1, Burrow #4 contained the greatest number of observed sign, including pellets, prey detritus, feathers, and white wash. Burrows # 5 and 6 also featured significant amounts of pellets, detritus, white wash, and feathers. Biologists were unable to determine if the owls were two separate pairs or one pair with two juveniles. Burrowing owls at Area 1 consistently exhibited social and foraging behavior. Several perch sites were favored in this area, including a metal rod with a rounded top, a fence post, a large pile of cleared vegetation and, most frequently, the edges of the concrete wells. Area 1 consisted of approximately five acres of disturbed creosote bush scrub dominated by creosote bush and bur sage; concrete rubble piles from old demolished barracks were scattered throughout the creosote bush scrub. Area 1 was bound on the south, west and north by recently tilled, non-irrigated wheat fields that have been farmed for approximately one year. This field is bound to the north by open space comprising creosote scrub habitat, and to the west by disturbed creosote scrub habitat within the area of the former military base and current Blythe Airport.

In Area 2, two burrowing owls occupied a single burrow located in a concrete rubble pile. The two owls were observed consistently during morning and evening hours perched on top of the rubble pile. Burrowing owl tracks were identified around and into the rubble pile, with feathers and pellets near a small burrow entrance beneath the rubble. Sex and age of the two burrowing owls observed during the surveys was not established. The burrowing owls occupying Area 2 were easily distressed and would flush and call to one another whenever biologists entered the vicinity. Area 2 consisted of approximately two acres of disturbed creosote bush scrub dominated by creosote bush and bur sage. Concrete rubble piles and two concrete foundations were scattered throughout the creosote bush scrub. Area 2 was surrounded to the south, east and north by recently tilled, non-irrigated wheat fields and disturbed creosote bush scrub to the west.

In Area 3, two burrowing owls occupied a burrow complex within a native Bajada area in the buffer study area. One burrow appeared to be a former canid burrow due to its size, shape, and location in an area of naturally formed earth mounds. Biologists identified three separate burrowing complexes on the earth mounds within an approximately ten-acre zone. Each burrow complex contained several burrows with recent sign, including white wash, feathers, tracks, and pellets. The two burrowing owls were typically perched on top of earthen mounds when the biologists accessed the area. Biologists could not determine if the pair was nesting without additional harassment.

4.2 WILDLIFE AND PLANTS OBSERVED DURING BURROWING OWL SURVEY

Round-tailed ground squirrel (*Spermophilus tereticaudus*) and white-tailed antelope squirrel (*Ammospermophilus leucurus*) burrows where observed throughout the northern and eastern portions of the site along road sides, agricultural fields and disturbed areas with mounded soils or dump sites. Creosote bush (*Larrea tridentata*) was the dominant species in undisturbed portions of the site. Additional plants and wildlife species frequently observed within suitable habitat included bur sage (*Ambrosia dumosa*), wheat (*Triticum* sp.), mourning dove (*Zenaida macroura*), white-wing dove (*Zenaida asiatica*), horned lark (*Eremophila alpestris*), greater roadrunner (*Geococcyx californianus*), black-tailed jackrabbit (*Lepus californicus*), desert iguana (*Dipsosaurus dorsalis*), and western whiptail (*Cnemidophorus tigris*). Three CDFG Species of Special Concern, Le Conte's thrasher (*Toxostoma lecontei*), loggerhead shrike (*Lanius ludovicianus*) and Mohave fringe-toed lizard (*Uma scoparia*) were observed in multiple locations on both the northern and southern portions of the Project area. Complete plant and wildlife species observed are included in Appendices A and B.

5.0 CONCLUSION

The study area supports a relatively small population of burrowing owl, and based on the burrowing owl survey results from surrounding solar projects burrowing owl may occupy habitat outside of the study area limits (AECOM 2010, Aspen 2011). It was not determined if this population is increasing or decreasing in size or the length of occupancy. The surveys determined that in July 2011, eight individual burrowing owls were present within the study area and may be directly or indirectly affected by the Project. This determination is valid for 12 months from the completion of this report (October 2011 through October 2012). The number of owls or burrows affected at the time of ground disturbance may be greater than or less than this number because of the natural variation in the owl population in this region, and natural and man-made conditions that may occur prior to construction.

6.0 LITERATURE CITED / REFERENCES

AECOM. 2010. Blythe Solar Power Project Biological Resources Technical Report. Prepared for Palo Verde Solar I, LLC. June 2010.

Aspen Environmental Group (Aspen). 2006. Devers-Palo Verde No. 2 500 kV Transmission Line Project Final Environmental Impact Report/Environmental Impact Statement. Prepared for California Public Utilities Commission. October 2006.

_____. 2011. Draft Supplemental Environmental Impact Report, Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion. Prepared for Southern California Edison. February 2011.

Bloom, Pete. 2003. Letter to California Department of Fish and Game, December 2003. Personal letter from Mr. Pete Bloom.

California Burrowing Owl Consortium (CBOC). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Tech. Rep. Burrowing Owl Consortium, Alviso, California. http://www.dfg.ca.gov/wildlife/nongame/docs/boconsortium.pdf

California Department of Fish and Game (CDFG). 1995. Staff Reporting on Burrowing Owl. October 17, 1995. California Department of Fish and Game. Memorandum from Mr. Ron Rempel.

_____. 2008. California Interagency Wildlife Task Group. CWHR version 8.2 personal computing program. Sacramento, CA.

California Natural Diversity Data Base (CNDDB). 2011a. California Natural Diversity Data Base. Element occurrence search for Project area quadrangles.

_____. 2011b. Special Animals List. Biogeographic Data Branch, CNDDB.

Cibola National Wildlife Refuge. 2011. Wild At Heart Owl Relocation to Cibola NWR. http://www.mirror-pole.com/wild_at_heart/bur_owl/rel_sites/cibola/cibola_release_site.html

Haug, E. A., B. A. Millsap and M. S. Martell. 1993. Burrowing Owl (Athene cunicularia), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/061.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Vegetation Ecologist Nongame-Heritage Program. Sacramento, CA.

Klute, David S., Ayers, Loren W., Green, Michael T., Howe, William H., Jones, Stephanie L., Shaffer, Jill A., Sheffield, Steven R., and Zimmerman, Tara S. 2003. Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States Biological Technical Publication BTP-R6001-2003. U.S. Fish and Wildlife Service.

Sawyer, Keeler-Wolf, Evens. 2009. A manual of California Vegetation, Second Edition, California Native Plant Society Press. Sacramento, CA.

Representative Relevant Planned Projects in vicinity of Blythe, California

AECOM. 2009. Blythe Solar Power Project Application for Certification. Submitted by Solar Millennium, LLC to the California Energy Commission.

California Energy Commission. 2010. Genesis Solar Energy Project Application for Certification Supplemental Information. March 2010. California Energy Commission Docket Number 09-AFC-8.

Devers–Palo Verde No. 2 Transmission Line Project Colorado River Substation Expansion Final Supplemental Environmental Impact Report. April 2010.

Southern California Edison. 2009. First Solar Electric, Blythe, California Environmental Assessment Initial Study. February, 2009. County of Riverside EA40219.

TetraTech Environmental, Inc. 2010. Genesis Solar Energy Project Supplemental Information. June 2010. California Energy Commission Docket Number 09-AFC-8. TetraTech Environmental, Inc.

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APPENDIX A – OBSERVED PLANT LIST

Plant Species Observed During Surveys

Scientific Name	Common Name
ANGIOSPERMS (DICOTYLEDONS)	
AMARANTHACEAE	**AMARANTH FAMILY**
Tidestromia oblongifolia	honeysweet
APIACEAE	**CARROT FAMILY**
Lomatium sp.	lomatium
ASCLEPIADACEAE	**MILKWEED FAMILY**
Asclepias sp.	milkweed
Asclepias subulata	rush milkweed
Sarcostemma cynanchoides ssp. hartwegii	climbing milkweed
ASTERACEAE	**SUNFLOWER FAMILY**
Ambrosia dumosa	burro bush
Baileya pauciradiata	Colorado Desert marigold
Bebbia juncea	sweetbush
Chaenactis sp.	pincushion
Chaenactis stevioides	desert pinchushion
Dicoria canescens	bugseed
Geraea canescens	desert sunflower
Hymenoclea salsola	cheesebush
Palafoxia arida	Spanish needles
Pluchea sericea	arrow weed
Stephanomeria pauciflora	wire lettuce
BORAGINACEAE	**BORAGE FAMILY**
Cryptantha sp.	cryptantha
Cryptantha angustifolium	narrowleaf cryptantha
Cryptantha costata	ribbed cryptantha
Cryptantha maritime	Guadalupe cryptantha
Cryptantha nevadensis	cryptantha
Cryptantha pterocarya	wing nut cryptantha
Nama demissum	purple desert mat
Pectocarya sp.	pectocarya
Tiquilia palmeri	Palmer's tiquilia
Tiquilia plicata	plicate tiquilia
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	Sahara mustard
*Buxus microphylla**	Japanese box
Lepidium sp.	peppergrass
Lepidium lasiocarpum	peppergrass
Simmondsia chinensis	jojoba
CASUARINACEAE	**SHE OAK FAMILY**
Casuarina sp.*	she oak
CACTACEAE	**CACTUS FAMILY**
Cylindropuntia echinocarpa	golden cholla
Mammillaria sp.	fish-hook cactus
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Atriplex canescens	four-wing saltbush
Atriplex lentiformis	quail brush

Scientific Name	Common Name
*Bassia hyssopifolia**	five-hooked bassia
Salsola tragus	Russian thistle
CUCURBITACEAE	**GOURD FAMILY**
Cucurbita sp.*	squash
EUPHORBIACEAE	**SPURGE FAMILY**
Stillingia spinulosa	annual stillingia
FABACEAE	**LEGUME FAMILY**
Acacia greggii	cat claw acacia
Astragalus sp.	astragalus
Cercidium floridum	palo verde
Dallea mollissima	downy dalea
*Medicago sativa**	alfalfa
Olneya tesota	desert ironwood
Prosopis sp.	mesquite
Prosopis glandulosa	Honey mesquite
Psorothamnus emoryi	indigobush
Psorothamnus schottii	indigobush
GERANIACEAE	**GERANIUM FAMILY**
*Erodium cicutarium**	red-stemmed filaree
LOASACEAE	**LOASA FAMILY**
Eucnide urens	rock nettle
Mentzelia sp.	blazing star
Mentzelia multiflora	blazing star
Petalonyx thurberi ssp. thurberi	sandpaper plant
MARTYNIACEAE	**UNICORN PLANT FAMILY**
Proboscidea althaeifolia	desert unicorn plant
MYRTACEAE	**MYRTLE FAMILY**
Eucalyptus sp.*	gum tree
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**
Abronia villosa	sand verbena
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Camissonia boothii	bottlebrush primrose
Oenothera deltoids ssp. deltoides	bird-cage primrose
PLANTAGINACEAE	**PLANTAIN FAMILY**
Plantago erecta	western plantain
Plantago ovata	wooly plantain
POLEMONIACEAE	**PHLOX FAMILY**
Eriastrum harwoodii	Harwood’s eriastrum
Gilia sp.	
Langloisia setosissima	lilac sunbonnet
POLYGONACEAE	**BUCKWHEAT FAMILY**
Chorizanthe brevicornu	brittle spineflower
Chorizanthe rigida	rigid spineflower
Eriogonum sp.	
RESDACEAE	**MIGNONETTE FAMILY**
Oligomeris linifolia	Narrow-leaf oligomeris
ROSACEAE	**ROSE FAMILY**

Scientific Name	Common Name
*Prunus persica**	peach
RUTACEAE	**RUE FAMILY**
*Citrus limon**	lemon
*Citrus sinensis**	orange
TAMARICACEAE	**TAMARISK FAMILY**
*Tamarix ramosissima**	Mediterranean tamarisk
VISCACEAE	**MISTLETOE FAMILY**
Phoradendron californicum	desert mistletoe
ZYGOPHYLLACEAE	**CALTROP FAMILY**
Larrea tridentata	creosote bush
ANGIOSPERMS (MONOCOTYLEDONS)	
ARECACEAE	**PALM FAMILY**
Phoenix sp.*	date palm
LILIACEAE	**LILY FAMILY**
Hesperocaulis undulata	desert lily
POACEAE	**GRASS FAMILY**
Pleuraphis rigida	galleta grass
*Schismus barbatus**	Mediterranean schismus
*Triticum aestivum**	wheat

* = non-native species

APPENDIX B – OBSERVED WILDLIFE LIST

Scientific Name	Common Name
CLASS INSECTA	**INSECTS**
MELOIDAE	**BLISTER BEETLES**
Lytta auriculata	red-eared blister beetle
TENEBRIONIDAE	**DARKLING BEETLES**
Asbolus verrucosus	desert ironclad beetle
Eleodes spinipes	darkling beetle
MANTIDAE	**MANTIDS**
Litaneutria minor	ground mantis
PIERIDAE	**WHITE & SULPHUR BUTTERFLIES**
Pieris rapae	cabbage white
Pontia protodice	checker-white
NYMPHALIDAE	**BRUSH-FOOTED BUTTERFLIES**
Vanessa virginiensis	Virginia lady
LYCAENIDAE	**GOSSAMER WING BUTTERFLIES**
Brephidium exilis	pygmy blue
FORMICIDAE	**ANTS**
Messor pergandei	desert harvester ant
MUTILLIDAE	**VELVET ANTS**
Dasymutilla sp.	velvet ant
POMPILIDAE	**SPIDER WASPS**
Pepsis formosa	tarantula wasp
CLASS AMPHIBIA	**AMPHIBIANS**
Bufo woodhousii	Woodhouse’s toad
CLASS REPTILIA	**REPTILES**
TRIONYCHIDAE	**SOFTSHELL TURTLES**
Apalone spinifera	spiny softshell turtle
IGUANIDAE	**IGUANID LIZARDS**
Callisaurus draconoides draconoides	common zebra-tailed lizard
Dipsosaurus dorsalis	desert iguana
Phrynosoma sp.	horned lizard
Uma scoparia	Mojave fringe-toed lizard
Uta stansburiana	common side-blotched lizard
TEIIDAE	**WHIPTAIL LIZARDS**
Cnemidophorus sp.	whiptail
COLUBRIDAE	**COLUBRID SNAKES**
Arizona elegans occidentalis	Glossy snake
Chinoactis occipitalis	shovel-nosed snake
VIPERIDAE	**VIPERS**
Crotalus cerastes	sidewinder

Scientific Name	Common Name
CLASS AVES	**BIRDS**
CATHARTIDAE	**NEW WORLD VULTURES**
Cathartes aura	turkey vulture
ACCIPITRIDAE	**HAWKS, KITES, EAGLES**
Buteo jamaicensis	red-tailed hawk
FALCONIDAE	**FALCONS**
Falco sparverius	American kestrel
ODONTOPHORIDAE	**NEW WORLD QUAIL**
Callipepla gambelii	Gambel's quail
CHARADRIIDAE	**PLOVERS**
Charadrius vociferus	killdeer
COLUMBIDAE	**PIGEONS & DOVES**
Columba livia	rock pigeon
Streptopelia risoria	ringed turtle-dove
Zenaida aurita	white-winged dove
Zenaida macroura	mourning dove
CUCULIDAE	**CUCKOOS & ROADRUNNERS**
Geococcyx californianus	greater roadrunner
STRIGIDAE	**TRUE OWLS**
Athene cunicularia	burrowing owl
APODIDAE	**SWIFTS**
Aeronautes saxatalis	white-throated swift
TYRANNIDAE	**TYRANT FLYCATCHERS**
Tyrannus verticalis	western kingbird
ALAUDIDAE	**LARKS**
Eremophila alpestris	horned lark
HIRUNDINIDAE	**SWALLOWS**
Petrochelidon pyrrhonota	cliff swallow
CORVIDAE	**JAYS & CROWS**
Corvus corax	common raven
LANIIDAE	**SHRIKES**
Lanius ludovicianus	loggerhead shrike
STURNIDAE	**STARLINGS**
Sturnus vulgaris	European starling
ICTERIDAE	**BLACKBIRDS**
Agelaius phoeniceus	red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Icterus cucullatus	hooded oriole
Xanthocephalus xanthocephalus	yellow-headed blackbird
Quiscalus mexicanus	great-tailed grackle

Scientific Name	Common Name
MIMIDAE	**MOCKINGBIRDS & THRASHERS**
Toxostoma lecontei	Le Conte's thrasher
THRAUPIDAE	**TANAGERS**
Piranga ludoviciana	Western tanager
SYLVIIDAE	**GNATCATHERS**
Polioptila caerulea	black-tailed gnatcatcher
EMBERIZIDAE	**EMBERIZIDS**
Zonotrichia leucophrys	white-crowned sparrow
FRINGILLIDAE	**FINCHES**
Carduelis tristis	American goldfinch
CLASS MAMMALIA	**MAMMALS**
LEPORIDAE	**HARES & RABBITS**
Lepus californicus	black-tailed jackrabbit
Sylvilagus audubonii	desert cottontail
SCIURIDAE	**SQUIRRELS**
Ammospermophilus leucurus	white-tailed antelope squirrel
Spermophilus tereticaudus	Round-tailed ground squirrel
HETEROMYIDAE	**POCKET MICE & KANGAROO RATS**
Dipodomys sp.	kangaroo rat
CANIDAE	**WOLVES & FOXES**
Canis familiaris	domestic dog
Canis latrans	coyote
Vulpes macrotis	kit fox
MUSTELIDAE	**WEASELS, SKUNKS & OTTERS**
Taxidea taxus	American badger
BOVIDAE	**BISON, GOATS & SHEEP**
Ovis canadensis	bighorn sheep (skull)
CHIROPTERA	**BATS**
Myotis sp.	Myotis

APPENDIX C4
AVIAN AND BAT PROTECTION PLAN

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March 2014

BLYTHE MESA SOLAR PROJECT

Avian and Bat Protection Plan

PROJECT NUMBER:
122512

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1.0 INTRODUCTION

This Avian and Bat Protection Plan (ABPP) has been designed to protect resident and migrating avian and bat species that may be at risk from construction, operation and maintenance (O&M) of the proposed Blythe Mesa Solar Project (BMSP, Project). At the request of the Proponents, Renewable Resources Group, Inc. and Solar Star Blythe Mesa 1, LLC, this ABPP was prepared by POWER Engineers, Inc. as part of the proposed BMSP.

This ABPP has been written with consideration to and guidance from the data and suggestions presented in the U.S. Fish and Wildlife Service's (USFWS) *Region 8 Interim Guidelines for the Development of a Project-specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities* (USFWS 2010), and the Avian Power Line Action Committee's (APLIC) *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994* (APLIC 1994), *Avian Protection Plan Guidelines* (APLIC 2005), and *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006). In addition, existing information on bird and bat use in the Project area has been utilized to effectively address avian and bat safety specific to the construction and operation and maintenance (O&M) work of BMSP to reduce impacts to migratory birds, bald and golden eagles, listed bat and avian species.

The Project is commitment to avian and bat safety and compliance with the Migratory Bird Treaty Act of 1918 (MBTA, 16 U.S.C. 703 – 712), the Bald and Golden Eagle Protection Act of 1940 (BGEPA, 16 U.S.C. 668 – 668d), and the Endangered Species Act of 1973, as amended (ESA, 16 U.S.C. 1531 – 1544). The following plan will outline the methods, and requirements to ensure that birds and bat are protected during the construction and O&M work of the proposed BMSP.

1.1 Project Description

The proposed Project consists of construction and operation of a 485 megawatt (MW) alternating current solar photovoltaic (PV) electrical generating facility and associated infrastructure to provide site access and connection to the statewide electricity transmission grid via interconnection to the Southern California Edison (SCE) Colorado River Substation, an approved new substation located south of Interstate 10 (I-10) and approximately four miles west of the Project site. The Project is proposed to be located on approximately 3,660 acres in the Palo Verde Mesa region of Riverside County—3,587 for the solar facility and 73 acres for the 230 kilovolt (kV) transmission line interconnect. The proposed Project would consist of the following components (Figure 1):

- Solar Facility site (3,587 total acres)
  - Solar array field would utilize single-axis solar PV trackers (295 feet long and 140 feet wide). Six trackers with 18 north-south oriented rows of PV panels would be configured into 1.5 MW blocks (600 feet long by 470 feet wide).
  - System of interior collection power lines located between inverters and substations
  - Three on-site substations (each approximately 300 feet long by 300 feet wide)
  - Two operation and maintenance (O&M) buildings (approximately 3,500 square feet each)
  - Two primary off-site access roads and several interior access roads
- Approximately 8.4 miles of 230 kV double-circuit transmission line
  - Approximately 3.6 miles would be located within the solar facility
  - Approximately 4.8 miles would extend outside of the solar facility and would be placed within a 125-foot-wide right-of-way (ROW) and occupy 73 acres.

1.1.1 Regional Setting

The 3,660-acre site is five miles west of Blythe and consists mostly of agricultural land, including lemon orchards. The location is depicted on the Roosevelt Mine, Ripley, and McCoy Wash 7.5' U.S. Geological Survey (USGS) Topographic Quadrangles (see Figure 2). The Project is located on:

- Sections 11 and 12 of Township 7 South, Range 21 East
- Sections 3, 4, 5, 6, 8, 9 of Township 7S, South, Range 22 East
- Sections 27, 28, 29, 32, 33, 34 of Township 6 South, Range 22 East, of the San Bernardino Base Meridian

State Highway 10 bisects the Project area, which is bounded on the north and south by undeveloped open desert, on the east by agricultural lands, and on the west by the Blythe City Airport and open desert lands.

The Project area is located on the western mesa of the Palo Verde Valley. The valley is a portion of the Colorado River floodplain. The Project area is on Palo Verde Mesa and is situated in the greater Sonoran Desert. The topography is relatively flat and slopes toward the southeast; elevations range from 260 to 400 feet above mean sea level (AMSL). The Project area is near the Big Maria Mountains on the northwest, the McCoy Mountains on the west, the Mule Mountains on the southwest, and the Colorado River on the east. These mountain ranges, trending northwest to southeast, create a natural barrier between the Colorado River and the greater Colorado Desert.

The subtropical climate of the Colorado Desert is currently characterized by dry, mild winters averaging 45 degrees Fahrenheit (ºF) and dry, hot summers that average 104ºF. Summer highs are known to reach up to 120ºF. Precipitation ranges between two and ten inches per year, with most of the precipitation occurring between November and March. Although rainfall occurs primarily in the winter months, the region is periodically influenced by tropical weather conditions, including sudden monsoonal summer storms, which typically occur from July to later September.

The general area has a long history of human use and disturbance with dominant land uses consisting of agricultural fields and groves (citrus orchards), residences, Blythe Municipal Airport, Blythe Energy Center, electrical transmission lines, an interstate highway, and commercial businesses. Within this matrix of human development and disturbance some patches of open desert habitat remain in the form of creosote bush scrub and desert riparian wash. To the west, the Project area also includes undeveloped open desert that is managed by the U.S. Department of the Interior, Bureau of Land Management (BLM). The solar facility associated with this Project would be situated within agricultural land or otherwise disturbed land (primarily former agriculture and military training), and the generation interconnection ("gen-tie") line within private, disturbed lands and BLM lands. Areas north and west of the Project are preserved as open space for recreational use and wildlife.

FIGURE 1. PROJECT AREA

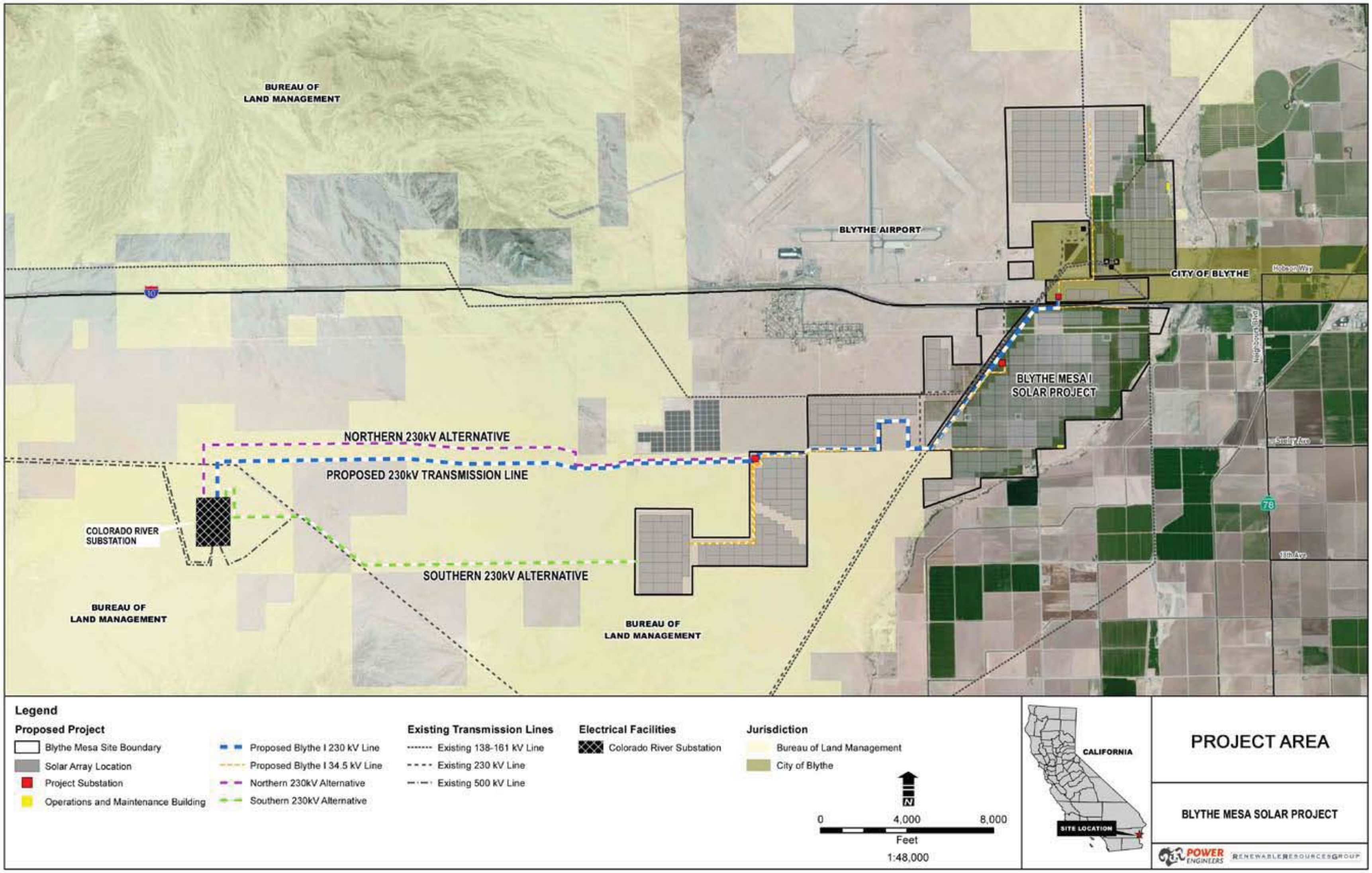
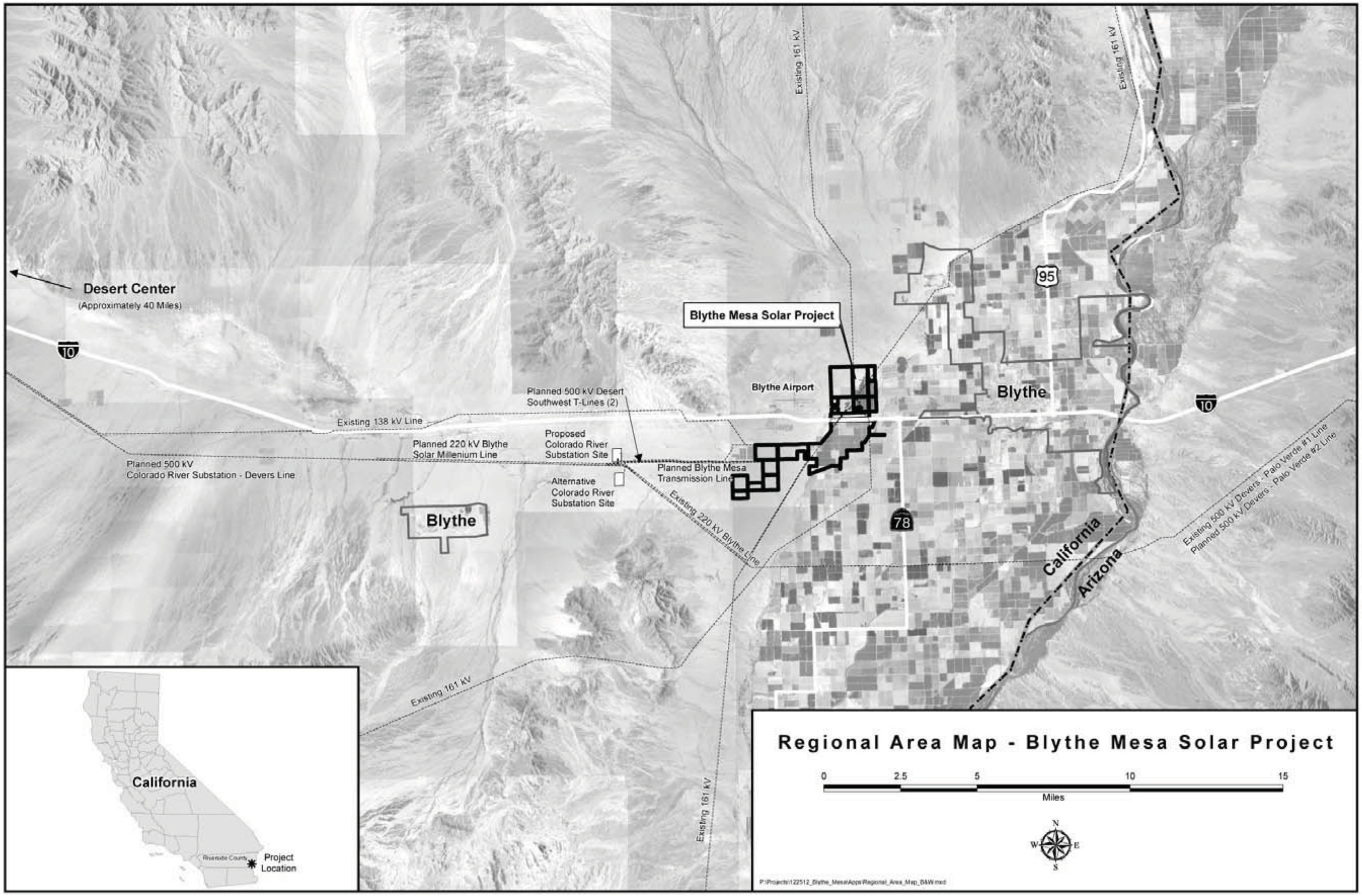


FIGURE 2. REGIONAL AREA MAP

FIGURE 2. REGIONAL AREA MAP



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1.2 Purpose and Goal of this Avian and Bat Protection Plan

Recent advances in technology along with environmental concerns associated with fossil fuel extraction, transportation, refining and combustion have stimulated the expansion of the renewable energy industry and its promotion through federal, state and local legislative efforts. With its abundant sunshine, desirable climate and proximity to large population centers, the Colorado Desert of Southern California is an ideal location to develop solar energy resources. Consequently, a number of solar energy projects (utilizing a variety of technologies) are in various stages of development in the region.

Concern over bird and bat fatalities (primarily associated with commercial wind farms) has led to increased attention from resource management agencies and efforts to minimize impacts to birds and bats from any renewable energy development. These efforts often include systematic monitoring to quantify effects on birds and bats, increasing agency coordination or consultation, risk assessments, and application of design and operational strategies to reduce impacts. Efforts are typically set forth and documented in planning documents such as ABPPs, sometimes known as Bat and Bird Conservation Strategies (USFWS 2010). ABPPs establish a commitment to identify and address known causes of bird and bat mortality that could occur from normal operation activities, and are intended to provide a framework for compliance with federal and state laws. The USFWS has prepared an interim guideline for developing project-specific ABPPs for solar energy facilities and associated transmission lines (USFWS 2010).

Based on specific recommendations from USFWS, this ABPP presents a good-faith, voluntary effort by the Proponents to initiate a program to minimize bird and bat mortality during both construction and operations at the Blythe Mesa Solar Project site. Specifically, this ABPP provides:

- A statement of the Proponents' understanding of the importance of bird and bat safety and management's commitment to remain in compliance with relevant laws
- Documentation of conservation measures BMSP is implementing through design and operations to avoid and reduce bird and bat fatalities at both solar generation facilities as well as the associated gen-tie line
- Consistent, practical and up-to-date direction to BMSP staff how to avoid, reduce and monitor bird and bat fatalities
- Establishment of accepted processes to monitor and mitigate bird and bat fatalities,
- Establishment of accepted fatality thresholds that, if surpassed, will trigger adaptive changes to management and mitigation management
- An adaptive management framework to be applied, if thresholds are surpassed.

ABPPs are considered "living documents" that articulate a power producer's commitment to develop and implement a program to increase avian and bat safety and reduce risk. As progress is made through the program or challenges are encountered, the ABPP may be reviewed, modified and updated. The initial goals of this ABPP are to:

- Provide a framework to facilitate compliance with federal law protecting avian species and means to document compliance for regulators and the interested public
- Allow the Proponents to manage risk to protected bird and bat species in an organized and cost-effective manner
- Establish a mechanism for communication between BMSP managers and natural resource regulators (primarily USFWS)
- Foster a sense of stewardship with BMSP owners, managers and field engineers
- Articulate and cultivate a culture of wildlife awareness (specifically birds and bats) and the importance of their protection.

As stated above, it is presumed that this avian and bat protection plan is a "living document" and will be modified or updated based upon changing conditions, site modifications, unforeseen events, and evidence of lower risk. New versions will be dated and given a revision number.

This ABPP is not to be considered a delineation of legal requirements. Instead, it provides guidance for achieving and maintaining regulatory compliance, minimizing risk, and documenting good-faith efforts to maintain bird and bat safety associated with the Blythe Mesa Solar Project.

1.2.1 Coordination with Others

Early coordination and pre-consultation with the USFWS, the California Department of Fish and Wildlife (CDFW), the County of Riverside, and the BLM was conducted during a series of meetings, email correspondences, and phone conversations. The early coordination helped guide the approach and need for the development of this ABPP. A summary of coordination and consultation to date is provided below (Table 1).

Table 1. Coordination with Agencies

Agency	Study Component	Date	Type of Contact	Summary
USFWS, CDFW, County of Riverside	Biological surveys	August 23, 2011	Meeting	Project Overview and discussion of biological resources and surveys needed.
Kim Marsden, BLM	Review of Survey effort	March 29, 2012	Meeting	Review of Biological Resources, existing data, site conditions, and surveys completed. Also discussed data needs moving forward.
USFWS, BLM, County of Riverside	Review of Project information, including the biological data collected	May 10, 2012	Meeting	This meeting was a pre-application meeting. Several resources were discussed in addition the biological resources.
Shankar Sharma and Magdalena Rodriguez, CDFW	Review of survey effort.	June 13, 2012	Meeting	Review of Previous Studies in Project Area & Vicinity, Analysis of Existing Conditions, Survey Work and Present Findings and Steps moving forward
Nisa Marks, USFWS	Avian Data	August 09, 2012	Email Correspondence	Reviewed the relevant and available migratory bird species data that was collected for BMSP. Requested that the next steps would be to prepare a ABPP
Kim Marsden, BLM; Jared Bond, County of Riverside	Habitat Assessment data along the transmission line alternatives	August 30, 2012	Email Correspondence	Submitted the BMSP Bio Transmission Line Alternative Habitat Assessment Report for review.
Jared Bond, County of Riverside	ABPP and Burrowing Owl Protection Plan	September 20, 2012	Phone conversation	Review of Habitat Assessment Report and suggested the preparation of a burrowing owl plan and ABPP.
Nisa Marks, USFWS	Avian and Bat Protection Plan	October 22, 2012	Email Correspondence	Provided written guidance for preparing a ABPP for solar projects
USFWS	ESA species	November 14, 2012	Letter	Concurrence that the BMSP is not likely to incidentally take or affect ESA species, specifically the desert tortoise

1.3 Regulatory Framework

Native birds and bats in the U.S. are afforded protection under federal and state laws, including the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), and provisions of the California Code.

1.3.1 Federal

Endangered Species Act (ESA): The ESA is administered under the U.S. Fish and Wildlife Service (USFWS). The purpose of the ESA is to "provide a means whereby ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of these species." Section 9 of the ESA prohibits purposeful or incidental "take" of listed species, including killing or harming a listed species or its habitat. Any activity that is expected to result in incidental take of a threatened or endangered species requires a USFWS permit issued under section 7 or 10 of the ESA. It should be noted that no federally-listed bird or bat species is known to occur of find habitat with the area of the Project's solar array fields or gen-tie line. Future revisions of this ABPP will note changes in listing status of any covered species.

Migratory Bird Treaty Act (MBTA): All native birds in the U.S. are protected under the Migratory Bird Treaty Act. The MBTA states that "Unless and except as permitted by regulations…it shall be unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, [or] kill…any migratory bird". Unauthorized take of any of the protected bird species constitutes a violation of the MBTA. The USFWS has established permits for certain intentional activities that result in take, such as scientific research and hunting, but currently does not provide provisions for the incidental take of migratory birds at energy facilities. Consequently, there is no permitting framework that allows a renewable energy developer to protect itself from the liability of take. However, demonstrable good faith efforts to affectively avoid and minimize impacts are considered by USFWS prior to MBTA enforcement actions.

Bald and Golden Eagle Protection Act (BGEPA): The BGEPA prohibits the take of any bald or golden eagle. "Take" is defined as "Pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." "Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." Recent USFWS regulations (Federal Register 74:46836-46879, September 11 2009) allow for the issuance of permits for eagle take that is associated with, but not the purpose of, an activity. Permits may be issued when "the take is unavoidable even though advanced conservation practices are being implemented." Stipulations of the permitting framework include periodic monitoring of eagle use near the project during and for three years following the proposed activity (50 CFR 22:26). Such permitting has not been identified for this Project nor anticipated.

It should be noted that each avian protection regulation described above includes the concept of "take." Section 9 of the ESA most clearly defines take as "to harass, harm, pursue, hunt, shoot, wound, kill trap, capture, or collect or attempt to engage in any such conduct." "Harm" has been further defined as "an act which actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering."

The active nests of all migratory birds are afforded protection. Both active and inactive nests of eagles and colonial nesting birds are afforded protection. Disturbance or destruction of a nest in any protected category is considered "take" under the law.

Northern and Eastern Colorado Desert Coordinated Management Plan (BLM 2002): The Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan is a landscape-scale, multi-agency planning effort that protects and conserves the natural resources of the California portion of the Sonoran Desert while also managing its use for humans. This plan was prepared under the same regulations that implement the FLPMA of 1976. The NECO Plan provides management areas for the desert tortoise (*Gopherus agassizii*), a system of integrated ecosystem management for special-status species and natural communities on federal lands, and regional standards and guidelines for public land health on BLM lands. This management plan is only applicable to BLM administered lands within the gen-tie line ROW.

California Desert Conservation Area Plan: The California Desert Conservation Area (CDCA) Plan guides the management of all BLM-administered lands in the Mojave, Sonoran, and a small portion of the Great Basin Deserts. In total, the CDCA Plan includes an area of approximately 25 million acres, 12 million of which are public lands. The primary goal of the CDCA Plan is to provide guidance for the overall maintenance of the land while simultaneously planning for multiple uses and balancing the human needs with the need to protect the natural environment. This management plan is only applicable to BLM administered lands within the gen-tie line ROW.

1.3.2 State

California Endangered Species Act of 1984, California Fish and Game Code § 2050-2098: The California Endangered Species Act (CESA) includes provisions for the protection and management of species listed by the State as endangered or threatened, or designated as candidates for such listings. CESA includes a requirement for consultation "to ensure that any action authorized by a state lead agency is not likely to jeopardize the continued existence of any endangered or threatened species… or result in the destruction or adverse modification of habitat essential to the continued existence of the species" (§ 2090). Plants of California declared to be endangered, threatened, or rare are listed at 14 California Code of Regulations (CCR) § 670.2. Animals of California declared to be endangered, threatened, or rare are listed at 14 CCR § 670.5. The administering agency for the above authority is the CDFW.

California Fish and Game Code Section 3503, 3511, 4700, 5050, and 5515: These California Fish and Game Codes (CFGC) list bird (primarily raptor), mammal, amphibian, and reptile species that are classified as fully protected in California. Fully protected species are prohibited from being taken or possessed except under specific permit requirements. These Codes also prohibit the take, possession, or needless destruction of the nests or eggs of any bird, including birds of prey or their nests or eggs, except as otherwise provided by the code or any regulation made pursuant thereto.

1.3.3 Local

No relevant local ordinances related to birds or bats applicable to this ABPP are identified at this time.

1.4 Corporate Policy and Commitment to Environmental Protection

It is the policy of the Proponents, their owners, and management to balance the goal of providing clean, renewable energy with the protection of bird and bat resources that may be affected by its generation and transmission facilities. The Proponents are committed to a good-faith effort to comply with applicable laws regarding bird and bat safety and with developing and operating its BMSP in a way that minimizes direct impacts on wildlife. This Avian and Bat Protection Plan presents the Proponents' commitment to minimize impacts on local bird and bat populations.

2.0 ENVIRONMENTAL SETTING

2.1 Data Collection

The evaluation of habitats and species with the potential to be affected by the Project included a review of available information supplemented with reconnaissance-level survey and focused surveys. Methods are detailed in the Biological Resources Technical Report (POWER 2011) prepared to support the Blythe Mesa Solar Project Draft Environmental Impact Report/Environmental Assessment (EIR/EA) for the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) process. Collected data are synthesized into the baseline conditions summary presented in section 2.2 below.

2.1.1 Desktop Exercise

Preliminary environmental review of the Project area included review of information obtained from the USFWS, CDFW, BLM, Cibola National Wildlife Refuge, literature searches, reports from surrounding projects, examinations of aerial photographs, and database searches including the California Native Plant Society (CNPS), California Natural Diversity Data Base (CNDDB) records, and other sensitive species accounts for Riverside County. Regional resource planning documents prepared by federal, state and local agencies were also reviewed, including the NECO Plan, the CDCA Plan, and the Riverside General Plan. Additionally, USFWS was consulted regarding the federally listed species that could occur within the Project quads.

To identify the existing and potential biological resources present in the vicinity of the proposed Project, a Geographic Information System (GIS) search was performed. This consisted of mapping baseline biological resource data (vegetation mapping, CNDDB records, habitat conservation areas, water resources, and potential jurisdictional areas). The following US Geological Survey quadrangles were reviewed for the Project development area and environs: McCoy Wash, Ripley, and Roosevelt Mine.

Additional references used included soil data from the US Department of Agriculture, the Jepson Manual, the CNPS Inventory of Rare and Endangered Plants of California, and several other published and technical survey reports for the region. By reviewing vegetation, soils and surveys conducted by other projects in the area, biologists were able to determine where focused surveys were required and where recently acquired existing data may be able to be used for a species inventory instead. The surrounding projects that were reviewed for existing survey information include:

- Blythe Solar Power Project (AECOM 2010)
- Genesis Solar Energy Project (BLM and CEC 2010, TetraTech 2010a, TetraTech 2010b)
- Devers-Palo Verde No. 2 Transmission Line Project (Aspen 2006)
- Devers-Palo Verde No. 2 Transmission Line Project Telecommunication System Route (CH2MHill 2010)
- Devers-Palo Verde No. 2 Transmission Line Project Colorado River Substation Expansion (Aspen 2011)
- First Solar Electric Blythe Solar 1 Project (First Solar Electric, LLC (First Solar). No Date)
- Blythe Airport Solar Project (US Solar Holdings, LLC (US Solar). No Date.)
- McCoy Solar Energy Project (BLM 2012)
- Rio Mesa (Bright Source Energy, Inc.)

These projects were reviewed for survey information, including target species, survey areas, survey dates, and survey results. This was conducted through a combination of document reviews and reviews of project spatial data, when available. Because birds and bats are wide-ranging creatures, such information on surrounding projects can help identify transient species, rare species, or target species that may have elevated concern or require specific mitigation.

2.1.2 Baseline Biological Surveys

Prior to field reconnaissance surveys, biologists first developed a potential list of special-status species by consulting the CNDDB (RareFind Version 3.1.1; CDFW 2011) and CNPS Inventory of Rare and Endangered Plants (2011) for documented occurrences of special-status or rare plants and animals within the McCoy Wash, Ripley, and Roosevelt Mine USGS 7.5-minute quadrangles. These resources, along with the species range maps, were utilized to determine historic occurrence of special-status plant and wildlife species and other natural resources within the study area. Additionally, USFWS was consulted regarding the federal listed species that could occur within the Project quads (see Appendix C in Biological Resources Technical Report, POWER 2011).

Once a complete list was developed of potential species that could occur within the Project area, POWER conducted a general reconnaissance survey. The reconnaissance survey was conducted in the proposed solar array footprint by POWER biologists Tom Herzog and Ken McDonald on April 19 and 20, 2011. The survey was a comprehensive habitat assessment conducted across the solar facility site and 500-foot wide transmission line corridor (which is centered on the assumed centerline) , identifying key habitat features and observations of both plants and wildlife (including any birds and bats).

Species-habitat correlations assume the occurrence of an organism with a series of environmental variables. Environmental variables can describe the habitat components organisms are dependent upon and, therefore, predict their pattern of habitat occupancy. Therefore, a habitat-based survey approach was used to assess the Project footprints.

The field survey evaluated the quality of the habitat for each species and/or proximity of the habitat to a known occurrence of a species. Information used to determine known occurrence locations included CNDDB data, CNPS records, consultation with Wildlife Agencies, and reference to published species accounts. Field survey activities included documenting plant and animal species or sign observed within the study corridor, mapping vegetation communities, and photo-documenting existing biological conditions for all identified potential Project routes.

2.2 Existing Conditions

Prior to Project development, agricultural land use within the solar array site included drip-irrigated citrus orchards, flood-irrigated alfalfa, non-irrigated winter wheat, abandoned jojoba orchards, and fallow fields. Some additional land was heavily disturbed and had been used for World War II-era military training. Less than five percent of the area supported disturbed remnant creosote bush scrub and bajada habitat. In contrast, the gen-tie line corridors pass through BLM lands and other private lands mainly comprising desert scrub habitat and disturbed lands associated with existing infrastructure. Several utility lines and maintenance roads run through or parallel the gen-tie line corridors. Additionally, the Project area has been previously disturbed by off-road vehicle use, trash dumping, and historic use for military training during World War II. The Project site is located in the Colorado Desert in gently rolling open terrain dominated by desert scrub vegetation. The Colorado Desert is a part of the larger Sonoran Desert, which extends across the southwest United States and into Mexico. The climate is very hot and dry in the summer months, and cool and moist in the winter.

Surface water is minimal on Palo Verde Mesa and consists of limited seasonal and perennial sources. Perennial water comes from McCoy Springs in the McCoy Mountains west of the Project area and the Colorado River, which lies approximately eight miles east of the Project area. The Colorado River is the source of irrigation water for agriculture in the area.

No designated critical habitat, special management areas, wilderness study areas, or Areas of Critical Environmental Concern (ACEC) are located within the solar array site or gen-tie line corridors.

2.2.1 Vegetation and Habitat

Based on initial surveys, eleven vegetation communities and other cover types were identified within the Project development area (solar array sites and gen-tie line ROWs). Vegetation communities were classified according to the second edition of *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Community classifications were based on dominant species comprising approximately 50 percent or more of the total cover within the mapped unit relative to the list of dominant species for a given vegetation community. Habitat mapping is presented in the biological resources technical report (POWER 2011). Vegetation communities included the following:

Bajada. Bajadas are associated with broad merged alluvial fans or desert washes. This community is present in the northeastern corner of the Project area and is typically characterized as the shallow, sandy, braided bottoms of wide canyons. This community most closely resembles Holland's "Mojave Desert Wash Scrub," Code 63700 (Holland 1986).

Creosote Bush Scrub/Disturbed Creosote Scrub. Within the study area, this community is characterized by sandy soils with a shallow clay pan on a broad gentle southeast-trending slope. Dominant plants within the study area for this community include creosote bush, burro brush, brittlebush (*Encelia farinosa*), and cheesebush. This is the most common plant community consisting of non-agricultural plants within the study area. This plant community intergrades into the desert riparian woodland wash. Within the study area, there are areas of desert pavement that are covered with rounded cobbles that range in size from one to three inches. Typically, these areas are higher than the surrounding landscape by three to 15 feet. These areas are within creosote bush scrub, though the plant density is lower. Sonoran creosote bush scrub is designated by Holland as Code 33100 and Sawyer Keeler-Wolf and Evens as the Ocotillo Series (Holland 1986 and Sawyer et al. 2009). Within the gen-tie corridors, the creosote bush scrub is relatively undisturbed, except for occasional vehicle tracks. In these areas, fine sand drifts are interspersed within this community type; the Emory's indigo bush occurs in stands and is more prevalent than in other portions of the creosote bush scrub.

There are more areas of disturbed creosote bush scrub on the solar facility site compared to the gen-tie line. Past disturbances in these areas consist of military training and agricultural use, including cultivation of jojoba (*Simmondsia chinensis*). These disturbances occurred in the past, and the Sonoran creosote bush scrub within the solar array area has been recovering through natural recruitment. Two invasive plant species, Russian thistle (*Salsola tragus*) and Sahara mustard (*Brassica tournefortii*), can be found in disturbed areas throughout the study area, especially near roads and fallow and active agricultural areas. Another exotic plant, Mediterranean grass (*Schismus* sp.), is prevalent throughout the creosote bush scrub.

Desert Riparian Woodland Wash. This vegetation community consists of open, drought-deciduous, riparian scrub woodland and is made up of three primary components: wash-dependent vegetation, vegetated ephemeral dry wash, and islands of Sonoran creosote bush scrub (e.g., riparian interfluves). Dominant and indicator plants of this community within the study area include honey mesquite (*Prosopis glandulosa*), palo verde (*Cercidium floridum*), desert ironwood (*Olneya tesota*), cat-claw acacia (*Acacia greggii*), and rush milkweed (*Asclepias subulata*). Creosote bush (*Larrea tridentata*) and burro brush (*Ambrosia dumosa*) were scattered throughout the canopy. The herbaceous layer is dominated by desert plantain (*Plantago ovata*), *Cryptantha* spp., and Mediterranean grass (*Schismus barbatus*). Of the vegetation communities listed in Table 3.2.4-1, the CDFW considers desert riparian woodland wash to be a sensitive habitat/biological resource. In addition, desert riparian woodland wash is a special community type (i.e., high priority for inventory in the CNDDB) per the CDFW's

Vegetation and Mapping Program. Desert riparian woodland wash is equivalent to Holland's desert dry wash woodland (Code 62200) and Sawyer, Keeler-Wolf and Evens' Catclaw Acacia Series (Holland 1986 and Sawyer et al. 2009).

Irrigated Cropland/Irrigation Pond/Orchard/Jojoba/Wheat. These community types fall into the broader category of agriculture. The majority of agricultural land within the proposed solar array disturbance area is fallow and active agriculture. It includes lands that are currently under cultivation and those that are abandoned (e.g., fallow). Within abandoned agriculture areas, native vegetation is growing back; Russian thistle, Sahara mustard, and other exotic plants were observed interspersed with the native vegetation and are indicative of past agricultural disturbance.

Disturbed/Ruderal. Disturbed/Ruderal communities have been previously disturbed and have been converted to mostly non-native, weedy areas. Ruderal vegetation is that which grows quickly in disturbed areas and may consist of native species, such as fire-following plants, or non-native species, such as invasive grasses or forbs. Examples of invasive species that would occur in these areas include redstem filaree (*Erodium cicutarium*), Sahara mustard, and Mediterranean grass. Ruderal areas in the Project area are primarily concentrated within the proposed solar array area.

2.2.2 Avian and Bat Species in the Project Area

Because of agricultural development and general state of disturbance, the solar facility site provided little habitat for bird or bat species prior to construction. In contrast, the gen-tie line extends westward through undeveloped BLM lands supporting wildlife habitats. Certainly the gen-tie ROW supports a community of desert scrub bird species and seasonal transient migrants. Terrain across the entire area is relatively level with deep alluvium and no exposed rock features. No bat roost habitat is presented within the Project development areas or adjacent areas. Bat species may occur as daily or seasonal transients, but would not otherwise be expected to occur. Based on a review of available information, studies conducted for nearby projects, reconnaissance surveys and protocol surveys conducted as part of impacts assessment for the Project, Table2 presents a list of special status bird and bat species as well as their occurrence potential within the Project development area (solar generation site and gen-tie line ROWs). No federally-listed or state listed bird or bat species were detected at the Project site or are expected to find habitat at the Project site. Three non-listed special-status avian species or their sign were detected on site, including the western burrowing owl, Le Conte's thrasher, and loggerhead shrike. Detections of all wildlife species are discussed in detail in the Biological Technical Report (POWER 2011).

Table 2. Special-Status Bird and Bat Species Occurrence Potential within the Project Development Area

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array Project Boundary[2]	Potential for Occurrence within the Gen-tie Line (BLM Jurisdiction)[2]
Birds					
Golden Eagle (*Aquila chrysaetos*)	BGEPA species, CDFW: Species of Special Concern, BLM Sensitive	Nest in high relief areas with exposed rock (e.g., cliffs or canyons). Forage widely over level terrain.	Known to region. According to McCoy Solar Energy Project survey data (Tetra Tech EC, Inc. 2012) there were numerous golden eagle nests detected in the McCoy and Big/Little Maria Mountains, but only one of 19 was found to be active (in 2010). Expected to use area for foraging.	Moderate (may traverse level terrain)	Moderate (forage habitat present)
Short-eared owl *Asio flammeus*	CDFW: Species of Special Concern	Open fields, marshes, dunes, and grasslands.	Some suitable habitat for this species is present in and around the solar array boundary, but habitat is more marginal around the gen-tie line. No CNDDB records in the Project vicinity.	Moderate	Low
Western burrowing owl (*Athene cunicularia hypugaea*)	CDFW: Species of Special Concern, BLM: Sensitive, NECO Plan	Found mainly in grassland and open scrub from the seashore to foothills. Also found in deserts and scrublands.	Habitat marginally suitable for this species within the gen-tie corridors. May be occasionally present as foragers but unlikely to be present as residents. Suitable habitat and the species were detected within the solar array site during the survey work.	Present	Moderate
Swainson's hawk (*Buteo swainsoni*)	CESA: Threatened, USFS: Sensitive	Nesting habitat consists of open habitats with trees, either isolated, scattered or in windrows.	Migrants more frequently occur near western edge of desert such as Borrego and Morongo valleys, as reflected in annual data from the various regional hawk-watch reports. No suitable breeding habitat exists on site.	Low (non-breeding only) High (foraging)	Low (non-breeding only) High(foraging)
Vaux's swift (*Chaetura vauxi*)	CDFW: Species of Special Concern	Occurs in coniferous forests, particular redwoods and Douglas-firs. Usually nests in flocks in large hollow trees or snags. Forages over rivers and lakes.	No nesting habitat occurs in or near the Project area. Nesting habitat located primarily in mountains in coniferous habitat. May forage in water bodies in the Project vicinity but foraging habitat expected to be minimal or not present within the Project area. No CNDDB results in the Project vicinity.	Low	Low
Mountain plover *Charadrius montanus*	CDFW: Species of Special Concern, BLM: Sensitive	Occurs in short grasslands or other flat areas with short or no vegetation. Most often found in grazed areas.	Habitat for this species is primarily found in agricultural fields in and surrounding the solar array boundary. The gen-tie line contains marginal habitat for this species. Only CNDDB record for this area is a non-specific location in the general Blythe vicinity from 1981.	Moderate	Low

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array Project Boundary[2]	Potential for Occurrence within the Gen-tie Line (BLM Jurisdiction)[2]
Northern harrier (*Circus cyaneus*)	CDFW: Species of Special Concern	Occurs in coastal salt and freshwater marshes, usually nesting on the ground in shrubby vegetation in the surrounding grasslands, especially at the marsh's edge. Also forages in grasslands.	No suitable habitat observed in Project area.	None	None
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	ESA: Candidate, CESA: Endangered	Nests along large river systems, typically in areas dominated by willows and cottonwoods.	No suitable habitat observed in Project area.	None	None
Gilded flicker *Colaptes chrysoides*	CESA: Endangered	Found in desert habitat and riparian woodlands along the Colorado River, utilizing willows, cottonwoods, and saguaro.	Limited habitat for this species in the washes in and around the Project area. Closest CNDDB record for this species is approximately nine miles away at the edge of the Colorado River.	Low	Low
Sonoran yellow warbler (*Dendroica petechia sonorana*)	CDFW: Species of Special Concern, NECO Plan	Occurs in riparian deciduous habitat, such as cottonwood and willow areas, nesting in understories. Summer resident of the Colorado River Valley.	Some potentially suitable habitat located on the eastern edge of the gen-tie line and just north of the gen-tie line. One yellow warbler detected just north of the gen-tie line during surveys conducted for the McCoy Solar Energy Project (Tetra Tech EC, Inc. 2012).	High	Present
Southwestern willow flycatcher (*Empidonax traillii extimus*)	ESA: Endangered, CESA: Endangered, NECO Plan	Riparian woodlands.	No suitable habitat observed in Project area.	None	None
Peregrine falcon (*Falco peregrinus*)	CDFW: Fully Protected	Nests on cliffs, banks, dunes, mounds, human structures, or other types of depressions or ledges near wetlands, lakes, rivers, or other bodies of water.	No suitable habitat observed in Project area.	None	None

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array Project Boundary[2]	Potential for Occurrence within the Gen-tie Line (BLM Jurisdiction)[2]
Yellow-breasted chat (*Icteria virens*)	CDFW: Species of Special Concern	Inhabits riparian willow thickets near watercourses. Nests in low, dense riparian areas. Summer resident.	No suitable habitat observed in Project area.	None	None
Loggerhead shrike (*Lanius ludovicianus*)	CDFW: Species of Special Concern	Occurs in semi-open country with utility posts, wires, and trees to perch on.	Pair detected just north of the northern alternative. Suitable habitat occurs along the southern alternative but no individuals were detected.	High	Present
Gila Woodpecker (*Melanerpes uropygialis*)	CESA: Endangered, NECO Plan	Nests in cottonwoods or other desert riparian trees, shade trees, or date palms.	Limited suitable habitat available in the Project area. Nearest occupied habitat is near Blythe on the Colorado River.	Low	Low
Elf owl (*Micrathene whitneyi*)	CESA: Endangered, NECO Plan	In California, nests only in cottonwood-willow and mesquite riparian areas along the Colorado River.	No suitable nesting habitat in Project area. May forage in or near the Project area.	Low	Low
Lucy's warbler (*Oreothlypis luciae*)	CDFW: Species of Special Concern	Occurs primarily in thickets of mesquite, riparian scrub, and tamarisk in the lower Colorado River Valley and its tributaries.	Limited suitable habitat located in areas of desert riparian woodland wash.	Low	Low
American white pelican (*Pelacanus erythrorhynchos*)	CDFW: Species of Special Concern	Nests on large lakes and protected and isolated islets within them.	No suitable habitat observed in Project area.	None	None
Summer tanager (*Piranga rubra*)	CDFW: Species of Special Concern	Requires cottonwood-willow riparian forests for nesting and foraging. Summer resident on the Colorado River.	No suitable habitat present in the Project area.	None	None

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array Project Boundary[2]	Potential for Occurrence within the Gen-tie Line (BLM Jurisdiction)[2]
Vermilion flycatcher (*Pyrocephalus rubinus*)	CDFW: Species of Special Concern, NECO Plan	Open farmlands, shrubby grasslands, streamsides, and small wooded ponds in desert habitat. Found in diverse areas near open water.	Limited suitable habitat within the proposed alternatives.	Moderate	Low
Yuma clapper rail (*Rallus longirostris yumanensis*)	ESA: Endangered, CESA: Threatened, CDFW: Fully Protected	Nests in freshwater marshes surrounded by tules and cattails. Found along the Colorado River.	No suitable habitat within the Project area.	None	None
Bendire's thrasher *Toxostoma bendirei*	CDFW: Species of Special Concern, BLM: Sensitive	Occurs in open, arid areas, especially in grasslands.	Marginal habitat in the Project area. No CNDDB records in the Project vicinity.	Low	Low
Crissal thrasher (*Toxostoma crissale*)	CDFW: Species of Special Concern, NECO Plan	Occurs in dense riparian and mesquite scrub, microphyll woodland, and riparian washes with a dense understory of shrubs	Some habitat present that could support species foraging but not typical for nesting. Riparian wash present south of the southern alternative. An unidentified thrasher was heard calling during the survey on the northern alternative.	Low	Moderate
Le Conte's thrasher (*Toxostoma lecontei*)	CDFW: Species of Special Concern, NECO Plan	Arid and open plains that are sparsely vegetated and dominated by saltbush and creosote bush	This species was previously detected in 2011 in an area between the northern and southern alternatives. Suitable habitat for this species is present mainly in the creosote bush areas of the Project. An unidentified thrasher was heard calling during the survey on the northern alternative.	High	Present
Arizona Bell's vireo *Vireo bellii arizonae*	CESA: Endangered	Occurs in the summer along the Colorado River, primarily in thickets of willow, mesquite, or other small riparian trees and shrubs.	No suitable habitat observed in Project area. The habitat in the desert riparian woodland wash is marginal. Nearest CNDDB occurrence is approximately nine miles away near the Colorado River.	None	Low

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array Project Boundary[2]	Potential for Occurrence within the Gen-tie Line (BLM Jurisdiction)[2]
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	CDFW: Species of Special Concern	Nests in freshwater wetlands with dense vegetation and deep water, as well as along the borders of other lacustrine water bodies.	No suitable habitat observed in Project area.	None	None
Bats					
Pallid bat (*Antrozous pallidus*)	CDFW: Species of Special Concern BLM: Sensitive NECO Plan	This gregarious species usually roosts in small colonies in rock crevices and buildings, but may nest in caves, mines, rock piles, and tree cavities.	Roosting habitat for pallid bats is present in tree cavities in desert riparian woodland wash in the southeastern portion of the survey area. The closest documented occurrence in the CNDDB is from 1992, approximately 30 miles to the southwest of the airport near Corn Springs.	Low	Low
Townsend's big-eared bat (*Corynorhinus townsendii*)	CDFW: Species of Special Concern BLM: Sensitive NECO Plan	Occurs in a wide variety of habitats but most commonly in mesic areas. Roosts in open areas.	Suitable foraging habitat within the Project area but limited roosting habitat. The closest CNDDB record is from 1919 and is approximately seven miles southeast of the surveyed areas.	Low	Low
Spotted bat *Euderma maculatum*	CDFW: Species of Special Concern, BLM: Sensitive	Occurs in a large number of different habitats, feeding over water and in washes. Roosts in rock crevices, cliffs, or caves.	There is very little wash habitat for foraging available on-site, with some in the vicinity outside of the Project area. There is no roosting habitat on-site.	Low	Low
Western mastiff bat *Eumops perotis*	CDFW: Species of Special Concern, BLM: Sensitive	Occurs in a large number of different habitats, roosting in crevices in cliffs, high buildings, trees, and tunnels.	Limited roosting habitat is available on-site.	Low	Low
Western yellow bat (*Lasiurus xanthinus*)	CDFW: Species of Special Concern	Occurs in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees and forages over water and in trees.	No roosting habitat available in the Project area; no water observed during surveys. The only CNDDB record is from 1980 and is mapped in Blythe.	Low	Low

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Discussion	Potential for Occurrence within the Solar Array Project Boundary[2]	Potential for Occurrence within the Gen-tie Line (BLM Jurisdiction)[2]
California leaf-nosed bat (*Macrotus californicus*)	CDFW: Species of Special Concern BLM: Sensitive NECO Plan	Lowland desert scrub, desert riparian and wash areas, alkali scrub, or palm oases. Requires rugged or rocky terrain with mines or caves for roosting.	Suitable foraging habitat is present throughout the Project area, although roosting habitat is limited in the immediate region, due to lack of a rugged or rocky terrain. A 2002 CNDDB record lists a colony of bats in the general vicinity (in the Roosevelt Mine quad), but specific location information is suppressed and it is unclear which species of bat may be present.	Low	Low
Arizona myotis (*Myotis occultus*)	CDFW: Species of Special Concern	Lowlands of the Colorado River and adjacent desert mountain ranges. Roosts in tree hollows, rock crevices, and similar areas.	The closest documented occurrence in the CNDDB is from 1942, approximately five miles south of the Project.	Low	Low
Cave myotis (*Myotis velifer*)	CDFW: Species of Special Concern BLM: Sensitive NECO Plan	Low elevation arid regions near the Colorado River and in adjacent mountains. Requires caves or mines for roosting.	Suitable foraging habitat is present throughout the Project area, although roosting habitat is limited in the immediate region. A 2002 CNDDB record lists a colony of bats in the general vicinity (in the Roosevelt Mine quad), but specific location information is suppressed and it is unclear which species of bat may be present.	Low	Low
Yuma myotis (*Myotis yumanensis*)	BLM: Sensitive	Prefers open forests and woodlands. Requires water for foraging. Roosts in mines, caves, buildings, and crevices.	No roosting or foraging habitat available within the Project area.	Low	Low
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	CDFW: Species of Special Concern NECO Plan	Occurs in rocky areas with high cliffs in pine-juniper woodland, desert scrub, palm oasis, desert wash, and desert riparian habitat.	No suitable habitat in Project area.	None	None
Big free-tailed bat *Nyctinomops macrotis*	CDFW: Species of Special Concern	Occurs in arid, hilly regions. Roosts primarily in rock crevices in canyons but can also occasionally be found in buildings and caves.	No suitable habitat in Project area.	None	None

3.0 RISK ASSESSMENT

The primary risk categories to birds and bats posed by photovoltaic solar array development are primarily fatalities due to collision or electrocution through contact with array-associated power lines and tie lines and displacement associated with habitat loss. In addition, bird nests could be at risk during construction activities and during normal maintenance of generation and transmission facilities. Currently bat collision with power transmission and distribution facilities is not recognized as a potentially significant risk. Bats do not build nests. Anticipated risks to birds in general, eagles in particular, and bats will be discussed below within the context of risk factors within these categories.

3.1 Birds

3.1.1 Collision

Under certain conditions, transmission line collisions can be a major factor in avian mortality along utility corridors. Site-specific collision risk is affected by a number of independent factors. Factors that influence collision risk can be divided into three categories: those related to bird biology, those related to the environment, and those related to the configuration and location of transmission lines (APLIC 2006, Savereno et al. 1996).

Biological Factors Related to Bird Collisions

Biological factors include habitat use, body size, flight behavior, age, sex, and flocking behavior. Wetlands tend to have a high concentration of birds nesting, feeding, roosting, and migrating back and forth, and add to the collision risk if transmission lines are nearby (Bevanger 1994).

Many birds, especially raptors, will use transmission poles and towers as perches. This can conserve energy by lowering the amount of time dedicated to flying as the birds search for prey below (APLIC 2006). Bird species that spend an abundance of time in the air may face a greater risk than those that are predominantly ground-based (Bevanger 1994). For example, predators that fly at high speeds when tracking prey such as peregrine falcons or goshawks (*Accipiter gentilis*) may be more likely to collide with a power line. A bird’s flight performance has been shown to be one of the most important factors determining the chances of collision with a transmission line, perhaps more important than the sheer frequency of birds flying near the lines (Janss 2000). Juvenile birds, which are not as familiar with the surrounding area and are less experienced in both flight and, in the case of raptors, hunting methods, can be expected to have greater likelihoods of colliding with transmission lines (Bevanger 1994, Bevanger 1998, Dorin and Spiegel 2005). However, larger birds also tend to be more likely to collide with power lines.

Environmental Factors Related to Bird Collisions

Environmental factors influencing collision risk include the effects of weather and time of day for transmission line visibility, surrounding land use practices that may attract birds, and human activities that may flush birds into transmission lines. Overcast weather or thick fog tend to cause birds to lower their flying altitudes. Likewise, headwinds generally cause birds to fly lower, whereas tailwinds may cause birds to fly higher (Bevanger 1994, Perdeck and Speek 1984). High winds may cause some species, especially waterfowl, to fly at lower elevations, increasing collision risk (Hunting 2002). If winds are blowing perpendicular to the wires, this can increase collision possibility even further (Hunting 2002). To the east of the Project area is the Lower Colorado River Valley. The Lower Colorado River Valley is in the Pacific Flyway, one of the four major migration flyways in North America, and is a globally important bird area (IBA) (Audubon 2011). The IBA consists of the Colorado River, associated riparian areas and marshes, and agricultural fields in the area. Waterfowl are known to move daily between water bodies and irrigated agricultural fields to forage (Randall et al. 2011). However, the Project would be to the west of agricultural fields in the Lower Colorado River Valley and would not place any Project facilities between the river and irrigated agricultural fields. A previous study of avian migrants found that the lowest daily number of migrants was recorded on a day where the average wind speed was 15.5 miles per hour (mph) (Pope et al. 2006). If wind speeds become too strong, thermal formation may be disrupted, reducing the amount of migration through an area. Additionally, excessive cloud cover may also limit ground heating, reducing thermal wind formation and potentially causing a decline in migration of species that predominantly rely on thermals for movement, such as raptors (Pope et al. 2006). Depending on the visibility due to the aforementioned weather conditions or other factors such as rain, fog, or snow, transmission lines may be more difficult to see, increasing the likelihood of a collision (Mathiasson 1992). Visibility can also be affected by the time of day. Lines become increasingly difficult to see at times with poor lighting, such as night, dawn, or dusk, which may pose a greater risk to migratory species because they are not necessarily as familiar with a particular region as resident species. One study found that, during observations of waterfowl flights across a transmission line, out of 433 strikes, 432 occurred at night or during poor weather (Hunting 2002). A similar study at the Lake Sangchris-Kincaid Power Plant in Illinois found that only one in 250,000 waterfowl collided with the power lines during the day (Anderson 1978). Further studies by Stout and Cornwell (1976) also emphasize the risk that poor visibility poses to waterfowl in the midst of power lines. The Project area was selected as a solar generation site because of the prevalence of clear weather.

Wetlands, lakes, and streams are all potential “hot spots” for avian risk due to power lines because water is often used by birds to forage or congregate. However, the proposed power lines are not adjacent to surface water sources and therefore do not pose collision risks to birds as a result of these potential “hot spots.” Based on migratory bird data collected from adjacent projects and data collected during the habitat assessment (POWER 2011), it was determined that the agricultural land within the Project site may be used as foraging habitat by raptors or waterfowl that are using the Colorado River. Stout and Cornwell (1976) found that in a review of reported non-hunting mortality of wild waterfowl from 1930 to 1964, 65% of collision mortalities were due to telephone and power lines. A study of migrating mute swans on the coast of Sweden found that, out of 54 swan flocks recorded during the observation period, six flocks had difficulty—but no collisions—crossing power lines, and four mortalities were observed by locals during the same period (Mathiasson 1992). Anderson (1978) postulated that the five factors that most influence waterfowl collision frequency with power lines are: 1) the number of birds present; 2) visibility; 3) species composition and behavior; 4) disturbance; and 5) familiarity with the area. Mathiasson (1992) determined that in his study, the rate of collisions was “mainly a factor of swan frequency and behaviour, and positioning of the wires in the landscape [sic].” Larger water bodies, such as the Colorado River, would theoretically attract more birds, and the more birds that are present, the higher the potential to have a collision with power lines. However, approximately 90,000 acres of irrigated agricultural land is within the Palo Verde Valley which is adjacent to the Colorado River and east of the Project site. Due to the existing suitable forage land east of the Project site and the distance from the Colorado River, it is assumed that migratory birds would only incidentally use the Project site for forage land and that these lands are of lesser value and importance for migratory bird foraging compared to lands closer to the River. If birds are attempting to fly through the area at night when visibility is very poor, especially if they are unfamiliar with the area’s vertical spatial layout, the likelihood of a bird flying into one of the lines increases. Therefore, aquatic areas are a determining factor in the risk to avian species. As discussed above, the Project area is in desert scrub without any nearby aquatic features. In addition, the Project’s solar generation facility and gen-tie line would not be located between waterfowl use areas. Collision risk to waterfowl species would be low.

Anthropogenic land use is a consideration in evaluating avian collision risk as these features may attract or push birds into areas that contain transmission lines. A simple stretch of highway, for instance, may be an attractive area to vultures or similar species because of the sheer amount of roadkill that is created. Agriculture may attract birds foraging in the vegetation or raptors foraging for crop pests. Relatively dense building clusters may push birds into areas with transmission lines because of the flight obstacles. The gen-tie line would be routed through an area dominated by sparse desert scrub with little anthropogenic development. It would cross I-10 at its west end and parallel the highway for approximately one quarter mile. However, it would quickly diverge from the highway and be well over one mile from the highway for most of its remaining length. Because of the surrounding conditions and the limited extent of the gen-tie line near the freeway, roadkill is unlikely to cause birds to concentrate near the gen-tie line or drive them towards it. Collision risks associated with anthropogenic land uses is considered low.

Line-related Factors Related to Bird Collisions

Line-related factors include the configuration and location of the transmission line and transmission line placement with respect to other structures or topographic features. While it is believed that horizontal line configurations are less of an avian risk than vertical configurations (Bevanger 1994), power line structure design has not been sufficiently demonstrated to suggest a specific correlation with bird collisions (Janss 2000). However, there seems to be a positive relationship between the presence of a static wire and the number of bird collisions (Bevanger 1994, Savereno et al. 1996). It is thought that, in many cases, the bird sees the conductor wires, changes its altitude to avoid them, and subsequently collides with the thinner, less-visible static wire instead. Consequently, studies have demonstrated an average mortality decline of 50 to 60% when markers are placed on static wires in relation to when wires are left unmarked (Savereno et al. 1996).

Transmission line location can also play an important role in the risks imparted to birds. Generally, there is more of a risk in placing a transmission line corridor in an open area than against an existing backdrop (Bevanger 1994). The risks to birds flying across a single corridor in an open space become dependent not only on the line's visibility, but on the altitude of the bird and its ability to first see the intruding wires, and then change its flight pattern to avoid them. On the other hand, lines that are placed against existing lines or against a landscape reference are theoretically easier to avoid. Multiple lines going through one corridor prevent birds from having to continually change their flight patterns, allowing them to instead avoid several sets of lines all at once. Similarly, lines placed along the base of a cliff, a row of trees, a building, a bridge, or a similar barrier will theoretically help avoid collisions because birds are forced to change their altitude to avoid the impediment (Bevanger 1994). The simple parallel or perpendicular placement of transmission line corridors relative to avian flyways is also an influence on the risk that the lines pose. There tends to be a greater risk in putting lines in between areas necessary for life history, such as foraging and roosting, especially if the two areas are separated by a short distance (Bevanger 1994). If a line is placed near a ridgeline, the risk to avian species can increase. When horizontal winds get deflected upward by ridgelines, the resulting updrafts get used by raptors to gain elevation for gliding purposes. Raptors will also use thermals, which can rise to hundreds or thousands of meters, for gliding purposes (Pope et al. 2006). Lines that are placed near ridgelines can pose collision risks to birds that may be using updrafts or thermals in their migratory paths and may not see the transmission lines in time to maneuver out of the way. Alternatively, canyons or valleys may act as funnels for migrating birds, and can pose collision risks if lines cross perpendicular to the natural direction of flight. Research suggests that wind turbines placed near gullies may pose higher risks to birds passing through (Thelander and Rugge 2000). It may be reasonably assumed that transmission towers, poles, or lines pose a similar risk. If water is present, the issue may become further complicated because more birds have the potential to be attracted to the area as they are migrating through.

Bird collisions also tend to occur with transmission lines when migrant species travel at reduced altitudes near tall structures, such as transmission lines and towers. It is difficult to predict the magnitude of collision-caused bird mortality without extensive information on bird species and movements in the Project vicinity. These data are not available for the gen-tie line; however, the line is constructed on level desert terrain in proximity to existing similar lines and not near any feature that would concentrate avian movements. Based on a review of the known factors influencing avian transmission line collision risk, the proposed gen-tie transmission line does present risk but is not expected to substantially increase avian collision risk above current conditions.

3.1.2 Electrocution

The electrical design factor most crucial to avian electrocutions is the physical separation between energized and/or grounded structures, conductors, hardware, or equipment that can be bridged by birds to complete a circuit (APLIC 2006). Energized components would typically consist of phase conductors, while grounded components could include overhead static wires, neutral conductors, grounding conductors, grounded metal braces, or other pole or tower components. It appears that electrocutions are less common on transmission line towers, because line spacing is at a sufficient distance to lessen the chance of birds completing the electrical circuit (Dorin and Spiegel 2005). High mortality rates are associated with structures that have conductors situated over the crossarms (Janss and Ferrer 2001, Ferrer et al. 1991); Ferrer et al. (1991) found that the least dangerous structures possess insulators below the crossarms. Electrical transmission lines tend to electrocute avian species when the animal touches two conductors, or a positive conductor and a ground, at once, especially if the feather area is wet (Bevanger 1998). Hence, body size and behavior, such as perching and roosting on poles or wires, are the keys to understanding why and how birds become electrocuted. Species frequently affected by electrocution seem to include birds of prey, ravens, and thermal soarers (Bevanger 1998). The majority of raptor electrocutions are caused by power lines that are energized at voltage levels of 69 kV and below, whereas "the likelihood of electrocutions occurring at voltages greater than 69 kV is extremely low" (APLIC 2006).

Electrocutions are largely due to the bird perching on conductors and/or insulators and coming in contact with the energized conductor and grounded insulator base or bonding conductor. While wet feathers may raise the risk of electrocution for a bird by increasing conductivity, dry feathers provide insulation, meaning that in most cases birds are electrocuted when they bridge two energized or an energized and grounded piece of equipment with conductive fleshy parts such as the feet, mouth, bill, or wrists (APLIC 2006). Research has demonstrated that skin-to-skin contact is approximately ten times more dangerous to birds than the amperages conducted by contact between conductors and wet feathers, and approximately 100 times more dangerous than the conductivity between conductors and dry feathers (APLIC 2006). Wet feathers can conduct dangerous amperages beginning at around 5 kV, whereas dry feathers require currents greater than 70 kV before they will begin conducting current. High winds increase the problem by reducing the amount of control that birds have over their flight and landing patterns and increasing the risk that they will collide with transmission lines or accidentally bridge two components on a transmission structure and become electrocuted.

Because of the high voltages involved with the Project's internal and external transmission lines, electrocution is not a risk to even the largest bird species likely to occur in the Project area.

3.1.3 Displacement

Displacement of wildlife may occur due to habitat loss, habitat fragmentation, or avoidance of the area (through habitat changes or human disturbance). PV solar facilities can cover large areas of the landscape. Habitat fragmentation would clearly be an important consideration for solar developments proposed to occur within large, intact, contiguous natural vegetation communities. The Project array areas are sited on agricultural land (irrigated crops and orchards) and disturbed land with very little breeding and foraging habitat suitable for avian or bat species (except as noted above). The gen-tie line traverses more natural habitats of desert scrub and some displacement of breeding or foraging bird could occur during construction. Permanent habitat loss would be minimal within the gen-tie ROW; once completed transmission lines are passive structures not restricting avian or bat use in the area. Some potential for habitat fragmentation exists at the Project site but the potential risk does not appear to be high, because the history of land use in the area (i.e., agricultural land, urban development, interstate highway, transmission line corridor, and energy development), and the due to the nature of the development the lack of potential habitat

3.2 Eagles

3.2.1 Collision

Golden eagles are the largest avian species likely to occur in proximity to Project facilities. Golden eagles may forage widely over broad areas of low-relief desert habitat near steep, rocky roosting or nesting habitat. Bald eagles are larger, but typically forage near large water bodies. Although bald eagles may be found along the Lower Colorado River, some 8.5 miles east of the Project area, their probability of occurrence within the Project area is diminishingly small. For these reasons the following discussion will focus on golden eagles.

Among avian species of the region, golden eagles would be expected to be more susceptible to collisions with transmission elements, presumably due to their flight and foraging behavior. Healthy golden eagle populations contain breeders, juveniles, and "floaters"—subadults or adults that have not settled on a territory (Brown 1969, Hunt 1998, USFWS 2011). Floaters have been shown to be more vulnerable to collision than locally breeding adults and juveniles (Hunt et al. 1999, Hunt 2002). Population stability depends on the non-breeding population of floaters to replace breeding individuals that die (Hunt 1998, USFWS 2011).

Risk to eagles is influenced by four primary factors:

1) the amount of eagle use of the area,
2) residency status (dispersers, migrants, and floaters are at higher risk than resident adults and juveniles)
3) the interaction of topography, wind, and seasons (e.g., wind waves along upwind side of ridges and escarpments used for soaring, gliding, and kiting), and
4) behavior that distracts eagles (e.g., hunting or territorial interaction; USFWS 2011).

The Project area has no golden eagle nest territories recorded with 10 miles. In addition, the Project would be in an area of level terrain and desert scrub with no high relief rocky areas or large tress providing nesting habitat. Wide-ranging golden eagles could traverse the Project area during foraging forays, but this activity would be expected to be low. The Project area would fall within the lowest risk category for golden eagles based on the USFWS draft Eagle Conservation Plan Guidance (2011).

No specific risk to golden eagles is identified at this point. No biological, environmental, design, or operational factors have been identified by the USFWS or the Project developer that would increase specific risk to golden eagles. Nevertheless, if conditions change and increased golden eagle activity in proximity to Project gen-tie facilities is detected during monitoring, management of facilities for eagle safety would be adapted and this ABPP updated to further lower the risk to golden eagles. See Section 6.3 regarding adaptive management, specifically Section 6.3.1, Additional Risk Reduction Measures. In the unlikely event that eagle fatalities are observed at the BMSP area, the Proponents will perform appropriate mitigation (see Section 6.2 regarding fatality thresholds and Section 6.3 regarding adaptive management) and additionally consult with USFWS to determine if it is appropriate to apply for an eagle take permit under BGEPA. No necessity for pursuit of an eagle take permit exists at this time or is anticipated.

3.2.2 Displacement

Displacement of golden eagles may occur due to habitat loss, habitat fragmentation, or avoidance of Project elements. Golden eagle use of the Project area would be expected to be rare and incidental. The Project development areas present no nesting or foraging habitat features that would concentrate eagle activity. For most of its length, the gen-tie line would be over a mile to a mile-and-a-half from I-10. However, at its west end, the gen-tie line would cross the highway in an area of orchards, ruderal land, and an existing transmission line. There are no records indicating that increased road kill associated with the highway in this area creates an opportunistic carcass food source for eagles. The gen-tie line would not be expected to displace golden eagles from an established food source. Because of the lack of golden eagle occurrence records and the fact that much of the solar site was orchards, the solar array sites would not likely have provided foraging habitat for golden eagles prior to development; this condition would be the same with the Project in operation.

For these reasons, the Project would present very low risk of golden eagle displacement.

3.3 Bats

3.3.1 Collision

Because they are volant, bats could be at some risk of colliding with either gen-tie line, transmission conductors, or PV solar facilities. The Project would be composed of static elements (or with elements that slowly track the sun during the day). Bats are highly maneuverable nocturnal echolocators that can effectively fly through highly cluttered environments.

No collision risk is expected.

3.3.2 Electrocution

All bats that could occur in the Project area or interact with Project energized facilities are small with wingspans less than 16 to 20 inches. It would be highly unlikely for bats to experience electrocution risk from phase to phase or phase to ground contact. The Project presents no electrocution risk for bats.

3.3.3 Displacement

Displacement has not been identified as a risk to bats in recent reviews of renewable energy facility impacts on bats (Kuvlesky et al. 2007, Arnett et al. 2008, Strickland et al. 2011). As most Project development areas consisted of orchards and crop fields, no bat roost habitat was removed or blocked by solar array development. It is possible that some tree roosting bats (either residents or migrants) could have used orchard trees as day roosts in a somewhat opportunistic fashion; however, tree bat species have generally low fidelity for roost sites (Lewis 1995) and groves are prevalent throughout the lower Colorado River Valley that could provide roost sites for displaced bats. No significant displacement risk is expected from the Project.

4.0 PROJECT DESIGN STANDARDS AND IMPACT-REDUCING CONSERVATION MEASURES

4.1 Project Design Features

In general PV solar projects are passive facilities that are low to the ground (within ten feet) and do not present any intrinsic dangers to avian or bat species. With proper siting, design and management through coordination with USFWS and other resource agencies (e.g., CDFW), risk to these species can be further reduced. The BMSP has integrated a number of design standards and best management practices to avoid and reduce impacts to all wildlife (including avian and bat species) during construction and operation. These include, at the coarsest scale, proper siting of facilities on previously-disturbed lands and lands unlikely to concentrate avian or bat activity to the maximum extent possible, design energized facilities using industry accepted standards for avian safety, and the following integrated BMPs:

- **Fire Management and Protection Plan.** As required by existing law (Title 8 California Code of Regulations [CCR] Section 3221), a Fire Management and Protection Plan would be developed in consultation with the Riverside County Fire Department to identify potential hazards and accident scenarios that would exist at the facility during construction, operation, and decommissioning of the Project. The Plan would include the identification of the following: potential fire hazards and ignition sources; proper handling and storage of potential fire hazards; control of potential ignition sources; persons responsible for equipment and systems maintenance; location of portable fire extinguishers; automatic sprinkler fire suppression system; water-spray fire system; coordination with local fire department; and recordkeeping requirements.

- **Gen-tie lines.** Gen-tie line support structures and other facility structures shall be designed to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices). This design would minimize avian risk and would provide the added benefit of not increasing the potential for increased predation of special-status species, such as the desert tortoise be not creating structures that enhance perching or nesting opportunities for ravens or other tortoise predators. Mechanisms to visually warn birds (permanent markers or bird flight diverters) shall be placed on gen-tie lines at regular intervals to prevent birds from colliding with the lines. To the extent practicable, the use of guy wires shall be avoided because they pose a collision hazard for birds and bats. Necessary guy wires shall be clearly marked with bird flight diverters to reduce the probability of collision. Shield wires shall be marked with devices that have been scientifically tested and found to significantly reduce the potential for bird collisions. Gen-tie lines shall utilize non-specular conductors and non-reflective coatings on insulators.

- **Integrated Weed Management Plan.** In compliance with the Federal Noxious Weed Act, the Plant Protection Act, the California Food and Agricultural Code, and the BLM’s requirement for a Project-specific integrated weed management plan for the control of noxious weeds and invasive plant species would be prepared. The plan would identify presence, location, and abundance of weed species in the Project area and surrounding area adjacent to the Project, as well as identify suppression and containment measures to prevent the spread of weed species and introduction of weed species. Prevention techniques would include: limiting disturbance areas during construction to the minimum required to perform work; limiting ingress and egress to defined routes; maintaining vehicle wash and inspection stations; and closely monitoring the types of materials brought on site to minimize the potential for weed introduction. During operations, noxious and invasive weed management will be incorporated as a part of mandatory site training for groundskeepers and maintenance personnel. Training will include weed identification and the impacts on agriculture, wildlife, and fire frequencies. Training will also cover the importance of preventing the spread of noxious weeds and of controlling the proliferation of existing weeds.

- **Plants and wildlife.** In compliance with the California Department of Fish and Wildlife Codes, while on the Project property, workers or visitors would be prohibited from: feeding wildlife; moving live, injured, or dead wildlife off roads, ROWs, or the Project site; bringing domestic pets to the Project site; collecting native plants; and harassing wildlife. Areas where wildlife could hide or be trapped (e.g., open trenches, sheds, pits, uncovered basins, and laydown areas) would be minimized. For example, an uncovered pipe that has been placed in a trench should be capped at the end of each workday to prevent animals from entering the pipe. If a special-status species is discovered inside a component, that component must not be moved, or, if necessary, moved only to remove the animal from the path of activity, until the animal has escaped. As open trenches could impede the seasonal movements of large game animals and alter their distribution, they would be backfilled as quickly as possible. Open trenches could also entrap smaller animals; therefore, escape ramps would be installed along open trench segments at distances identified in the applicable land use plan or by the best available information and science. If traffic is being unreasonably delayed by wildlife in roads, personnel would contact the Project biologist, who will take any necessary action.

- Any vehicle-wildlife collisions would be immediately reported to the Project biologist. Observations of potential wildlife problems, including wildlife mortality, would be immediately reported to the BLM or other appropriate agency authorized officer.

4.2 Proponent-Committed Conservation Measures

This section identifies voluntary conservation and impact minimization measures that the Proponents have committed to carry out for the BMSP. These measures were derived through coordination with USFWS and a review of the USFWS *Region 8 Interim Guidelines for the Development of a Project-Specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities* (USFWS 2010). These integrate effective design, construction and operation measures to reduce impacts to bird and bat species and their habitats during construction and operation of the facility. The following measures will be implemented to minimize risk to bird and bat species:

1) Solar arrays for the Project are located on disturbed land used primarily for agriculture. This limits direct loss of bird and bat habitat.
2) All Project generation and transmission elements are located on a level alluvial mesa, far from topographical relief. This characteristic limits transmission line conflicts with raptor flight paths, which often follow the upwind side of ridges and escarpments.
3) The erection of guyed structures is prohibited to reduce avian and bat collision risk.
4) No FAA lighting will be used at the Project site.
5) Where possible, existing roads were used for access roads. New access road construction will be minimized. This limits habitat loss, fragmentation, and displacement.
6) Vegetation clearance and ground surface disturbance will be minimized and within defined and approved work limits.
7) During construction, vegetation clearance will be conducted outside the breeding season to the maximum extent feasible. Pre-construction avian surveys will be conducted in appropriate habitats prior to any human disturbance or ground disturbing activities.
8) In the event that ground disturbing activities are to occur in suitable avian nesting habitat during the breeding season (February 1 to September 15), pre-construction clearance surveys for nesting birds will be conducted by qualified biologists. Identified nests of migratory birds (other than raptors) will be flagged for avoidance with a 300-foot buffer. Work activities will be prohibited within this buffer until the Project biologist determines that the nest has failed or the young have fledged. Activity associated with this nest identification and monitoring will be recorded on appropriate reporting forms (Appendix C).
9) Identified active nests will be avoided up to a distance of 5 miles for golden eagles and up to 600 feet for all other raptors. All construction disturbing activities will be prohibited within this distance to the maximum extent possible during the breeding season (January 1 to July 15, as determined by the Project biologist). Any reduction in this buffer distance will require specific coordination with USFWS.
10) Any nighttime construction will be generally avoided and specifically prohibited within the migratory bird breeding season.
11) Specific measures detailed in the western burrowing owl mitigation and monitoring plan are included here by reference, see Appendix A. Burrowing owls have been identified to occur with Project development areas. Ground disturbing activities will be scheduled to avoid the burrowing owl breeding season (i.e., scheduled to occur between September 1 and January 31). Burrowing owl clearance surveys will be conducted 30-days prior to initial site disturbance within suitable habitats.
12) No Project element will create bat day or night roost sites or provide open water sources that may be attractive to bats or birds.
13) Lighting at the operation and maintenance (O&M) facility and the substation are kept to a minimum to avoid confusing birds or attracting bats. Specifically, the lights at the O&M facility

are downward directed floodlights. Lights at the substation are switched on manually and only used during rare occasions when someone is at the substation at night.

14) Vehicle collision risk to wildlife will be minimized by driving at appropriate speeds within the Project. BMSP will implement a 25 mph speed limit at the Project for site personnel.
15) Garbage at the site will be properly managed to avoid creating an attractive nuisance for bird species.
16) Personnel will remove or bury carcasses found on site that might attract eagles and other avian scavengers.
17) Removal of inactive non-raptor nests from solar generating facilities will occur outside the breeding season
18) The Project will operate under and approved fire management plan to reduce further habitat loss caused by Project-started wildfire.
19) Following the useful life of the Project (likely about 25 years), BMSP will either repower with some future technology or return to the site to agricultural use.

It should be noted that because of the existing conditions of the Project area as developed lands and the low potential for risk to avian and bat species, USFWS advised that a Habitat Equivalency Analysis not be performed for the BMSP (USFWS October 22, 2012 personal communication; see Table 1). Thus, no habitat acquisition, conservation easements or compensatory acreages are developed as part of this ABPP.

4.3 Additional Pre-Construction Surveys and Monitoring

General Avian Species Use: Numerous bird surveys have been completed by solar projects and proposed solar projects surrounding the Project area, including the withdrawn Solar Millennium proposed project (EDAW AECOM and Bloom Biological 2009). For the non-agricultural land within the Project area, information on late spring migrant songbirds and resident birds in native habitats (i.e., Sonoran creosote shrub scrub and desert dry wash woodland) is readily available (EDAW AECOM and Bloom Biological 2009).

Based on migratory bird data collected from adjacent projects, it was assumed that the agricultural land within the Project site may be used as foraging habitat (AECOM 2009). However, due to the existing suitable forage land east of the Project site and the distance from Colorado River habitats (approximately 8.5 miles), it is assumed that migratory birds would only incidentally use the Project area for forage land and that these lands are of lesser value and importance for migratory bird foraging compared to lands closer to the river.

Based on the review of data from surrounding projects and observations in the field of low quality avian habitat on the Project site, avian point count surveys were not conducted during environmental evaluation. Conducting point count survey during environmental review would only provide a snapshot of the migratory species potentially using the site and not aide in species protection during construction and operation; abundance and species diversity would be expected to vary widely each year. However, since it is presumed (based on existing information) that migratory bird species may use the Project site in at least a transient fashion, preconstruction nesting surveys would be conducted. The purpose of these preconstruction surveys is to avoid or minimize specific construction-related impacts on bird species that may be present. (See general pre-construction nesting survey protocol, Appendix B, and nest monitoring forms, Appendix C.)

Western Burrowing Owl: During environmental evaluation, baseline surveys for western burrowing owls were conducted. POWER biologists and Garcia and Associates, Inc. biologists conducted pedestrian survey transects for burrowing owls spaced at approximately 100 feet to allow for 100% visual coverage of suitable habitat within the study area. Where necessary, transect spacing was reduced or expanded to account for differences in terrain, vegetation density, and visibility. Survey methods were derived from generally accepted professional standards, the 1993 California Burrowing Owl Consortium (CBOC)

Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC 1993), and the 1995 California Department of Fish and Game (CDFW) Staff Report on Burrowing Owl Mitigation (CDFW 1995). A methodical pedestrian survey for owl burrows was conducted by walking through areas of suitable habitat within the study area, including man-made structures.

The locations of all potential owl burrows and sign were recorded and mapped using handheld global positioning devices and aerial imagery. Incidental observations of other avian species, plants and other wildlife were also noted. The presence of each observed wildlife species was based on direct observation of individual(s), sign, and/or vocalization. CBOC survey protocols and POWER's full methodology and results are described in the burrowing owl survey report (POWER 2011). As part of ABPP development, these data were used to inform agency coordination, identify initial voluntary mitigation and in the preparation of the Western Burrowing Owl Mitigation and Monitoring Plan (Appendix A).

Golden eagle: A review of existing information, including CNDDB records and previous studies, shows that Golden eagle active nests are not located within 10 miles of the Project site. Existing data and reports from the Blythe Solar Power Project (AECOM 2010) also indicated no Golden eagles within 10 miles of their project site. Based on the existing records and the reconnaissance survey, no further survey is proposed for the Project. If changes are observed, revisions to this ABPP will be incorporated.

Bats: A reconnaissance survey was conducted to help determine the potential for bat species to occur within the Project area. The Project site is in an area dominated by either agriculture or sparse desert scrub over lying deep Pleistocene-aged alluvium with little topographic relief. Foraging habitat is limited and roosting habitat is absent. Based on the results of the reconnaissance survey and lack of suitable habitat, no focused surveys are recommended. Bats may use the Project site in an incidental fashion as seasonal transients or migrants.

5.0 OPERATIONAL BIRD AND BAT MONITORING AND REPORTING

The primary objective of the operational (i.e., post-construction) avian and bat monitoring is to monitor undesirable nest construction on Project equipment and estimate the annual number of avian and bat fatalities attributable to the Project. These data will provide a measure of plan efficacy and inform adaptive management. Because of the presumed low risk potential for the site, this ABPP does not direct the assignment of a full-time operational Project biologist. BMSP will implement a wildlife reporting system to document incidentally found bird and bat fatalities and to monitor for significant fatality events. The site manager will lead the program. Site personnel will be trained to follow the wildlife reporting system procedures and complete the wildlife reporting form. Post-construction monitoring will be conducted by facility operators and field engineers during normally scheduled activities.

Personnel will complete searches of solar arrays within the Project development area as part of normal maintenance and line patrols of the gen-tie line. Searches will consist of walking around solar generation structures to identify carcasses of birds or bats or nesting materials on equipment. Bird nest monitoring and reporting forms for gen-tie line and the solar array are provided in Appendix D. When a dead or injured bird or bat is found, a wildlife incident reporting form will be filled out (Appendix E) and turned in to the site manager. Personnel without the appropriate federal and state permits will not move or transport dead or injured birds. Bird carcasses (except for raptors) can be buried on site but not transported without a permit.

Injured birds and bats will not be handled by personnel. If an injured raptor or sensitive species is found, the CDFW will be contacted to determine whether a rehabilitator should come pick up the injured animal.

Bird nests constructed on site equipment can lower efficiency, create operational problems, and lead to down time (outages) and safety issues. Because the solar facilities and gen-tie line provide vertical structure over a fairly large area, the probability exists for birds to occasionally attempt nest construction on equipment. Workers should be diligent in observing attempts by bird to construct nests on equipment during the breeding season. BMSP personnel are not authorized to remove active nests or destroy young birds at this time. In the event that an active nest is observed on equipment, BMSP personnel will contact CDFW and USFWS for direction. Note that inactive nests of all non-raptors can be removed outside the breeding season without a depredation permit.

Each year, a concise annual report will be provided to USFWS, briefly summarizing each year's wildlife reporting system findings. If a significant fatality event is discovered (e.g., any eagle fatality, more than three raptors in a single event, more than ten birds or bats in a single event) or nesting attempts reach a nuisance level, the site manager will contact environmental contractors (if any), and the USFWS as soon as possible for coordination.

6.0 POST-CONSTRUCTION MITIGATION AND ADAPTIVE MANAGEMENT

6.1 Adaptive Management Process

Adaptive management is an iterative process in which impact minimization and mitigation measures are continuously reevaluated in order to improve them. As action is taken the results are monitored and future actions are modified accordingly. This is an especially useful strategy for managing resources where uncertainty surrounds appropriate management actions and there consequences. Because utility-scale solar energy development is a relatively new and rapidly expanding industry, its effect on bird and bat populations is uncertain. There is also uncertainty surrounding current fatality predictions as well as which measures are most effective at reducing fatalities and mitigating impacts to bird and bat populations. As more data is gathered at facilities and new strategies are tested, these uncertainties will be reduced and agency guidance will be refined.

The Proponents are committed to incorporating adaptive management principles into its ABPP. To facilitate the adaptive management process, BMSP will submit timely reports to USFWS and CDFW summarizing results of operational monitoring and the wildlife reporting system. Fatality thresholds will be used to determine when adaptation is required. When a threshold is surpassed, BMSP will evaluate the species, timing, and locations of fatalities and consult with USFWS to determine if additional avoidance or minimization measures are appropriate. If thresholds are surpassed again, compensatory plan measures will be triggered, along with additional avoidance and minimization measures. As part of the adaptive management process, the thresholds may be adjusted if new information is gained regarding the number of solar facility fatalities necessary to significantly impact bird or bat population trends and the extent to which solar facility fatalities are compensated by density-dependent demographic factors (e.g., lower natural mortality or higher productivity). An initial set of avoidance and minimization, are proposed to be implemented if thresholds are surpassed; measures may be replaced with measures of similar scope and cost if more effective measures become available and are deemed appropriate to the specific circumstances surrounding the fatality patterns identified at the Project site.

6.2 Avian and Bat Fatality Thresholds

The identification of fatality thresholds to trigger mitigation is an unavoidably arbitrary process developed through agency coordination and mutual agreement. Most solar energy facilities are unlikely to significantly impact populations of most species. But population effects may be difficult to identify, particularly for some species, such as bats, for which populations are not well understood. With continued rapid growth of renewable generation facilities, cumulative impacts may become an important concern. It is prudent to mitigate bird and bat fatalities in situations where unusually high numbers of fatalities occur.

Based on a review of western renewable generation facilities (including wind farms) the following initial thresholds have been developed. During formal post-construction monitoring at BMSP, fatality estimates, expressed as fatalities/MW/year, will be reported in annual reports. The thresholds that will trigger adaptation and mitigation measures are as follows:

1) more than four total native bird fatalities/MW/year,
2) more than 0.3 raptor fatalities/MW/year,
3) more than one golden eagles across entire project,
4) more than one active raptor nest constructed on generating equipment,
5) more than three bat fatalities/MW/year, or
6) more than ten active non-raptor nests requiring removal

6.3 Additional Risk Reduction Measures and Adaptive Management

If events are demonstrated to exceed any of the identified thresholds, and upon consultation with USFWS, adaptation may be triggered. Adaptation will include investigation, evaluation of the factors associated with the fatalities, exploration of engineering solutions, consideration of available avoidance and minimization measures, and likely implementation of one or more appropriate avoidance and minimization measure. If the same threshold is surpassed again, additional plan measures may be triggered.

It is important to note that the implementation of clean solar energy generation is in and of itself a difficult to quantify but nonetheless compensatory mitigation measure. ABPPs are designed to address proximate impacts to wildlife but ultimate project benefits to the ecosystem are part of the Project’s purpose. When solar energy substitutes for fossil fuel energy sources, the result is a net decrease in toxic air emissions. In turn, the decrease of pollutant emissions reduces many broad scale harmful effects to wildlife. The Proponents are also committed to reducing direct impacts to local wildlife populations by implementing appropriate avoidance, minimization, and mitigation measures.

In the event fatality thresholds are surpassed, additional compensatory measures will be implemented by BMSP as discussed below.

6.3.1 Additional Risk Reduction Measures

In the event that the above thresholds are met, the following adaptive measures will be implemented to reduce impacts. This ABPP will be updated to reflect the additional measures and monitoring for efficacy will be conducted for three years following implementation.

- Installation of remedial avian protection equipment (bird flight diverters or perch preventers or dissuaders) in problem areas. Provide annual budget for such equipment
- Manage, monitor and remove potential bird nesting materials near solar arrays
- Modification of existing equipment to prevent nesting, perching or other undesired bird access
- Obtain necessary Federal and State permits for problem nest removal
- Formal, systematic fatality monitoring along the gen-tie line or within problem areas at the array facilities
- Employ a dedicated and qualified site biological monitor either full-time or seasonally, depending on the specific issue identified

7.0 LITERATURE CITED

AECOM. 2009. Blythe Solar Power Project Application for Certification. Submitted by Solar Millennium, LLC to the California Energy Commission.

Anderson, W.L. 1978. Waterfowl Collisions with Power Lines at a Coal-Fired Power Plant. Wildlife Society Bulletin 6(2): 77-83.

Avian Power Line Interaction Committee (APLIC). 1994. *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994.* Edison Electric Institute. Washington, D.C.

2005. Avian Protection Plan (APP) Guidelines. APLIC and the U.S. Fish and Wildlife Service.

_____. 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

Bevanger, K. 1994. Bird interactions with utility structures: collision and electrocution, causes and mitigating measures. Ibis 136: 412-425.

California Natural Diversity Data Base (CNDDB). 2011. California Natural Diversity Data Base. Element occurrence search for Project area quadrangles.

California Energy Commission. 2010. Genesis Solar Energy Project Application for Certification Supplemental Information. March 2010. California Energy Commission Docket Number 09-AFC-8.

Dorin, M. and L. Spiegel. 2005. Assessment of Avian Mortality from Collisions and Electrocutions. California Energy Commission. CEC-700-2005-015.

Ferrer, M., M. de la Riva, and J. Castroviejo. 1991. Electrocution of Raptors on Power Lines in Southwestern Spain. Journal of Field Ornithology 62(2): 181-190.

Hunting, K. 2002. A Roadmap for PIER Research on Avian Collisions with Power Lines in California. California Energy Commission. P500-02-071F.

Janss, G.F.E. 2000. Avian mortality from power lines: a morphologic approach of a species-specific mortality. Biological Conservation 95: 353-359.

Mathiasson, S. 1992. Mute Swans, Cygnus olor, Killed from Collision with Electrical Wires, a Study of Two Situations in Sweden. Environmental Pollution 80: 239-246.

Perdeck, A.C. and G. Speek. 1984. A Radar Study on the Influence of Expected Ground Speed, Cloudiness and Temperature on Diurnal Migration Intensity. Ardea 72: 189-198.

Savereno, A.J., L.A. Savereno, R. Boettcher, and S.M. Haig. 1996. Avian Behavior and Mortality at Power Lines in Coastal South Carolina. Wildlife Society Bulletin 24(4): 636-648.

Southern California Edison. 2009. First Solar Electric, Blythe, California Environmental Assessment Initial Study. February, 2009. County of Riverside EA40219.

_____. 2010. Devers-Palo Verde No. 2 Transmission Line Project Colorado River Substation Expansion Final Supplemental Environmental Impact Report. April 2010.

Stout, I.J. and G.W. Cornwell. 1976. Nonhunting Mortality of Fledged North American Waterfowl. The Journal of Wildlife Management 40(4): 681-693.

TetraTech Environmental, Inc. 2010. Genesis Solar Energy Project Supplemental Information. June 2010. California Energy Commission Docket Number 09-AFC-8.

_____. 2012. *McCoy Solar Energy Project Biological Resources Technical Report*. Prepared for McCoy Solar, LLC, December 2012.

Thelander, C.G. and L. Rugge. 2000. Avian Risk Behavior and Fatalities at the Altamont Wind Resource Area, March 1998 to February 1999. Prepared for National Renewable Energy Laboratory. NREL/SR-500-27545.

United States Department of the Interior, Fish and Wildlife Service (USFWS). 2003. MBPM-2. Migratory Bird Permit Memorandum. Online. Available at: http://www.fws.gov/policy/m0208.pdf

_____. 2007. National Bald Eagle Management Guidelines. U.S. Fish and Wildlife Service. May 2007. Online. Available at: http://www.fws.gov/pacific/eagle/NationalBaldEagleManagementGuidelines.pdf

_____. 2010. Region 8 Interim Guidelines for the Development of a Project-specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities. Pacific Southwest Region. September 2.

APPENDIX A: WESTERN BURROWING OWL MITIGATION AND MONITORING PLAN

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December 2012

BLYTHE MESA SOLAR PROJECT

Western Burrowing Owl Monitoring and Mitigation Plan

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122512

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ACRONYMS AND ABBREVIATIONS

˚F	Fahrenheit
AMSL	above mean sea level
BLM	United States Department of the Interior, Bureau of Land Management
BMSP	Blythe Mesa Solar Project
CBOC	California Burrowing Owl Consortium
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNWR	Cibola National Wildlife Refuge
EIR/EA	Environmental Impact Report/Environmental Assessment
GPS	Global Positioning System
km	kilometers
kV	kilovolt
MBTA	Migratory Bird Treaty Act
mph	miles per hour
MW	megawatt
POWER	POWER Engineers, Inc.
PV	photovoltaic
RRG	Renewable Resources Group, LLC
USGS	U.S. Geological Survey

1.0 INTRODUCTION

POWER Engineers, Inc. (POWER) prepared this western burrowing owl (*Athene cunicularia hypugaea*) mitigation monitoring plan for Renewable Resources Group, LLC (RRG) as part of the proposed Blythe Mesa Solar Project (BMSP, Project). The western burrowing owl (burrowing owl) is a Bureau of Land Management (BLM) Sensitive species, California Department of Fish and Game (CDFG) Species of Special Concern, and is protected under the federal Migratory Bird Treaty Act (MBTA). Reconnaissance and protocol surveys were conducted to determine if the proposed Project could affect the protected western burrowing owl. The Study Area for the purposes of this document is delineated on Figure 2 and includes a 125-foot proposed right-of-way along the transmission line and a 500-foot (150-meter) wide buffer around the solar facility site. The Study Area supports a relatively small population of burrowing owl, and supports burrowing owl that may occupy habitat outside of the Study Area limits. The July 2011 protocol surveys found eight individual burrowing owls present within the study area that may be directly or indirectly affected by the Project (POWER 2011).

The study area is located in eastern Riverside County, California near the City of Blythe. The proposed Project consists of construction and operation of a 485 megawatt (MW) alternating current solar photovoltaic (PV) electrical generating facility and associated infrastructure to provide site access and connection to the statewide electricity transmission grid. The Project is proposed to be located on approximately 3,660 acres in the Palo Verde Mesa region of Riverside County—3,587 for the solar facility and 73 acres for the 230 kilovolt (kV) transmission line interconnect. POWER conducted the surveys throughout the Study Area.

This Burrowing Owl Monitoring and Mitigation Plan (Plan) has been developed to describe monitoring, reporting, and management of the burrowing owl during the construction, operation and maintenance (O&M), and decommissioning of the proposed Project, as required by the BLM, CDFG, and County of Riverside. It has been prepared following the 2012 CDFG Staff Report on Burrowing Owl Mitigation (CDFG 2012), and describes a multi-tiered approach to prevent or reduce impacts during construction and operation of the Project. While avoidance measures often focus on protecting animals by making adjustments to construction activities near occupied burrows, moving individuals out of harm's way to off-site locations is sometimes the best alternative. Based on the survey results, there is a small population of approximately eight individuals that was identified within the study area (POWER 2011). It may be necessary to move individuals out of harm's way when they are within the portion of the Project area scheduled for construction. This Plan is designed to provide an effective but feasible strategy that would avoid, minimize, and mitigate potential Project impacts to the burrowing owl.

1.1 Project Description

The Blythe Mesa Solar Project is proposing to construct a 485 MW solar PV electrical generating facility and 8.4-mile gen-tie line that would occupy a total of 3,660 acres in the Palo Verde Mesa region of Riverside County—3,587acres for the solar facility component and 73 acres for the 230 kV gen-tie line. The power produced by the Project would be conveyed to the local power grid via interconnection to the Southern California Edison (SCE) Colorado River Substation, an approved new substation located south of Interstate 10 (I-10) and approximately 5 miles west of the Project site.

The proposed project site plan consists of the following components (Figure 1):

- Solar array field utilizing single axis solar PV trackers
- System of interior collection power lines located between inverters and substations
- Three on-site substations (each approximately 300 feet long by 300 feet wide)
- Two O&M buildings (approximately 3,500 square feet each)
- Two primary off-site access roads and several interior access roads

- 4.8 miles of 230 kV double-circuit transmission line between the solar facility and Colorado River Substation, which would be within a 125-foot-wide right-of-way

1.2 Regional Setting

The 3,660-acre site is five miles west of Blythe and consists mostly of agricultural land, including both irrigated and non-irrigated crops. The location is depicted on the Roosevelt Mine, Ripley, and McCoy Wash 7.5' U.S. Geological Survey (USGS) Topographic Quadrangles (see Figure 2). The Project is located on:

- Sections 11 and 12 of Township 7 South, Range 21 East
- Sections 3, 4, 5, 6, 8, 9 of Township 7S, South, Range 22 East
- Sections 27, 28, 29, 32, 33, 34 of Township 6 South, Range 22 East, of the San Bernardino Base Meridian

State Highway 10 bisects the Project area, which is bounded on the north and south by undeveloped desert, on the east by agricultural lands, and on the west by the Blythe City Airport and undeveloped desert.

The Project area is located on the western mesa of the Palo Verde Valley. The valley is a portion of the Colorado River floodplain. The Project area is on Palo Verde Mesa and is situated in the greater Sonoran Desert. The topography is relatively flat and slopes toward the southeast; elevations range from 260 to 400 feet above mean sea level (AMSL). The Project area is near the Big Maria Mountains on the northwest, the McCoy Mountains on the west, the Mule Mountains on the southwest, and the Colorado River on the east. These mountain ranges, trending northwest to southeast, create a natural barrier between the Colorado River and the greater Colorado Desert.

The subtropical climate of the Colorado Desert is currently characterized by dry, mild winters averaging 45 degrees Fahrenheit (˚F) and dry, hot summers that average 104˚F. Summer highs are known to reach up to 120˚F. Precipitation ranges between two and ten inches per year, with most of the precipitation occurring between November and March. Although rainfall occurs primarily in the winter months, the region is periodically influenced by tropical weather conditions, including sudden monsoonal summer storms, which typically occur from July to later September.

FIGURE 1. SITE PLAN

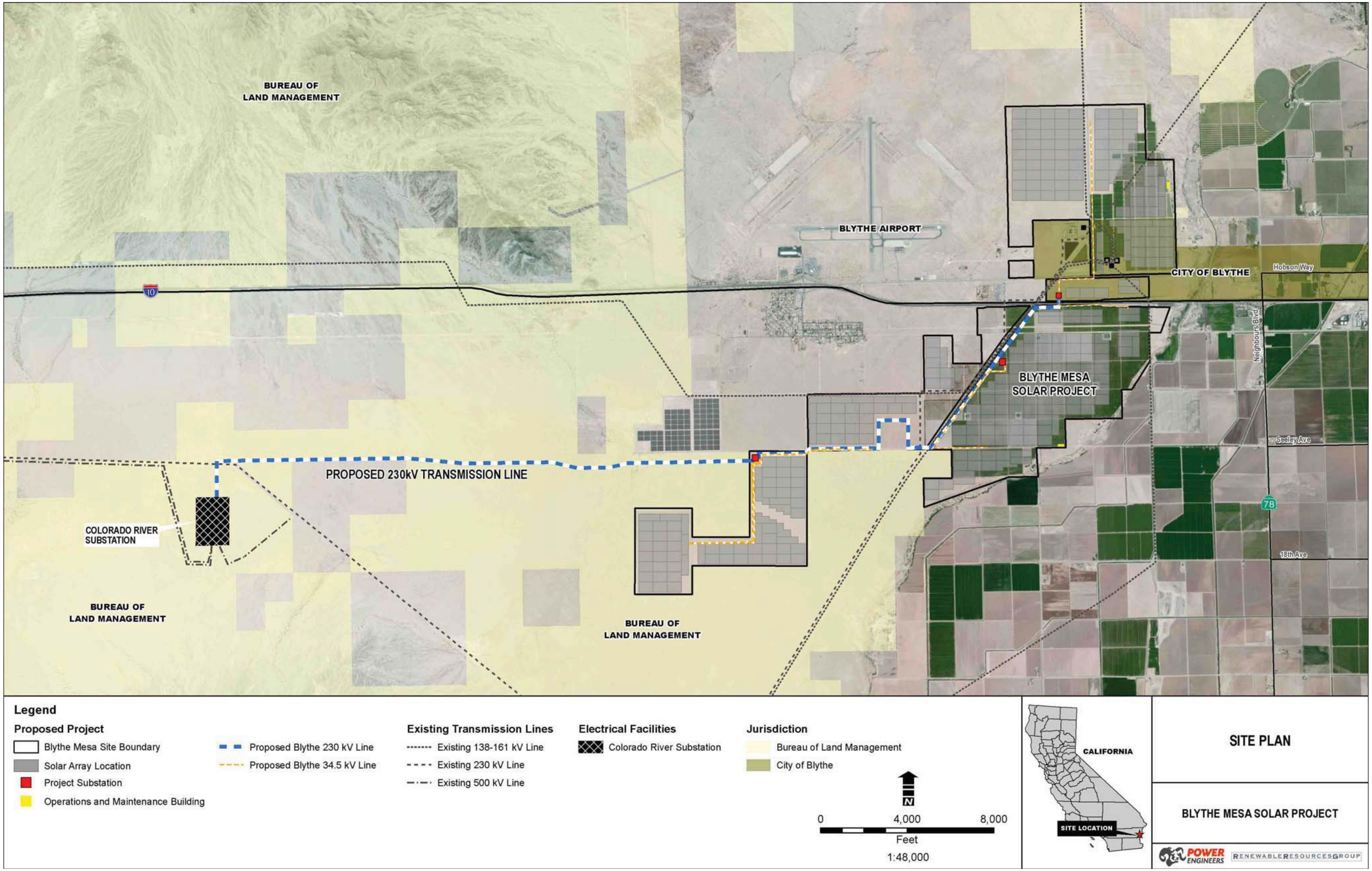

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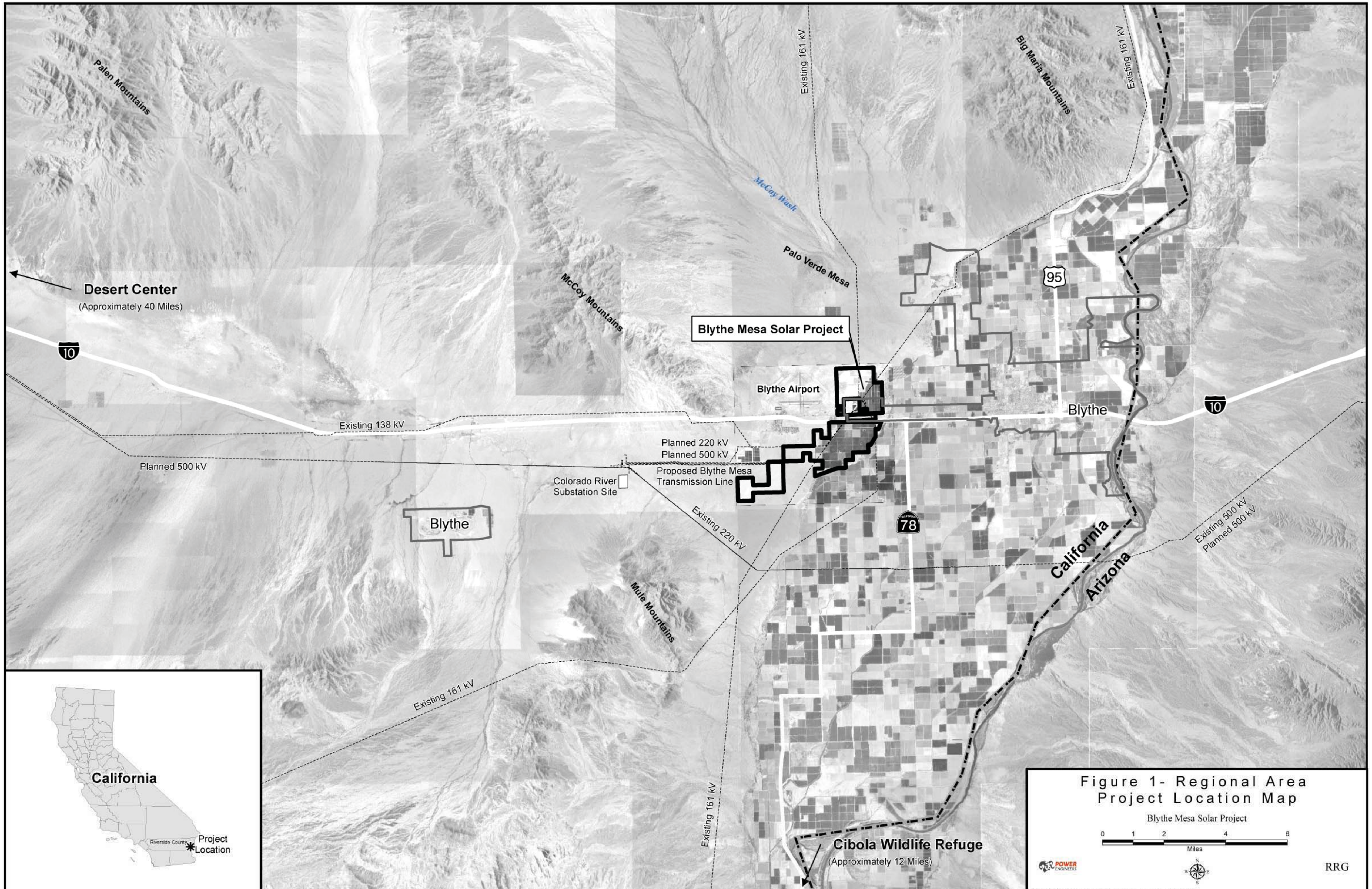
FIGURE 2. REGIONAL AREA PROJECT LOCATION MAP



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1.3 Local Setting and Surrounding Land Uses

The Study Area encompasses land ranging from 260 to 400 feet AMSL. The topography on site is generally flat with gentle relief formed by desert alluvial flow patterns.

The Study Area consists primarily of agricultural lands and desert scrub. Along the four-mile transmission line route and eastern and southern ends of the Project limits there are discrete areas of disturbed native creosote scrub and disturbed stabilized dune and blow sand habitats. Table 1 presents the estimated acreage observed for each habitat type within the study area. This data does not represent the actual proposed Project disturbance footprint for the solar array areas, transmission lines, substations, and facility buildings and roads.

Table 1. Vegetation Communities and Cover Types (Acres)

Vegetation Communities and Other Cover Types	Acreage on the Solar Facility Site Project Boundary*	Acreage on the Proposed Gen-tie Line**
Bajada	18.1	0.0
Creosote Bush Scrub	41.9	278.8
Desert Riparian Woodland Wash	0.0	22.9
Disturbed Creosote Scrub	220.1	0.0
Disturbed/Ruderal	31.2	0.5
Fallow Agriculture	249.7	0.0
Irrigated Alfalfa	404	0.0
Irrigation Pond	17.2	0.0
Mixed – Drip-irrigated Jojoba and Disturbed Creosote Scrub	347	0.0
Non-irrigated Wheat	1088.2	0.0
Orchard	1188.4	0.0
Total Acreage	3605.8 acres	302.1 acres

*The acreage was calculated using GIS data and totals 3,605 acres; however, the County calculates the same area as 3,587 acres.
**A 250-foot buffer was placed on either side of the gen-tie centerline to account for potential indirect and direct impacts to biological resources.

As listed above, approximately 70% of the solar facility area is actively cultivated agricultural land, 24% is previously disturbed by agricultural or military activities, and 6% remains undisturbed. Agricultural land use within the solar facility site includes drip-irrigated citrus orchards, flood-irrigated alfalfa, non-irrigated winter wheat, abandoned jojoba orchards, and fallow fields. The gen-tie line corridors would pass through BLM lands and other private lands mainly comprising desert scrub habitat and disturbed lands associated with existing infrastructure. Several utility lines and maintenance roads run through or parallel the gen-tie line corridors. Additionally, the Project area has been previously disturbed by off-road vehicle use, trash dumping, and historic use for military training during World War II. The Project area borders or is in the vicinity of Nicholls Warm Springs/Mesa Verde, an existing solar facility, Blythe Airport, the 520 MW natural gas-fired Blythe Energy Center, electrical substations, electrical transmission lines, I-10, and other paved and dirt roads. The Project area is bound on the east by agricultural land use that extends to the Colorado River.

2.0 WESTERN BURROWING OWL OVERVIEW

This section provides an overview of the listing status, ecology, local distribution, and survey results of the western burrowing owl.

2.1.1 Burrowing Owl Survey Results

Protocol surveys were conducted in 2011 to document the presence or absence of burrowing owl within the Project area and, if present, their abundance and the amount of suitable habitat. The following is a summary of the survey analysis and results (POWER 2011)

Records Search

A nine-quad search of the California Natural Diversity Database (CNDDB) (CNDDB 2011a), including USGS quadrangles McCoy Peak, McCoy Wash, Blythe NE, Roosevelt Mine, Ripley, Blythe, Thumb Peak, Palo Verde, and Mule Wash, identified 46 occurrences of burrowing owls in the Blythe area, with two occurrences on the Project site. In addition to the CNDDB records search, recent surveys and reports for similar projects near the Project area were also reviewed. There are several solar projects being planned or in the permitting process in the vicinity, and some have completed burrowing owl surveys and results are available (Appendix C)

Table 2. Adjacent Project Survey Information

Species	Project	Species Detected	BMSP Survey Area Overlap
Burrowing Owl	Blythe Solar Power Project	Yes, two within solar site, four in transmission line and multiple sign. Not determined how sign was confirmed.	Overlaps with BMSP transmission line and Colorado River Substation (CRS) survey areas.
	Genesis Solar Energy Project	Yes, three individuals detected around the generation tie line and one burrow around the main site.	No overlap
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	Burrow sites detected along project segment that encompasses Colorado River Substation, but specific locations not mapped.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, burrowing owls detected along southern telecom route. Three owls detected just east of Colorado River Substation.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.

Survey Results

A systematic pedestrian assessment of the study area to determine the habitat suitability for burrowing owls was conducted on the 5th and 6th of May 2011. During the habitat assessment survey, biologists determined that the Project area contained suitable habitat conditions to support burrowing owls. Of the 3,679 acres in the Study Area, approximately 1,970 acres (54%) of suitable burrowing owl nesting and foraging habitat were identified (Figure 2). Suitable habitat consisted of both fallow and active agricultural fields, irrigation ponds and canals, and creosote bush scrub. Suitable habitat also occurred along the edges of orchards. The remaining 1,703 acres consisted of orchards and alfalfa fields. Orchards within the Project area did not contain suitable habitat; burrowing owls prefer open areas and do not inhabit areas with dense vegetation (Klute et al. 2003). Alfalfa fields provide suitable forage areas for burrowing owls, but heavy and frequent disturbance of the fields by disking and harvesting decreases burrow availability. Burrows can occur along the edges of agricultural fields, orchards, and road banks; all road banks, field edges, and irrigation ditches along the agricultural areas throughout the Project site were surveyed. Six irrigation ponds located in the orchard area and irrigation channels throughout the agricultural area and to the east of the Project limits provide accessible fresh water for wildlife.

Protocol surveys were started on May 6 and extended through July 23, 2011. Survey methods were derived from generally accepted professional standards, the 1993 California Burrowing Owl Consortium (CBOC) Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC 1993), and the 1995 CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995). In summary, a methodical pedestrian survey for owl burrows was conducted by walking through areas of suitable habitat within the study area, including man-made structures. The field data from the protocol surveys identified the presence of six burrowing owls during the May survey and eight owls during the July surveys, and an additional two owls were observed outside the Project site but within the Survey Area. Nine suitable burrows or burrow complexes were observed in the northern portion of the site (Figure 2). No suitable burrows were observed in the southern portion of the site. Soil conditions for Project parcels 4 and 13 through 18 and the transmission corridor were very sandy and unstable. Sandy soil would not support burrowing owls; however, burrowing owls are opportunistic and could use other potential burrows in the area that may be found in the berms of roads or concrete piles. Burrowing owl sign (white wash, pellets, feathers) was observed in five locations in the southern region of the Project area. Burrows observed in the southern half of the site belonged to either kit fox (*Vulpes macrotis*) or kangaroo rat (*Dipodomys* sp.). No burrowing owl sign was observed near the kit fox burrows. Several of the kit fox burrows were recent and active kit fox sign was documented; however, most of the burrows were old and collapsed and would not support burrowing owl because the instability of the soil.

Burrowing owl activity and use was determined during the subsequent surveys (July 14 through 19 and 21 through 23). Burrows were monitored at sunrise or sunset on different days to ensure a complete activity period was evaluated for each observed bird. Burrows #1 and #2 were determined not active during the initial monitoring phase and were therefore not included in further monitoring. The other active burrows within the northern end of the Project site were divided into three burrowing owl monitoring sites. Please refer to Figure 2 for the location of Areas 1, 2, and 3.

Area 1 supported four burrowing owls. The four burrowing owls were observed flying in and out of three separate concrete/brick-lined cylindrical, man-made structures (Burrows #4, 5, and 6), which have concrete collars above ground level and are open below ground level to a depth of approximately 4 feet. In Area 1, Burrow #4 contained the greatest number of observed sign, including pellets, prey detritus, feathers, and white wash. Burrows #5 and #6 also featured significant amounts of pellets, detritus, white wash, and feathers. Biologists were unable to determine if the owls were two separate pairs or one pair with two juveniles. Burrowing owls at Area 1 consistently exhibited social and foraging behavior. Several perch sites were favored in this area, including a metal rod with a rounded top, a fence post, a large pile of cleared vegetation and, most frequently, the edges of the concrete wells. Area 1 consisted of approximately 5 acres of disturbed creosote bush scrub dominated by creosote bush and bur sage; concrete rubble piles from old demolished barracks were scattered throughout the creosote bush scrub. Area 1 was bound on the south, west and north by recently tilled, non-irrigated wheat fields that have been farmed for approximately one year. This field is bound to the north by open space comprising creosote scrub habitat, and to the west by disturbed creosote scrub habitat within the area of the former military base and current Blythe Airport.

In Area 2, two burrowing owls occupied a single burrow (Burrow #3) located in a concrete rubble pile. The two owls were observed consistently during morning and evening hours perched on top of the rubble pile. Burrowing owl tracks were identified around and into the rubble pile, with feathers and pellets near a small burrow entrance beneath the rubble. Sex and age of the two burrowing owls observed during the surveys were not established. The burrowing owls occupying Area 2 were easily distressed and would flush and call to one another whenever biologists entered the vicinity. Area 2 consisted of approximately 2 acres of disturbed creosote bush scrub dominated by creosote bush and bur sage. Concrete rubble piles and two concrete foundations were scattered throughout the creosote bush scrub. Area 2 was surrounded to the south, east, and north by recently tilled, non-irrigated wheat fields and disturbed creosote bush scrub to the west.

Area 3 is outside the Project footprint but within the buffer Study Area. In Area 3, two burrowing owls occupied a burrow complex within a native Bajada area. One burrow appeared to be a former canid burrow due to its size, shape, and location in an area of naturally formed earth mounds. Biologists identified three separate burrowing complexes on the earthen mounds within an approximately 10-acre zone. Each burrow complex contained several burrows with recent sign, including white wash, feathers, tracks, and pellets. The two burrowing owls were typically perched on top of earthen mounds when the biologists accessed the area. Without additional harassment, biologists could not determine if the two burrowing owls were nesting.

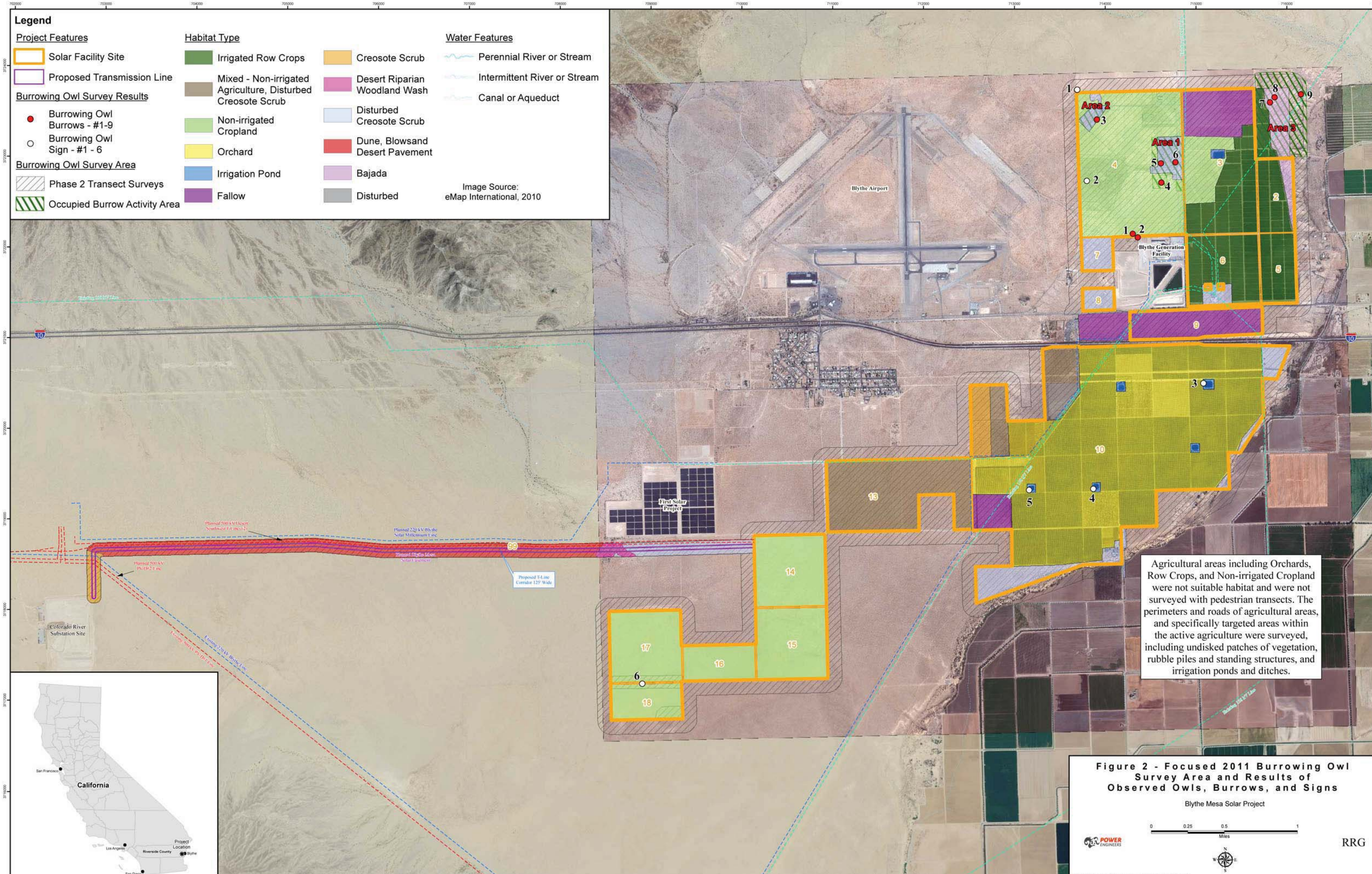
2.1.2 Burrowing Owl Impacts

Western Burrowing Owl

Direct Impacts: Based on spring 2011 protocol survey data, construction activities, including the installation of the solar facility, would permanently impact western burrowing owl by removing accessible foraging and nesting habitat for at least six to eight burrowing owls that were detected within the solar array area. No burrowing owl breeding was documented during 2011 surveys; however, most of the proposed solar facility site contains suitable burrowing owl habitat. It is possible that the solar facility site may be used more during migration or other seasonal movements or during winter. If the solar facility site is used for breeding, it is possible that nests or eggs may be lost as a result of construction activities near burrows. Temporary direct impacts to burrowing owl would also result from an increase in vehicle traffic while the Project is under construction and, consequently, an increase in vehicular strikes of burrowing owl. Project noise, vibration, or visual disturbance may also affect burrowing owls.

Indirect Impacts: The Project may result in increased common raven and raptor predation on burrowing owls as associated with the addition of new elevated perching sites, including the gen-tie structures, perimeter fencing, and gen-tie lines. Other native or introduced animals that may be drawn to human activity and subsequently prey upon burrowing owls include coyotes, cats, or dogs (Bates 2006). Additionally, temporarily ponded water from construction (e.g., dust suppression during construction) and garbage from increased human presence might attract common ravens. These indirect impacts would potentially impact burrowing owls, burrowing owl breeding habitat, or adjacent foraging habitat.

FIGURE 3. FOCUSED BURROWING OWL SURVEY AREA, OBSERVED OWLS, BURROWS AND SIGN



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3.0 WESTERN BURROWING OWL AVOIDANCE MEASURES

The primary purpose of this plan is to avoid, minimize, and mitigate for significant Project impacts to burrowing owls. The following program will be implemented to specifically address impacts to the burrowing owls. Refer to Appendix B for additional best management practices that will also minimize potential impacts to the burrowing owl.

3.1 Monitoring and Reporting Program

3.1.1 Pre-construction Burrowing Owl Surveys

Pre-construction surveys will be conducted throughout the Study Area for burrowing owls, possible burrows, and sign of owls (e.g., pellets, feathers, white wash). The purpose of the pre-construction surveys will be to locate and identify active burrowing owl burrows, estimate the current number of burrowing owl individuals or pairs on site, and determine if the burrowing owls observed on site are considered breeding pairs or migrating transient birds within the Project area. Surveyors will walk line transects spaced 7 meters to 20 meters apart, adjusting for vegetation height and density. All potential burrows, sign, or calls will be documented. Appendix D of the CDFG 2012 survey guidelines will be implemented and are summarized below.

3.1.2 Biological Monitors

The résumé of the proposed biologists will be provided to the County of Riverside, CDFG, and BLM for concurrence before conducting pre-construction surveys or monitoring. The approved Biologist will be on-site to conduct pre-construction surveys and monitor ground disturbance, grading, and construction activities that take place in burrowing owl habitat near burrowing owls and/or burrowing owl burrows. This will help prevent or minimize harm or injury to the burrowing owl.

The approved biologist shall be responsible for documenting the results of the surveys and the ongoing monitoring and will provide a copy of the monitoring reports for impact areas to the respective agencies (e.g., on BLM lands, documentation will be provided to the BLM Biologist). The approved Biologist will be responsible for flagging, staking, and/or other marking appropriate setback distances from active burrows. If destruction of an occupied burrow is unavoidable, the owl(s) will be passively relocated. The approved Biologist will report injuries and mortalities within 24 hours to the Construction Contractor and together they will inform the respective agencies.

The approved Biologist will oversee the installation of the artificial burrows and passive relocation activity. They will also monitor the burrowing owl post-relocation activity and submit annual monitoring reports to the BLM and CDFG.

3.2 Worker's Education Awareness Program

An approved biologist(s) shall conduct a detailed biological Worker Environmental Awareness Program (WEAP) for all Project personnel before any construction or activities within the Project footprint. The WEAP shall include discussions of Project permits and brief summaries of their conditions; discussions of agency involvement, their applicable sensitivity measures, and relevant environmental protection legislation (e.g., the Endangered Species Act, the Migratory Bird Treaty Act); descriptions of the burrowing owl that could exist in the Project area, along with their locations, legal status, and protections; and a review of all measures to be implemented for avoidance of the burrowing owl. Construction workers will be encouraged to alert the biologist on site if they detect a burrowing owl.

3.3 Avoidance

Should any of the pre-construction surveys yield positive results for the presence of burrowing owl or active burrows within the Project area, the approved Biologist will coordinate with the Construction Contractor to implement avoidance and set-back distances.

Occupied burrows will not be disturbed during the breeding season (February 1 through August 31) unless an approved biologist verifies, through non-invasive methods, that: 1) the birds have not begun egg-laying and incubation; and 2) that juveniles from the occupied burrow are foraging independently and are capable of independent survival. The following table describes the CDFG 2012 guidelines for activities around occupied burrowing owl nests and recommended buffers based on low, medium, and high disturbance activities, respectively.

Table 3. CDFG Burrowing Owl Buffer Recommendations

Location	Time of Year	Level of Disturbance		
		Low	*Med*	*High*
Nesting sites	April 1 to Aug 15	200 m*	500 m	500 m
Nesting sites	Aug 16 to Oct 15	200 m	200 m	500 m
Nesting sites	Oct 16 to Mar 31	50 m	100 m	500 m

*meters (m)

The approved Biologist will coordinate with the Construction Contractor to determine the level of disturbance and buffer distance needed. As topography and site conditions allow, setback distances can be reduced. Where appropriate, the setback distances can be reduced by screening burrows (i.e., installing hay bales or another type of material to create a visual and auditory barrier between construction and the burrow) as a means of minimizing disturbance to owls. If hay bales are used, they shall be certified as weed-free in accordance with the Project’s weed control management plan. In addition, the approved Biologist will monitor the set-back distances to ensure that the applied distance is an effective buffer. Effective buffers are those that minimize indirect impacts on the burrowing owl by providing a distance between the burrow and construction activities.

3.4 Excavation of Inactive Burrows

If suitable burrows are observed and documented during the pre-construction surveys within the Project footprint and determined to be inactive, these burrows will be excavated and filled in under the supervision of the approved Biologist(s) prior to clearing and grading. Excavation (by hand) of inactive but potentially suitable burrows will help deter burrowing owls from occupying burrows within the active construction areas. Refer to Section 3.6 below for details on the excavation protocols for the burrowing owl.

3.5 Passive Relocation From the Project Area

3.5.1 Artificial Burrow Installation in Relocation Area

To compensate for impacts to the burrowing owls in activity areas on the northern part of the Project, 146 acres of habitat have been identified adjacent to the Project area to the northeast (Figure 3). Surveys have not been conducted on all adjacent lands; however, they are within the same habitat that supports the burrowing owls currently within the Project area. The 2012 CDFG guidelines will be followed to identify the location within the 146 acres to install the artificial burrows. Installation of the artificial burrows shall occur after identification of the specific relocation sites and prior to ground disturbance of heavy equipment staging. The results of the proposed relocation, including photographs and details of the vegetation and topography where the artificial burrows are proposed, will be provided to the CDFG and County of Riverside for review and approval.

Design of the artificial burrows shall be consistent with the CDFG guidelines (CDFG 2012) and developed in consultation with CDFG. A representative design schematic for an artificial burrow is provided as Attachment A.

Five locations in the southern portion of the Project (south of Interstate 10) contained burrowing owl sign (white wash, pellets, feathers). However, no burrowing owl, its sign, or suitable burrows were observed in this area of suitable habitat. In the event that active burrowing owl burrows are located in the southern portion of the solar facility site during pre-construction surveys, additional potential mitigation land for burrowing owls was identified within and outside the Project boundary and is illustrated in Figure 3.

3.5.2 Passive Relocation and Exclusion Methodology

Passive relocation is considered the preferred option to trapping (CBOC 1993), and the CDFG will not authorize the capture and relocation of burrowing owls except in the context of scientific research (CDFG 2012). During the non-breeding season, owls shall be given a minimum of three weeks to become familiar with the new artificial burrows, after which eviction of owls within the Project area shall begin. A time period of at least one week is recommended to allow the owls to be passively moved and acclimate to alternate burrows (CBOC 1993). As recommended by CDFG 2012 guidelines and described by Truilo (1995) and Johnson et al. (2010), a one-way door shall be used to facilitate passive relocation of owls. The one-way door shall be left in place for 48 hours to ensure burrowing owls have left the burrow before excavation (CDFG 2012)

The following exclusion methodology shall be implemented to prevent burrowing owls from reestablishing themselves once relocated. Following installation of the one-way doors, intensive monitoring of the burrow will be conducted by the approved Biologists to count the number of departing birds. All evicted burrowing owls will be monitored daily from dawn until dusk to determine their post-eviction fate until one of the following events occurs: 1) the burrowing owl is observed to reside in the artificial burrow for at least 10 consecutive days; 2) the owl is consumed by a predator or otherwise dies, and its death is documented and reported to CDFG, USFWS, and the County of Riverside; or 3) the monitoring team is unable to locate the owl in the vicinity of the Project area for 10 consecutive days, in which case the monitoring team will report the owl as “disappeared” in the final post-eviction report sent to the three agencies. The monitoring schedule may be adjusted upon review and approval by CDFG and the County of Riverside.

Burrows shall be excavated after being determined vacant by use of a down-hole camera, monitoring, and the use of one-way doors. Excluded burrows shall be monitored daily for one week to confirm no additional burrowing owls use them before excavation. After burrows are confirmed to no longer be in use, the burrow shall be excavated using hand tools and refilled to prevent reoccupations. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any burrowing owls inside the burrow. The implementation of the exclusion plan shall occur after successful relocation and prior to ground disturbance of heavy equipment staging. The exclusion plan shall be consistent with the CDFG guidelines (CDFG 2012) and developed in consultation with CDFG.

3.5.3 Relocation Mitigation Management Plan and Vegetation Management Goals

Monitoring of the mitigation site and vegetation will be implemented to ensure the appropriate maintenance for the mitigation site and that persistence of the burrowing owls on site is successful and long-term (CDFG 2012). Monitoring of the site will occur four times per year for a two-year program. Two visits will be conducted during the breeding season, and the other two visits will be conducted during the non-breeding season to evaluate the burrowing owl use of the artificial burrows or other natural burrows. The approved Biologists will also document site conditions within the mitigation area(s) with photographs and a monitoring memo report that will be provided to the maintenance contractor following each visit. The monitoring memo will include specific guidance in the form of a list of necessary maintenance within the mitigation area(s).

Maintenance of artificial burrows shall occur three to four times during the year immediately following relocation, as necessary. Maintenance will include weed management, trash removal, semi-annual and annual artificial burrow cleaning and maintenance, and management of vegetation height and density (especially in immediate proximity to burrows) (Appendix F of CDFG 2012). The relocation mitigation management and vegetation plan shall be consistent with the CDFG guidelines (CDFG 2012) and developed in consultation with CDFG.

3.5.4 Reporting

An annual report will be submitted to CDFG, USFWS and County of Riverside following each breeding season for two years post-relocation. The annual reports will include the date when passive relocation efforts begin, the date of the burrow excavations, findings, initiation of construction activities, monitoring efforts, and vegetation management. Any injuries, mortality, or other unforeseen circumstances would be reported to all resource agencies within 24 hours.

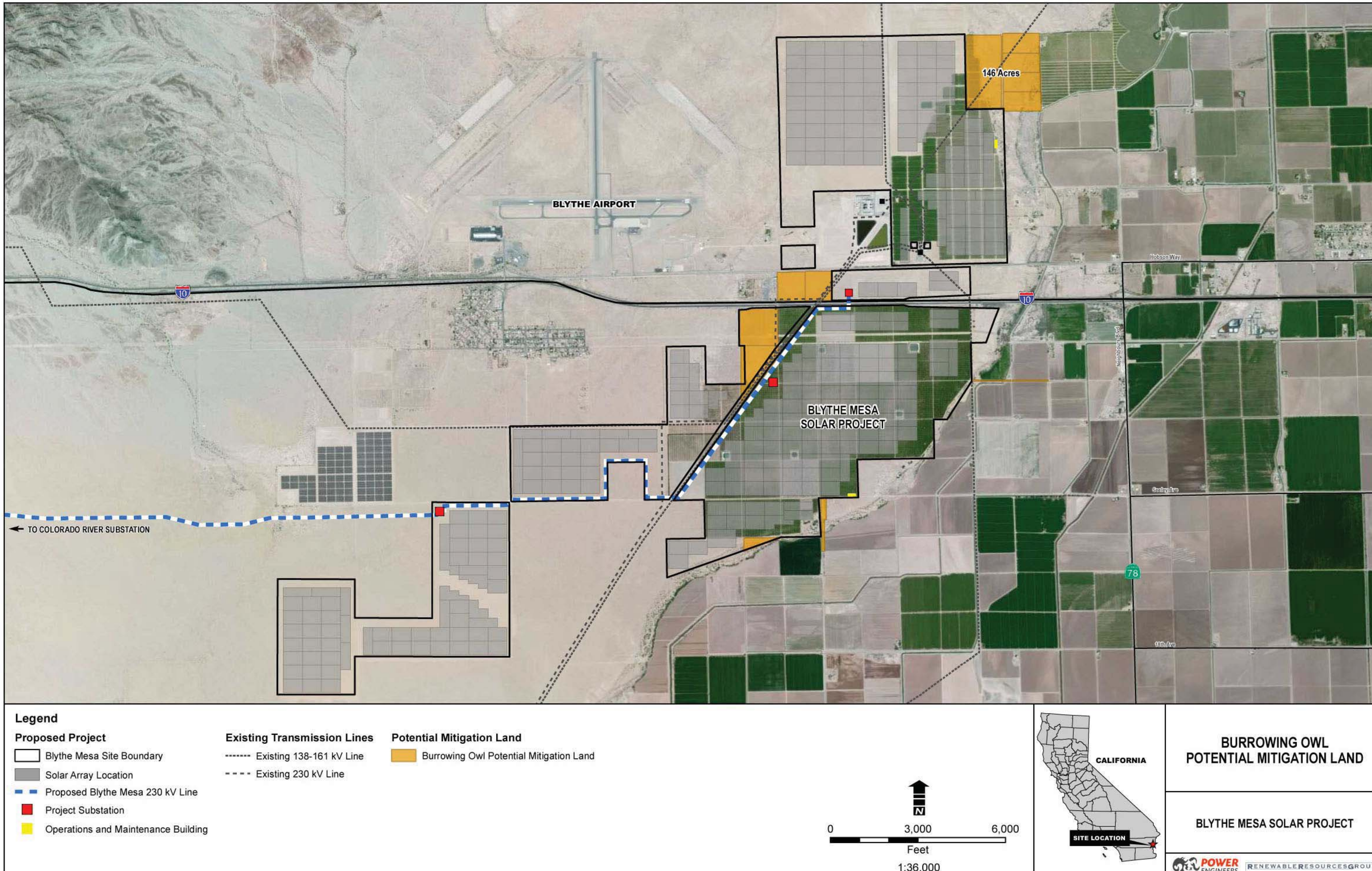
The report would include the following data:

- Project name, location, and all pertinent information pertaining to the Project or Mitigation site
- Known predators or humans visiting or disturbing the Project or Mitigation site
- Dates of removal of one-way trap doors and the collapse of unoccupied burrows
- Monitoring results
- Weed removal efforts
- Any other pertinent data gathered through the exclusion, passive relocation efforts, and post-relocation monitoring

3.5.5 Western Burrowing Owl Compensation Lands

A total of 277 acres of habitat are located adjacent to the Project area and owned by RRG. It is anticipated that the available 146 acres would fully mitigate potential impacts to the burrowing owl. However, an additional 131 acres are available if needed. The California Burrowing Owl Consortium guidelines recommend 6.5 acres of compensation land be preserved and managed in perpetuity for each individual burrowing owl or burrowing owl pair identified as potentially impacted at the Project site. Based on the protocol burrowing owl surveys conducted in 2011, if it is assumed that nine active burrowing owl burrows are detected, the Project would require a minimum of 58 acres for compensation lands. However, per the 2012 CDFG mitigation guidelines, a pre-construction survey will be conducted to determine the number of burrowing owls and the amount of compensation land that shall be required to be protected.

FIGURE 4. POTENTIAL BURROWING OWL MITIGATION LAND



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4.0 CONTINGENCY PLANNING AND PROGRAM CONTACTS

An adaptive management program that functions within the constraints of the Project permit and approvals will be implemented to help handle any unanticipated circumstances that may arise. Adaptive management decisions will be made with input from pertinent regulatory agency staff in a timely manner to ensure the protection of the burrowing owl. The following is a list of agency staff members who shall be contacted, as applicable, on various aspects of relocation site selection and long-term management of the relocation site:

California Department of Fish and Game:
TBD

County of Riverside
Jared Bond
Senior Ecological Resource Specialist
Environmental Programs Division
County of Riverside
951-955-0314
JBOND@rctlma.org

Bureau of Land Management
Kim Marsden
Natural Resources Specialist
Renewable Energy Coordinating Office
California Desert District
22835 Calle San Juan De Los Lagos
Moreno Valley, CA 92553-9046
Phone: 951-697-5223
kmarsden@blm.gov

United Stated Fish and Wildlife Service
Nisa Marks
Palm Springs Fish and Wildlife Office
777 E. Tahquitz Canyon Way, Suite 208
Palm Springs, CA 92262
760.322.2070 extension 208
Nisa_Marks@fws.gov

5.0 LITERATURE CITED / REFERENCES

California Burrowing Owl Consortium (CBOC). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Tech. Rep. Burrowing Owl Consortium, Alviso, California. http://www.dfg.ca.gov/wildlife/nongame/docs/boconsortium.pdf

California Department of Fish and Game (CDFG). 1995. Staff Reporting on Burrowing Owl. October 17, 1995. California Department of Fish and Game. Memorandum from Mr. Ron Rempel.

_____. 2008. California Interagency Wildlife Task Group. CWHR version 8.2 personal computing program. Sacramento, CA.

_____. 2012. Staff Report on Burrowing Owl Mitigation. March 7, 2012. State of California Natural Resource Agency, Department of Fish and Game.

California Natural Diversity Data Base (CNDDB). 2011a. California Natural Diversity Data Base. Element occurrence search for Project area quadrangles.

Cibola National Wildlife Refuge. 2011. Wild At Heart Owl Relocation to Cibola NWR http://www.mirror-pole.com/wild_at_heart/bur_owl/rel_sites/cibola/cibola_release_site.html.

Haug, E. A., B. A. Millsap and M. S. Martell. 1993. Burrowing Owl (Athene cunicularia), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/061.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Vegetation Ecologist Nongame-Heritage Program. Sacramento, CA.

Klute, David S., Loren W. Ayers, Michael T. Green, William H. Howe, Stephanie L. Jones, Jill A. Shaffer, Steven R. Sheffield, and Tara S. Zimmerman. 2003. Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States Biological Technical Publication BTP-R6001-2003. U.S. Fish and Wildlife Service. http://www.fws.gov/mountain-prairie/species/birds/wbo/Western%20Burrowing%20Owlrev73003a.pdf

Johnson, D.H., D.C. Gillis, M.A. Gregg, J.L. Rebholz, J.L. Lincer, and J.R. Belthoff. 2010. Users' Guide to Installation of Artificial Burrows for Burrowing Owls. Tree Top, Inc. Selah, Washington. 34 pp. PDF available from URLs: http://www.globalowlproject.com/ or http://www.wildlife-research.org/

POWER Engineers, Inc. (POWER). 2011. Blythe Mesa Solar Project Western Burrowing Owl Survey Report. Prepared for Renewable Resources Group. California.

Sawyer, J.O., T. Keeler-Wolf, J.M. Evens. 2009. A manual of California Vegetation, Second Edition, California Native Plant Society Press. Sacramento, CA.

Trulio, Lynne, A. 1995. Passive Relocation. A Method to Preserve Burrowing Owls on Disturbed Sites. Journal of Field Ornithology 66(11): 99-106.

Representative Relevant Planned Projects in vicinity of Blythe, California

AECOM. 2009. Blythe Solar Power Project Application for Certification. Submitted by Solar Millennium, LLC to the California Energy Commission.

California Energy Commission. 2010. Genesis Solar Energy Project Application for Certification Supplemental Information. March 2010. California Energy Commission Docket Number 09-AFC-8.

Southern California Edison. 2009. First Solar Electric, Blythe, California Environmental Assessment Initial Study. February, 2009. County of Riverside EA40219.

_____. 2010. Devers-Palo Verde No. 2 Transmission Line Project Colorado River Substation Expansion Final Supplemental Environmental Impact Report. April 2010.

TetraTech Environmental, Inc. 2010. Genesis Solar Energy Project Supplemental Information. June 2010. California Energy Commission Docket Number 09-AFC-8.

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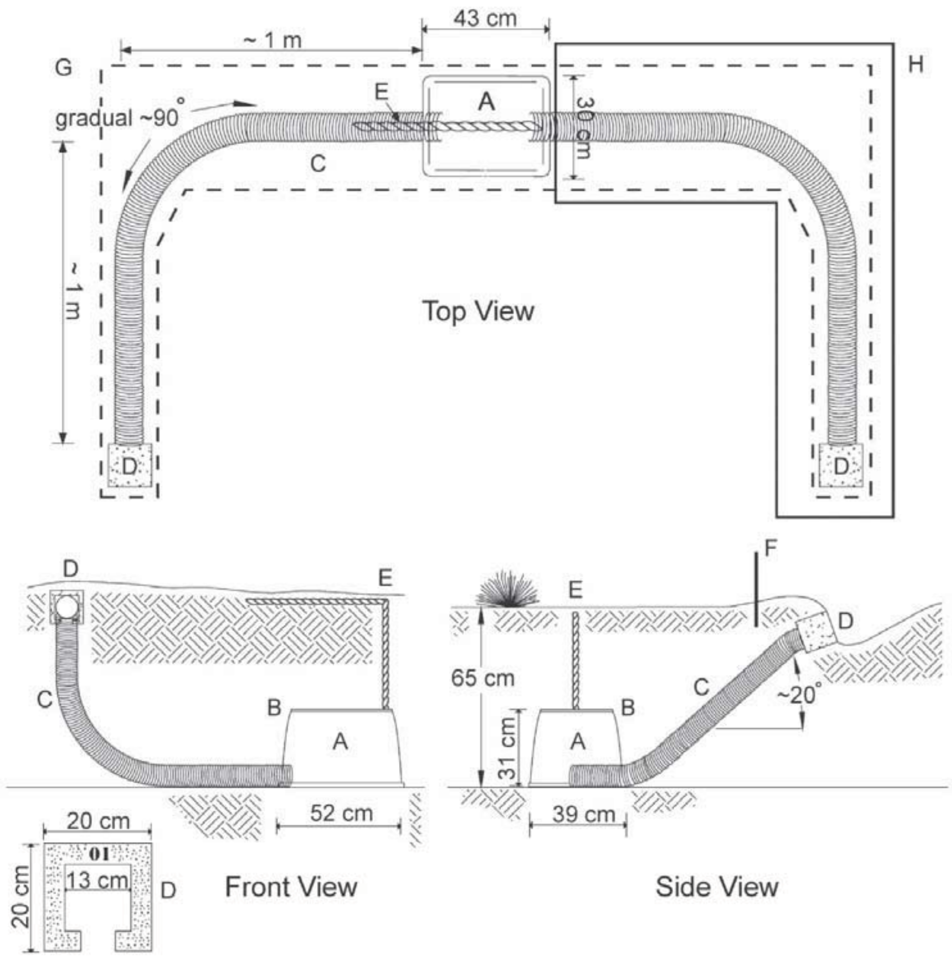
APPENDIX A: ARTIFICIAL BURROW DESIGN



A - Plastic irrigation valve box, 48 cm long x 35 cm wide x 27 cm high (inside dimensions)
B - Removable lid
C - Ca. 2 m of 10-cm diameter perforated flexible plastic pipe
D - 20 x 20 x 15 cm hollow concrete block
E - Plastic rope or chain marking location of nest chamber on ground surface
F - 0.5 m perch post (optional)
G - Excavation footprint for installation – – –
H - Optional second entrance

Source: Albion Environmental (John H. Barclay, 2008, http://www.albionenvironmental.com/burrow_design.pdf)

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APPENDIX B: BEST MANAGEMENT PRACTICES

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The analysis assumes that the Applicants would implement the following BMPs to provide additional protection to western burrowing owl.

Drainage, Erosion, and Sedimentation Control Plan. As part of the County of Riverside's Conditional Use Permit (CUP) requirements, a Drainage, Erosion, and Sedimentation Control Plan would be developed for the Project. The plan would address the drainage, erosion, and sediment control requirements to support all activities associated with construction, operation, and decommissioning of the Project.
Stormwater Pollution Prevention Plan. In compliance with requirements of the National Pollutant Discharge Elimination System (NPDES) permit, a Stormwater Pollution Prevention Plan (SWPPP) would be developed and prepared for the Project to ensure that protection of water quality and soil resources is consistent with County and State regulations.
Fugitive Dust Abatement Plan. As required by the Mojave Desert Air Quality Management District Rule 403, a Fugitive Dust Abatement Plan would be prepared to address fugitive dust emissions during Project construction, operation, and decommissioning.
Fire Management and Protection Plan. As required by existing law (Title 8 California Code of Regulations [CCR] Section 3221), a Fire Management and Protection Plan would be developed in consultation with the Riverside County Fire Department to identify potential hazards and accident scenarios that would exist at the facility during construction, operation, and decommissioning of the Project.
Trash Abatement Plan. A Trash Abatement Plan shall be developed that focuses on containing trash and food in closed and secure, sealable containers, with lids that latch, and removing them periodically to reduce their attractiveness to opportunistic species, such as common ravens, coyotes, and feral dogs, that could serve as predators of native wildlife and special-status animals. Also establish a regular litter pick-up procedure within and around the perimeter of the Project site, and remove from the Project site those containers associated with construction when construction is complete.
Integrated Weed Management Plan. In compliance with the Federal Noxious Weed Act, the Plant Protection Act, and the California Food and Agricultural Code, a Project-specific integrated weed management plan for the control of noxious weeds and invasive plant species would be prepared. The plan would identify presence, location, and abundance of weed species in the Project area and surrounding area adjacent to the Project, as well as identify suppression and containment measures to prevent the spread of weed species and introduction of weed species.
Project structures and building surfaces. Project facilities would be sited to ensure that there is adequate space (i.e., setbacks of no less than 100 feet) between solar facilities and natural washes. These setbacks would preserve and maintain the natural washes' hydrological functions.
Gen-tie lines. Gen-tie line support structures and other facility structures shall be designed to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices).
Ground and surface disturbance. Construction boundaries would be clearly delineated to minimize areas of ground and surface disturbance. Ground-disturbing activities shall be minimized, especially during the rainy season. To the maximum extent possible, construction-related activities (such as vehicle and foot traffic) would avoid areas with intact biological soil crusts.
Travel and traffic. Vehicular traffic on site shall be confined to existing or designated travel routes and designated work areas. Access to the construction site and staging areas shall be limited to authorized vehicles and only through the designated roads.
Plants and wildlife. In compliance with the California Department of Fish and Game Codes, while on the Project property, workers or visitors would be prohibited from: feeding wildlife; moving live, injured, or dead wildlife off roads, ROWs, or the Project site; bringing domestic pets to the Project site; collecting native plants; and harassing wildlife. Areas where wildlife could hide or be trapped (e.g., open trenches, sheds, pits, uncovered basins, and laydown areas) would be minimized. For example, an uncovered pipe that has been placed in a trench should be capped at the end of each workday to prevent animals from entering the pipe. If a special-status species is discovered inside a component, that component must not be moved, or, if necessary, moved only to remove the animal from the path of activity, until the animal has escaped. As open trenches could impede the seasonal movements of large game animals and alter their distribution, they would be backfilled as quickly as possible. Open trenches could also entrap smaller animals; therefore, escape ramps would be installed along open trench segments at distances identified in the applicable land use plan or by the best available information and science. If traffic is being unreasonably delayed by wildlife in roads, personnel would contact the Project biologist, who will take any necessary action. Any vehicle-wildlife collisions would be immediately reported to the Project biologist. Observations of potential wildlife problems, including wildlife mortality, would be immediately reported to the BLM or other appropriate agency authorized officer.

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APPENDIX C: SURVEY RESULTS

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January, 2012

BLYTHE MESA I SOLAR PROJECT

Western Burrowing Owl Survey Report

PROJECT NUMBER:
122512

PROJECT CONTACT:
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POWER ENGINEERS

PREPARED FOR: RENEWABLE RESOURCES GROUP
LOS ANGELES, CALIFORNIA

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TOM HERZOG
VANESSA SANTISTEVAN

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ACRONYMS AND ABBREVIATIONS

˚F	Fahrenheit
AMSL	above mean sea level
BLM	United States Department of the Interior, Bureau of Land Management
CBOC	California Burrowing Owl Consortium
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNWR	Cibola National Wildlife Refuge
GPS	Global Positioning System
km	kilometers
kV	kilovolt
MBTA	Migratory Bird Treaty Act
mph	miles per hour
MW	megawatt
POWER	POWER Engineers, Inc.
PV	photovoltaic
RRG	Renewable Resources Group, LLC
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Power Engineers, Inc. (POWER) conducted a western burrowing owl (*Athene cunicularia hypugaea*) protocol-level survey for the Renewable Resources Group, LLC (RRG) as part of the proposed Blythe Mesa I Solar Project (BMSP, Project). The primary purpose of the surveys was to determine the presence or absence of burrowing owls within the defined study area. The study area is located within Riverside County, California near the community of Blythe; on approximately 3,679 acres in the Palo Verde Mesa (Figure 1). The study area for the purposes of this document is delineated on Figure 2 and includes a 125-foot proposed right-of-way along the transmission line.

1.1 PROJECT OVERVIEW

The proposed Project consists of construction and operation of a 485 megawatt (MW) alternating current solar photovoltaic (PV) electrical generating facility and associated infrastructure to provide site access and connection to the statewide electricity transmission grid. The Project footprint is proposed to be located on approximately 3,660 acres in the Palo Verde Mesa region of Riverside County—3,587 for the solar field and 73 acres for the 230 kilovolt (kV) transmission line interconnect. POWER conducted the surveys within proposed Project transmission line footprint which included a 500 feet wide corridor centered on the 125-foot wide project right-of-way. The survey area of array parcels included a 500-foot (150-meter) wide buffer around the project limits. The proposed project would occupy a total of 3,660 acres and consist of the following components:

- Solar array field utilizing single axis solar PV trackers
- System of interior collection power lines located between inverters and substations
- Three on-site substations (approximately 300 feet long by 300 feet wide)
- Two operation and maintenance (O&M) buildings (approximately 3,500 square feet each)
- Two primary off-site access roads and several interior access roads
- 4.8 miles of 230 kV double-circuit transmission line between the solar field and Colorado River Substation

1.2 REGIONAL SETTING

The 3,660-acre site is five miles west of Blythe and consists mostly of agricultural land, including lemon orchards. The location is depicted on the Roosevelt Mine, Ripley, and McCoy Wash 7.5' U.S. Geological Survey (USGS) Topographic Quadrangles (see Figure 1). The Project is located on:

- Sections 11 and 12 of Township 7 South, Range 21East
- Sections 3, 4, 5, 6, 8, 9 of Township 7S, South, Range 22 East
- Sections 27, 28, 29, 32, 33, 34 of Township 6 South, Range 22 East, of the San Bernardino Base Meridian

State Highway 10 bisects the Project area, which is bounded on the north and south by undeveloped open desert, on the east by agricultural lands and on the west by the Blythe City Airport and open desert lands.

The Project area is located on the western mesa of the Palo Verde Valley. The topography is relatively flat and slopes toward the southeast; elevations range from 260 to 400 feet above mean sea level (AMSL). The subtropical climate of the Colorado Desert is currently characterized by dry, mild winters averaging 45 degrees Fahrenheit (˚F) and dry, hot summers that average 104˚F. Summer highs are known to reach up to 120˚F. Precipitation ranges between two and ten inches per year, with most of the precipitation occurring between November and March. Although rainfall occurs primarily in the winter months, the region is periodically influenced by tropical weather conditions, including sudden monsoonal summer storms which typically occur from July to later September.

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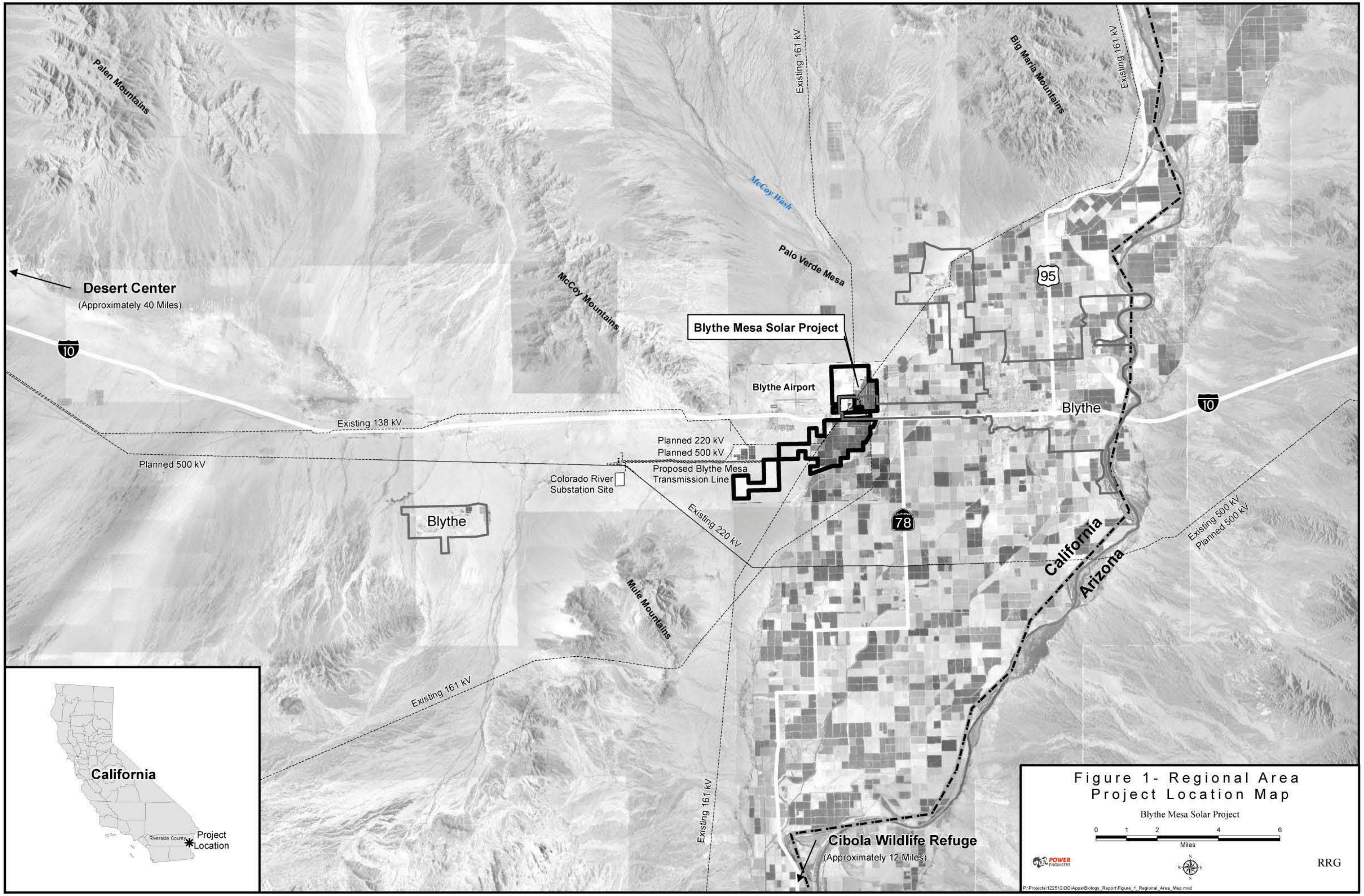
FIGURE 1 - REGIONAL AREA PROJECT LOCATION MAP



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1.3 EXISTING CONDITIONS

The proposed project consists primarily of desert scrub and agricultural lands. Along the four mile transmission line route and eastern and southern ends of the project limits there are discrete areas of disturbed native creosote scrub and disturbed stabilized dune and blow sand habitats. Table 1 presents the estimated acreage observed for each habitat type within the study area. This data does not represent the actual proposed project disturbance footprint for the solar areas, transmission lines, substations, and facility buildings and roads.

TABLE 1. OBSERVED HABITAT ACREAGE WITHIN THE STUDY AREA

Habitat	Acres	Percentage Within the Project Site
Bajada	18.07	0.5%
Creosote Scrub	46.74	1.3%
Desert Riparian Woodland Wash	2.83	0.1%
Disturbed	31.15	0.8%
Disturbed Creosote Scrub	233.44	6.3%
Disturbed Creosote Scrub and Fallow Agricultural	271.10	7.4%
Dune, Blowsand Desert Pavement	52.52	1.4%
Fallow	249.72	6.8%
Irrigated Cropland	404.02	11.0%
Irrigation Pond	17.21	0.5%
Mixed	75.92	2.1%
Non-Irrigated Cropland	1088.15	29.6%
Orchard	1188.36	32.3%
Total Project Area Acreage (Includes 125 ft right-of-way)	**3679.24**	**100.0%**

As listed above, the Project area comprises mainly agricultural land and desert scrub. Existing land consists of farmland, fallow farmland, creosote bush scrub, or stabilized desert dune and blowsand habitat. Active agricultural uses include citrus orchard and ornamental date palms, and wheat and alfalfa fields. Jojoba was previously grown for commercial purposes in some portions of the project area. The jojoba fields have been abandoned at some point in the recent past and are currently a mix of jojoba and reestablishing creosote bush scrub.

The study area is also situated among energy generating facilities (i.e., solar and natural gas-fired), active transmission lines, and electrical substations. Given the extent of the existing human-influenced environment (e.g., active agricultural operations [harvesting, discing, and planting]; high levels of automobile traffic [Interstate 10 bisects the Project]; energy generation, distribution and maintenance facilities; and ongoing aviation related activities) within the study area, any animals currently using these lands are assumed to be acclimated to the disturbance regime present.

2.0 SPECIES DESCRIPTION

Western burrowing owl is designated as a Priority 2 Bird Species of Special Concern by the California Department of Fish and Game (CDFG) due to rapid habitat loss and degradation from urbanization. It is also designated as a U.S. Department of the Interior, Bureau of Land Management (BLM) Sensitive species and a U.S. Fish and Wildlife Service (USFWS) Bird of Conservation Concern. Its range extends through all states west of the Mississippi Valley and into Mexico, Central America, and South America.

In California, it typically inhabits lowlands, including those in the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. For shelters, the burrowing owl uses rodent burrows in sparse grassland, desert, and agricultural habitats, as well as open areas of pinyon-juniper or ponderosa pine habitats (CDFG 2008). Breeding populations generally display greater site fidelity than winter populations, which tend to move about more, even taking refuge into vegetation instead of nearby burrows (Poulin et al. 2011). Individuals in California, particularly Southern California, are mostly residents (CDFG 2008). Nesting begins from late March to August, peaking in April and May (CDFG 2008). While some pairs have been observed to have double broods within a single breeding season, it is considered to be uncommon and is not always successful (Poulin et al. 2011). Burrowing owls are typically active at dusk and dawn, but can sometimes be active at night, as well.

3.0 SURVEY METHODOLOGY

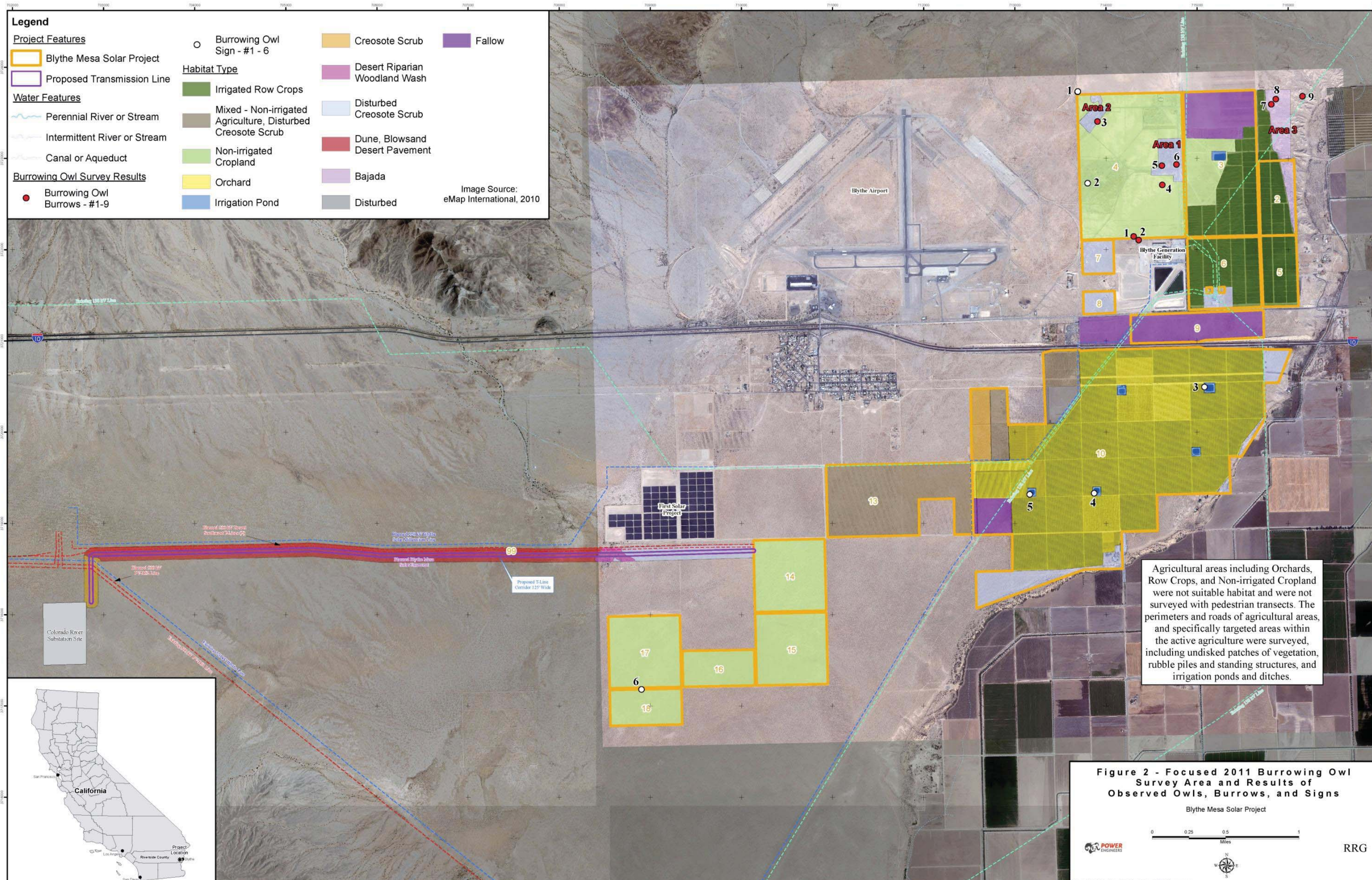
Collection of burrowing owl baseline data in the Project area included a review of the California Natural Diversity Database (CNDDB) records and of applicable biological documents, including several solar projects that have completed burrowing owl surveys. Additionally, a systematic pedestrian assessment of the study area to determine the habitat suitability for burrowing owls was conducted on the 5th and 6th of May 2011.

Protocol surveys were started on May 6 and extended through July 23, 2011. Survey methods were derived from generally accepted professional standards, the 1993 California Burrowing Owl Consortium (CBOC) Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC 1993), and the 1995 CDFG Staff Report on Burrowing Owl Mitigation (CDFG 1995). In summary, a methodical pedestrian survey for owl burrows was conducted by walking through areas of suitable habitat within the study area, including man-made structures. In addition, biologists visited the Cibola National Wildlife Refuge (CNWR) 12 miles to the south of the Project limits to view the known burrowing owls there as a reference population; biologists saw six burrowing owls foraging near an agricultural field at the CNWR, which confirmed activity in middle to late July in this region of the owls' range.

POWER biologists Tom Herzog, Steve Hicks, Ken McDonald, and Melissa Lippincott, and Garcia and Associates, Inc. biologists Andrew McCadden, Angelique Herman, and Laura Megill conducted pedestrian survey transects, spaced at approximately 100 feet to allow for 100% visual coverage of the study area. Where necessary, transect spacing was reduced or expanded to account for differences in terrain, vegetation density, and visibility. The locations of all potential owl burrows and sign were recorded and mapped using handheld global positioning devices and aerial imagery. Figure 2 presents the protocol burrowing owl survey areas for the Project area.. Incidental observations of other avian species, plants and other wildlife were also noted. The presence of each observed wildlife species was based on direct observation of individual(s), sign, and/or vocalization.

Field surveys were conducted when weather conditions were conducive to observing owls and other avian species. The surveys were not performed during rain, high winds (greater than 20 mph), dense fog, or temperatures over 90 ºF. Observations were made from the nearest appropriate vantage points with the use of binoculars when access to discrete portions of the study area were not possible due to private property, topographic relief, physical barriers, health and safety considerations, etc.

FIGURE 2 – FOCUSED BURROWING OWL SURVEY AREA, OBSERVED OWLS, BURROWS AND SIGN



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4.0 SURVEY RESULTS

A nine-quad search of the CNDDB (CNDDB, 2011a) including USGS quadrangles McCoy Peak, McCoy Wash, Blythe NE, Roosevelt Mine, Ripley, Blythe, Thumb Peak, Palo Verde, and Mule Wash identified 46 occurrences of burrowing owls in the Blythe area, with two occurrences on the Project site. In addition to the CNDDB records search, recent surveys and reports for similar projects near the Project area were also reviewed (Table 2).

TABLE 2. ADJACENT PROJECT SURVEY INFORMATION

Species	Project	Species Detected	BMSP Survey Area Overlap
Burrowing Owl	Blythe Solar Power Project	Yes, two within solar site, four in transmission line and multiple sign. Not determined how sign was confirmed.	Overlaps with BMSP transmission line and Colorado River Substation (CRS) survey areas.
	Genesis Solar Energy Project	Yes, three individuals detected around the generation tie line and one burrow around the main site.	No overlap
	Devers-Palo Verde No. 2 500 kV Transmission Line Project	Burrow sites detected along project segment that encompasses Colorado River Substation, but specific locations not mapped.	The project areas overlap at the CRS.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route	Yes, burrowing owls detected along southern telecom route. Three owls detected just east of Colorado River Substation.	Project areas overlap at and near the CRS but otherwise do not share the same corridors. Northern telecom route is approximately one mile from the BMSP transmission line corridor.
	Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion	See Blythe Solar and Devers-Palo Verde Telecom survey results above.	BMSP would tie into this substation. Surveys conducted on and around the substation site would overlap with the BMSP.
	First Solar Electric Blythe Solar 1 Project	No surveys conducted. Biological analysis based on a desktop study of existing information.	Project area is located directly adjacent (north) to the BMSP transmission line.
	Blythe Airport Solar Project	No.	Project area is located directly adjacent (west) to the northeastern BMSP solar array area.

4.1 FIELD RESULTS

During the habitat assessment survey, biologists determined that the Project area contained suitable habitat conditions to support burrowing owls. Of the 3,679 acres in the study area, approximately 1,970 acres (54%) of suitable burrowing owl habitat were identified (Figure 2). Suitable habitat consisted of both fallow and active agricultural fields, irrigation ponds and canals, and creosote bush scrub. Suitable habitat also occurred along the edges of orchards. The remaining 1,703 acres consisted of orchards and alfalfa fields. Orchards within the project area did not contain suitable habitat; burrowing owls prefer open areas and do not inhabit areas with dense vegetation (U.S. Fish and Wildlife Service, 2003). Alfalfa fields provide suitable forage areas for burrowing owls, but heavy and frequent disturbance of the fields by disking and harvesting decreases burrow availability. Burrows can occur along the edges of agricultural fields, orchards and road banks; all road banks, field edges and irrigation ditches along the agricultural areas throughout the Project site were surveyed. Six irrigation ponds located in the orchard area and irrigation channels throughout the agricultural area and to the east of the project limits provide accessible fresh water for wildlife.

The field data from the protocol surveys identified the presence of six burrowing owls during the May survey and eight owls during the July surveys, and an additional two owls were observed outside the project site but within the survey buffer. Nine suitable burrows or burrow complexes were observed in the northern portion of the site (Figure 2). No suitable burrows were observed in the southern portion of the site. Soil conditions in the southern half of the site within Project Parcels 4, 13-18 and the transmission corridor were very sandy and unstable. However, burrowing owl sign (white wash, pellets, feathers) was observed in five locations in the southern region of the Project area. Burrows observed in the southern half of the site belonged to either kit fox (*Vulpes macrotis*) or kangaroo rat (*Dipodomys* sp.). No burrowing owl sign was observed near the kit fox burrows. Several of the kit fox burrows were recent and active kit fox sign was documented; however, most of the burrows were old and collapsed and would not support burrowing owl because the instability of the soil.

During the July surveys (14-19 and 21-23) burrowing owl activity and use was determined to the extent possible. Burrows were monitored at sunrise or sunset on different days to ensure a complete activity period was evaluated for each observed bird. The northern end of the Project site was divided into three burrowing owl monitoring sites. Please refer to Figure 2 for the location of Areas 1, 2, and 3.

Area 1 supported four burrowing owls. The four burrowing owls were observed flying in and out of three separate concrete / brick lined cylindrical, man-made structures, which have concrete collars above ground level and are open to below ground level to a depth of approximately four feet. Appendix C includes site photographs and images of the well location burrows and these described elements. In Area 1, Burrow #4 contained the greatest number of observed sign, including pellets, prey detritus, feathers, and white wash. Burrows # 5 and 6 also featured significant amounts of pellets, detritus, white wash, and feathers. Biologists were unable to determine if the owls were two separate pairs or one pair with two juveniles. Burrowing owls at Area 1 consistently exhibited social and foraging behavior. Several perch sites were favored in this area, including a metal rod with a rounded top, a fence post, a large pile of cleared vegetation and, most frequently, the edges of the concrete wells. Area 1 consisted of approximately five acres of disturbed creosote bush scrub dominated by creosote bush and bur sage; concrete rubble piles from old demolished barracks were scattered throughout the creosote bush scrub. Area 1 was bound on the south, west and north by recently tilled, non-irrigated wheat fields that have been farmed for approximately one year. This field is bound to the north by open space comprising creosote scrub habitat, and to the west by disturbed creosote scrub habitat within the area of the former military base and current Blythe Airport.

In Area 2, two burrowing owls occupied a single burrow located in a concrete rubble pile. The two owls were observed consistently during morning and evening hours perched on top of the rubble pile. Burrowing owl tracks were identified around and into the rubble pile, with feathers and pellets near a small burrow entrance beneath the rubble. Sex and age of the two burrowing owls observed during the surveys was not established. The burrowing owls occupying Area 2 were easily distressed and would flush and call to one another whenever biologists entered the vicinity. Area 2 consisted of approximately two acres of disturbed creosote bush scrub dominated by creosote bush and bur sage. Concrete rubble piles and two concrete foundations were scattered throughout the creosote bush scrub. Area 2 was surrounded to the south, east and north by recently tilled, non-irrigated wheat fields and disturbed creosote bush scrub to the west.

In Area 3, two burrowing owls occupied a burrow complex within a native Bajada area in the buffer study area. One burrow appeared to be a former canid burrow due to its size, shape, and location in an area of naturally formed earth mounds. Biologists identified three separate burrowing complexes on the earth mounds within an approximately ten-acre zone. Each burrow complex contained several burrows with recent sign, including white wash, feathers, tracks, and pellets. The two burrowing owls were typically perched on top of earthen mounds when the biologists accessed the area. Biologists could not determine if the pair was nesting without additional harassment.

4.2 WILDLIFE AND PLANTS OBSERVED DURING BURROWING OWL SURVEY

Round-tailed ground squirrel (*Spermophilus tereticaudus*) and white-tailed antelope squirrel (*Ammospermophilus leucurus*) burrows where observed throughout the northern and eastern portions of the site along road sides, agricultural fields and disturbed areas with mounded soils or dump sites. Creosote bush (*Larrea tridentata*) was the dominant species in undisturbed portions of the site. Additional plants and wildlife species frequently observed within suitable habitat included bur sage (*Ambrosia dumosa*), wheat (*Triticum* sp.), mourning dove (*Zenaida macroura*), white-wing dove (*Zenaida asiatica*), horned lark (*Eremophila alpestris*), greater roadrunner (*Geococcyx californianus*), black-tailed jackrabbit (*Lepus californicus*), desert iguana (*Dipsosaurus dorsalis*), and western whiptail (*Cnemidophorus tigris*). Three CDFG Species of Special Concern, Le Conte’s thrasher (*Toxostoma lecontei*), loggerhead shrike (*Lanius ludovicianus*) and Mohave fringe-toed lizard (*Uma scoparia*) were observed in multiple locations on both the northern and southern portions of the Project area. Complete plant and wildlife species observed are included in Appendices A and B.

5.0 CONCLUSION

The study area supports a relatively small population of burrowing owl, and based on the burrowing owl survey results from surrounding solar projects burrowing owl may occupy habitat outside of the study area limits (AECOM 2010, Aspen 2011). It was not determined if this population is increasing or decreasing in size or the length of occupancy. The surveys determined that in July 2011, eight individual burrowing owls were present within the study area and may be directly or indirectly affected by the Project. This determination is valid for 12 months from the completion of this report (October 2011 through October 2012). The number of owls or burrows affected at the time of ground disturbance may be greater than or less than this number because of the natural variation in the owl population in this region, and natural and man-made conditions that may occur prior to construction.

6.0 LITERATURE CITED / REFERENCES

AECOM. 2010. Blythe Solar Power Project Biological Resources Technical Report. Prepared for Palo Verde Solar I, LLC. June 2010.

Aspen Environmental Group (Aspen). 2006. Devers-Palo Verde No. 2 500 kV Transmission Line Project Final Environmental Impact Report/Environmental Impact Statement. Prepared for California Public Utilities Commission. October 2006.

_____. 2011. Draft Supplemental Environmental Impact Report, Devers-Palo Verde No. 2 500 kV Transmission Line Project Colorado River Substation Expansion. Prepared for Southern California Edison. February 2011.

Bloom, Pete. 2003. Letter to California Department of Fish and Game, December 2003. Personal letter from Mr. Pete Bloom.

California Burrowing Owl Consortium (CBOC). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Tech. Rep. Burrowing Owl Consortium, Alviso, California. http://www.dfg.ca.gov/wildlife/nongame/docs/boconsortium.pdf

California Department of Fish and Game (CDFG). 1995. Staff Reporting on Burrowing Owl. October 17, 1995. California Department of Fish and Game. Memorandum from Mr. Ron Rempel.

_____. 2008. California Interagency Wildlife Task Group. CWHR version 8.2 personal computing program. Sacramento, CA.

California Natural Diversity Data Base (CNDDB). 2011a. California Natural Diversity Data Base. Element occurrence search for Project area quadrangles.

_____. 2011b. Special Animals List. Biogeographic Data Branch, CNDDB.

Cibola National Wildlife Refuge. 2011. Wild At Heart Owl Relocation to Cibola NWR. http://www.mirror-pole.com/wild_at_heart/bur_owl/rel_sites/cibola/cibola_release_site.html

Haug, E. A., B. A. Millsap and M. S. Martell. 1993. Burrowing Owl (Athene cunicularia), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/061.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Vegetation Ecologist Nongame-Heritage Program. Sacramento, CA.

Klute, David S., Ayers, Loren W., Green, Michael T., Howe, William H., Jones, Stephanie L., Shaffer, Jill A., Sheffield, Steven R., and Zimmerman, Tara S. 2003. Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States Biological Technical Publication BTP-R6001-2003. U.S. Fish and Wildlife Service.

Sawyer, Keeler-Wolf, Evens. 2009. A manual of California Vegetation, Second Edition, California Native Plant Society Press. Sacramento, CA.

Representative Relevant Planned Projects in vicinity of Blythe, California

AECOM. 2009. Blythe Solar Power Project Application for Certification. Submitted by Solar Millennium, LLC to the California Energy Commission.

California Energy Commission. 2010. Genesis Solar Energy Project Application for Certification Supplemental Information. March 2010. California Energy Commission Docket Number 09-AFC-8.

Devers–Palo Verde No. 2 Transmission Line Project Colorado River Substation Expansion Final Supplemental Environmental Impact Report. April 2010.

Southern California Edison. 2009. First Solar Electric, Blythe, California Environmental Assessment Initial Study. February, 2009. County of Riverside EA40219.

TetraTech Environmental, Inc. 2010. Genesis Solar Energy Project Supplemental Information. June 2010. California Energy Commission Docket Number 09-AFC-8. TetraTech Environmental, Inc.

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APPENDIX A – OBSERVED PLANT LIST

Plant Species Observed During Surveys

Scientific Name	Common Name
ANGIOSPERMS (DICOTYLEDONS)	
AMARANTHACEAE	**AMARANTH FAMILY**
Tidestromia oblongifolia	honeysweet
APIACEAE	**CARROT FAMILY**
Lomatium sp.	lomatium
ASCLEPIADACEAE	**MILKWEED FAMILY**
Asclepias sp.	milkweed
Asclepias subulata	rush milkweed
Sarcostemma cynanchoides ssp. hartwegii	climbing milkweed
ASTERACEAE	**SUNFLOWER FAMILY**
Ambrosia dumosa	burro bush
Baileya pauciradiata	Colorado Desert marigold
Bebbia juncea	sweetbush
Chaenactis sp.	pincushion
Chaenactis stevioides	desert pinchushion
Dicoria canescens	bugseed
Geraea canescens	desert sunflower
Hymenoclea salsola	cheesebush
Palafoxia arida	Spanish needles
Pluchea sericea	arrow weed
Stephanomeria pauciflora	wire lettuce
BORAGINACEAE	**BORAGE FAMILY**
Cryptantha sp.	cryptantha
Cryptantha angustifolium	narrowleaf cryptantha
Cryptantha costata	ribbed cryptantha
Cryptantha maritime	Guadalupe cryptantha
Cryptantha nevadensis	cryptantha
Cryptantha pterocarya	wing nut cryptantha
Nama demissum	purple desert mat
Pectocarya sp.	pectocarya
Tiquilia palmeri	Palmer's tiquilia
Tiquilia plicata	plicate tiquilia
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	Sahara mustard
*Buxus microphylla**	Japanese box
Lepidium sp.	peppergrass
Lepidium lasiocarpum	peppergrass
Simmondsia chinensis	jojoba
CASUARINACEAE	**SHE OAK FAMILY**
Casuarina sp.*	she oak
CACTACEAE	**CACTUS FAMILY**
Cylindropuntia echinocarpa	golden cholla
Mammillaria sp.	fish-hook cactus
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Atriplex canescens	four-wing saltbush
Atriplex lentiformis	quail brush

Scientific Name	Common Name
*Bassia hyssopifolia**	five-hooked bassia
Salsola tragus	Russian thistle
CUCURBITACEAE	**GOURD FAMILY**
Cucurbita sp.*	squash
EUPHORBIACEAE	**SPURGE FAMILY**
Stillingia spinulosa	annual stillingia
FABACEAE	**LEGUME FAMILY**
Acacia greggii	cat claw acacia
Astragalus sp.	astragalus
Cercidium floridum	palo verde
Dallea mollissima	downy dalea
*Medicago sativa**	alfalfa
Olneya tesota	desert ironwood
Prosopis sp.	mesquite
Prosopis glandulosa	Honey mesquite
Psorothamnus emoryi	indigobush
Psorothamnus schottii	indigobush
GERANIACEAE	**GERANIUM FAMILY**
*Erodium cicutarium**	red-stemmed filaree
LOASACEAE	**LOASA FAMILY**
Eucnide urens	rock nettle
Mentzelia sp.	blazing star
Mentzelia multiflora	blazing star
Petalonyx thurberi ssp. thurberi	sandpaper plant
MARTYNIACEAE	**UNICORN PLANT FAMILY**
Proboscidea althaeifolia	desert unicorn plant
MYRTACEAE	**MYRTLE FAMILY**
Eucalyptus sp.*	gum tree
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**
Abronia villosa	sand verbena
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Camissonia boothii	bottlebrush primrose
Oenothera deltoids ssp. deltoides	bird-cage primrose
PLANTAGINACEAE	**PLANTAIN FAMILY**
Plantago erecta	western plantain
Plantago ovata	wooly plantain
POLEMONIACEAE	**PHLOX FAMILY**
Eriastrum harwoodii	Harwood's eriastrum
Gilia sp.	
Langloisia setosissima	lilac sunbonnet
POLYGONACEAE	**BUCKWHEAT FAMILY**
Chorizanthe brevicornu	brittle spineflower
Chorizanthe rigida	rigid spineflower
Eriogonum sp.	
RESDACEAE	**MIGNONETTE FAMILY**
Oligomeris linifolia	Narrow-leaf oligomeris
ROSACEAE	**ROSE FAMILY**

Scientific Name	Common Name
*Prunus persica**	peach
RUTACEAE	**RUE FAMILY**
*Citrus limon**	lemon
*Citrus sinensis**	orange
TAMARICACEAE	**TAMARISK FAMILY**
*Tamarix ramosissima**	Mediterranean tamarisk
VISCACEAE	**MISTLETOE FAMILY**
Phoradendron californicum	desert mistletoe
ZYGOPHYLLACEAE	**CALTROP FAMILY**
Larrea tridentata	creosote bush
ANGIOSPERMS (MONOCOTYLEDONS)	
ARECACEAE	**PALM FAMILY**
Phoenix sp.*	date palm
LILIACEAE	**LILY FAMILY**
Hesperocaulis undulata	desert lily
POACEAE	**GRASS FAMILY**
Pleuraphis rigida	galleta grass
*Schismus barbatus**	Mediterranean schismus
*Triticum aestivum**	wheat

* = non-native species

APPENDIX B – OBSERVED WILDLIFE LIST

Scientific Name	Common Name
CLASS INSECTA	**INSECTS**
MELOIDAE	**BLISTER BEETLES**
Lytta auriculata	red-eared blister beetle
TENEBRIONIDAE	**DARKLING BEETLES**
Asbolus verrucosus	desert ironclad beetle
Eleodes spinipes	darkling beetle
MANTIDAE	**MANTIDS**
Litaneutria minor	ground mantis
PIERIDAE	**WHITE & SULPHUR BUTTERFLIES**
Pieris rapae	cabbage white
Pontia protodice	checker-white
NYMPHALIDAE	**BRUSH-FOOTED BUTTERFLIES**
Vanessa virginiensis	Virginia lady
LYCAENIDAE	**GOSSAMER WING BUTTERFLIES**
Brephidium exilis	pygmy blue
FORMICIDAE	**ANTS**
Messor pergandei	desert harvester ant
MUTILLIDAE	**VELVET ANTS**
Dasymutilla sp.	velvet ant
POMPILIDAE	**SPIDER WASPS**
Pepsis formosa	tarantula wasp
CLASS AMPHIBIA	**AMPHIBIANS**
Bufo woodhousii	Woodhouse’s toad
CLASS REPTILIA	**REPTILES**
TRIONYCHIDAE	**SOFTSHELL TURTLES**
Apalone spinifera	spiny softshell turtle
IGUANIDAE	**IGUANID LIZARDS**
Callisaurus draconoides draconoides	common zebra-tailed lizard
Dipsosaurus dorsalis	desert iguana
Phrynosoma sp.	horned lizard
Uma scoparia	Mojave fringe-toed lizard
Uta stansburiana	common side-blotched lizard
TEIIDAE	**WHIPTAIL LIZARDS**
Cnemidophorus sp.	whiptail
COLUBRIDAE	**COLUBRID SNAKES**
Arizona elegans occidentalis	Glossy snake
Chinoactis occipitalis	shovel-nosed snake
VIPERIDAE	**VIPERS**
Crotalus cerastes	sidewinder

Scientific Name	Common Name
CLASS AVES	**BIRDS**
CATHARTIDAE	**NEW WORLD VULTURES**
Cathartes aura	turkey vulture
ACCIPITRIDAE	**HAWKS, KITES, EAGLES**
Buteo jamaicensis	red-tailed hawk
FALCONIDAE	**FALCONS**
Falco sparverius	American kestrel
ODONTOPHORIDAE	**NEW WORLD QUAIL**
Callipepla gambelii	Gambel's quail
CHARADRIIDAE	**PLOVERS**
Charadrius vociferus	killdeer
COLUMBIDAE	**PIGEONS & DOVES**
Columba livia	rock pigeon
Streptopelia risoria	ringed turtle-dove
Zenaida aurita	white-winged dove
Zenaida macroura	mourning dove
CUCULIDAE	**CUCKOOS & ROADRUNNERS**
Geococcyx californianus	greater roadrunner
STRIGIDAE	**TRUE OWLS**
Athene cunicularia	burrowing owl
APODIDAE	**SWIFTS**
Aeronautes saxatalis	white-throated swift
TYRANNIDAE	**TYRANT FLYCATCHERS**
Tyrannus verticalis	western kingbird
ALAUDIDAE	**LARKS**
Eremophila alpestris	horned lark
HIRUNDINIDAE	**SWALLOWS**
Petrochelidon pyrrhonota	cliff swallow
CORVIDAE	**JAYS & CROWS**
Corvus corax	common raven
LANIIDAE	**SHRIKES**
Lanius ludovicianus	loggerhead shrike
STURNIDAE	**STARLINGS**
Sturnus vulgaris	European starling
ICTERIDAE	**BLACKBIRDS**
Agelaius phoeniceus	red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Icterus cucullatus	hooded oriole
Xanthocephalus xanthocephalus	yellow-headed blackbird
Quiscalus mexicanus	great-tailed grackle

Scientific Name	Common Name
MIMIDAE	**MOCKINGBIRDS & THRASHERS**
Toxostoma lecontei	Le Conte's thrasher
THRAUPIDAE	**TANAGERS**
Piranga ludoviciana	Western tanager
SYLVIIDAE	**GNATCATHERS**
Polioptila caerulea	black-tailed gnatcatcher
EMBERIZIDAE	**EMBERIZIDS**
Zonotrichia leucophrys	white-crowned sparrow
FRINGILLIDAE	**FINCHES**
Carduelis tristis	American goldfinch
CLASS MAMMALIA	**MAMMALS**
LEPORIDAE	**HARES & RABBITS**
Lepus californicus	black-tailed jackrabbit
Sylvilagus audubonii	desert cottontail
SCIURIDAE	**SQUIRRELS**
Ammospermophilus leucurus	white-tailed antelope squirrel
Spermophilus tereticaudus	Round-tailed ground squirrel
HETEROMYIDAE	**POCKET MICE & KANGAROO RATS**
Dipodomys sp.	kangaroo rat
CANIDAE	**WOLVES & FOXES**
Canis familiaris	domestic dog
Canis latrans	coyote
Vulpes macrotis	kit fox
MUSTELIDAE	**WEASELS, SKUNKS & OTTERS**
Taxidea taxus	American badger
BOVIDAE	**BISON, GOATS & SHEEP**
Ovis canadensis	bighorn sheep (skull)
CHIROPTERA	**BATS**
Myotis sp.	Myotis

APPENDIX B: PRE-CONSTRUCTION NESTING SURVEY PROTOCOL

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The following protocol is intended to help assist with the discovery of bird nests in or around the solar array and gen-tie line prior to construction. This protocol is not suitable to survey for golden eagle nests, which are typically found in mountainous areas, but is instead intended to meet the need to locate passerine, corvid, and raptor nests.

Equipment
All surveyors should possess and use a professional set of binoculars while conducting the nesting survey. A spotting scope may also be necessary for distant nests, nests that are in tall trees, or to determine if or how many birds are in an active nest. At least one GPS should be carried, as well as a rangefinder and compass in the event that approaching a nest could be dangerous to the birds inside it. Flagging is also suggested to mark vegetation where nests are found as an additional safeguard.

Survey Period and Time
Surveys should be conducted in and around the project area (a 500-foot survey buffer from project limits is suggested) no more than two weeks prior to construction if construction is to take place between February and August. Surveys should be repeated for each new section of the project that is undertaken For example, if construction crews are working in one area for several weeks and then move to another area a mile away, a pre-construction nesting survey should be conducted in the new area.

While nests can be located during any time of day with sufficient daylight, surveys should ideally be conducted within the first three hours after sunrise or before sunset, depending on temperature. These periods are when birds are most likely to be located while foraging or singing, and may increase the likelihood of finding a nest.

Survey Conditions
Surveys should be conducted under clear conditions. Rain, high winds, or other inclement weather that can affect visibility or the ability of surveyors to move through vegetation may make it less likely to find nests or increase the risk of destroying a nest if located in a shrub or on the ground. Weather conditions including temperature, cloud cover, and precipitation should be recorded.

Survey Protocol
It is suggested that all surveyors be able to identify the commonly-occurring bird species of the area and be familiar with the habitat types within the project area. If surveyors are present who are not familiar with this information, they should survey alongside an experienced surveyor to reduce the chance of uncertain observations or unidentified birds. Surveyors should be spaced10-20 feet apart depending on the density of vegetation cover and should walk transects to cover 100% of upcoming work areas. If birds are found to be using alarm calls during the survey, particular attention and care should be given to that area, as it may indicate a nest nearby. If possible, surveyors should wait until the adult bird(s) leaves before approaching this area to reduce the risk of nest abandonment. All nest, species, and behavioral data should be recorded on the appropriate datasheet (Appendix C).

APPENDIX C: CONSTRUCTION NEST MONITORING FORMS

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RRG Blythe Mesa Solar Project Construction Phase – Solar Facility Avian Nest Reporting Form

Discoverer's Name ____________________

Phone Number ____________________ **Date of Nest Discovery** ____________________

Nest Location (circle one) Tree Shrub Ground

Nest Coordinates ____________________

Other Location Information ____________________

Surrounding Habitat (circle all that apply)

Agricultural Desert Scrub Riparian

Grassland Disturbed/Developed Bare

Nest Condition (circle one) Active Inactive, Intact
Inactive, Partial Deterioration Inactive, Heavy Deterioration

Describe any Bird Signs around the Nest (feathers, scat, prey remains) ____________________

____

Are Birds Present? (circle one) Yes No

Number of Birds Visible ____________________

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Bird Species (if known) ____________________

Type of Bird (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle) Owl Crow/Raven

Passerine (songbird) Unknown

Risk to Birds/Construction (circle one)

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

Additional Comments ____________________

____

____

RRG Blythe Mesa Solar Project Construction Phase – Gen-tie Line Avian Nest Reporting Form

Discoverer's Name ______________________________

Phone Number ______________________ **Date of Nest Discovery** ______________

Nest Location (circle one) Tree Shrub Ground

Nest Coordinates or Closest Pole Location ______________________________

Other Location Information ______________________________

Surrounding Habitat (circle all that apply)

Agricultural Desert Scrub Riparian

Grassland Disturbed/Developed Bare

Nest Condition (circle one) Active Inactive, Intact
Inactive, Partial Deterioration Inactive, Heavy Deterioration

Describe any Bird Signs Around the Nest (feathers, scat, prey remains)

____

____

Are Birds Present? (circle one) Yes No

Number of Birds Visible ______________

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Bird Species (if known) ______________________________

Type of Bird (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle) Owl Crow/Raven

Passerine (songbird) Unknown

Risk to Birds/Construction (circle one)

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

Additional Comments______________________________

____

____

APPENDIX D: OPERATIONAL NEST MONITORING FORMS

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RRG Blythe Mesa Solar Project Operational Phase – Solar Facility Avian Nest Reporting Form

Discoverer's Name ____________________

Phone Number ____________________ **Date of Nest Discovery** ____________________

Nest Location (circle one) Facility Equipment Tree Shrub Ground

Nest Coordinates ____________________

Other Location Information ____________________

Surrounding Habitat outside of Solar Array Fence (circle all that apply)

Agricultural	Desert Scrub	Riparian
Grassland	Disturbed/Developed	Bare

Nest Condition (circle one) Inactive Under Construction Active

Describe any Bird Signs around the Nest (feathers, whitewash, scat, prey remains)

____

____

Are Birds Present? (circle one) Yes No

Number of Birds Visible ____________________

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Bird Species (if known) ____________________

Type of Bird (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle)	Owl	Crow/Raven
Passerine (songbird)	Unknown	

Risk to Solar Array and Equipment (circle one)

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

Additional Comments ____________________

____

____

RRG Blythe Mesa Solar Project Operations Phase – Gen-tie Line Avian Nest Reporting Form

Discoverer's Name ______________________________

Phone Number ______________________ **Date of Nest Discovery** ______________

Pole Number of Nest Location ______________________________

Other Location Information ______________________________

Surrounding Habitat (circle all that apply)

Agricultural	Desert Scrub	Riparian
Grassland	Disturbed/Developed	Bare

Nest Condition (circle one) Inactive Under Construction Active

Describe any Bird Signs Around the Nest (feathers, scat, prey remains) ______________

____

Are Birds Present? (circle one) Yes No

Number of Birds Visible ______________

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Bird Species (if known) ______________________________

Type of Bird (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle)	Owl	Crow/Raven
Passerine (songbird)	Unknown	

Risk to Electrical Equipment (circle one)

Potential Risk – Not Imminent Potential Risk – Imminent

Additional Comments ______________________________

____

____

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APPENDIX E: MORTALITY REPORTING FORM

RRG Blythe Mesa Solar Project Avian/Bat Incident Reporting Form

Discoverer's Name ____

Phone Number _________________________ **Date of Discovery** ______________________

Date and Time of Incident/Discovery ____

Location, include Pole and GPS Coordinates (if available) _______________________________

____

Species (if known) ____

Type of Bird or Bat (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle)	Owl	Crow / Raven
Passerine (songbird)	Bat	Unknown / Other

Number of Individuals ___________________________

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Surrounding Habitat (circle all that apply)

Agricultural	Chaparral/Shrubs	Desert Scrub
Disturbed/Developed	Grassland	Riparian

Type of Incident (circle one) Injury Mortality

Description of Incident. Include condition of bird, circumstances of incident and cause of injury or mortality (if known), and any damage to facilities.____

____

____

____

____

____

____

Please attach a picture of the bird or bat, if possible.

BLYTHE MESA SOLAR PROJECT

OPERATIONS MORTALITY REPORTING FORM FOR AVIAN AND BAT SPECIES

DATE: _________ TIME: ________ OBSERVER: ______________________________________

PROXIMAL TO PROJECT COMPONENT: ____

CARCASS POSITION

GPS COORDINATES (UTM NAD83) 11S East: ________________ North: _________________

BEARING (degrees) to PROJECT COMPONENT: ___________________

DISTANCE (meters) to PROJECT COMPONENT: __________________

CARCASS DESCRIPTION

SPECIES: __________________________________

SEX (*circle*): M F U AGE (*circle*): A J U Tag/Band Number: ___________

CONDITION (*circle*): intact scavenged dismembered feather spot injured

ESTIMATED TIME SINCE DEATH/INJURY (no. of days): >1 1 2 3 4 5 6 7 7+

CAUSE OF DEATH:

____

____

OBSERVABLE INJURIES:

____

____

SUBSTRATE/GROUND COVER (*at carcass location)*:____________________________________

DISPOSITION OF CARCASS[1] (*circle*): left in place removed collected for trials collected for other: ____

SHIPPED TO:

[name of institution] ____

[physical address] ____

[phone/email] ____

WEATHER CONDITIONS

AIR TEMPERATURE (degrees Fahrenheit): _______

PRECIPITATON (last 24 hours, *circle*): none light rain rain heavy rain hail snow

CLOUD COVER (*circle*): clear mostly clear partly cloudy mostly cloudy cloudy

WIND DIRECTION: ______ SPEED (mph, *circle*): 0-10 10-20 20-30 30+ gusty

NOTES (describe noteworthy weather conditions since last search, including high wind, fog, precipitation, and storm events):

____

____

____

____

PHOTOGRAPHS[2]:

Close Up: Photo 1 _______ Photo 2 ________

Landscape: Photo 3 _______ Photo 4 ________

PHOTO NOTES:

____

____

NOTIFICATION[3]:

DATE: _______ TIME: _______

NAME: ________________________ AGENCY/ASSOCIATION: ______________________

NOTES:

____

____

____

____

____

[1] Permit required to handle bird carcasses.

[2] At least four photographs should be taken. Two should be close-in shots of the carcass and should be taken from at least two different angles. Two should be shots taken farther away showing the landscape (project components, surrounding habitat, etc.) and should be taken from at least two different angles).

[3] Indicate who was notified of the event, date, time, etc.

APPENDIX C5
REVIEW OF FEDERAL WATERS

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February 2013

BLYTHE MESA SOLAR PROJECT

Review of Federal Waters

PROJECT NUMBER:
122512

PROJECT CONTACT:
Vanessa Santistevan

EMAIL:
Vanessa.Santistevan@powereng.com

PHONE:
303-716-8908

POWER ENGINEERS

PREPARED FOR: SOLAR STAR BLYTHE MESA 1
SAN JOSE, CALIFORNIA
AND
RENEWABLE RESOURCES GROUP
LOS ANGELES, CALIFORNIA

PREPARED BY:
POWER ENGINEERS, INC.

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ACRONYMS AND ABBREVIATIONS

˚F	Fahrenheit
AMSL	above mean sea level
BLM	United States Department of the Interior, Bureau of Land Management
BMSP	Blythe Mesa Solar Project
CEQA	California Environmental Quality Act
EIR/EA	Environmental Impact Report/Environmental Assessment
GPS	Global Positioning System
km	kilometers
kV	kilovolt
MBTA	Migratory Bird Treaty Act
mph	miles per hour
MW	megawatt
POWER	POWER Engineers, Inc.
PV	photovoltaic
RRG	Renewable Resources Group, LLC
USGS	U.S. Geological Survey

1.0 INTRODUCTION

The Blythe Mesa Solar Project (Project) includes a 485-megawatt (MW alternating current solar photovoltaic (PV) electrical generating facility and 8.4-mile gen-tie line that would occupy a total of 3,660 acres in the Palo Verde Mesa region of Riverside County (Figure 1). Once constructed, the Project would occupy 3,587 acres for the solar facility component and 73 acres for the 230 kV gen-tie line. The power produced by the Project would be conveyed to the local power grid via interconnection to the Southern California Edison (SCE) Colorado River Substation, an approved new substation located south of Interstate 10 (I-10) and approximately five miles west of the Project site.

The following report describes the results of an investigation and assessment to determine the potential presence of waters of the United States (i.e., Federal waters) within the boundaries of the Project. The information contained in this report is intended to provide the U.S. Army Corps of Engineers (USACE) with sufficient information to determine whether there are water features on the project site that are subject to jurisdiction under Section 404 of the federal Clean Water Act.

1.1 Project Location

The proposed Project is located in east Riverside County, approximately five miles west of central Blythe and 40 miles east of Desert Center; more specifically, the proposed Project is located north and south of I-10, west of Neighbors Boulevard and Arrowhead Boulevard, and south and east of the Blythe Airport (Figure 1). The location is depicted on the Roosevelt Mine, Ripley, and McCoy Wash 7.5’ U.S. Geological Survey (USGS) Topographic Quadrangles. The Project is located on:

- Sections 11 and 12 of Township 7 South, Range 21 East
- Sections 3, 4, 5, 6, 8, 9 of Township 7S, South, Range 22 East
- Sections 27, 28, 29, 32, 33, 34 of Township 6 South, Range 22 East, of the San Bernardino Base Meridian

1.2 Environmental Setting

The Project area is located on the western mesa of the Palo Verde Valley. The valley is a portion of the Colorado River floodplain. The Project area is on Palo Verde Mesa and is situated in the greater Sonoran Desert. The topography is relatively flat and slopes toward the southeast; elevations range from 260 to 400 feet above mean sea level (AMSL). The Project area is near the Big Maria Mountains on the northwest, the McCoy Mountains on the west, the Mule Mountains on the southwest, and the Colorado River on the east. These mountain ranges, trending northwest to southeast, create a natural barrier between the Colorado River and the greater Colorado Desert. Approximately 70% of the solar facility area is actively cultivated agricultural land, 24% is previously disturbed by agricultural or military activities, and 6% is undisturbed. Agricultural land use within the solar facility site includes drip-irrigated citrus orchards, flood-irrigated alfalfa, non-irrigated winter wheat, abandoned jojoba orchards, and fallow fields. The gen-tie line corridors would pass through BLM lands and other private lands mainly comprising desert scrub habitat and disturbed lands associated with existing infrastructure. Several utility lines and maintenance roads run through or parallel the gen-tie line corridors. Additionally, the Project area has been previously disturbed by off-road vehicle use, trash dumping, and historic use for military training during World War II. The Project area borders or is in the vicinity of Nicholls Warm Springs/Mesa Verde, an existing solar facility, Blythe Airport, the 520 MW natural gas-fired Blythe Energy Center, electrical substations, electrical transmission lines, I-10, and other paved and dirt roads. The Project area is bound on the east by agricultural land use that extends through the Palo Verde Valley to the Colorado River.

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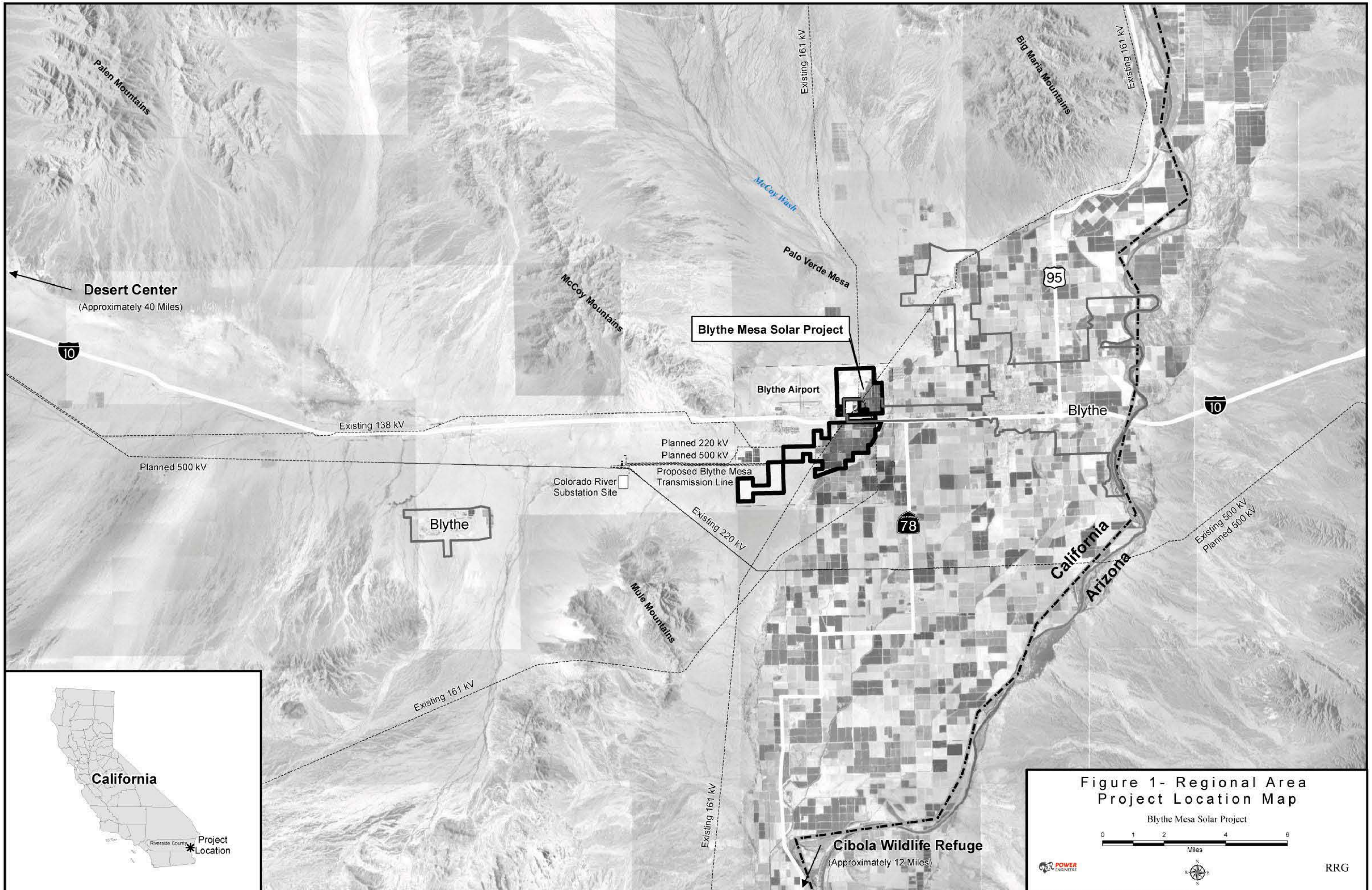
FIGURE 1. REGIONAL AREA PROJECT LOCATION MAP



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1.2.1 Vegetation

The Project area consists primarily of desert scrub and agricultural lands. Along the four-mile transmission line route and eastern and southern ends of the Project limits there are discrete areas of disturbed native creosote scrub and disturbed stabilized dune and blow sand habitats. Table 1 presents the estimated acreage observed for each habitat type within the study area. This data does not represent the actual proposed Project disturbance footprint for the solar array areas, transmission lines, substations, and facility buildings and roads.

Table 1. Vegetation Communities and Cover Types (Acres)

Vegetation Communities and Other Cover Types	Acreage on the Solar Array Site Project Boundary	Acreage on the Proposed Gen-tie Line**	Acreage on the Northern Alternative Gen-tie Line**	Acreage on the Southern Alternative Gen-tie Line**
Bajada	18.1	0.0	0.0	0.0
Creosote Bush Scrub	41.9	278.8	303.6	232.3
Desert Riparian Woodland Wash	0.0	22.9	22.9	11.4
Disturbed Creosote Scrub	220.1	0.0	0.5	0.3
Disturbed/Ruderal	31.2	0.5	0.0	0.0
Fallow Agriculture	249.7	0.0	0.0	0.0
Irrigated Alfalfa	404	0.0	0.0	0.0
Irrigation Pond	17.2	0.0	0.0	0.0
Mixed – Drip-irrigated Jojoba and Disturbed Creosote Scrub	347	0.0	0.0	0.0
Non-irrigated Wheat	1088.2	0.0	0.0	0.0
Orchard	1188.4	0.0	0.0	0.0
Total Acreage	**3605.8 acres***	**302.1 acres**	**327 acres**	**244.1 acres**

*The acreage was calculated using GIS data and totals 3,605 acres; however, the County calculates the same area as 3,587 acres.
**A 250-foot buffer was placed on either side of the gen-tie centerline to account for potential indirect and direct impacts to biological resources.

Eleven vegetation communities and other cover types were identified within the Project area during the field surveys (Table 1; Figure 2). Vegetation communities were mapped according to the second edition of *A Manual of California Vegetation, Second Edition* (Sawyer *et al.*, 2009). Community classifications were based on dominant species comprising approximately 50 percent or more of the total cover within the mapped unit relative to the list of dominant species for a given vegetation community.

Bajada. Bajadas are essentially alluvial fans or desert washes. This community is present in the northeastern corner of the Project area and is typically characterized as the shallow, sandy, braided bottoms of wide canyons. This community most closely resembles Holland's "Mojave Desert Wash Scrub," Code 63700 (Holland 1986).

Creosote Bush Scrub/Disturbed Creosote Scrub. Within the study area, this community is characterized by sandy soils with a shallow clay pan on a broad gentle southeast-trending slope. Dominant plants within the study area for this community include creosote bush, burro brush, brittlebush (*Encelia farinosa*), and cheesebush. This is the most common plant community consisting of non-agricultural plants within the study area. This plant community intergrades into the desert riparian woodland wash. Within the study area, there are areas of desert pavement that are covered with rounded cobbles that range in size from one to three inches. Typically, these areas are higher than the surrounding landscape by three to 15 feet. These areas are within creosote bush scrub, though the plant density is lower. Sonoran creosote bush scrub is designated by Holland as Code 33100 and Sawyer Keeler-Wolf and Evens as the Ocotillo Series (Holland 1986 and Sawyer *et al*. 2009). Within the gen-tie corridors, the creosote bush scrub is relatively undisturbed, except for occasional vehicle tracks. In these areas, fine sand drifts are interspersed within this community type; the Emory's indigo bush occurs in stands and is more prevalent than in other portions of the creosote bush scrub.

There are more areas of disturbed creosote bush scrub in the solar array area compared to the gen-tie line. Past disturbances in these areas consist of military training and agricultural use, including cultivation of jojoba (*Simmondsia chinensis*). These disturbances occurred in the past, and the Sonoran creosote bush scrub within the solar array area has been recovering through natural recruitment. Two invasive plant species, Russian thistle (*Salsola tragus*) and Sahara mustard (*Brassica tournefortii*), can be found in disturbed areas throughout the study area, especially near roads and fallow and active agricultural areas. Another exotic plant, Mediterranean grass (*Schismus* sp.), is prevalent throughout the creosote bush scrub.

Desert Riparian Woodland Wash. This vegetation community consists of open, drought-deciduous, riparian scrub woodland and is made up of three primary components: wash-dependent vegetation, vegetated ephemeral dry wash, and islands of Sonoran creosote bush scrub (e.g., riparian interfluves). Dominant and indicator plants of this community within the study area include honey mesquite (*Prosopis glandulosa*), palo verde (*Cercidium floridum*), desert ironwood (*Olneya tesota*), cat-claw acacia (*Acacia greggii*), and rush milkweed (*Asclepias subulata*). Creosote bush (*Larrea tridentata*) and burro brush (*Ambrosia dumosa*) were scattered throughout the canopy. The herbaceous layer is dominated by desert plantain (*Plantago ovata*), *Cryptantha* spp., and Mediterranean grass (*Schismus barbatus*). Of the vegetation communities listed in Table 3.2.4-1, the CDFG considers desert riparian woodland wash to be a sensitive habitat/biological resource. In addition, desert riparian woodland wash is a special community type (i.e., high priority for inventory in the CNDDB) per the CDFG's Vegetation and Mapping Program. Desert riparian woodland wash is equivalent to Holland's desert dry wash woodland (Code 62200) and Sawyer, Keeler-Wolf and Evens' Catclaw Acacia Series (Holland 1986 and Sawyer *et al*. 2009).

Irrigated Cropland/Irrigation Pond/Orchard/Jojoba/Wheat. These community types fall into the broader category of agriculture. The majority of agricultural land within the proposed solar array disturbance area is fallow and active agriculture. It includes lands that are currently under cultivation and those that are abandoned (e.g., fallow). Within abandoned agriculture areas, native vegetation is growing back; Russian thistle, Sahara mustard, and other exotic plants were observed interspersed with the native vegetation and are indicative of past agricultural disturbance.

Disturbed/Ruderal. Disturbed/Ruderal communities have been previously disturbed and have been converted to mostly non-native, weedy areas. Ruderal vegetation is that which grows quickly in disturbed areas and may consist of native species, such as fire-following plants, or non-native species, such as invasive grasses or forbs. Examples of invasive species that would occur in these areas include redstem filaree (*Erodium cicutarium*), Sahara mustard, and Mediterranean grass. Ruderal areas in the Project area are primarily concentrated within the proposed solar array area.

1.2.2 Climate and Hydrology

The subtropical climate of the Colorado Desert is currently characterized by dry, mild winters averaging 45 degrees Fahrenheit (˚F) and dry, hot summers that average 104˚F. Summer highs are known to reach up to 120˚F. Precipitation ranges between two and ten inches per year, with most of the precipitation occurring between November and March. Although rainfall occurs primarily in the winter months, the region is periodically influenced by tropical weather conditions, including sudden monsoonal summer storms, which typically occur from July to later September.

The Project is located in an undefined Hydrologic Sub-Area (HSA 715.40) of the Palo Verde Hydrologic Area within the Colorado (River) Hydrologic Unit in eastern Riverside County, California. Surface water is minimal on the Palo Verde Mesa, limited to seasonal and perennial sources. The Project would be located near the eastern edge of the Palo Verde Mesa, above the Palo Verde Valley and west of the 100-year floodplain of the Colorado River. Lands not utilized for agriculture are crossed by a number of small ephemeral drainages, generally flowing from northwest to southeast toward the Colorado River, either dissipating prior to reaching the edge of the Mesa or flowing into the valley. Precipitation in the form of sheet flow typically flows overland toward the edge of the Mesa. In areas used for agriculture, flow may be diverted by earthen berms or irrigation ditches. Sheet flow eventually reaches the edge of the Mesa and flows into the canal and drain system of the Palo Verde Valley south of 10th Street. This system eventually returns water to the Colorado River via the Outfall Drain, approximately 18 miles south of the Project. Perennial water comes from the Colorado River, which lies eight miles east of the Project area and is the primary source of irrigation water for agriculture in the area.

1.2.3 Soils

The USDA survey identified 15 soil types on the solar facility site (see Figure 3, *Soils*). These include: Aco gravelly loamy sand; Aco sandy loam; badland; Carrizo gravelly sand; Cibola silty clay loam; duneland; Imperial silty clay; Meloland fine sandy loam; Orita fine sand; Orita gravelly fine sandy loam; Ripley very fine sandy loam; Rositas fine sand 0 to 2 percent slopes and 2 to 9 percent slopes; Rositas fine sand, wet, 0 to 2 percent slopes; and Rositas gravelly loamy sand, 0 to 2 percent slopes. None of the soils identified are characteristic of wetlands for California.

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FIGURE 2. VEGETATION COMMUNITIES WITHIN THE PROJECT AREA

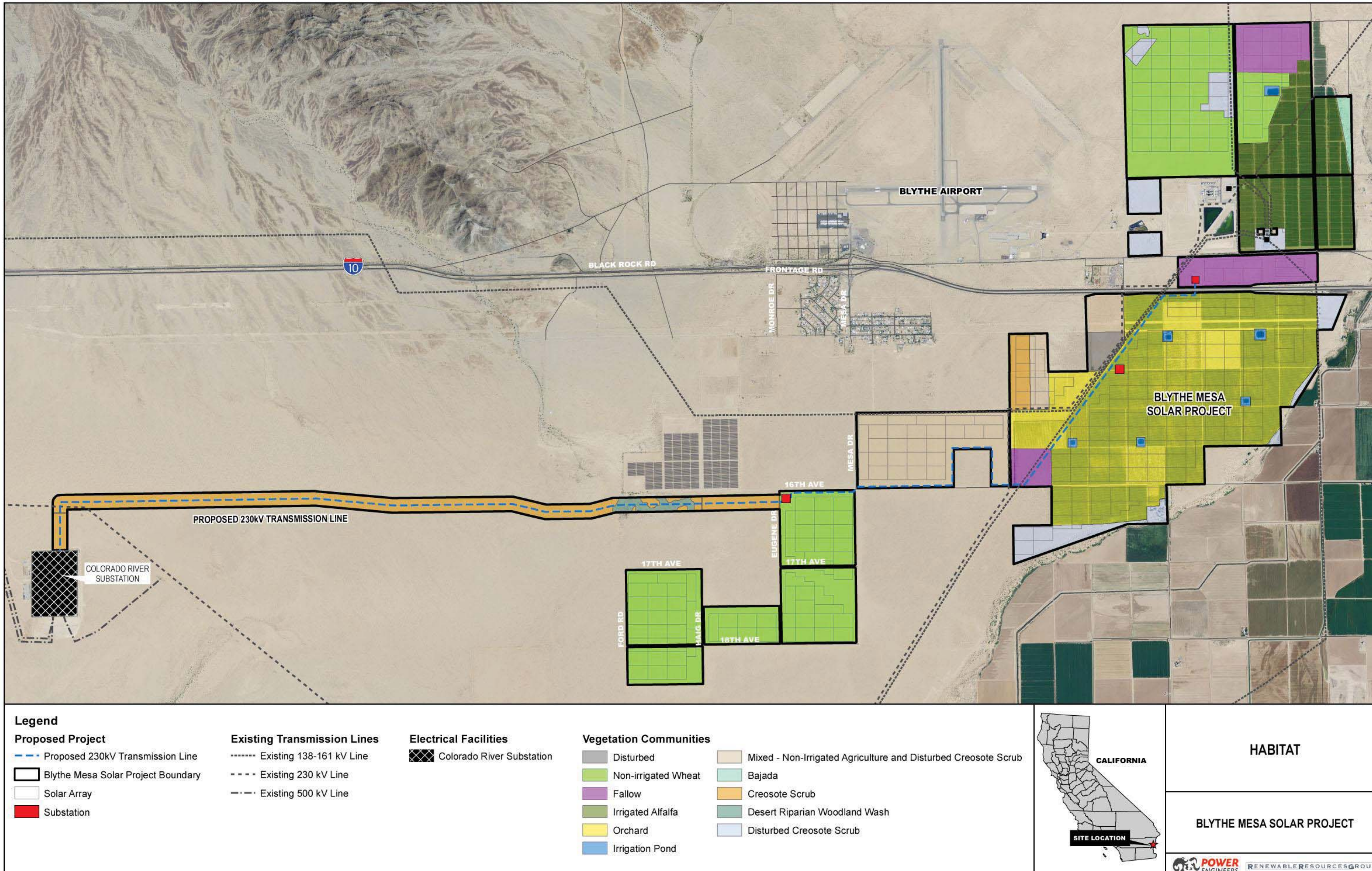
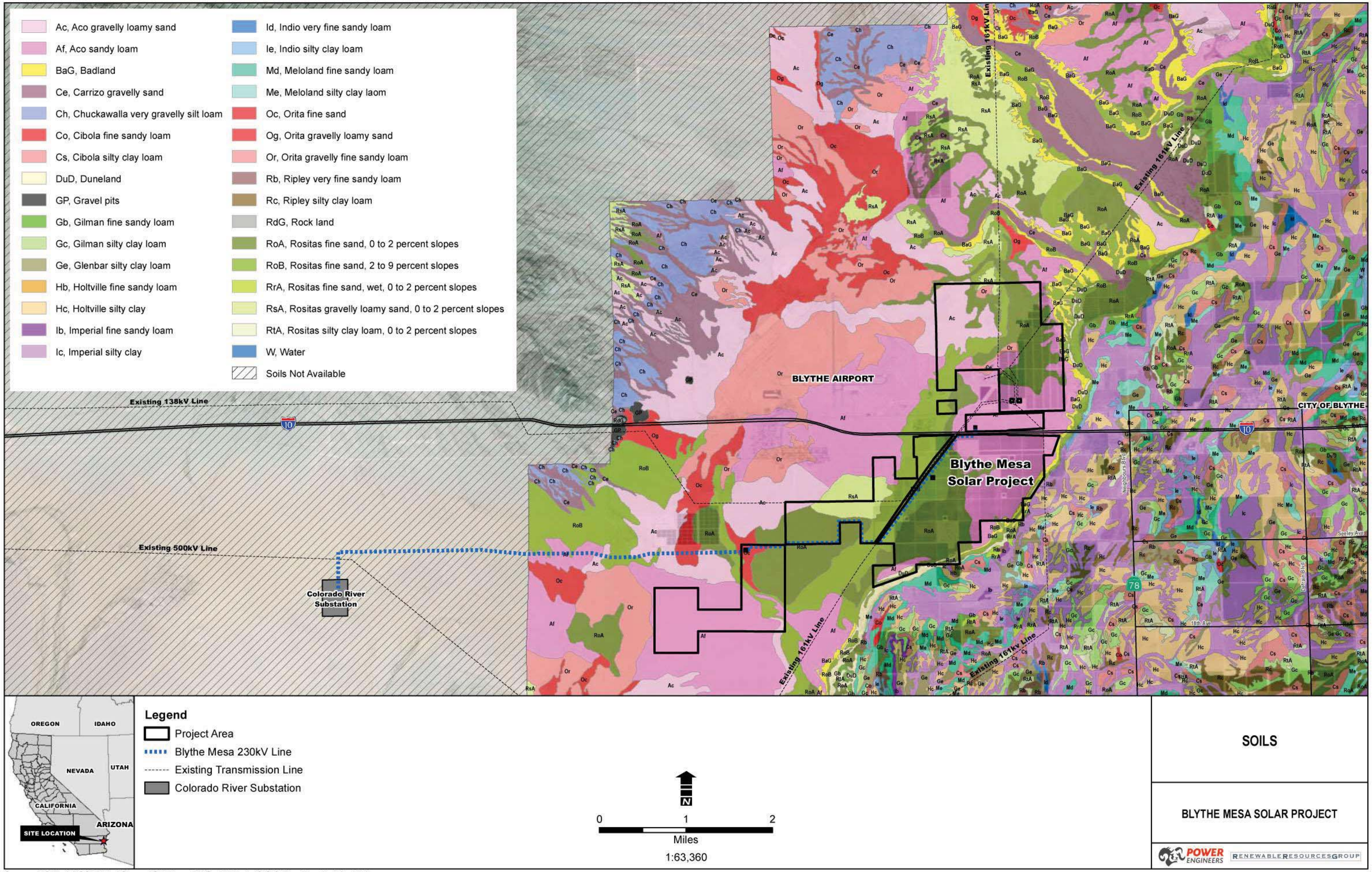


FIGURE 3. SOILS WITHIN THE PROJECT AREA



Source: USDA, NRCS, Digital General Soil Map of U.S., 2006. ArcGIS Online, Bing Aerials, 2010.

2.0 METHODS

POWER conducted a field visit within the proposed Project footprint, which focused on a 500-foot-wide corridor centered on the 125-foot-wide Project right-of-way. During POWER's field visit, the portion of the Blythe Mesa project along Mesa Drive, which has been identified as a possible wash feature, was surveyed. This location was the topographic low along Mesa Drive in the vicinity of the wash feature. The photo locations of the pictures taken at this wash feature are shown on Figure 5. The photos taken are shown in Figures 7 through 9. The potential for federal wetlands was evaluated based on the presence of wetland hydrology, wetland vegetation, and hydric soils pursuant to guidance from the Federal Manual for Delineating Wetlands (USACE 1987) as augmented by the USACE (2008b). The Project area does not exhibit features demonstrative of wetland hydrology, wetland vegetation, and/or hydric soils. Therefore, no wetland data points were selected and no wetland datasheets were recorded.

3.0 RESULTS

3.1 Ephemeral Washes

There are two discontinuous ephemeral channels on the project site. The discontinuous ephemeral channel first crosses the transmission line corridor and again southeast across the solar array site (Figure 4 and Figure 6). The discontinuous ephemeral channels on the project site consist of swales and erosional features including gullies and potential small washes characterized by low volume, infrequent or short duration flow. There is an agricultural irrigation ditch running close to the eastern edge of the proposed solar array, but it does not cross the Project area and is approximately 75 to 90 feet below the edge of the Project area. There are several palustrine open-water wetlands (POWs), likely stock ponds, located in a block in an area that is surrounded by the Project east of the Blythe Airport and north of I-10, but there are no POWs within the Project's boundary.

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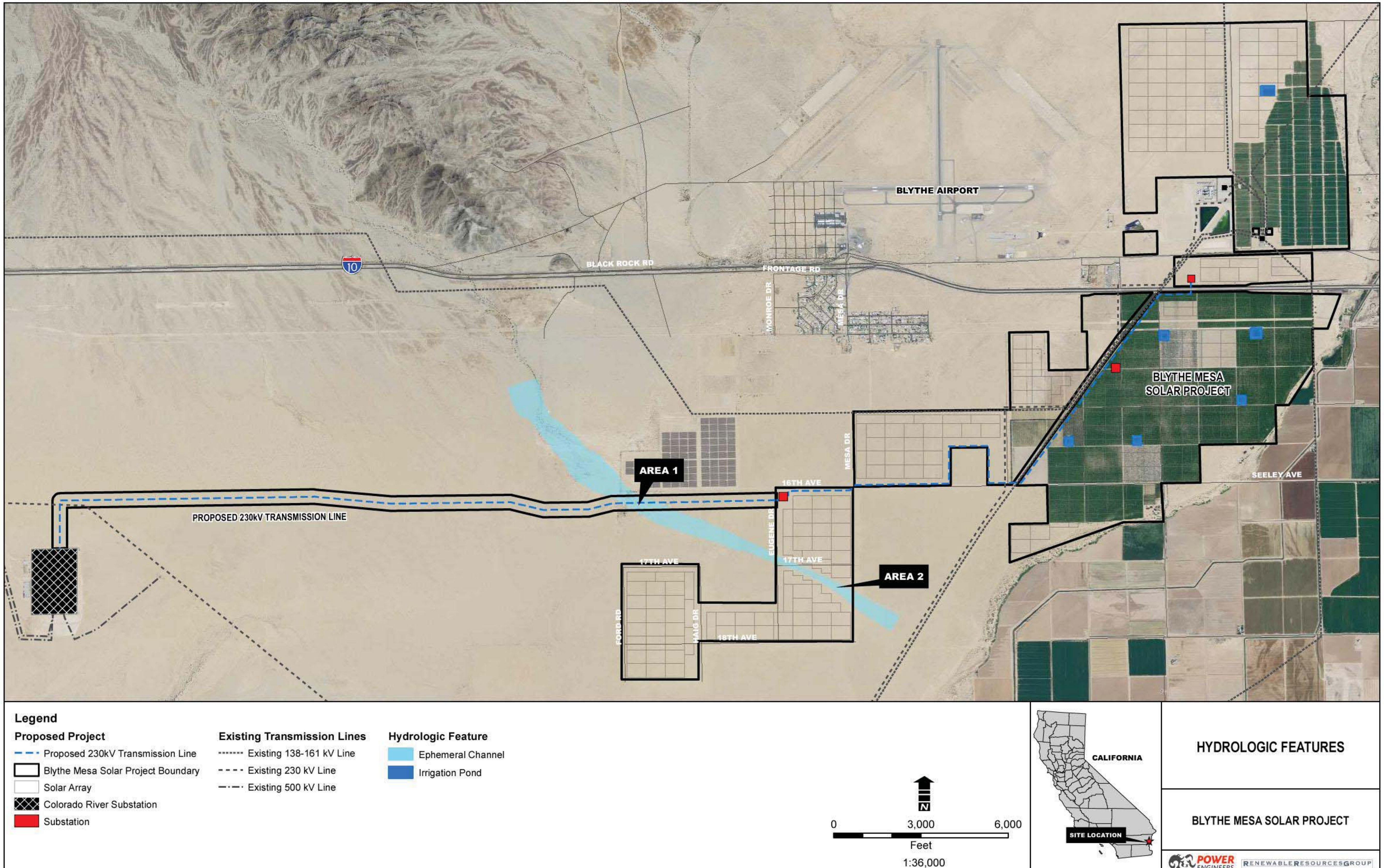
FIGURE 4. HYDROLOGIC FEATURES



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3.2 Summary of Jurisdictional Assessment

Waters of the U.S. are defined as all navigable waters, including all:

- tidal waters
- interstate waters and wetlands
- other waters such as lakes, rivers, streams (perennial or intermittent), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds; the use, degradation, or destruction of which could affect interstate commerce
- impoundments of water mentioned above
- tributaries to waters mentioned above
- territorial seas
- wetlands adjacent to waters mentioned above

Waste treatment systems, including treatment ponds, are not Waters of the U.S. (33 Code of Federal Regulations Section 328.3). Based on the recent guidance issued from USACE Headquarters, jurisdictional Waters of the U.S. include traditional navigable waters (TNWs), all wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are relatively permanent (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally), and wetlands that directly abut such tributaries (USACE 2008b). Additionally, jurisdiction is asserted over water bodies that are not relatively permanent if that body is determined to have a significant nexus with a TNW (USACE 2008b). Under the recent guidance, desert swales defined as "shallow features in the landscape that may convey water across upland areas during and following storm events," and erosional gullies are generally considered non-jurisdictional features because they are not tributaries nor do they have a significant nexus to a TNW (USACE 2008b).

Based on current interpretations of the USACE's jurisdictional authority and the definition of Waters of the U.S., POWER concludes that the two discontinuous ephemeral channels on the Project site do not meet the criteria for regulable waters of the U.S. provided in the USACE Jurisdictional Determination Form Instruction Guidebook. These channels are not traditional navigable waters (TNWs), relatively permanent waters (RPWs), or tributaries to RPWs with seasonal flow or tributaries to non-RPWs. The two discontinuous ephemeral channels do not meet the definition of Waters of the U.S. found at 33 CFR 328.3, including consideration of additional guidance from the USACE:

- There is no evidence that potential waters on site are currently used, were used in the past, or may be used in the future in interstate or foreign commerce.
- These discontinuous ephemeral channels are not interstate waters.
- These discontinuous ephemeral channels are not and cannot be used by interstate or foreign travelers for recreational or other purposes, there are no fish or shellfish, and there is no use or potential use for industrial purpose of such waters for interstate commerce.
- There are no impoundments of waters of the U.S.
- The discontinuous ephemeral channels on site are not tributaries to Waters of the U.S.
- There are no territorial seas or wetlands on the site, or prior converted croplands on the site.

It should be noted that delineation surveys conducted for the Blythe Solar Power Project, which overlaps the Project gen-tie line corridor, did not identify any jurisdictional waters within the overlapping area (AECOM 2010). Also, delineation surveys conducted for the Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunications System Route, which runs parallel to the Project gen-tie line corridor and is approximately one mile north and in the same hydrological flow route, did not identify the presence of jurisdictional waters within the area of the Project's gen-tie line corridor (CH2MHill

2010). Therefore, these previous surveys provide further evidence that this specific portion of the Project site is not jurisdictional.

Under the CWA Section 401, every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification (Certification) that the proposed activity will comply with state water quality standards. Most Certifications are issued in connection with USACE CWA Section 404 permits; however the RWQB regulates isolated waters under Section 401(c) of the federal CWA as Waters of the State despite the USACE lack of authority, and a 401 Certification could be required.

FIGURE 5. 2012 AERIAL PHOTO WITH CONTOUR OVERLAY

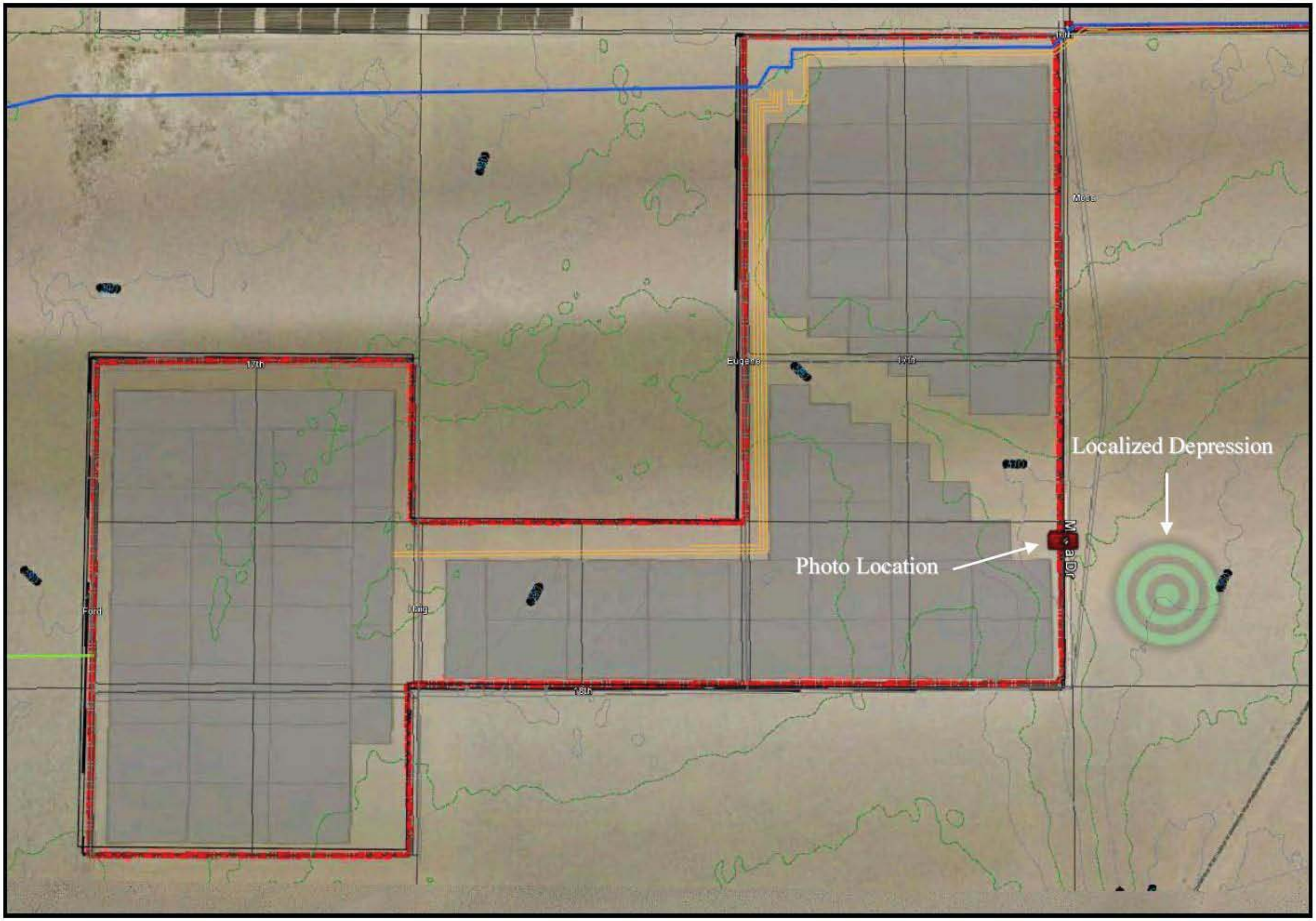

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FIGURE 6. EPHEMERAL CHANNEL

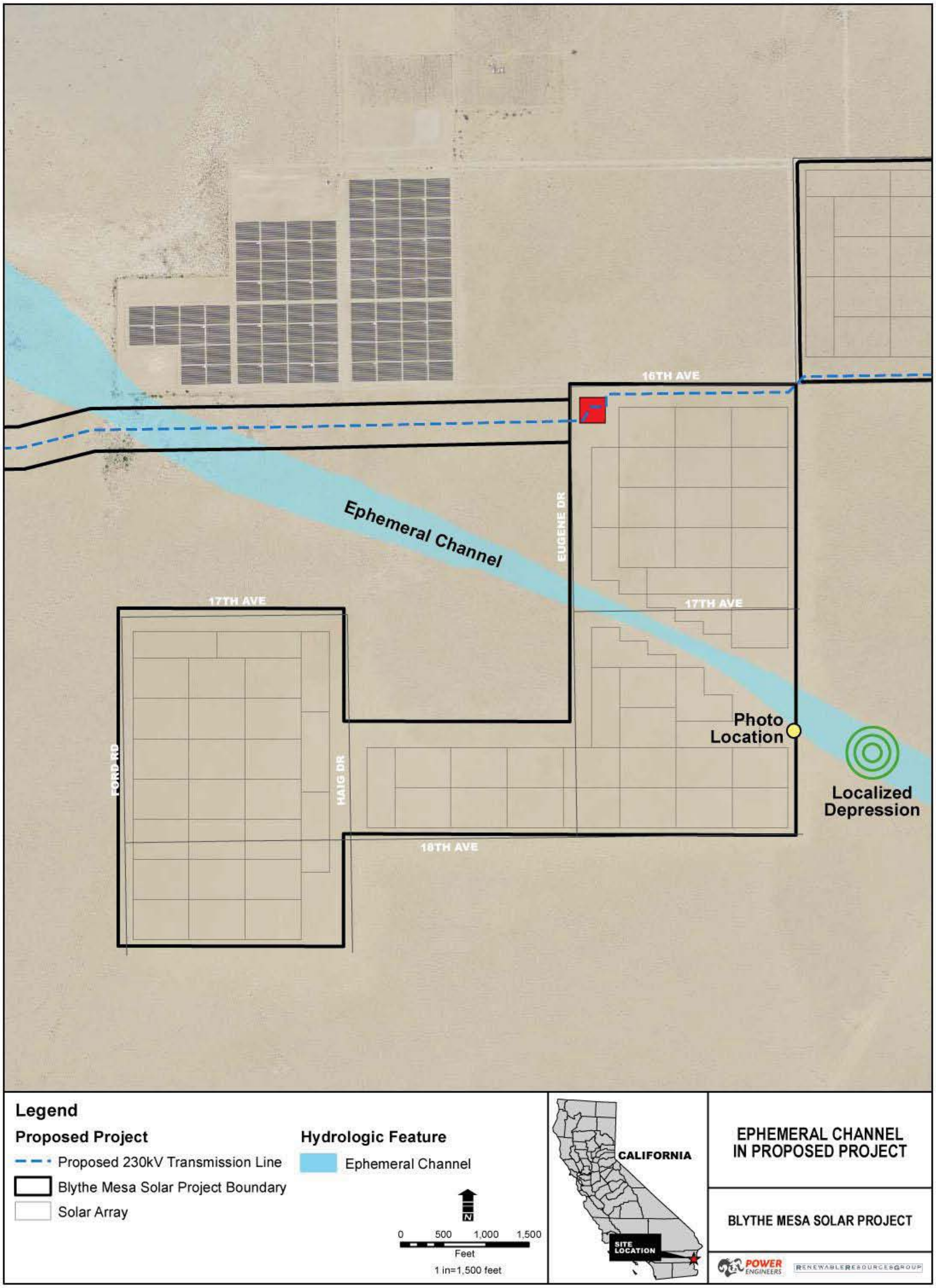

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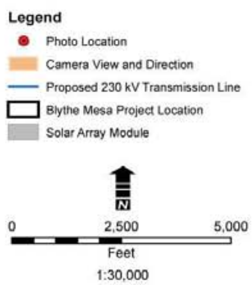
FIGURE 7: SITE PHOTO, FACING NORTHWEST



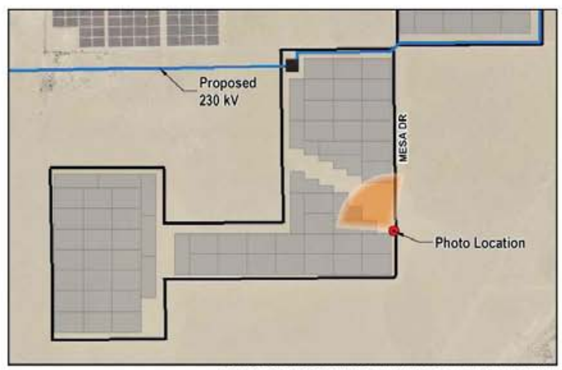


PHOTO LOCATION WITH CAMERA VIEW

SITE PHOTO
FACING NORTHWEST

BLYTHE MESA SOLAR PROJECT

POWER ENGINEERS RENEWABLE RESOURCES GROUP

FIGURE 8: SITE PHOTO, FACING NORTHEAST

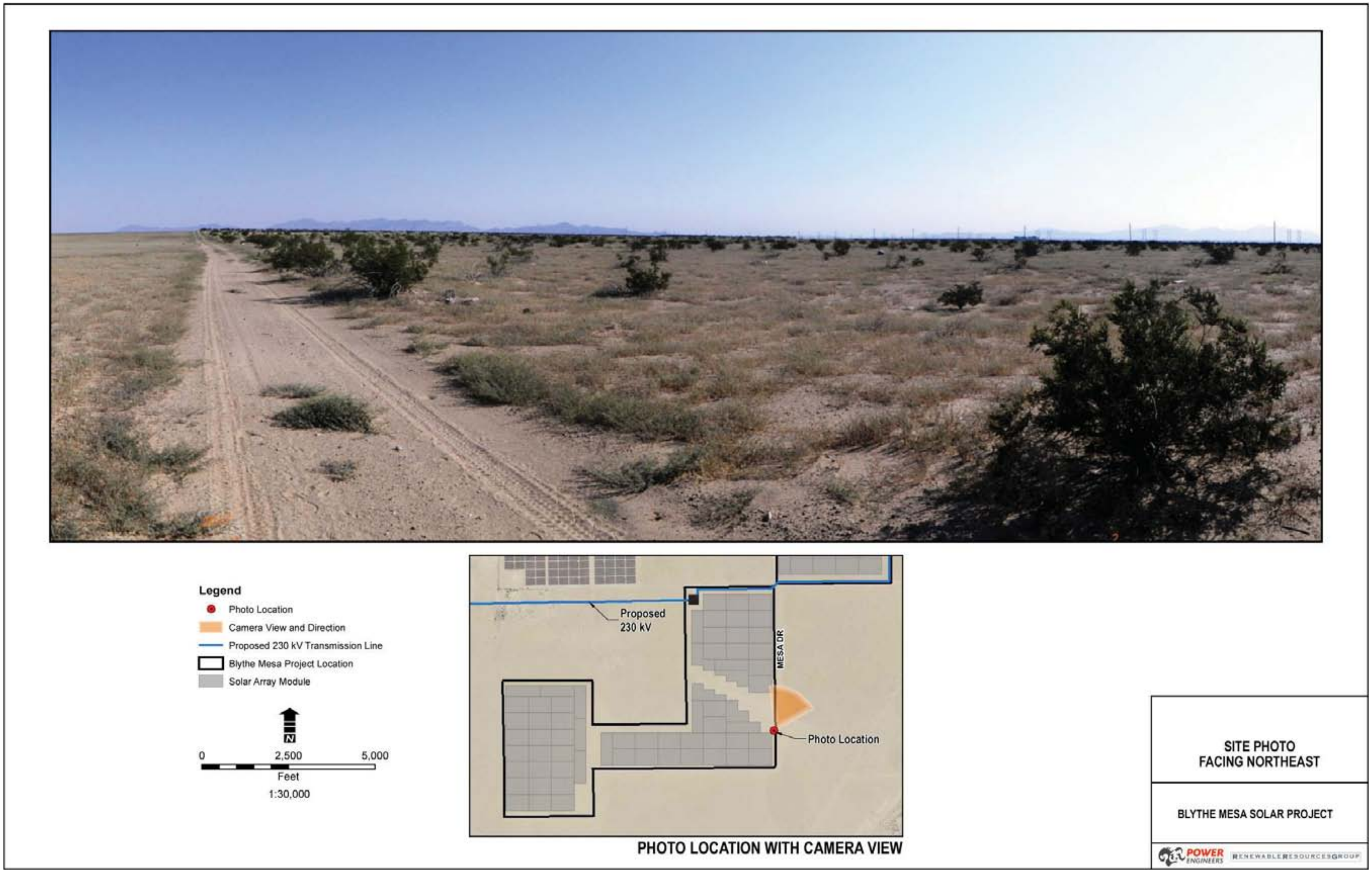


FIGURE 9: SITE PHOTO, FACING SOUTHEAST

SITE PHOTO, FACING SOUTHEAST

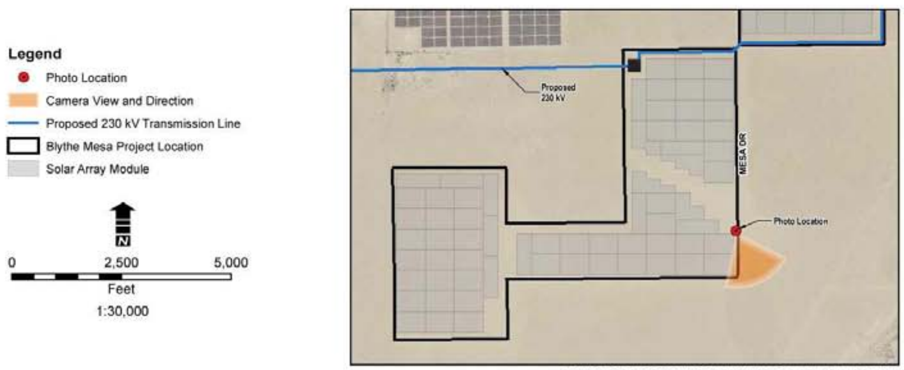


PHOTO LOCATION WITH CAMERA VIEW

SITE PHOTO
FACING SOUTHEAST

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4.0 LITERATURE CITED / REFERENCES

AECOM. 2010. Blythe Solar Power Project Biological Resources Technical Report. Prepared for Palo Verde Solar I, LLC. June 2010.

CH2MHill. 2010. Devers-Palo Verde No. 2 500 kV Transmission Line Project Telecommunication System Route Biological Review. Prepared for Southern California Edison. November 2010.

U.S. Army Corps of Engineers (USACE). 2001. Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest. U.S. Army Corps of Engineers, South Pacific Division.

______. 2004. Review of Ordinary High Water Mark Indicators for Delineating Arid Streams in the Southwestern United States. Edited by Robert W. Lichvar and James S. Wakeley. ERDC TR-04-1. January 2004.

______. 2008a. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. Robert W. Lichvar and Shawn M. McColley. ERDC/CRREL TR-08-12. August 2008.

______. 2008b. Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ERDC/EL TR-08-28. September 2008.

APPENDIX A: BEST MANAGEMENT PRACTICES

The Best Management Practices (BMPs) listed below would minimize or avoid the environmental impacts associated with the proposed Project. These BMPs differ from mitigation measures, because BMPs are: 1) requirements of existing policies, practices, and measures required by law, regulation, or local policy; 2) ongoing, regularly occurring practices; and 3) not specific to this proposed Project.

BMP	Description
BMP-1	**Drainage, Erosion, and Sedimentation Control Plan**. As part of the County of Riverside's Conditional Use Permit (CUP) requirements, a Drainage, Erosion, and Sedimentation Control Plan would be developed for the Project. The plan would address the drainage, erosion, and sediment control requirements to support all activities associated with construction, operation, and decommissioning of the Project. For example, any stockpiles created would be kept on site, with an upslope barrier in place to divert runoff. Stockpiles would be sprayed with water, covered with tarpaulins, and/or treated with appropriate dust suppressants, especially in preparation for high wind or storm conditions. Certified weed-free straw bale barriers would be installed to control sediment in runoff water; straw bale barriers would be installed only where sediment-laden water can pond, thus allowing the sediment to settle out. Topsoil from the site would be stripped, stockpiled, and stabilized before excavating earth for facility construction. Topsoil would be segregated and spread on freshly disturbed areas to reduce color contrast and aid rapid revegetation.
BMP-2	**Stormwater Pollution Prevention Plan.** In compliance with requirements of the National Pollutant Discharge Elimination System (NPDES) permit, a Stormwater Pollution Prevention Plan (SWPPP) would be developed and prepared for the Project to ensure that protection of water quality and soil resources is consistent with County and State regulations. The plan would identify site surface water runoff patterns and include measures that prevent excessive and unnatural soil deposition and erosion throughout and downslope of the Project site and Project-related construction areas, and would also include measures for non-stormwater discharge and waste management. The SWPPP would cover all activities associated with the construction of the Project, including clearing, grading, and other ground disturbance such as stockpiling or excavation erosion control. The plan would prevent off-site migration of contaminated stormwater, changes in pre-Project storm hydrographs, or increased soil erosion.
BMP-3	**Fugitive Dust Abatement Plan.** As required by the Mojave Desert Air Quality Management District Rule 403, a Fugitive Dust Abatement Plan would be prepared to address fugitive dust emissions during Project construction, operation, and decommissioning. The plan would include measures to minimize fugitive dust emissions from wrecking, excavation, grading, clearing of land, and solid waste disposal operations, and would take every reasonable precaution to prevent visible particulate matter from being deposited upon public roadways as a direct result of operations. During construction, all unpaved roads, disturbed areas (e.g., areas of scraping, excavation, backfilling, grading, and compacting), and loose materials generated during Project construction activities would be watered as frequently as necessary to minimize fugitive dust generation. In water-deprived locations, water spraying would be limited to active disturbance areas only, and non-water-based dust control measures would be implemented in areas with intermittent use or use that is not heavy, such as stockpiles or access roads. Alternatively, chemical dust suppressants or durable polymeric soil stabilizers could be used. The dust suppression measures would consider the sensitivity of wildlife to the windborne dispersal of fugitive dust containing dust suppressants and the potential impact on future reclamation.
BMP-4	**Fire Management and Protection Plan.** As required by existing law (Title 8 California Code of Regulations [CCR] Section 3221), a Fire Management and Protection Plan would be developed in consultation with the Riverside County Fire Department to identify potential hazards and accident scenarios that would exist at the facility during construction, operation, and decommissioning of the Project. The Plan would include the identification of the following: potential fire hazards and ignition sources; proper handling and storage of potential fire hazards; control of potential ignition sources; persons responsible for equipment and systems maintenance; location of portable fire extinguishers; automatic sprinkler fire suppression system; water-spray fire system; coordination with local fire department; and recordkeeping requirements.

BMP	Description
BMP-5	**Emergency Action Plan.** As required by Title 8 CCR Section 3220, the Project would develop a site-specific operations phase Emergency Action Plan. The operations Emergency Action Plan would address potential emergency situations requiring emergency response and/or planned evacuation. The plan would describe accident scenarios, evacuation routes, alarm systems, points of contact, assembly areas, responsibilities, and other actions to be taken in the event of an emergency. In particular, the plan would describe arrangements with local emergency response agencies.
BMP-6	**Lighting Plan.** A lighting plan would be prepared that documents how lighting will be designed and installed to minimize night-sky impacts during facility construction and operations. Lighting for facilities will not exceed the minimum number of lights and brightness required for safety and security and will not cause excessive reflected glare. Light fixtures will not spill light beyond the Project boundary. Where feasible, vehicle-mounted lights will be used for night maintenance activities. Wherever feasible, consistent with safety and security, lighting will be kept off when not in use. The lighting plan will include a process for promptly addressing complaints about lighting.
BMP-7	**Trash Abatement Plan**. A Trash Abatement Plan shall be developed that focuses on containing trash and food in closed and secure sealable containers, with lids that latch, and removing them periodically to reduce their attractiveness to opportunistic species, such as common ravens, coyotes, and feral dogs, that could serve as predators of native wildlife and special-status animals. The Plan would also establish a regular litter pick-up procedure within and around the perimeter of the Project site, and removal of construction-related trash containers from the Project site when construction is complete.
BMP-8	**Cleanup and Restoration.** Upon completion of construction activities, all unused materials and equipment shall be removed from the Project site. All construction equipment and refuse including, but not limited to, wrapping material, cables, cords, wire, boxes, rope, broken equipment parts, twine, strapping, buckets, and metal or plastic containers shall be removed from the site and disposed of properly after completion of construction. Any unused or leftover hazardous products shall be properly disposed of off-site.
BMP-9	**Hazardous materials.** As required by the Clean Air Act, Section 401 of the Clean Water Act, the Toxic Substance Control Act, and the Hazardous Materials Transportation Act, all vehicles and equipment must be in proper working condition to ensure that there is no potential for fugitive emissions or accidental release of motor oil, fuel, antifreeze, hydraulic fluid, grease, or other hazardous materials. Equipment must be checked for leaks prior to operation and repaired as necessary. Refueling of equipment must take place on existing paved roads, where possible, and not within or adjacent to drainages. Hazardous spills must be cleaned up immediately. Contaminated soil would be disposed of at an approved offsite landfill, and spills reported to the permitting agencies. Service/maintenance vehicles should carry appropriate equipment and materials to isolate and remediate leaks or spills, and an on-site spill containment kit for fueling, maintenance, and construction will be available. Cleaning of construction vehicles at commercial car washes should be considered rather than washing vehicles on the Project site so that dirt, grease, and detergents are treated effectively at existing facilities designed to handle those types of wastes.
BMP-10	**Integrated Weed Management Plan.** In compliance with the Federal Noxious Weed Act, the Plant Protection Act, and the California Food and Agricultural Code, a Project-specific integrated weed management plan for the control of noxious weeds and invasive plant species would be prepared. The plan would identify presence, location, and abundance of weed species in the Project area and surrounding area adjacent to the Project, as well as identify suppression and containment measures to prevent the spread of weed species and introduction of weed species. Prevention techniques would include: limiting disturbance areas during construction to the minimum required to perform work; limiting ingress and egress to defined routes; maintaining vehicle wash and inspection stations; and closely monitoring the types of materials brought on site to minimize the potential for weed introduction. During operations, noxious and invasive weed management will be incorporated as a part of mandatory site training for groundskeepers and maintenance personnel. Training will include weed identification and the impacts on agriculture, wildlife, and fire frequencies. Training will also cover the importance of preventing the spread of noxious weeds and of controlling the proliferation of existing weeds.

BMP	Description
BMP-11	**Project structures and building surfaces.** Project facilities would be sited to ensure that there is adequate space (i.e., setbacks of no less than 100 feet) between solar facilities and natural washes. These setbacks would preserve and maintain the natural washes' hydrological functions. The color and finish of Project structure and building surfaces that are visible to the public will be designed to ensure minimal visual intrusion, contrast, and glare. Grouped structures will be painted the same color to reduce visual complexity and color contrast. Solar panel backs will be color-treated to reduce visual contrast with the landscape setting. Materials, coatings, or paints having little or no reflectivity will be used wherever possible. The visual color contrast of graveled surfaces will be reduced with approved color treatment practices.
BMP-12	**Gen-tie lines.** Gen-tie line support structures and other facility structures shall be designed to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices). This design would also reduce the potential for increased predation of special-status species, such as the desert tortoise. Mechanisms to visually warn birds (permanent markers or bird flight diverters) shall be placed on gen-tie lines at regular intervals to prevent birds from colliding with the lines. To the extent practicable, the use of guy wires shall be avoided because they pose a collision hazard for birds and bats. Necessary guy wires shall be clearly marked with bird flight diverters to reduce the probability of collision. Shield wires shall be marked with devices that have been scientifically tested and found to significantly reduce the potential for bird collisions. Gen-tie lines shall utilize non-specular conductors and non-reflective coatings on insulators.
BMP-13	**Ground and surface disturbance.** Construction boundaries would be clearly delineated to minimize areas of ground and surface disturbance. Ground-disturbing activities shall be minimized, especially during the rainy season. To the maximum extent possible, construction-related activities (such as vehicle and foot traffic) would avoid areas with intact biological soil crusts. For cases in which impacts cannot be avoided, soil crusts would be salvaged and restored on the basis of recommendations by the County of Riverside and BLM once construction has been completed. Existing rocks, vegetation, and drainage patterns shall be preserved to the maximum extent possible. No paint or permanent discoloring agents shall be applied to rocks or vegetation (to indicate surveyor construction activity limits or for any other purpose). All stakes and flagging shall be removed from the construction area and disposed of in an approved facility. Where feasible, brush-beating, mowing, or use of protective surface matting rather than removing vegetation shall be employed. Clearing and disturbing of sensitive areas (e.g., steep slopes and natural drainages) and other areas shall be avoided outside the construction zone. Surface disturbance would be minimized by utilizing undulating surface disturbance edges; stripping, salvaging, and replacing topsoil; using contoured grading; controlling erosion; using dust suppression techniques; and restoring exposed soils to their original contour and vegetation.
BMP-14	**Travel and traffic.** Vehicular traffic on site shall be confined to existing or designated travel routes and designated work areas. Access to the construction site and staging areas shall be limited to authorized vehicles and only through the designated roads. The extent of habitat disturbance during construction shall be reduced by keeping vehicles on access roads and minimizing foot and vehicle traffic through undisturbed areas. To the extent practical, travel shall be limited to stabilized roads. Road maintenance activities shall avoid blading existing forbs and grasses in ditches and adjacent to roads. Abandoned roads and roads no longer needed shall be subsoiled to increase infiltration and reduce soil compaction, then recontoured and revegetated. Construction traffic shall avoid unpaved surfaces to the extent practical (to reduce the risk of compaction) and reduce speed to lessen fugitive dust emissions. On unpaved or unstabilized surfaces within the construction site, speed limits (e.g., 20 mph) shall be posted with visible signs and enforced to minimize airborne fugitive dust. Project vehicle speeds shall be limited in areas occupied by special-status animal species. Traffic shall stop to allow wildlife to cross roads. Shuttle vans or carpooling shall be used where feasible to reduce the amount of traffic on access roads. Workers shall be trained to comply with the speed limit, use good engineering practices, minimize the drop height of materials, and minimize the number and extent of disturbed areas. The Project developer shall enforce these requirements.

BMP	Description
BMP-15	**New access roads and parking lots.** New access roads shall be designed and constructed to the appropriate road design standards, such as those described in BLM Manual 9113 or County standards, whichever is applicable. New access roads shall be designed to follow natural land contours in the Project area and avoid existing desert washes. The specifications and codes developed by the U.S. Department of Transportation (DOT) are also to be taken into account. Primary access roads and parking lots shall be surfaced with aggregate that is hard enough that vehicles cannot crush it and thus cause dust or compacted soil conditions. Paving may also be used on access roads and parking lots. Alternatively, chemical dust suppressants or durable polymeric soil stabilizers would be used on these locations.
BMP-16	**Diesel engines.** All diesel engines used in the facility would be fueled only with ultra-low sulfur diesel with a sulfur content of 15 parts per million (ppm) or less. The Project would require use of construction diesel engines with a rating of 50 horsepower (hp) or higher that meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression Ignition Engines, as specified in the California Code of Regulations, Title 13, Section 2423(b)(1), unless such engines are not available. If a Tier 3 engine is not available for off-road equipment larger than 100 hp, a Tier 2 engine, or an engine equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NO_x) and diesel particulate matter (DPM) to no more than Tier 2 levels, may be used. Regulatory agencies may determine that use of such devices is not practical when: • There is no available retrofit control device verified by either the California Air Resources Board (CARB) or the U.S. Environmental Protection Agency (EPA) to control engines in question to Tier 2 equivalent emission levels and the retrofitted or Tier 1 engines use the highest level of available control technology. • The construction equipment is intended to be on site for five days or less. • It can be demonstrated there is a good faith effort to comply with the recommendation and that compliance is not practical. The idling time of diesel equipment would be limited to no more than 10 minutes, unless idling must be maintained for proper operation (e.g., drilling, hoisting, and trenching).
BMP-17	**High wind conditions.** In compliance with MDAQMD Rule 403 criteria, all soil-disturbing activities and travel on unpaved roads must be suspended during periods of high winds. A 25 mph wind speed has been determined on the basis of soil properties identified during site characterization. Monitoring of the wind speed would be required at the site during construction, operation, and decommissioning.
BMP-18	**Noise.** The Project would minimize construction- and operation-related noise levels to minimize impacts to wildlife and nearby residents.
BMP-19	**Plants and wildlife.** In compliance with the California Department of Fish and Game Codes, while on the Project property, workers or visitors would be prohibited from: feeding wildlife; moving live, injured, or dead wildlife off roads, ROWs, or the Project site; bringing domestic pets to the Project site; collecting native plants; and harassing wildlife. Areas where wildlife could hide or be trapped (e.g., open trenches, sheds, pits, uncovered basins, and laydown areas) would be minimized. For example, an uncovered pipe that has been placed in a trench should be capped at the end of each workday to prevent animals from entering the pipe. If a special-status species is discovered inside a component, that component must not be moved, or, if necessary, moved only to remove the animal from the path of activity, until the animal has escaped. As open trenches could impede the seasonal movements of large game animals and alter their distribution, they would be backfilled as quickly as possible. Open trenches could also entrap smaller animals; therefore, escape ramps would be installed along open trench segments at distances identified in the applicable land use plan or by the best available information and science. If traffic is being unreasonably delayed by wildlife in roads, personnel would contact the Project biologist, who will take any necessary action. Any vehicle-wildlife collisions would be immediately reported to the Project biologist. Observations of potential wildlife problems, including wildlife mortality, would be immediately reported to the BLM or other appropriate agency authorized officer.