



BrightSource

California Energy Commission

**DOCKETED**  
**11-AFC-4**

TN # 68737

NOV. 30 2012

November 30, 2012

Pierre Martinez  
Project Manager  
Systems Assessment & Facility Siting Division  
California Energy Commission  
1516 Ninth Street, MS-15  
Sacramento, CA 95814

**SUBJECT:** Application for a Lake and Streambed Alteration Agreement for Rio Mesa Solar Electric Generating Facility (11-AFC-4)

Dear Mr. Martinez:

Rio Mesa Solar I, LLC and Rio Mesa Solar II, LLC, collectively the "Applicant" for the Rio Mesa Solar Electric Generating Facility project ("Rio Mesa SEGF"), submits the Applicant's Application for a Lake and Streambed Alteration Agreement. We have also submitted two hard copies to Dr. Shankar Sharma with the Department of Fish and Game, for delivery Monday, December 3, 2012.

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If you have any questions, please do not hesitate to contact me.

Sincerely,

Todd Stewart  
Senior Director of Project Development



November 30, 2012

Dr. Shankar Sharma  
Staff Environmental Scientist of Renewable Energy  
California Natural Resources Agency  
Department of Fish and Game  
Inland Deserts Region  
3602 Inland Empire Blvd., Suite C-220  
Ontario, CA 91764

RE: RIO MESA SOLAR ELECTRIC GENERATING FACILITY (11-AFC-4)  
LAKE AND STREAMBED ALTERATION AGREEMENT

Dear Dr. Sharma:

On behalf of BrightSource Energy, Inc. and Rio Mesa Holdings, LLC, our firm is submitting the attached Application for a Lake and Streambed Alteration Agreement for the Rio Mesa Solar Generating Facility in Riverside County. In addition, I am enclosing a check for \$4,482.75 for the processing of the Agreement.

The Agreement also contains a revised jurisdictional determination and vegetation mapping based on ground observations and measurements completed on the project site in September and October 2012. WRA, Inc. (WRA) delineated areas in the Rio Mesa Solar BSA subject to jurisdiction pursuant to Section 1602 of the California Fish and Game Code. This work was based on detailed field inspections of the Project Site and Gen-Tie line and updated a previous submittal by URS (2011) that was primarily determined from aerial photography. The revised determination includes mapping of both streams and associated riparian habitats, primarily Palo Verde/Ironwood woodland.

Please contact either myself by email ([josselyn@wra-ca.com](mailto:josselyn@wra-ca.com)) or phone (415-454-8868 x125) or Todd Stewart, the project manager, at 510-550-8908.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Michael Josselyn', written over a horizontal line.

Michael Josselyn , PhD, PWS  
Principal

cc. Todd Stewart, Project Manager, Rio Mesa Project

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# California Department of Fish and Game

## Section 1602 Lake and Streambed Alteration Agreement Application Package

Rio Mesa Solar Electric Generating Facility  
Riverside County, California

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**Submitted By:**

BrightSource Energy, Inc.  
1999 Harrison St., Suite 2150  
Oakland, CA 94612  
(510) 550-8161

Attn: Todd Stewart

**Prepared By:**

WRA, Inc.  
515 S. Flower Street  
36th Floor  
Los Angeles, CA 90071  
(415) 454-8868

Attn: Michael Josselyn, PhD, PWS

**Date:**

November 2012



BrightSource

Rio Mesa Solar Electric Generating Facility 1602 LSAA Application Package

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Rio Mesa Solar Electric Generating Facility 1602 LSAA Application Package

**Attachment 1.**

**CDFG Section 1602 Streambed Alteration Agreement Application Form**

FOR DEPARTMENT USE ONLY

Date Received	Amount Received	Amount Due	Date Complete	Notification No.
	\$	\$		



STATE OF CALIFORNIA  
DEPARTMENT OF FISH AND GAME  
**NOTIFICATION OF LAKE OR STREAMBED ALTERATION**



Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

**1. APPLICANT PROPOSING PROJECT**

Name	Todd Stewart			
Business/Agency	Rio Mesa Holdings, LLC c/o Todd Stewart			
Street Address	1999 Harrison Street, Suite 2150			
City, State, Zip	Oakland, CA 94612			
Telephone	(510) 550-8908	Fax	(510) 899-6768	
Email	tstewart@brightsourceenergy.com			

**2. CONTACT PERSON** *(Complete only if different from applicant)*

Name				
Street Address				
City, State, Zip				
Telephone		Fax		
Email				

**3. PROPERTY OWNER** *(Complete only if different from applicant)*

Name	Ralph T. Hicks, Metropolitan Water District of Southern California			
Street Address	700 N. Alameda St.			
City, State, Zip	Los Angeles, CA 90012			
Telephone	(213) 217-6183	Fax	(213) 576-5171	
Email	RHicksJr@mwdh2o.com			

**4. PROJECT NAME AND AGREEMENT TERM**

A. Project Name		Rio Mesa Solar Electric Generating Facility		
B. Agreement Term Requested		<input checked="" type="checkbox"/> Regular (5 years or less) <input type="checkbox"/> Long-term (greater than 5 years)		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (year)	Ending (year)	Start Date (month/day)	End Date (month/day)	
2013	2016			

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

### 5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.	
A.	<input checked="" type="checkbox"/> Standard ( <i>Most construction projects, excluding the categories listed below</i> )
B.	<input type="checkbox"/> Gravel/Sand/Rock Extraction ( <i>Attachment A</i> )      Mine I.D. Number: _____
C.	<input type="checkbox"/> Timber Harvesting ( <i>Attachment B</i> )      THP Number: _____
D.	<input type="checkbox"/> Water Diversion/Extraction/Impoundment ( <i>Attachment C</i> )      SWRCB Number: _____
E.	<input type="checkbox"/> Routine Maintenance ( <i>Attachment D</i> )
F.	<input type="checkbox"/> DFG Fisheries Restoration Grant Program (FRGP)      FRGP Contract Number: _____
G.	<input type="checkbox"/> Master
H.	<input type="checkbox"/> Master Timber Harvesting

### 6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. <i>Note: The Department may not process this notification until the correct fee has been received.</i>			
	A. Project	B. Project Cost	C. Project Fee
1	Rio Mesa Solar Electric Generating Facility	\$2,000,000,000.00	\$4,482.75
2			
3			
4			
5			
		D. Base Fee (if applicable)	
		<b>E. TOTAL FEE ENCLOSED</b>	\$4,482.75

### 7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?	
<input type="checkbox"/> Yes ( <i>Provide the information below</i> )	<input checked="" type="checkbox"/> No
Applicant: _____ Notification Number: _____ Date: _____	
B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?	
<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes ( <i>Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.</i> )	
<input checked="" type="checkbox"/> Continued on additional page(s)	

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

**8. PROJECT LOCATION**

<p>A. Address or description of project location.  <i>(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)</i></p> <p>The Project site has no street address. The Project site is located on the Palo Verde Mesa in eastern Riverside County, California, approximately 13 miles southwest of Blythe. Project location is shown in Attachment 3 Figure 1, attached.</p> <p>Directions to Site:                  From Palm Springs head east on Interstate 10.                  -Exit Interstate 10 west of Blythe on State Route 78 (S. Neighbors Blvd.)                  -South on SR 78 to Bradshaw Trail                  -West on Bradshaw Trail to project site</p> <p align="right"><input checked="" type="checkbox"/> Continued on additional page(s)</p>				
B. River, stream, or lake affected by the project.		Several ephemeral drainages (See Att. 4, WRA 2012)		
C. What water body is the river, stream, or lake tributary to?		Colorado River via Hodges Drain and Palo Verde Outfall		
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Unknown
E. County	Riverside			
F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
See Attachment A				
<input checked="" type="checkbox"/> Continued on additional page(s)				
K. Meridian (check one)	<input type="checkbox"/> Humboldt	<input type="checkbox"/> Mt. Diablo	<input checked="" type="checkbox"/> San Bernardino	
L. Assessor's Parcel Number(s)				
See Attachment A				
<input checked="" type="checkbox"/> Continued on additional page(s)				
M. Coordinates (If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)				
Latitude/Longitude	Latitude:	N 33.451	Longitude:	W -114.770
	<input type="checkbox"/> Degrees/Minutes/Seconds		<input checked="" type="checkbox"/> Decimal Degrees	
	<input type="checkbox"/> Decimal Minutes			
UTM	Easting:	Northing:	<input type="checkbox"/> Zone 10 <input type="checkbox"/> Zone 11	
Datum used for Latitude/Longitude or UTM		<input type="checkbox"/> NAD 27		<input checked="" type="checkbox"/> NAD 83 or WGS 84

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

### 9. PROJECT CATEGORY AND WORK TYPE *(Check each box that applies)*

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bank stabilization – rip-rap/retaining wall/gabion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat dock/pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat ramp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Channel clearing/vegetation management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Culvert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Debris basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversion structure – weir or pump intake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filling of wetland, river, stream, or lake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geotechnical survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat enhancement – revegetation/mitigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Levee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low water crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road/trail	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sediment removal – pond, stream, or marina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm drain outfall structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary stream crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utility crossing : Horizontal Directional Drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack/bore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open trench	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Other</b> <i>(specify)</i> : Solar Electric Generating Facility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

**10. PROJECT DESCRIPTION**

- A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.
- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
  - Specify the type and volume of materials that will be used.
  - If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

The proposed project, Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF), will consist of two plants situated solely on private land leased from the Metropolitan Water District of Southern California (MWD). Portions of the Project gen-tie line, Bradshaw Trail access road, 33kV construction/emergency backup power supply line, and a buried communications cable under the gen-tie line access road are located on public lands managed by the BLM. The first plant, known as Rio Mesa 1, will be constructed at the southeastern end of the project. The second plant, known as Rio Mesa 2, will be located in the northwestern portion of the project site. A common facilities area including a switchyard will be located adjacent to the far northern reach of the RMS 1 solar field on MWD property.

Please see Attachment 2, Supplemental Information for the California Department of Fish and Game 1600 Streambed Alteration Agreement Application – Rio Mesa Solar Electric Generating Facility.

All information docketed for the project can be found at the California Energy Commission (CEC) website:  
<http://www.energy.ca.gov/sitingcases/riomesa/documents/index.html>

*Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

Pickup trucks, utility vehicles, dump truck, water truck, fuel tank truck, earthmoving equipment (dozer, excavator, grader, loader backhoe, tractor), concrete transmixer, compactor, crane crawler, tower crane, forklift, manlift, scissorlift, etc.

*Continued on additional page(s)*

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).

Yes     No (*Skip to box 11*)

D. Will the proposed project require work in the wetted portion of the channel?

Yes (*Enclose a plan to divert water around work site*)  
 No

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

### 11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

Most of the project site will maintain the original grades and natural drainage features present. Several types of direct and indirect impacts will occur including grading for the solar towers and appurtenant power production facilities, main access roads, and construction/maintenance yards. Please see Attachment 2, Supplemental Information for the California Department of Fish and Game 1600 Streambed Alteration Agreement Application - Rio Mesa Solar Electric Generating Facility.

Continued on additional page(s)

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B. Will the project affect any vegetation?       Yes (Complete the tables below)     No

Vegetation Type	Temporary Impact	Permanent Impact
Microphyll Woodland (Blue Palo Verde-Ironwood, Mesquite Bosque)	Linear feet: _____ Total area: <u>See Attachment 2</u>	Linear feet: _____ Total area: _____
Dry washes in other vegetation communities (see Attachment 2)	Linear feet: _____ Total area: <u>See Attachment 2</u>	Linear feet: _____ Total area: _____

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
Blue Palo Verde (number to be determined)		TBD
Ironwood (number to be determined)		TBD

Continued on additional page(s)

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C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

Yes (List each species and/or describe the habitat below)       No       Unknown

See Attachment A

Continued on additional page(s)

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D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

See Attachment A

Continued on additional page(s)

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E. Has a biological study been completed for the project site?

Yes (Enclose the biological study)       No URS 2012 Biological Resources Technical Report and Addendum to Biological Resources Technical Report provided to CEC

*Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.*

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F. Has a hydrological study been completed for the project or project site?

Yes (Enclose the hydrological study)       No

*Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.*

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

**12. MEASURES TO PROTECT FISH, WILDLIFE, AND PLANT RESOURCES**

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

Best Management Practices will be mandated by the CEC per project Conditions of Certification (COC) to prevent sediment from entering watercourses during and after construction. An Incidental Take Permit will be filed with CDFG by the applicant to address potential impacts to state listed species, including Desert Tortoise. Other mitigation measures are to be set forth by the CEC as COCs. The gen-tie line, facility power line, and certain access roads will be located on federal land managed by the Bureau of Land Management (BLM). The BLM will identify mitigation measures in conjunction with federal right of way grants and National Environmental Protection Act (NEPA) review that will also address impacts to watercourses during construction. See Attachment 2.

Continued on additional page(s)

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

Additional measures to avoid and minimize impacts to wildlife and plant resources will be developed through consultation with federal, state, and local agencies and will be mandated by the CEC as Conditions of Certification and by the BLM as mitigation measures associated with the project's federal right of way grants and NEPA review process.

For a summary of measures, see Attachment 2.

Continued on additional page(s)

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

Project mitigation and/or compensation measures to protect wildlife and plant resources will be established through federal, state, and local agency coordination and finalized through consultation with federal, state, and local agencies. Mitigation and compensation measures will be mandated by the CEC as Conditions of Certification and by the BLM as mitigation measures associated with the project's federal right of way grants and NEPA review process.

For a summary of measures, see Attachment 2.

Continued on additional page(s)

**13. PERMITS**

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

- A. \_\_\_\_\_ ACOE Section 404 CWA  Applied  Issued
- B. \_\_\_\_\_ RWQCB Section 401 Water Quality Certification  Applied  Issued
- C. \_\_\_\_\_ ROW Grant Approvals  Applied  Issued
- D. Unknown whether  local,  state, or  federal permit is needed for the project. (Check each box that applies)

Continued on additional page(s)

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

### 14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?			
<input checked="" type="checkbox"/> Yes (Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each) <input type="checkbox"/> No (Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared)			
<input type="checkbox"/> Notice of Exemption	<input type="checkbox"/> Mitigated Negative Declaration	<input checked="" type="checkbox"/> NEPA document (type): <u>EIS</u>	
<input type="checkbox"/> Initial Study	<input checked="" type="checkbox"/> Environmental Impact Report	<input checked="" type="checkbox"/> CESA document (type): <u>in process</u>	
<input type="checkbox"/> Negative Declaration	<input type="checkbox"/> Notice of Determination (Enclose)	<input checked="" type="checkbox"/> ESA document (type): <u>in process</u>	
<input type="checkbox"/> THP/ NTMP	<input type="checkbox"/> Mitigation, Monitoring, Reporting Plan		
B. State Clearinghouse Number (if applicable)			
C. Has a CEQA lead agency been determined?		<input checked="" type="checkbox"/> Yes (Complete boxes D, E, and F) <input type="checkbox"/> No (Skip to box 14.G)	
D. CEQA Lead Agency	California Energy Commission		
E. Contact Person	Pierre Martinez	F. Telephone Number	(916) 651-3765
G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.			
<p>The CEC has the statutory responsibility for licensing thermal energy power plants larger than 50 megawatts (MW) and the plant's related facilities such as transmission lines, fuel supply lines, water pipelines, etc. The Energy Commission's 12-month, comprehensive permitting process is a certified regulatory program under CEQA and includes many opportunities for public participation. The Energy Commission's license/certification subsumes all requirements of state, local, or regional agencies otherwise required before a new power plant is constructed.</p> <p style="text-align: right;"><input type="checkbox"/> Continued on additional page(s)</p>			
H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?			
<input type="checkbox"/> Yes (Enclose proof of payment) <input checked="" type="checkbox"/> No (Briefly explain below the reason a filing fee has not been paid)			
Project is still under review by CEC. No CEQA determination has been made. Filing Fee will be provided when NOD filed.			
<p><i>Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.</i></p>			

### 15. SITE INSPECTION

Check one box only.
<input type="checkbox"/> In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.
<input checked="" type="checkbox"/> I request the Department to first contact (insert name) <u>Todd Stewart</u> at (insert telephone number) <u>(510) 250-8908</u> to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

### 16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

Yes (Please enclose the information via digital media with the completed notification form)

No

### 17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.



\_\_\_\_\_  
Signature of Applicant or Applicant's Authorized Representative

11/19/12

\_\_\_\_\_  
Date

Todd Stewart, Project Manager

\_\_\_\_\_  
Print Name

Rio Mesa Solar Electric Generating Facility 1602 LSAA Application Package

**Attachment 2.**

**Supplemental Application Information**

**ATTACHMENT 1: ADDITIONAL PROJECT INFORMATION**

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**LIST OF ACRONYMS AND ABBREVIATIONS**

BLM	Bureau of Land Management
BMPs	Best Management Practices
BSA	Biological Survey Area
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CDFG	California Department of Fish and Game
CNPS	California Native Plant Society
COC	Condition of Certification
Corps	U.S. Army Corps of Engineers
CPM	Compliance Project Manager
CRPR	California Rare Plant Rank
CRS	Colorado River Substation
CWA	Clean Water Act
gpm	gallons per minute
ITP	Incidental Take Permit
LCRS	leak collection and recovery system

*Rio Mesa Solar Electric Generating Facility CDFG 1602 Notification*

MW	megawatt
MWD	Metropolitan Water District
NBMP	Nesting Bird Management Plan
NMFS	National Marine Fisheries Service
PSA	Preliminary Staff Assessment
Rio Mesa I	northern power plant
Rio Mesa II	southern power plant
ROW	right-of-way
SCE	Southern California Edison
SEGF	Solar Electric Generating Facility
SRSG	solar receiver steam generator
SWRCB	State Water Resources Control Board
USFWS	United States Fish and Wildlife Service
WAPA	Western Area Power Authority
WRA	WRA, Inc.

### **QUESTION 1 – APPLICANT INFORMATION**

The Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF) is proposed for development by Rio Mesa Solar I, LLC and Rio Mesa Solar II, LLC. Each entity will hold an equal one half ownership interest of certain shared facilities while separately owning each respective power plant such that non-compliance at one plant will not be deemed non-compliance by the other. Both entities are wholly owned by Rio Mesa Holdings, LLC, which in turn is wholly owned by BrightSource Energy, Inc. Rio Mesa Holdings, LLC, is the Applicant proposing the Project.

### **QUESTIONS 4C-4E – PROJECT NAME AND AGREEMENT TERM AND CONSTRUCTION SCHEDULE**

Construction of Rio Mesa SEGF, from site preparation and grading to commercial operation, is expected to take place from the fourth quarter of 2013 to the first quarter of 2016. The entire construction schedule is 35 months from start of construction to substantial completion. The timing of the construction of the common facilities and certain components of each plant's separate facilities will overlap in time. The two proposed power plants will be built separately, with construction for Rio Mesa I beginning before start of construction for Rio Mesa II. Construction of the shared facilities will occur during construction of Rio Mesa I. The anticipated operational life of Rio Mesa SEGF is 30 years.

### **QUESTION 8 – PROJECT LOCATION**

The project site is located on the Palo Verde Mesa, located in the eastern portion of Riverside County, approximately 13 miles southwest of Blythe, California (Attachment 3 – Figure 1). The project site is generally bounded on the east by the 161 kV Western Area Power Authority (WAPA) transmission lines, with undeveloped desert lands and active agriculture further east, on the south by undeveloped desert lands located in Imperial County, on the west by undeveloped desert lands and the Mule Mountains, and on the north by undeveloped public desert lands administered by the U.S. Bureau of Land Management (BLM). Representative photographs of the project site and California Department of Fish and Game (CDFG) jurisdictional habitats are provided in Attachment 4.

## **QUESTION 10 – PROJECT DESCRIPTION**

### **10.1 Overview**

The proposed project, Rio Mesa SEGF (Project), will consist of two solar concentrating thermal power plants, associated heliostat solar fields, and an approximate 19.5-acre common area to accommodate a combined administrative, control, maintenance, and warehouse building; evaporation ponds; groundwater wells; a water treatment plant; and a common switchyard. Project components are shown in Attachment 3, Figure 2. Artist renderings showing details of the Project components are provided in Attachment 4. Each power plant facility will include approximately 1,850 acres (2.9 square miles). The total area required for both plants, including the common areas, is approximately 3,805 acres. Each plant will be located on non-federal land owned by the Metropolitan Water District of Southern California (MWD) and include a power block area surrounded by an array of approximately 85,000 heliostats.

Other Project components proposed by the Applicant include linear infrastructure necessary for facility access and power transmission, and an approximate 103-acre temporary construction area to accommodate construction parking, office equipment, and conference trailers; equipment staging assembly and material storage; a tire cleaning station; and other construction support facilities. Project linear infrastructure will be located on federal lands managed by the BLM, and includes an access road, a 230kV or 500kV generation transmission (gen-tie) line, and a 33 kV electrical service line to supply the facility.

The term “Project Area” refers to the proposed locations of all project components including the two solar plants, common area and shared facilities, and the gen-tie alignment. For purposes of this report, the term “biological survey area” (BSA) refers to the main project site where the two solar plants and common area are proposed, the gen-tie alignment, and access routes from State Route 78 via Bradshaw Trail and a new secondary access road directly north and parallel to 34<sup>th</sup> Avenue. The BSA also includes additional lands east of the Project Area’s eastern boundary and BLM lands north of the proposed solar generator site, based on an earlier proposed configuration that would have included a third solar plant. The BSA also includes buffer areas surrounding each project component: 500 feet surrounding the proposed solar generator site, 650 feet on each side of the proposed gen-tie line alignment, and 100 feet on each side of proposed access routes.

### **10.2 Solar Generator Site**

The Solar Generator Site includes solar concentrating thermal power plants, associated heliostat fields, and a common area with shared facilities. The first solar thermal power plant, a 250 megawatt (MW) facility known as Rio Mesa 1, will be constructed at the south end of the Project Area and owned by Rio Mesa Solar I, LLC. The second plant, another 250 MW facility known as Rio Mesa 2, will be located in the central portion of the Project Area and owned by Rio Mesa Solar II, LLC. Each solar concentration thermal power plant will use a solar power boiler, located atop a dedicated 750-foot-tall concrete tower, and a solar field based on proprietary “LPT” solar thermal technology that has been developed by BrightSource, Inc. This technology utilizes heliostats, elevated mirrors guided by a tracking system mounted on a pylon, to focus the sun’s rays on the solar power boiler located near the center of each solar field. Heat generated at the tower receiver is used to produce high pressure/high temperature steam which is expanded through a turbine connected to a rotating generator in an adjacent power block. The Rio Mesa SEGF will be interconnected to the Southern California Edison (SCE) grid

through a new 220kV or 500kV gen-tie line that will be built as part of the project and will run north approximately 9.7 miles to connect to the Colorado River Substation (CRS).

A stormwater management system will also be constructed, primarily around facilities such as power blocks, substation, heliostat assembly buildings and administrative areas, which will include berms, ditches, bypass channels, or swales to direct run-on and flow from upslope areas and run-off flow through and around each facility.

#### *10.2.1 Power Block*

Each plant will include a power block that contains the solar power tower and generation equipment, and a surrounding solar field that contains the heliostats. Each proposed solar plant will include a Rankine-cycle non-reheat steam turbine powered by live steam generated by the solar receiver steam generator (SRSG) located at the top of the power tower. The total tower height, including antennae, is approximately 760 feet. The area within the power block will be graded to construct the power tower and generation equipment.

#### *10.2.2 Heliostat Fields and Internal Access Roads*

Approximately 85,000 heliostats will be installed within each solar plant to concentrate sunlight on the top of the central power tower. The heliostats consist of an anchoring pylon that is driven into the ground using vibratory techniques, and two mirrors with a combined reflecting area of 205 square feet. The heliostats are constructed in arrays of four to eight sections with distinct focal lengths relative to the central tower's SRSG. A tracking device is attached to each heliostat mount to track the path of the sun and focus the mirrors on the central tower's SRSG. The area within the solar field will remain ungraded, except for the inner heliostat circle and spoke roads that lead to the power block. Portions of inner heliostat circle will be temporarily graded and used for construction staging, laydown, and equipment fabrication. The ring roads will not be paved or graveled to protect existing landforms and soil characteristics.

The heliostat fields will also consist of paved, graded, and un-graded internal access roads. These roads will provide vehicular access to the heliostats, power block towers, and on-site buildings/structures within the Common Area. Paved, 24-foot wide access roads will be constructed within the Solar Generating Site to provide access from external access roads. Graded, 12-foot wide dirt spoke roads will connect the power blocks/towers to each other and the inner heliostat circle to ungraded maintenance aisles (heliostat drive aisles) and a graded, 12-foot wide dirt perimeter road located immediately adjacent to the Solar Generator Site fenceline. The paved road crossings of ephemeral dry washes will be constructed as at-grade structures.

Maintenance access to heliostats will be provided by heliostat drive aisles, which will not be graded, paved, or graveled in an effort to protect existing landforms and soil characteristics; however vegetation will be cut to the soil surface. Ten-foot wide dirt heliostat drive aisles will be located in concentric rings within the heliostat fields to provide access to the heliostats for routine washing and maintenance. No fill will be necessary to construct or use these roads and they are not considered as impacts to Waters of the State. On some of the larger dry washes where a sharp transition occurs at the bed and bank, a cut will be graded into the bank to allow for truck passage into the wash.

### *10.2.3 Common and Transmission Connection Area*

A Common Area and Transmission Connection Area to accommodate an administration/control room, warehouse, and maintenance complex; an on-site substation; asphalt-paved visitor and employee parking area, potentially a tire cleaning station; and landscape areas will be established at the northeast portion of the Rio Mesa I solar field. The administration complex will occupy approximately 6 acres and will be served by power from a local 33 kV electrical power distribution line and water from groundwater supply wells also to be located within the common area.

An approximately 3-acre common switchyard will also be constructed within the common area adjacent to the northern boundary of the Rio Mesa 1 solar plant. Underground transmission lines from each plant will terminate in the switchyard. The underground transmission lines will connect with the gen-tie line that will connect with the SCE Colorado River Substation to the north of the Project. The capacity of the underground transmission lines will be 230kV. The gen-tie line will be designed as either a 230kV or a 500kV facility depending on the interconnection that will be available for project use within the CRS. If a 500kV gen-tie line is constructed, a transformer will be used to increase the voltage from the switchyard to 500kV gen-tie for transmission to the CRS.

### *10.2.4 Water Supply and Use*

The solar power plants will use air-cooled condensers, and water consumption requirements will mainly be associated with replacing boiler feed water blowdown, providing supplemental cooling for critical plant auxiliary systems, and water for washing heliostats. Each heliostat will be washed approximately once every two weeks to maintain the functions of the reflecting surfaces. The heliostat washing requirements may be more frequent (but likely no more than once per week) due to dust generated during the construction period. The Project will be supplied with raw water drawn from two on-site wells located in the common area. The wells will be operated at approximately 50 percent of capacity and have a rated capacity of 200 gallons per minute (gpm). Raw groundwater will be treated in an on-site water treatment facility located in the common area to remove impurities and as required for potable water, service water, firewater, boiler make-up water, auxiliary cooling water, and to wash the heliostats. Groundwater studies have been prepared for the Project, including a comprehensive Groundwater Impact Assessment Report (Worley Parsons 2011) and an updated groundwater impact modeling report (WorleyParsons 2012).

The Groundwater Impact Assessment Report concluded that the Project will not cause or contribute to significant regional groundwater level declines, impacts to basin storage levels, or impacts to neighboring wells. Project impacts on groundwater resources will be negligible, particularly with the reduced demand associated with the revised two facility design. According to the most recent updated groundwater impact modeling report, maximum predicted drawdowns are 4 feet at the end of project pumping in the immediate vicinity of groundwater wells. Drawdown is predicted to be limited to the Palo Verde Mesa Groundwater Basin and will not extend into the Palo Verde Valley Groundwater Basin.

Lined evaporation ponds will store wastewater that can no longer be recycled within the water treatment system. The operation, maintenance, and monitoring of the evaporation ponds will be subject to conditions of certification and/or waste discharge requirements to ensure that the ponds are designed and maintained properly to prevent leakage into the underlying soil. No changes in the existing physical or chemical conditions of groundwater resources are expected

to occur and no impacts to groundwater quality are expected as a result of the Project. Two, 2-acre evaporation ponds will be located in the common area and designed with a primary and secondary liner system and an intervening leak collection and recovery system (LCRS). The LCRS design will capture and convey seepage through the upper primary liner to a collection sump that will be included in the design of each evaporation pond cell. Solution collected in the LCRS sumps will be extracted using a mobile pump and returned to the evaporation ponds.

### **10.3 Other Project Elements**

#### *10.3.1 Temporary Construction Area*

An approximately 103-acre Temporary Construction Area will be temporarily used for construction parking, trailers, and other construction support facilities. The area will be located to the east of the existing WAPA 161kV transmission line and adjacent to the eastern boundary of the 3,805-acre Rio Mesa 1 and Rio Mesa 2 plant facilities. During construction, the area's soils will be stabilized and dust suppression measures will be implemented in areas subject to heavy daily traffic.

#### *10.3.2 External Access Roads*

The Project will require road access to the Rio Mesa SEGF site for both construction and operation of the Project. All access road options currently being considered for primary access will require crossing federal lands managed by the BLM. All viable alternatives for providing access to the Rio Mesa SEGF site will involve establishing primary access on Bradshaw Trail with secondary access provided via 34th Avenue off of Route 78. Bradshaw Trail will be upgraded to be approximately 24-feet-wide and will be paved. The portion of Bradshaw Trail that will be used for the primary access route is currently a two-lane, east-west paved road for one mile west of Rannells Avenue. Beyond the paved segment it becomes a graded dirt road. The Applicant proposes to improve the segment to a point where it connects to the northerly boundary of the northern plant (Rio Mesa II), however, that portion of Bradshaw Trail traverses BLM land and how it is improved is at the discretion of BLM. The secondary access route will be improved and provide access to the southern power plant (Rio Mesa I).

A new access road will be constructed immediately north of the existing 34th Avenue right-of-way (ROW). The new access road will require two new culverted crossings of agricultural irrigation canals.

#### *10.3.3 Gen-tie Transmission Line*

The transmission line that will interconnect the Rio Mesa SEGF with the regional electrical grid will be a 230kV or 500kV gen-tie transmission line extending from the Rio Mesa SEGF to the SCE Colorado River Substation.

The proposed gen-tie route is located within a designated utility corridor for most of its length on federal land and adjacent to existing transmission lines, allowing it to utilize existing service roads to minimize impacts. In addition to the gen-tie line, a buried communication cable will be installed under the existing service roads associated with the existing transmission lines.

#### *10.3.4 33kV Electrical Service Line*

The project design proposes a 33kV electrical service line to provide electrical power during construction and for emergency operational purposes. The service line will extend for approximately 3 miles from the proposed common facilities area to connect with an existing 33kV electrical service line located to the east. After leaving the Project Area, the 33kV electrical service line route will follow the existing transmission lines (and utility corridor) north to Bradshaw Trail where it will parallel the upgraded Bradshaw Trail access road east until it intercepts an existing SCE 33 kV line.

### **10.4 Project Construction**

#### *10.4.1 Vegetation and Clearing*

To construct the heliostat array fields, vegetation clearing including tree cutting will occur, but roots will be retained so as to not destabilize soil structure. An approximate 8- to 12-foot-wide linear swath of vegetation along the entire outer edge of the Solar Generator Site to be developed will be cleared and grubbed, but not graded, to create an internal perimeter path for installation of fencing for purposes of providing site security and avoidance of desert tortoise (*Gopherus agassizii*) impacts. Vegetation clearing, with leveling and grading limited to the walls of some of the deeper washes, will be performed beneath the heliostats where the existing vegetation cover will not permit access of installation equipment and materials. Other than areas required for access roads and drive zones, vegetation will be cut to a height of approximately 12 to 18 inches to allow clearance for heliostat function and, at the same time, leave the soil surface and root structures intact. Occasional trimming of the vegetation may be required during the operational phase of the project to control plant re-growth that could affect heliostat mirror movement.

#### *10.4.2 General Grading and Leveling*

The grade of the surface soil at each plant will be designed to provide the minimum requirements for access of installation equipment and materials during site construction and operations. With exceptions as noted in this application, the natural drainage features will be maintained and any grading required will be designed to promote sheet flow where possible. Heavy to medium grading will be performed within each plant's solar power tower and power block areas, within the common area, and within the temporary construction area. The deepest excavations will be restricted to foundations and sumps. Within each of these individual areas, earthwork cuts and fills will be balanced to the degree possible. The earthwork within the power blocks and common area will be excavated and compacted in accordance with the recommendations provided in the geotechnical report. At some of the deeper washes, slopes may be close to vertical, and too steep for safe equipment passage. In those cases, cuts into the side of the existing embankments will be necessary. Surface rocks and boulders will need to be relocated to allow proper installation of heliostats and facilities when they could not be avoided. Areas disturbed by grading and other ground disturbance will be protected from erosion by implementation of appropriate best management practices (BMPs).

### *10.4.3 Storm Drainage System*

The original grades and natural drainage features will be maintained across the majority of the project site and therefore will require no added storm drainage control. In limited areas, such as the power blocks, substation, heliostat assembly buildings and administrative areas, the storm water management system will include diversion channels, bypass channels, or swales to direct run-on flow from up-slope and run-off flow through and around each plant. These areas will be protected from storm water flows by berms and diversion channels. Diversion channels will be designed so that a minimum ground surface slope of 0.5 percent will be provided to allow positive, puddle-free drainage. To reduce erosion, storm drainage channels may be lined with a non-erodible material, such as compacted rip-rap, geo-synthetic matting, or engineered vegetation. Channels will be designed to allow sheet flow to occur for all storm events less than or equal to a 100-year, 24-hour storm event. All surface runoff during and after construction will be controlled in accordance with the requirements of a Drainage, Erosion, and Sediment Control Plan and any other applicable regulations.

#### Pre- and Post-construction Drainage Comparison

The Applicant has completed an analysis of existing and post-construction hydrology for the Project (VTN 2011a, VTN 2011b). The post-construction analysis modeled on-site peak flows, runoff volumes, maximum velocities and maximum depths for 24-hour storm events with 2-, 5-, 10-, 25-, and 100-year recurrence intervals, or probability of occurrence in any one year of 50%, 20%, 10%, 4%, and 1%, respectively, and compared discharge rates at the project outfall with pre-construction conditions.

The applicant also presented a comparison between maximum discharge rates for pre and post-construction conditions. Based upon the runoff volume calculated in the post-construction condition (100-year storm event), the difference in post-construction runoff volume (5367.21 acre-feet) and existing condition runoff volume (5269.25 acre-feet) is 97.96 acre-feet. This computes to a 1.86 percent difference in runoff between the post-construction and the existing condition. All other storm events have smaller percent increases. Based on the minor increase in runoff, the development of this site should not have a negative impact on any downstream properties.

The data show that the increase in runoff volume due to the project is very small. That is due to the fact that the project will result in a very small increase of impervious area, and will not alter drainages except at limited locations where the common area structures will be located. The percent increase in discharge rates is also small. The only exceptions are at small cross sections where the pre-construction discharges are small and thus they are very sensitive to minor changes. However, these are limited locations where the discharges are insignificant and are not expected to have any significant impact off-site. Discharges from the proposed project are, therefore, not expected to have a significant impact to sensitive surface waters.

### *10.4.4 Erosion and Sediment Control Measures*

To minimize wind and water erosion, open spaces will be preserved and left undisturbed, maintaining existing vegetation to the extent possible with consideration of site topography and access requirements. Areas compacted during construction activities will be restored, as appropriate, to approximate preconstruction compaction levels in order to minimize the opportunity for any increase in surface runoff. If needed, stone filters and check dams will be

strategically placed throughout the project site to provide areas for sediment deposition and to promote the sheet flow of storm water. Where available, native materials (rock and gravel) will be used for the construction of the stone filters and check dams. Diversion berms will be used to redirect storm water around critical facilities, as required. Periodic maintenance will be conducted as required after major storm events and when the volume of material behind the check dams exceeds 50 percent of the original volume. Stone filters and check dams are not intended to alter drainage patterns but to minimize soil erosion and promote sheet flow.

## QUESTION 11 – IMPACTS

### 11.1 California Department of Fish and Game Jurisdictional Areas

WRA, Inc. (WRA) delineated areas in the Rio Mesa Solar BSA subject to jurisdiction pursuant to Section 1602 of the California Fish and Game Code during an October 2012 site visit and follow-up GIS analysis (WRA 2012a; Attachment 5). This work was based on detailed field inspections of the Project Site and Gen-Tie line and updated a previous submittal by URS (2011) that was primarily determined from aerial photography. WRA identified 1,569.8 acres of Waters of the State and 11.7 acres of wetlands within CDFG jurisdiction within the BSA (see Table 11-1).

The Fish and Game Code Section 1602 requires that a Streambed Alteration Agreement be reached with the CDFG for any stream or lake impacts due to crossings, fill, or excavation within the banks of a stream or other waterbody. (CFGC §1600) The extent of CDFG jurisdiction extends to the banks of a stream or other jurisdictional waterbody, including riparian areas associated with the waterbody.

CDFG established guidance for determination of the geographical extent of those areas under state jurisdiction, which includes the following criteria for use in these determinations:

- The outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats and is therefore a reasonable and identifiable boundary for the lateral extent of a stream. In most cases the use of this criterion should result in protecting the fish and wildlife resources at risk.
- Most streams have a natural bank which confines flows to the bed or channel except during flooding. In some instances, particularly on smaller streams or dry washes with little or no riparian habitat, the bank should be used to mark the lateral extent of a stream.

#### 11.1.1 Existing CDFG Jurisdictional Areas

Four large dry wash systems and a large number of smaller dry washes traverse the Project Area from west to east (Attachment 3– Figures 3 and 4). The large wash systems and many of the smaller washes support an associated microphyll woodland riparian habitat which would be considered jurisdictional under California Fish and Game Code. The riparian habitat comprises blue palo verde (*Parkinsonia florida* [*Cercidium floridum* ssp. *floridum*]) – ironwood (*Olneya tesota*) woodland and mesquite (*Prosopis glandulosa*) bosque woodland thickets. The other small dry washes on-site are mostly unvegetated or support only sparse herbaceous vegetation and no riparian vegetation beyond the top-of-bank.

Additionally, four small seasonal wetlands dominated by bush seepweed, an obligate wet classified species (Lichvar and Kartesz 2009), were mapped in the eastern portion of the Biological Survey Area. These wetlands were mapped outside of the Solar Generator Site, in topographically low areas that collect runoff from the adjacent mesa lands to the west. Vegetation in these wetlands was composed entirely of bush seepweed. Notably, approximately 40 to 60 percent of bush seepweed appeared dead or dying, possibly indicating drying conditions within these wetlands.

In addition to these four small wetlands, narrow bands of wetland vegetation were observed along irrigation ditches to the east of the Project Area, which bisect linear components of the project and fall within ROW construction buffers. Two wetland vegetation types dominate these disturbed, artificial irrigation ditch wetland communities: arrow weed (*Pluchea sericea*) scrub and cattail (*Typha angustifolia*) marsh. Soils in these areas were not investigated, but hydric soils are presumed because of the hydrologic input from irrigation ditches and the predominance of a facultative wetland (arrow weed) and an obligate wetland (narrow-leaved cattail) vegetation.

See Table 11-1 below for a summary of acreage of jurisdictional area by project component.

**Table 11-1 Summary of Existing CDFG Jurisdictional Areas within Project Footprint**

Jurisdiction	Acreage			
	BSA	Solar Generator Site <sup>1</sup>	Total Linear Components	Total Within Project Area
State Wetlands	18.9	0.0	1.2	1.2
Non-wetland Waters of the State (including adjacent riparian vegetation)	1568.8	484.8	22.4	507.1
<b>Total State Jurisdiction</b>	<b>1587.7</b>	<b>484.8</b>	<b>23.6</b>	<b>508.3</b>

<sup>1</sup>Solar Generator Site numbers include the Temporary Construction Area

### 11.1.2 Impacts to Department of Fish and Game Jurisdictional Areas

Several types of direct impacts will occur including grading for the solar power towers and appurtenant electrical generation facilities, main access roads, and construction and maintenance yards. Heliostats will be installed within the dry washes, which will require cutting trees. Maintenance access within heliostat fields will occur on non-graded ring roads which pass through dry washes.

Although construction and operation activities described in Section 10.3, above, would not cause the complete loss of vegetation and habitat at the Solar Generator Site, project activities will include the cutting of vegetation to control plant height to reduce interference with heliostat function. Similarly, disturbances along the transmission line alignments and in access road ROW areas would cause impacts to vegetation and CDFG-jurisdictional habitats. Accordingly, portions of the CDFG jurisdictional areas will be permanently impacted during project construction, operations, and maintenance. Temporary impacts would also be associated with construction buffers for linear components. The permanent and temporary impacts to CDFG jurisdictional areas are listed by project component in Table 11-2a and 11-2b below, for the Solar Generator Site and associated project components, respectively. These impacts will be mitigated according to measures described in Section 12.3 below.

**Table 11-2a Proposed Impacts to Jurisdictional Areas for the Rio Mesa SEGF**

Category	Within the SEGF Project Fenceline	
	Temporary (acres)	Permanent (acres)
Waters of the State	0.3	484.5
Wetlands	0.0	0.0
<b>Total</b>	<b>0.3</b>	<b>484.5</b>

**Table 11-2b Proposed Impacts to Jurisdictional Areas for Associated Project Elements**

Category	Gen-Tie ROW (230 kV Alternative)		Gen-Tie ROW (500 kV Alternative)		Bradshaw Trail & 22nd Ave Reroute		34th Ave Access Road		33 kV Service Line	
	Temporary Impacts (acres)	Permanent Impacts (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	Temporary Impacts (acres) <sup>1</sup>	Permanent Impacts (acres)
Waters of the State	0.3	0.8	0.2	0.6	4.1	0.2	0.2	0.4	0.1	0.2
Wetlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.3</b>	<b>0.8</b>	<b>0.2</b>	<b>0.6</b>	<b>4.1</b>	<b>0.2</b>	<b>0.2</b>	<b>0.4</b>	<b>0.2</b>	<b>0.2</b>

<sup>1</sup>33 kV Line Temporary Impacts constitute overlap with the Bradshaw Trail and 22<sup>nd</sup> Avenue Reroute, as a portion of the footprint of each feature overlaps the other.

No fill or associated impacts to wetlands will occur as part of the project. As such, no wetland impacts are listed in Tables 11-2a and 11-2b, above. However, small portions of CDFG-jurisdictional wetlands adjacent to Hodges Drain and other small irrigation ditches will be spanned by bridges for both new and upgraded access roads described in Section 10.3.2, above. Bridges spanning wetlands may shade wetland vegetation constituting an indirect impact to wetlands. These wetland areas comprise entirely ruderal vegetation dominated by monocultures of non-native narrowleaf cattail (*Typha angustifolia*) and arrow weed (*Pluchea odorata*) thickets. Although arrow weed is a native species, the arrow weed communities in the BSA only occur in these highly disturbed agricultural ditch environments. For these reasons, the indirect impacts to wetlands from bridge shading are not considered to be significant.

## 11.2 Impacts to Vegetation Communities within CDFG Jurisdictional Areas

### 11.2.1 Existing Vegetation Communities within CDFG Jurisdiction

The following vegetation communities exist within CDFG Jurisdictional habitats (waters, adjacent riparian vegetation, and wetlands) in the BSA and Project Area (see Table 11-3 below for acreages by habitat). These vegetation communities (and all vegetation communities occurring in the BSA) are described in WRA's *Rio Mesa Solar Electric Generating Facility Vegetation Mapping Report* (WRA 2012b; Attachment 6).

#### Dry Wash Vegetation Communities

**Blue Palo Verde—Ironwood (*Parkinsonia florida* [*Cercidium floridum*])—*Olneya tesota*) Woodland Alliance (G4 S3.2).** Blue palo verde – ironwood woodland occurs on the margins of desert arroyos, seasonal watercourses and washes, bottomlands, middle and upper bajadas and alluvial fans. Soils are often sandy and well-drained, and derived from alluvium or colluvium. Blue palo verde – ironwood woodland occurs throughout the Colorado and Sonoran Desert sections of California. This vegetation alliance contains greater than three percent absolute cover of ironwood in the tall shrub or tree canopy, greater than three percent absolute cover of blue palo verde in the tall shrub or tree canopy, or greater than two percent absolute cover of ironwood and/or blue palo verde in the canopy layer together or on their own (Sawyer et al. 2009).

In the BSA this woodland community is generally restricted to washes, where it grows at the edge of the active floodplain. Blue palo verde (*Parkinsonia florida* [*Cercidium floridum*]) and ironwood (*Olneya tesota*) are the dominant trees. Associated species include creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), indigobush (*Psoralea argophylla*), cheesebush (*Ambrosia* [*Hymenoclea*] *salsola*), sweetbush (*Bebbia juncea*), spiderling (*Boerhavia* sp.), chinchweed (*Pectis papposa*), big galleta grass (*Hilaria* [*Pleuraphis*] *rigida*) and sixweeks gramma (*Bouteloua barbata*).

**Mesquite (*Prosopis glandulosa*) Bosque Woodland Alliance (G5 S3.2).** Mesquite thicket (bosque) occurs on the fringes of playa lakes, river terraces, stream banks, floodplains, rarely-flooded margins of arroyos and washes, and sand dunes. Mesquite bosque occurs throughout California's southeastern deserts and in the southern San Joaquin Valley. The honey mesquite woodland alliance contains greater than three percent absolute cover of honey mesquite. Honey mesquite is the dominant species in the community and is not exceeded in cover by any other species of microphyllous tall shrub or tree (Sawyer et al. 2009).

Honey mesquite (*Prosopis glandulosa*) dominated mesquite bosque in the BSA, and stands are

common on the far eastern slopes of the Rio Mesa, and on the historic Colorado River floodplain below. Common associated taxa include white bursage, bush seepweed (*Suaeda nigra* [*S. moquinii*]), allscale (*Atriplex polycarpa*), fourwing saltbush (*Atriplex canescens*) and spiderling.

**Dry Washes with Other Vegetation.** Jurisdictional dry washes lacking riparian vegetation are generally small and located in other vegetation communities within the BSA, primarily creosote bush alliances. Dry washes falling into these other vegetation communities comprise 219.1 acres within the BSA and 40.3 acres within the Project Area footprint. The vegetation communities include:

- Allscale Scrub Shrubland Alliance
- Big Galleta Grass Herbaceous Alliance
- Brittlebush - Ferocactus Scrub
- Creosote Bush – White Bursage Shrubland Alliance
- Creosote Bush Scrub With Ocotillo Association
- Creosote Bush Shrubland Alliance

#### Wetland Vegetation Communities

**Bush Seepweed (*Suaeda nigra* [*S. moquinii*]) Scrub Shrubland Alliance (G5 S3.2).** Bush seepweed scrub occurs on flat to gently sloping valley bottoms, playas, toe slopes adjacent to alluvial fans, and in bajadas, where soils are deep, saline or alkaline. Bush seepweed scrub occurs across California's southeastern deserts, and in the Central Coast Ranges, the Southern Mountains and Valleys, the San Joaquin Valley, and in the Northwestern Basin and Range. However, the alliance is restricted primarily to alkaline substrates in desert and semi-desert habitats. Bush seepweed thickets contain greater than two percent absolute cover of bush seepweed with no other shrub occurring at a greater or equal cover (Sawyer et al. 2009).

Stands were generally monotypic in the BSA, though associated taxa at the edge of stands included allscale, honey mesquite and spiderling.

**Arrow Weed Thickets (*Pluchea sericea*) Shrubland Alliance (G3 S3.3).** Arrow weed thickets occur around springs, seeps, irrigation ditches, canyon bottoms, stream borders, and seasonally flooded washes with soils that are usually saline or alkaline. In the Sonoran desert, stands are common along the Colorado River margins and in associated tributaries and irrigation canals. The arrow weed thicket shrubland alliance contains greater than or equal to two percent cover of arrow weed with no other species having an equal or greater cover in the shrub canopy (Sawyer et al. 2009).

In the BSA, arrow weed thickets are located on the edge of irrigation ditches adjacent to agricultural fields along the eastern edge of right-of-way access areas (Bradshaw Trail). Arrow weed thickets grow in monotypic bands adjacent to other riparian vegetation. Arrow weed thickets occur adjacent to saltscale scrub (*Atriplex spp.*), tamarisk thickets, bush seepweed scrub, and cattail marsh-dominated communities that are also common along irrigation ditches.

**Cattail Marshes (*Typha (angustifolia, domingensis, latifolia)*) Herbaceous Alliance (G5 S5).** Cattail marshes occur in semi-permanently flooded freshwater or brackish marsh areas where soils are clayey or silty, and poorly drained. In the Sonoran Desert, cattail stands occur in marshes and also commonly occupy shallow irrigation ditches. In the cattail marsh herbaceous alliance, *Typha angustifolia*, *T. domingensis*, and/or *T. latifolia* occur at greater than 50 percent relative cover in the herbaceous layer (Sawyer et al. 2009).

In the BSA, cattail marsh stands occur in standing water of irrigation ditches adjacent to agricultural fields along the eastern edge of right-of-way access areas. Narrow-leaved cattail (*Typha angustifolia*) is the species that was observed in these monotypic cattail marsh stands. Stands were often surrounded by tamarisk (*Tamarix sp.*) thickets and arrow weed (*Pluchea sericea*) scrub.

**Table 11-3 Existing Vegetation Communities within CDFG Jurisdiction**

Vegetation Type	Acreage	
	BSA <sup>1</sup>	Project Area <sup>2</sup>
<i>Dry Wash Habitats</i>		
Blue palo verde-desert ironwood woodland alliance	1,301.8	462.3
Mesquite bosque woodland alliance	48.7	1.0
Dry washes with other vegetation	219.1	43.8
<i>Wetland Habitat Types</i>		
Bush seepweed scrub shrubland alliance	16.4	0.0
Narrowleaf cattail herbaceous alliance	0.3	0.2
Arrowweed scrub shrubland alliance	1.4	1.0
<b>Total Vegetation within CDFG Jurisdiction Areas</b>	<b>1587.7</b>	<b>508.3</b>

<sup>1</sup>BSA includes 14.88 acres of expanded study area near the north end of the Gen-Tie alignment, 71 acres comprised of the Bradshaw Trail access right-of-way (ROW), 25 acres comprised of the 34<sup>th</sup> Ave. ROW, and 72 acres comprised of Bradshaw Trail and 34<sup>th</sup> Ave. irrigation ditch crossing buffer areas.

<sup>2</sup>Project Area includes Solar Generator Site, Construction Areas, and footprint of Gen-Tie Line Access Roads, and 33kV Service Line.

### 11.2.2 Impacts to Vegetation Communities within CDFG Jurisdictional Habitats

During construction activities described in Section 10.4 above, portions of each vegetation community falling within CDFG jurisdictional habitats will be permanently impacted. The impacts to vegetation communities by project element are listed in Table 11-4a and Table 14-b below. Table 14a presents permanent impacts to vegetation by project element. Table 14b presents temporary impacts to vegetation by project element. Impacts to these vegetation communities will be mitigated as described in Question 12 below.

**Table 11-4a Summary of Permanent Project Disturbance Acreage by Vegetation Type in CDFG Jurisdictional Habitats**

Vegetation Type	Permanent Impacts (acres)									
	SEGF	230kV	500kV	33kV	Bradshaw Trail	Divided Bradshaw Trail	Separated Bradshaw Trail	22nd Ave Reroute	34th Ave	Total Permanent Less Overlap
Dry Wash Habitats										
Blue Palo Verde/Desert Ironwood Woodland	449.8	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	450.4
Mesquite Bosque Woodland	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.3	0.3
Dry Washes with Other Vegetation	34.7	0.2	0.1	0.0	0.2	0.3	2.5	0.2	0.1	35.3
Wetland Habitats										
Arrow Weed Shrubland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bush Seepweed Shrubland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Narrow Leaf Cattail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>484.5</b>	<b>0.8</b>	<b>0.6</b>	<b>0.0</b>	<b>0.2</b>	<b>0.4</b>	<b>2.9</b>	<b>0.2</b>	<b>0.4</b>	<b>486.0</b>

**Table 11-4b Summary of Temporary Project Disturbance Acreage by Vegetation Type in CDFG Jurisdictional Habitats**

Vegetation Type	Temporary Impacts (acres)									
	SEGF	230kV	500kV	33kV	Bradshaw Trail	Divided Bradshaw Trail	Separated Bradshaw Trail	22nd Ave Reroute	34th Ave	Total Temporary Less Overlap
Dry Wash Habitats										
Blue Palo Verde/Desert Ironwood Woodland	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Mesquite Bosque Woodland	0.0	0.0	0.0	0.0	0.7	0.6	0.3	0.7	0.1	0.8
Dry Washes with Other Vegetation	0.3	0.2	0.1	0.1	3.5	3.4	1.0	3.5	0.1	4.0
Wetland Habitats										
Bush Seepweed Shrubland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Narrow Leaf Cattail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Narrow Leaf Cattail/Dry Wash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Totals</b>	<b>0.3</b>	<b>0.3</b>	<b>0.2</b>	<b>0.1</b>	<b>4.2</b>	<b>4.0</b>	<b>1.3</b>	<b>4.2</b>	<b>0.2</b>	<b>4.9</b>

### **11.3 Special-Status Animal and Plant Species, or Habitats that could Support Such Species, Potentially Present On or Near the Project Site**

The following table (Table 11-5) lists the special-status plants and animals that have the potential to occur in the Rio Mesa Solar BSA and surrounding areas. Habitat for many of these species exists within the BSA and is described in the “Potential for Occurrence” column of Table 11-5. Avoidance, minimization, and mitigation measures for these species and their habitats within CDFG jurisdiction are provided in Section 12 below.

Fall 2012 surveys are ongoing and will be completed on November 30, 2012. Survey results from the fall 2012 season have not been analyzed and incorporated into this table, with the exception of new SE/ST or FP species where observations inside the limits of the Solar Generator Site have been confirmed. These species include Arizona Bell’s Vireo and Bald Eagle.

The following special status avian species should be added to Table 5 because they were observed during spring 2012 surveys and reported in the Applicant’s submittal of the Spring Migratory Bird Report: Double-crested Cormorant (WL) observed inside project Solar Generator Site during spring 2012; Lewis’s Woodpecker (BCC) observed outside project Solar Generator Site during spring 2012; Long-billed Curlew (BCC, WL) observed outside project Solar Generator Site during spring 2012; Olive-sided Flycatcher (BCC, SCC) observed outside project Solar Generator Site during spring 2012; Purple Martin (SSC) observed inside project Solar Generator Site during spring 2012; and White-faced Ibis (WL); observed outside project Solar Generator Site during spring 2012.

**Table 11-5 Special-Status Species, Their Status, and Potential Occurrence in the Rio Mesa Solar Electric Generating System Power Project Area**

Scientific Name	Common Name	Status	Potential For Occurrence
<b>PLANTS</b>			
<i>Abronia villosa</i> var. <i>aurita</i>	Chaparral sand verberna	CRPR 1B.1 BLM S S 2	<b>Low.</b> Suitable habitat is present on site, was not detected during 2011-2012 focused botanical surveys.
<i>Acleisanthes longiflora</i>	Angel trumpets	CRPR 2.3 S 1	<b>Low.</b> Suitable habitat is present on site. One known occurrence in Maria Mountains, though preferred carbonate/ limestone substrate absent. Was not detected during 2011-2012 focused botanical surveys.
<i>Androstephium breviflorum</i>	Pink funnel-lily, Small-flowered androstephium	CRPR 2.2 S2S3	<b>Low.</b> Suitable habitat is present but site probably outside geographic range. Was not detected during 2011-2012 focused botanical surveys.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	CRPR 2.2 S 2.2?	<b>Present.</b> 104 plants reported in the current project area in 2011, primarily in northwestern portion of the existing transmission alignment and sandy washes in the eastern portion of the BSA.
<i>Astragalus lentiginosus</i> var. <i>borreganus</i>	Borrego milk-vetch	CRPR: 4.3 S 3.3	<b>Low.</b> Suitable habitat is present on site, but only CCH* record near site is from 1905; Was not detected during 2011-2012 focused botanical surveys.
<i>Astragalus sabulorum</i>	Gravel milk-vetch	CRPR 2.2 S2	<b>Low.</b> Suitable habitat is present on site; two historic occurrences in vicinity of gen-tie line. Was not detected during 2011-2012 focused botanical surveys.
<i>Calliandra eriophylla</i>	Pink fairy duster	CRPR 2.3 S2S3	<b>Not Likely To Occur.</b> Suitable habitat on the site; records adjacent to the site. Was not detected during 2011-2012 focused botanical surveys.
<i>Camissonia</i> – see <i>Chylismia</i>			
<i>Carnegiea gigantea</i>	Saguaro	CRPR 2.2 S 1.2	<b>Not Likely To Occur.</b> Suitable habitat on site, and records in adjacent areas; however, this is a conspicuous cactus that was not recorded during botanical surveys in the BSA.
<i>Cassia</i> – see <i>Senna</i>			
<i>Castela emoryi</i>	Emory's crucifixion thorn	CRPR: 2.3 S2S3	<b>Not Likely To Occur.</b> Reported in the region; but it is a conspicuous shrub and was not located during field surveys.
<i>Chamaesyce abramsiana</i> ( <i>Euphorbia</i> )	Abram's spurge	CRPR 2.2 S 1.2	<b>Present.</b> Suitable habitat on the site; records adjacent to the site. Based on abundance of the plant as detected in the

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>abramsiana</i> )			past two years, Applicant will be submitting information to support lowering the ranking of this plant.
<i>Chamaesyce platysperma</i> ( <i>Euphorbia platysperma</i> )	Flat-seeded spurge	CRPR 1B.2 BLM S S 1.2?	<b>Low.</b> Although nearest CNDDDB record is 68 miles away, predicted suitable habitat (TJM2**) occurs in project area; Limited to washes or sandy sites of transmission line corridor; Was not detected during 2011-2012 focused botanical surveys.
<i>Chylismia arenaria</i>	Sand evening-primrose	CRPR 2.2 S 2	<b>Low.</b> Suitable habitat is present and historic records exist in the region. Was not detected during 2011-2012 focused botanical surveys.
<i>Colubrina californica</i>	Las Animas colubrina	CRPR 2.3 S2S3.3	<b>Not Likely To Occur.</b> Conspicuous shrub, not located during field surveys.
<i>Condalia globosa</i> var. <i>pubescens</i>	Spiny abrojo	CRPR 4.2 S 3.2	<b>Not Likely To Occur.</b> Conspicuous shrub, not located during field surveys.
<i>Coryphantha alversonii</i> ( <i>Escobaria vivipara</i> var. <i>alversonii</i> )	Foxtail cactus	CRPR: 4.3 S 3.2	<b>Low.</b> Suitable habitat on site, recorded in adjacent areas. Was not detected during 2011-2012 focused botanical surveys.
<i>Cryptantha costata</i>	Ribbed cryptantha	CRPR: 4.3 S 3.3	<b>Present.</b> About 10,225 plants reported in current Project area in 2011 in dunes in the northwestern portion of the existing transmission line ROW
<i>Cryptantha holoptera</i>	Winged cryptantha	CRPR: 4.3 S 3?	<b>Low.</b> Suitable habitat is present. Was not detected during 2011-2012 focused botanical surveys.
<i>Cylindropuntia munzii</i>	Munz's cholla	CRPR 1B.3 BLM S S 1.2	<b>Not Likely To Occur.</b> Suitable habitat is present. Was not detected during 2011-2012 focused botanical surveys.
<i>Funastrum utahense</i> ( <i>Cynanchum utahense</i> )	Utah vine milkweed, Utah cynanchum	CRPR: 4.2 S 3.2	<b>Present.</b> 98 plants found in the BSA in 2011, and 121 during the fall surveys 2011-2012.
<i>Ditaxis claryana</i>	Glandular ditaxis	CRPR: 2.2 S1S2	<b>Low.</b> Suitable habitat on site. Was not detected during 2011-2012 focused botanical surveys.
<i>Ditaxis serrata</i> var. <i>californica</i>	California ditaxis	CRPR: 3.2 S 2	<b>Low.</b> Suitable habitat on site. Was not detected during 2011-2012 focused botanical surveys.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	CRPR: 1B.2 BLM S S 2	<b>Present.</b> 115 plants within the current project area in 2011, at two locations in dunes in the northwestern portion gen-tie alignment.

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Escobaria</i> – see <i>Coryphantha</i>			
<i>Euphorbia</i> – see <i>Chamaesyce</i>			
<i>Hymenoxys odorata</i>	Bitter hymenoxys	CRPR 2 S 2	<b>High.</b> Suitable habitat on site; recorded in areas adjacent to the project site.
<i>Imperata brevifolia</i>	California satintail	CRPR 2.1 S 2.1	<b>Low.</b> Marginal habitat occurs on site within the ROW of Bradshaw Trail by Hodges drain and the agricultural fields; was not detected during 2011-2012 focused botanical surveys.
<i>Mentzelia puberula</i>	Argus blazing star	CRPR 2.2 S 2	<b>Low.</b> Suitable habitat present; records in surrounding areas, was not detected during 2011-2012 focused botanical surveys.
<i>Mentzelia tricuspis</i>	Spinyhair blazing star	CRPR 2.1 S 1?	<b>Low.</b> Marginal habitat is present; no local occurrences, was not detected during 2011-2012 focused botanical surveys.
<i>Opuntia</i> – see <i>Cylindropuntia</i>			
<i>Proboscidea althaeifolia</i>	Desert unicorn plant	CRPR 4.3 S 3.3	<b>Present.</b> 39 plants in current project area reported in 2011.
<i>Teucrium cubense</i> ssp. <i>depressum</i>	Dwarf germander	CRPR: 2.2 S 2	<b>Low.</b> Suitable habitat on site; recorded in areas adjacent to the project site; was not detected during 2011-2012 focused botanical surveys.
<i>Teucrium glandulosum</i>	Desert germander	CRPR: 2.3 S 1.3	<b>Low.</b> Marginal habitat, probably outside geographic range; was not detected during 2011-2012 focused botanical surveys..
<i>Wislizenia refracta</i> ssp. <i>refracta</i>	Jackass-clover	CRPR: 2.2 S 1.2?	<b>Low.</b> Limited to gen-tie alignment; nearest CNDDDB record is 71 miles W, but predicted suitable habitat (TJM2**) includes project area; Was not detected during 2011-2012 focused botanical surveys.
<i>Wislizenia refracta</i> ssp. <i>palmeri</i>	Palmer's jackass clover	CRPR: 2.2 S 1?	<b>Low.</b> Limited to gen-tie alignment; nearest CNDDDB record is 22 miles NW, but predicted suitable habitat (TJM2**) includes project area; Was not detected during 2011-2012 focused botanical surveys.
<b>INVERTEBRATES</b>			
<i>Hedychridium argenteum</i>	Riverside cuckoo wasp	S 1?	<b>Low.</b> Reported by CNDDDB about 6 miles northwest of the northern terminus of the gen-tie line based on a 1971 record.
<i>Melitta californica</i>	California mellitid bee	S 2?	<b>Low.</b> Reported by CNDDDB about 6 miles northwest of the northern terminus of the gen-tie line based on a 1974 record.
<b>AMPHIBIANS</b>			
<i>Scaphiopus couchi</i>	Couch's	BLM S	<b>Low.</b> Drainage, sandy soils, and

Scientific Name	Common Name	Status	Potential For Occurrence
	spadefoot	CSSC	topography are unlikely to provide sufficiently inundated pools or ditches to support breeding, growth, and metamorphosis.
<i>Incilius alvarius</i> ( <i>Bufo alvarius</i> )	Sonoran desert toad	CSSC	<b>Not Likely to Occur.</b> Formerly present in region, now possibly extirpated from California; no suitable breeding habitat on site.
<b>REPTILES</b>			
<i>Gopherus agassizii</i>	Desert tortoise	<b>FT</b> <b>ST</b>	<b>Present.</b> 6 live tortoises and multiple sign (carcasses, active burrows, pellets, etc.) observed in BSA; 8 additional live tortoises and additional sign observed incidentally during other surveys.
<i>Heloderma suspectum cinctum</i>	Banded Gila monster	BLM S CSSC	<b>Low.</b> Site is at margin of geographic range and habitat generally only marginally suitable; more likely in rocky areas in the surrounding mountains.
<i>Lichanura trivirgata</i>	Rosy boa	n/a (former BLM S)	<b>Moderate.</b> Marginal habitat on site, more likely in rocky areas in the surrounding mountains.
<i>Phrynosoma mcallii</i>	Flat-tailed horned lizard	BLM S CSSC	<b>Not Likely to Occur.</b> Suitable habitat at northern end of gen-tie; marginal habitat on SEGf sit. Outside geographic range (BLM and CDFG 2002).
<i>Uma notata</i>	Colorado Desert fringe-toed lizard	BLM S CSSC	<b>Not Likely to Occur.</b> Project area at margin of geographic range. Fringe-toed lizards in area are the similar Mojave fringe-toed lizard (below).
<i>Uma scoparia</i>	Mojave fringe-toed lizard	BLM S CSSC	<b>Present.</b> 115 observations in dune habitat at the northern end of the gen-tie alignment; not expected on the solar field site.
<b>BIRDS</b>			
<i>Accipiter cooperii</i>	Cooper's hawk	CDFG WL (nesting)	<b>Present.</b> Detected in the BSA. No breeding habitat and well outside breeding range; wide-ranging during winter and migratory seasons and likely to forage on site.
<i>Accipiter striatus</i>	Sharp-shinned hawk	CDFG WL (nesting)	<b>High.</b> Observed offsite during fall 2011; no breeding habitat and well outside breeding range; wide-ranging during winter and migratory seasons and likely to forage on site.

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Aquila chrysaetos</i>	Golden eagle	Bald and Golden Eagle Protection Act FBCC CDFG FP CDFG WL	<b>Present.</b> Two individuals observed in BSA in early March; no nesting activity observed in 2011 or 2012.
<i>Asio otus</i>	Long-eared owl	CSSC (nesting)	<b>High.</b> Suitable foraging habitat throughout project site, nearby agricultural fields and river floodplain.
<i>Athene cunicularia</i>	Western burrowing owl	BLM S FBCC CSSC	<b>Present.</b> Observed on site. Also occurs in adjacent agricultural lands.
<i>Buteo regalis</i>	Ferruginous hawk	FBCC CDFG WL	<b>Present.</b> Suitable winter foraging habitat throughout site. Expected during migratory and winter seasons; not expected to breed on-site (well outside breeding range).
<i>Buteo swainsoni</i>	Swainson's hawk	FBCC <b>ST</b>	<b>Present.</b> Migrant observed in BSA. Occasionally flies over during migration, not expected to breed on-site (well outside breeding range).
<i>Chaetura vauxi</i>	Vaux's swift	CSSC	<b>Present.</b> Observed in BSA during migration; well outside breeding range; no breeding habitat.
<i>Charadrius montanus</i>	Mountain plover	FPT FBCC BLM S CSSC	<b>Low (winter only).</b> May winter in fallow agricultural lands east of the project site; uncommon transient and irregular winter resident; potential overflight during winter and migratory seasons.
<i>Chlidonias niger</i>	Black tern	CSSC (nesting colony)	<b>Low.</b>
<i>Circus cyaneus</i>	Northern harrier	CSSC (nesting)	<b>Present.</b> Detected in BSA; margin of breeding range but suitable habitat present along Colorado River; expected mainly in winter.
<i>Coccyzus americanus</i>	Western yellow-billed cuckoo	FC FBCC <b>SE</b>	<b>Low.</b> No habitat on or adjacent to the site; historic records along the Colorado River to the east.
<i>Colaptes chrysoides</i>	Gilded flicker	FBCC <b>SE</b>	<b>Low.</b> Margin of geographic range and marginally suitable nesting habitat (large microphyll trees may cavity nests); recorded along the Colorado River 15 miles southeast.
<i>Dendroica petechia</i>	Yellow warbler	FBCC CSSC (nesting)	<b>Present.</b> Detected in BSA in spring 2012.
<i>Empidonax traillii</i>	Willow flycatcher	FBCC	<b>Moderate.</b> Four individuals observed in

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Scientific Name	Common Name	Status	Potential For Occurrence
		<b>SE</b>	2012 offsite. No breeding activity was observed. No suitable habitat on-site.
<i>Eremophila alpestris actia</i>	Horned lark	CDFG WL	<b>Present.</b> Detected in BSA; potential overflight year around.
<i>Falco columbarius</i>	Merlin	CDFG WL	<b>Present.</b> Observed in BSA during 2011; no breeding habitat and outside breeding range; potential foraging throughout site during winter or migratory seasons.
<i>Falco mexicanus</i>	Prairie falcon	FBCC CDFG WL (nesting)	<b>Present.</b> Detected in BSA and off site in the McCoy, Hodges, and Mule Mountains during golden eagle surveys; no breeding habitat on site; potential foraging year-around.
<i>Falco peregrinus</i>	Peregrine falcon	FBCC CDFG FP	<b>Present.</b> Detected in BSA, and off site in the McCoy Mountains during golden eagle surveys; no breeding habitat and well outside breeding range; wide-ranging during winter and migratory seasons and potential to forage on site.
<i>Grus canadensis tabida</i>	Greater sandhill crane	<b>ST</b> CDFG FP	<b>Present.</b> Observed flying over agricultural lands east of the project site and a fall 2012 observation over the project site; no suitable breeding or wintering habitat present on the site, potential for rare fly-over during winter and migratory seasons.
<i>Haliaeetus leucocephalus</i>	Bald eagle	FBCC <b>SE</b> CDFG FP	<b>Present.</b> Single individual observed flying over the project site during fall 2012. No breeding habitat and outside breeding range; potential for rare fly-over or foraging during winter and migratory seasons.
<i>Icteria virens</i>	Yellow-breasted chat	CSSC (nesting)	<b>Moderate.</b> No suitable breeding habitat; reported from riparian habitat at the Colorado River about 8 miles southeast; potential overflight during migration.
<i>Lanius ludovicianus</i>	Loggerhead shrike	FBCC CSSC (nesting)	<b>Present.</b> Detected in BSA during multiple surveys.
<i>Melanerpes uropygialis</i>	Gila woodpecker	FBCC <b>SE</b>	<b>Present.</b> Observed during 2011 fall and spring point count surveys. No observations during 2012 focused surveys.
<i>Micrathene whitneyi</i>	Elf owl	FBCC <b>SE</b>	<b>Present.</b> Detected in BSA (two heard calling in April 2012); not relocated during follow-up focused surveys and apparently not nesting on site in 2012; these birds apparently migrating.
<i>Myiarchus tyrannulus</i>	Brown-crested flycatcher	CDFG WL (nesting)	<b>Present.</b> Detected during elf owl surveys in spring 2012.
<i>Oreothlypis luciae</i>	Lucy's warbler	FBCC CSSC	<b>Present.</b> Detected in BSA; secondary cavity-nester, expected during breeding

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Scientific Name	Common Name	Status	Potential For Occurrence
		(nesting)	season.
<i>Pandion haliaetus</i>	Osprey	CDFG WL (nesting)	<b>Present.</b> Observed during 2012 golden eagle surveys; no breeding habitat and outside breeding range; expected as fly-over during winter and migratory seasons.
<i>Parabuteo unicinctus</i>	Harris hawk	CDFG WL (nesting)	<b>High.</b> Detected off site; northern margin of geographic range; expected uncommonly as flyover.
<i>Pelecanus erythrorhynchos</i>	American white pelican	CSSC (nesting colony)	<b>Present.</b> Observed over project site; no breeding habitat and outside breeding range; potential for rare fly-over during winter and migratory seasons.
<i>Pyrocephalus rubinus</i>	Vermillion flycatcher	CSSC (nesting)	<b>Moderate.</b> No suitable breeding habitat; expected in riparian habitat at the Colorado River; potential overflight during migration.
<i>Rallus longirostris yumanensis</i>	Yuma clapper rail	<b>FE</b> <b>ST</b> CDFG FP	<b>Low.</b> No suitable breeding or foraging habitat; occurs along Colorado River, low potential for overflight during migration or dispersal.
<i>Riparia riparia</i>	Bank swallow	<b>ST</b>	<b>Present.</b> Observed migrating through the BSA in spring 2012. Not expected to nest (out of breeding range, no nesting habitat on site).
<i>Spizella breweri</i>	Brewer's sparrow	FBCC	<b>Present.</b> Detected in BSA.
<i>Toxostoma crissale</i>	Crissal thrasher	CSSC	<b>Present.</b> Detected in BSA.
<i>Toxostoma lecontei</i>	LeConte's thrasher	FBCC CSSC	<b>Present.</b> Detected in BSA.
<i>Vireo bellii arizonae</i>	Arizona Bell's vireo	FBCC <b>SE</b>	<b>Present.</b> A single individual was observed within the project site during fall 2012 surveys. No suitable breeding habitat; expected in riparian habitat at the Colorado River; potential overflight during migration.
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	CSSC	<b>Present.</b> Detected off site; no suitable breeding habitat; expected in riparian habitat at the Colorado River; potential overflight during winter or migration.
<b>MAMMALS</b>			
<i>Antrozous pallidus</i>	Pallid bat	BLM S CSSC	<b>Present.</b> Detected during acoustic monitoring of the project site; roosts in rock outcrops of shrublands; potential roosting in nearby mountains (offsite) and foraging through the Palo Verde Mesa.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	BLM S CSSC	<b>Moderate (foraging).</b> Roosts primarily in caves, tunnels, mines; feeds mainly on moths; may roost in nearby mountains and forage through Palo Verde Mesa; recorded from agricultural lands just east of site.

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Euderma maculatum</i>	Spotted bat	BLM S CSSC	<b>Low.</b> The site is southeast of range.
<i>Eumops perotis californicus</i>	Western mastiff bat	BLM S CSSC	<b>Present.</b> Detected during acoustic monitoring; roosts in deep rock crevices and forages over wide area; may roost in nearby mountains and forage throughout the Palo Verde Mesa.
<i>Lasiurus blossevillii</i>	Western red bat	CSSC	<b>Present.</b> Detected during acoustic monitoring.
<i>Lasiurus xanthinaus (Nycteris ega xanthina)</i>	Western (southern) yellow bat	CSSC	<b>Moderate.</b> Within geographic range and habitat but no local reports.
<i>Macrotus californicus</i>	California leaf-nosed bat	BLM S CSSC	<b>High.</b> Roosts at Roosevelt and Hodge Mines less than 3 miles from project site; expected to forage over site.
<i>Myotis occultus</i>	Occult little brown bat, Arizona myotis	CSSC	<b>Moderate.</b> Potential roosting in caves and mines to west; potential flyover en route to feeding areas over open water.
<i>Myotis thysanodes</i>	Fringed myotis	BLM S	<b>Moderate.</b> Potential roosting in caves and mines to west; potential foraging on site or flyover en route to feeding areas.
<i>Myotis velifer</i>	Cave myotis	BLM S CSSC	<b>High.</b> Roosts at Roosevelt and Hodge Mines less than 3 miles from project site; expected to forage over site.
<i>Myotis yumanensis</i>	Yuma myotis	BLM S	<b>Moderate.</b> Potential roosting in caves and mines to west; potential flyover en route to feeding areas over open water.
<i>Nyctinomops femorosaccus (Tadarida femorosaccus)</i>	Pocketed free-tailed bat	CSSC	<b>Present.</b> Detected during acoustic monitoring; roosts mainly in crevices of high cliffs; may roost in nearby mountains and forage throughout the Palo Verde Mesa.
<i>Nyctinomops macrotis (Tadarida macrotis)</i>	Big free-tailed bat	CSSC	<b>Moderate.</b> Potential roosting in caves and mines to west; potential flyover en route to feeding areas over open water.
<i>Chaetodipus fallax pallidus</i>	Pallid San Diego pocket mouse	CSSC	<b>High.</b> Reported from Mule Mountains west of the site.
<i>Sigmodon arizonae plenus</i>	Colorado River cotton rat	CSSC	<b>Low.</b> Suitable habitat probably limited to mesquite bosque offsite.
<i>Puma concolor browni</i>	Yuma mountain lion	CSSC	<b>Moderate.</b> Uncommon; expected to forage on site and cross site en route between local mountains and riparian habitats.
<i>Odocoileus hemionus eremicus (= O. h. crooki)</i>	Burro mule deer, desert mule deer	n/a	<b>Moderate.</b> Uncommon; expected in microphyll woodland.
<i>Ovis canadensis nelsoni</i>	Nelson's bighorn sheep	BLM S	<b>Present.</b> Sign (hoof, horns, and skull) found on the project site.
<i>Taxidea taxus</i>	American badger	CSSC	<b>Present.</b> Detected in BSA; wide-ranging and expected throughout area.

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Vulpes macrotis arsipus</i>	Desert kit fox	n/a	<b>Present.</b> Burrow complexes throughout site.

**Federal Designations:**

- FT = Federally listed Threatened
- FD = Federally Delisted
- FC = Federal Candidate
- FBCC = Federal Bird of Conservation Concern
- BLM S = BLM Sensitive

**State Designations:**

- SE = State listed Endangered
- ST = State listed Threatened (wildlife)
- SR = State listed Rare (plants)
- CSSC = California Species of Special Concern (wildlife)
- SP = State Fully Protected Species
- CDFG WL = California Department of Fish and Game Watch List

**CRPR (California Native Plant Society) Designations:**

- List 1A = Plants presumed extinct in California
- List 1B = Plants considered by CRPR to be rare, threatened, or endangered in California, and throughout their range
- List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere in their range
- List 3 = Plants about which we need more information – a review list.
- List 4 = Plants of limited distribution – a watch list

**CRPR Threat Rank:**

- .1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- .2 = Fairly endangered in California (20-80% occurrences threatened)
- .3 = Not very endangered in California (<20% of occurrences threatened or no current threats known)

**CDFG Natural Diversity Database Designations** (Applied to special-status plants and sensitive plant communities; where correct category is uncertain, CDFG uses two categories or question marks):

- S1 = Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres
- S1.1 = Very threatened
- S1.2 = Threatened
- S1.3 = No current threats known
- S2 = 6-20 occurrences or 1000-3000 individuals or 2000-10,000 acres (decimal suffixes same as above)
- S3 = 21-100 occurrences or 3000-10,000 individuals or 10,000-50,000 acres (decimal suffixes same as above)
- S4 = Apparently secure in California; this rank is clearly lower than S3 but factors exist to cause some concern, i.e., there is some threat or somewhat narrow habitat. No threat rank.
- S5 = Demonstrably secure or ineradicable in California. No threat rank.
- SH = All California occurrences historical (i.e., no records in > 20 years).

#### **11.4 Identify the Sources of Information for Section 11.3 Above**

The information provided in this application is sourced from the California Energy Commission Preliminary Staff Assessment (PSA) Biological Resources Section for the Rio Mesa Solar Electric Generating Facility (CEC 2012). The PSA is still in draft form, and the most recent copy can be found on the CEC website for the project:

(<http://www.energy.ca.gov/sitingcases/riomesa/documents/index.html>)

The PSA draws upon a number of biological studies performed on the project site listed in the document's references section. Also, biological studies performed by WRA listed in the references section of this document have provided additional information.

## **QUESTION 12 – MEASURES TO PROTECT FISH, WILDLIFE, AND PLANT RESOURCES**

The following avoidance, minimization, and compensation measures will be followed to protect fish, wildlife, and plant resources. The Applicant is also filing for Clean Water Act (CWA) 404 and 401 permits with the U.S. Army Corps of Engineers (Corps) and State Water Resources Control Board (SWRCB) and will follow all applicable avoidance, minimization, and compensation measures listed in these permits.

### **12.1 Techniques to Prevent Sediment from Entering Watercourses During and After Construction**

State Waters impact minimization and compensation measures will be followed to prevent sediment from entering watercourses during and after construction. The Applicant will implement the following BMPs to protect state waters on and adjacent to the project site:

- a. The project owner will not operate vehicles or equipment in ponded or flowing water except as described in this condition;
- b. With the exception of the drainage control system, the installation of bridges, culverts, or other structures will be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts will be placed at or below stream channel grade;
- c. When any activity requires moving of equipment across a flowing drainage, such operations will be conducted without substantially increasing stream turbidity;
- d. Vehicles driven across ephemeral drainages when water is present will be completely clean of petroleum residue and water levels will be below the vehicles' axles;
- e. The project owner will minimize road building, construction activities, and vegetation clearing within ephemeral drainages to the extent feasible for all project components both within and outside the perimeter fence;
- f. The project owner will not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter off-site state waters or be placed in locations that may be subject to high storm flows;
- g. The project owner will comply with all litter and pollution laws and will be responsible for compliance of all contractors, subcontractors, and employees with these laws;
- h. Spoil sites will be located and protected as necessary to prevent spoils from eroding into any off-site state-jurisdictional waters; no spoils will be placed in locations that may be subjected to high storm flows, where spoils might be washed back into drainageways;

- i. Raw cement or concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from project-related activities, will be prevented from contaminating the soil or entering off-site state-jurisdictional waters; these materials, if placed within or where they may enter state waters by the project owner or any party working under contract or with the permission of the project owner, will be removed immediately;
- j. No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of any nature will be allowed to enter into, or be placed where it may be washed by rainfall or runoff into, off-site state waters;
- k. When construction is completed, any excess materials or debris will be removed from the work area; no rubbish will be deposited within 150 feet of the high water mark of any streambed greater than 10-feet-wide;
- l. No equipment maintenance will occur within 150 feet of any streambed greater than 10-feet-wide and no petroleum products or other pollutants from the equipment will be allowed to enter these areas or enter any off-site state waters;
- m. Stationary equipment such as motors, pumps, generators, and welders located within or adjacent to a drainage, will be positioned over drip pans; stationary heavy equipment will have suitable containment to handle a catastrophic spill or leak; clean up equipment such as booms, absorbent pads, and skimmers will be on the site prior to the start of construction; and
- n. The cleanup of all spills will begin immediately; the CPM, BLM CDFG, and USFWS will be notified immediately by the project owner of any spills and will be consulted regarding clean-up procedures.

## **12.2 Project Avoidance and/or Minimization Measures to Protect Fish, Wildlife, and Plant Resources**

The Applicant will implement the following avoidance and minimization measures to protect fish, wildlife, and plant resources. These avoidance and minimization measures also cover potential impacts to Waters of the State. Many of these avoidance and minimization measures require the preparation of documents and plans that will be subject to CEC Compliance Project Manager (CPM) review in consultation with other resource agency staff (BLM, CDFG, and USFWS). Documents and plans that will be prepared by the Applicant for avoidance and/or minimization measures to protect fish, wildlife, and plant resources include the following:

- Biological Resources Mitigation Implementation and Monitoring Plan
- Revegetation Plan
- Integrated Weed Management Plan
- Raven Monitoring, Management, and Control Plan
- Pre-Construction and Construction Nesting Bird Management Plan
- Bird and Bat Conservation Strategy

- Burrowing Owl Relocation and Mitigation Plan
- Desert Kit Fox and American Badger Management Plan
- Facility Closure, Revegetation, and Reclamation Plan

Conditions of Certification (COC) were outlined in the CEC Preliminary Staff Assessment (PSA; CEC 2012) for the Rio Mesa SEGF. The applicant intends to implement these mitigation measures to avoid, minimize, and compensate for impacts to biological resources. Conditions of Concern BIO-1, BIO-2, BIO-4, BIO-5, BIO-6, BIO-7, BIO-10, BIO-11, BIO-12, BIO-13, BIO-15, and BIO-18 list biological protection measures to avoid or minimize impacts to fish, wildlife, and plant resources. A brief summary of each COC that will be implemented is listed below. Comprehensive descriptions of the COC biological protection measures are listed in the PSA and may be modified in the conditions of approval contained in the Final Decision by the California Energy Commission.

#### *12.2.1 General Wildlife and Native Vegetation Avoidance and Minimization Measures*

The following avoidance and minimization measures will be implemented to reduce potential impacts to wildlife and native vegetation:

##### **BIO-1 (Designated Biologist, Authorized Desert Tortoise Biologist, and Biological Monitors: Selection, Qualifications, Responsibilities, and Authority)**

States the qualifications, duties and responsibilities during any site mobilization or ground disturbance, the reporting and agency contact responsibilities, and stop-work authority of the biologists and monitors to be appointed by the project owner;

##### **BIO-2 (Biological Resources Mitigation Implementation and Monitoring Plan)**

Requires the project owner to prepare an implementation plan and schedule for compliance with all conditions of certification and other project requirements related to biological resources, including monitoring, compliance measures, and wildlife agency permits and agreements;

##### **BIO-4 (Worker Environmental Awareness Program)**

Requires the project owner to train workers on the project site or related facilities about sensitive biological resources and worker responsibilities for avoidance, reporting, and other requirements;

##### **BIO-5 (Impact Avoidance and Minimization Measures)**

Requires the project owner to implement a series of measures to avoid or minimize adverse impacts to biological resources, such as minimizing disturbance area, monitoring soil disturbing project activities, controlling lighting and dust, preventing wildlife hazards such as open pits or pipes, and other feasible measures;

##### **BIO-6 (Revegetation Plan)**

Requires the project owner to revegetate temporary project disturbances to soils and vegetation throughout the project area; impacts to habitat values in these areas will be mitigated in part through offset or compensation requirements (Condition of Certification **BIO-3**), but staff recommends revegetation to minimize vulnerability of these areas to further erosion, weed infestation, or as sources of dust;

##### **BIO-7 (Integrated Weed Management Plan)**

Requires preparation and implementation of a weed management plan to minimize the introduction and spread of weeds, including prevention, detection, and control methods to be implemented; include specific measures to avoid or minimize herbicide application at project perimeters, in the vicinity of native vegetation, or near special-status plants, and to avoid overspray or spillage in any areas; and describe all proposed herbicide usage and formulations; the applicant has submitted a Draft Integrated Weed Management Plan in response to CEC staff's Data Request 72; staff will review the draft plan for conformance with **BIO-7**;

**BIO-9 (State Waters Impact and Minimization Measures)**

Requires the project owner to follow the BMPs listed in Section 12.1 above. The project owner will also provide a copy of the State Waters Impact Minimization and Compensation Measures condition as published in the California Energy Commission Decision to all contractors, subcontractors, and the project owner's construction, operations, and closure supervisors. The project owner will make the State Waters Impact Minimization and Compensation Measures available at the work site. Also, the project owner will follow the BMPs (listed in Section 12.1 above) to protect water quality. The project owner will remove any non-native vegetation consistent with the IWMP described in **BIO-7**. The project owner will report any special-status species observed on-site consistent with the measures listed in **BIO-1**, **BIO-5**, and **BIO-10**. Finally, the project owner will notify the CPM, BLM, CDFG, and USFWS in writing at least five days prior to initiation of project activities in jurisdictional areas and at least five days.

*12.2.2 Special-Status Plant Avoidance and Minimization Measures*

In addition to **BIO-1** through **BIO-9** described above, the following avoidance and minimization measures will be implemented to protect special-status plants:

**BIO-10 (Special-Status Plant Impact Avoidance, Minimization, and Habitat Compensation)**

Requires the project owner to implement special-status plant impact avoidance and minimization measures to protect Harwood's milk vetch (*Astragalus insularis var. harwoodii*) or other California Rare Plant Rank (CRPR) 1 or 2 plants located with the project area or a 250-foot buffer of its boundaries. For all direct impacts to CRPR 1 or 2 plants, mitigation will include seed collection for future restoration. The project owner will also mitigate impacts to any CRPR 1 or 2 ranked plants through one or a combination of strategies listed in the PSA. The project owner will also comply with BLM plant protection policies by salvaging yucca (*Agave spp.*) and cactus (excluding *Cylindropuntia spp.*) individuals and transplanting them to undisturbed sites.

*12.2.3 Desert Tortoise Avoidance and Minimization Measures*

The following avoidance and minimization measures will be implemented to reduce potential impacts to desert tortoise. Additional measures may also be specified within the Incidental Take Permit issued for the project.

**BIO-13 (Desert Tortoise Clearance Surveys, Exclusion Fencing, and Translocation)**

Requires the project owner to translocate all desert tortoises from the solar generator site to approved translocation sites, based on agency review and approval, and fence the site to prevent tortoises from entering (or re-entering), and;

**BIO-15 (Raven Monitoring, Management, and Control Plan)**

Requires the project owner to prepare and implement a plan to control subsidies for ravens and other predators; monitor raven activity in the project area; report documentation of raven predation on desert tortoises to the wildlife agencies; and to fund the regional raven management and control project on a per-acre basis.

#### *12.2.4 Special-Status Reptile and Amphibian Avoidance and Minimization Measures*

**BIO-1** through **BIO-5** described above will be implemented to minimize overall impacts to special-status reptile and amphibian habitats (see PSA for detailed COC descriptions).

#### *12.2.5 Migratory and Special-Status Bird Avoidance and Minimization Measures*

In addition to **BIO-1** through **BIO-5** described above, the following avoidance and minimization measures will be implemented to reduce potential impacts to migratory and special-status birds:

##### **BIO-11 (Pre-Construction and Construction Nest Surveys and Impact Avoidance)**

Requires the project owner to avoid or minimize disturbance to nesting birds throughout the construction phase of the project by locating and avoiding active nests. Additionally, the project owner will prepare and implement a Nesting Bird Management Plan (NBMP), describing nesting bird avoidance and minimization measures which may also be included into the Bird and Bat Conservation Strategy listed in **BIO-12**;

##### **BIO-12 (Mitigation and Monitoring Operational Impacts to Birds and Bats)**

Requires the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS.

##### **BIO-17 (Burrowing Owl Impact Avoidance, Minimization, and Compensation Measures)**

Requires the project owner to implement: pre-construction burrowing owl surveys; avoidance measures including owl monitoring and establishing buffers around active burrows, and; preparing and implementing a Burrowing Owl Relocation and Mitigation Plan, which will be approved by the CPM in consultation with BLM, CDFG, and USFWS.

#### *12.2.6 Special-Status Mammal Avoidance and Minimization Measures*

In addition to **BIO-1** through **BIO-5** described above, the following avoidance and minimization measures will be implemented to reduce impacts to special-status mammals:

##### **BIO-18 (Desert Kit Fox and American Badger Management Plan)**

Concurrent with the desert tortoise and burrowing owl clearance surveys, the Designated Biologist or Biological Monitors shall perform a preconstruction survey for badger and kit fox dens in the project area, including areas within 250 feet of all project facilities. If badger and kit fox dens are found, each den shall be classified as inactive, potentially active, or definitely

active. Inactive dens shall be excavated by hand and backfilled to prevent reuse by badgers. Potentially and definitely active dens shall be monitored by the Designated Biologist or Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks are observed in the tracking medium after 3 nights, the den shall be excavated and backfilled by hand. If tracks are observed, the applicant shall develop and implement a trapping and relocation plan in consultation with the Designated Biologist and CDFG. BLM approval may be required prior to release of badgers on public lands.

### 12.3 Project Mitigation and/or Compensation Measures to Protect Fish, Wildlife, and Plant Resources

Where construction activities could result in adverse effects to CDFG jurisdictional areas through vegetation removal, placement of fill, erosion, or sedimentation, the Applicant will implement mitigation measures described in **Condition of Certification BIO-3** (see PSA Proposed Conditions of Certification, Section 4.2). Restoration/compensation for unavoidable impacts to CDFG jurisdictional areas will be implemented within a mitigation ratio range of 2:1 to 3:1 and would depend on the sensitivity of the jurisdictional habitat and on requirements established in consultation with CDFG. The recommended mitigation ratios for waters of the State, wetlands, and vegetation types that occur within the Project Area are presented below in Tables 12-1 and 12-2.

The Applicant will mitigate impacts to waters of the State, wetlands, and vegetation types that occur within CDFG jurisdictional areas by acquiring mitigation lands in conformance with the approval of CDFG. The Applicant will provide for acquisition of mitigation lands either through the deposit of funds into a project-specific third party account for the completion of the required habitat compensation or through development and implementation of an approved Habitat Mitigation and Monitoring Plan (HMMP) for habitat compensation lands. Total acreages of compensation lands required to compensate for impacts to CDFG jurisdictional areas for each sensitive resource are presented below in Tables 12-1 and 12-2.

**Table 12-1 Compensation Land Acquisition by Resource Impact<sup>1</sup>**

Resource	Ratio of Mitigation	Acreage of Direct Impact	Acreage To-Be-Acquired
State Waters with Microphyll Woodland	3:1	450.7	1352.1
State Waters with Other Vegetation	1:1	35.3	35.3
State Wetlands	3:1	0.0	0.0
<b>Total</b>		<b>486.0</b>	<b>1387.4</b>

<sup>1</sup>Total direct impact less potential overlap categories

**Table 12-2 Compensation Land Acquisition by Vegetation Impact<sup>1</sup> in CDFG Jurisdictional Areas**

Vegetation Type	Acreage		
	Total Direct	Ratio	Mitigation Acreage
<b>Sensitive</b>			
<i>Dry Wash Habitat Types</i>			
Blue palo verde-desert ironwood woodland alliance	450.4	3:1	1351.3
Mesquite bosque woodland alliance	0.3	3:1	0.8

Dry washes with other vegetation	35.3	1:1	35.3
<i>Wetland Habitat Types</i>			
Bush seepweed scrub shrubland alliance	0.0	3:1	0.0
Narrowleaf cattail herbaceous alliance	0.0	3:1	0.0
Arrowweed scrub shrubland alliance	0.0	3:1	0.0
<b>Total Vegetation Communities within CDFG Jurisdiction</b>	<b>486.0</b>		<b>1387.4</b>

<sup>1</sup>Total direct impact less potential overlap categories

### 12.3.1 General Mitigation and Compensation Measures

The Applicant will compensate for unavoidable impacts to CDFG jurisdictional habitats including dry washes and associated riparian vegetation (microphyll woodland including blue palo verde – desert ironwood and mesquite bosque woodland alliances) and wetlands.

The Applicant will acquire and protect in perpetuity compensatory mitigation acreage to offset the project’s adverse impacts to native vegetation and wildlife. In addition, the Applicant will provide funding for initial habitat improvements, and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement of habitat values. Regardless of the method of acquisition, the transaction will be complete only upon completion of all terms and conditions described in **Condition of Certification BIO-3**, including the following:

- a. The Applicant will transfer title and/or conservation easement of compensation lands to a state or federal land management agency (if agency policy is compatible with habitat conservation in perpetuity) or to a third-party land management organization, as approved by the CPM in consultation with BLM, CDFG, and USFWS; staff recommends transfer in fee title to the lands to CDFG under terms approved by CDFG. Alternately, a CDFG-approved non-profit organization qualified pursuant to California Government Code Section 65965 may hold the fee title or a conservation easement over the lands. In the event an approved non-profit holds title, a conservation easement will be recorded in favor of CDFG in a form approved by CDFG; in the event an approved non-profit holds a conservation easement over the lands, CDFG will be named third party beneficiary.
- b. In general, the compensation lands shall provide habitat conditions, quality, and function that are equal or better than those present on the habitat to be impacted.
- c. The Applicant will submit a final acquisition proposal for CPM review and approval. The acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands in relation to established selection criteria. The CPM will review the proposal in consultation with BLM, CDFG, and USFWS.
- d. The Applicant will conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in perpetuity management of the compensation lands.
- e. The Applicant will pay all costs related to acquisition of compensation lands and conservation easements, including but not limited to property-related assessments,

appraisals, closing and escrow costs, related overhead costs, and biological surveys to determine mitigation suitability.

- f. The Applicant will fund activities that the CPM, in consultation with BLM, CDFG, and USFWS, determine are required for the initial protection and habitat improvement of the compensation lands.

In lieu of direct acquisition of mitigation lands, the Applicant may satisfy mitigation requirements by depositing funds into a third-party project-specific subaccount within the California Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), in an amount that is deemed sufficient to provide habitat compensation lands as determined by the CPM and all resource agencies on the CEC review team (BLM, USFWS, and CDFG).

### *12.3.2 CDFG-Jurisdictional Habitat Mitigation Measures*

The Applicant will prepare, fund and implement a Long-Term Habitat Management Plan for any off-site compensation lands. The plan will describe site-specific maintenance and management measures on each proposed compensation parcel, and may include maintenance of signs, fences, weed removal, habitat or trespass/land use monitoring, security and enforcement, and control or elimination of unauthorized use. The final cost of funding for the plan's implementation will be determined through an approved PAR or PAR-like analysis of the compensation lands.

### **BIO-20 (Facility Closure, Revegetation, and Reclamation Plan and Financial Security)**

Requires the project owner to restore natural contours and flow patterns, and revegetate the solar generator site upon the project's retirement.

### *12.3.3 Desert Tortoise Mitigation Measures*

The Applicant will apply for a 2081 Incidental Take Permit (ITP) with CDFG to cover potential impacts to desert tortoise. Additional desert tortoise habitat compensation measures are listed in the PSA.

**QUESTION 13 – PERMITS**

In addition to this CDFG 1602 Lake and Streambed Alteration Agreement application, the Applicant will submit permit applications for:

**Table 13-1a Key Federal Approvals and Permits Potentially Required for Project**

Key Federal Approvals and Permits Potentially Required for Project			
Regulatory Agency Level	Agency	Agency Information	Permit Potentially Required
Federal	USEPA	CA: Region 9 Air Division 75 Hawthorne Street, San Francisco, CA 94105 Tel: (415) 947-8000	<ul style="list-style-type: none"> <li>• PSD Permit</li> <li>• Permit to Construct</li> <li>• Federal Title V requirements</li> <li>• Federal Title IV (Acid Rain) Requirements</li> <li>• EPA Generator Number Identification</li> </ul>
Federal	USFWS	CA: Region 1 (Pacific)	<ul style="list-style-type: none"> <li>• Incidental Take Permit</li> <li>• Permit for Incidental Take of Nest(s) During Construction</li> </ul>
Federal	BLM	Bureau of Land Management Palm Springs-South Coast Field Office 1201 Bird Center Drive Palm Springs, CA 92262 <b>Phone:</b> (760) 833-7100 <b>Fax:</b> (760) 833-7199	<ul style="list-style-type: none"> <li>• Application for Transportation and Utility Systems and Facilities on Federal Lands (SF-299) (ROW Grant)</li> <li>• EA and/or EIS</li> <li>• Potential Modification of Local Resource Management Plan (e.g. California Desert Conservation Area Plan).</li> <li>• Cultural Surveys with SHPO</li> <li>• Paleontological Resource Use Permit</li> <li>• Fieldwork Authorization Permit</li> </ul>
Federal	USACE	CA: Los Angeles District, 911 Wiltshire Blvd., PO Box 532711, Los Angeles, CA 90053 - Mark Durham, South Coast Branch Chief	<ul style="list-style-type: none"> <li>• Section 404 Permit. Individual permits would be issued by states unless the affected waters might be used for interstate or foreign commerce (see 33 CFR Section 323.5).</li> </ul>

Key Federal Approvals and Permits Potentially Required for Project			
Regulatory Agency Level	Agency	Agency Information	Permit Potentially Required
Federal	RWQCB	RWQCB, 73-720 Fred Waring Drive, Suite 100, Palm Desert, CA 92260 Tel: (760) 346-7491	<ul style="list-style-type: none"> <li>Section 401 Certification</li> </ul>
Federal	FAA	California: Western-Pacific Region, 15000 Aviation Blvd., Room 3012, Lawndale, CA 90261 Tel: (310) 725-3600	<ul style="list-style-type: none"> <li>Determination of No Hazard to Navigable Airspace (prior to construction)</li> </ul>
Federal	Department of Labor/OSHA	CAL/OSHA Consultation Service	<ul style="list-style-type: none"> <li>Hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.</li> </ul>
		OSHA, 550 West C Street, Suite 970, San Diego, CA 92101 Tel: (619) 557-5030	

**Acronyms:**

BLM	Bureau of Land Management
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
EWG	Exempt Wholesale Generator Status
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
MACT	Maximum Achievable Control Technology
OSHA	Occupational Safety and Health Administration
PSD	Prevention of Significant Deterioration
QF	Qualifying Facilities
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Office
tpy	tons per year
USACE	US Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USC	United States Code
USFWS	US Fish and Wildlife Service

**Table 13-1b Key State Approvals and Permits Potentially Required for Project**

<b>Key California Approvals and Permits Potentially Required</b>			
<b>Regulatory Agency Level</b>	<b>Agency</b>	<b>Agency Information</b>	<b>Permit Potentially Required</b>
Federal	See Federal Preliminary List of Key Approvals and Permits		
State	California Energy Commission (CEC)	The CEC has the statutory responsibility for licensing thermal energy power plants larger than 50 megawatts (MW) and the plant's related facilities such as transmission lines, fuel supply lines, water pipelines, etc. The Energy Commission's 12-month, one-stop permitting process is a certified regulatory program under CEQA and includes many opportunities for public participation. The Energy Commission's license/certification subsumes all requirements of state, local, or regional agencies otherwise required before a new power plant is constructed.	Application for Certification (AFC)
State	CDFG	License and Revenue Branch 1740 N. Market Blvd., Sacramento, CA  (916) 928-5805  Also contact local regional office: 17041 South Lovekin, PO Box 2160, Blythe, CA 92226 Tel: (760) 200-9158	<ul style="list-style-type: none"> <li>Request review of the USFWS permits for conformance with CESA</li> <li>Mitigation Measures</li> <li>1602 Lake and Streambed Alteration Agreement</li> </ul>
State	SWRCB	State Water Resources Control Board 1001 I Street Sacramento, CA 95814  (916) 341-5250  fax (916) 341-5252	<ul style="list-style-type: none"> <li>Report of Waste Discharge to obtain WDRs, during construction and/or operation</li> <li>Section 401 Water Quality Certification</li> </ul>
State	California DTSC,	Local county's CUPA Office - see local permits	<ul style="list-style-type: none"> <li>Obtain US EPA identification number (via</li> </ul>

Rio Mesa Solar Electric Generating Facility CDFG 1602 Notification

Key California Approvals and Permits Potentially Required			
Regulatory Agency Level	Agency	Agency Information	Permit Potentially Required
	Health Services	Local county's CUPA Office - see local permits	<ul style="list-style-type: none"> <li>Prepare manifests before transporting the waste off-site, and use only permitted treatment storage, and disposal facilities.</li> </ul>
		Local county's CUPA Office - see local permits	<ul style="list-style-type: none"> <li>Requirements for record keeping, reporting, packaging, and labeling</li> </ul>
State	California State Parks Office of Historic Preservation	Office of Historic Preservation	<ul style="list-style-type: none"> <li>SHPO consultation determining eligibility of cultural resources, determining the effect of the undertaking on the historic properties, and how the effect would be taken into account.</li> </ul>
		California Department of Parks and	
		1416 9th Street, Room 1442-7	
		Sacramento, CA 95814	
		P.O. Box 942896 Sacramento, CA	
		TEL: 916-653-6624 FAX: 916-653-9824	
State	California Transportation Commission	1120 N Street Room 2221 (MS-52)	<ul style="list-style-type: none"> <li>Permits for encroachments on state and county roads</li> </ul>
		Sacramento, CA 95814	
		(916) 654-4245	
		FAX: (916) 653-2134	
State	Cal/OSHA	Cal/OSHA Consultation Service	<ul style="list-style-type: none"> <li>Equivalent to Federal OSHA standards</li> </ul>
		550 West C Street, Suite 970, San Diego, CA 92101 Tel: (619) 557-5030	
State	California Independent System Operator (CAISO)	P.O. Box 639014, Folsom, CA 95763 Tel: (916) 351-4400	<ul style="list-style-type: none"> <li>Interconnection System Impact Study (SIS) report</li> </ul>
State	Caltrans (District 8)	464 West 4th Street, San Bernardino, CA 92401 Tel: (909) 383-4631	<ul style="list-style-type: none"> <li>Caltrans ROW</li> </ul>

**Acronyms:**

APCD	Air Pollution Control District
AQMD	Air Quality Management District
ATU	Advanced Treatment Unit
BMP	Best Management Practice
Cal-ARP	California Accidental Release Prevention Program
CAISO	California Independent System Operator
CAL/OSHA	California Division Occupational Safety and Health Administration
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
CSP	Concentrated Solar Power
CTC	California Transportation Commission
CUPA	Certified Unified Program Agency
DOGGR	Division of Oil, Gas, and Geothermal Resources
DOSH	Division of Occupational Safety and Health
DTSC	California Department of Toxic Substances Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
ESO	Electrical Safety Order
FAA	Federal Aviation Administration
IIP	Injury and Illness Prevention
LGIP	Large Generator Interconnection Procedures
MW	megawatt
NOI	Notice of Intent
OSHA	Occupational Safety and Health Administration
PUC	Public Utilities Commission
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
ROW	Right-of-Way
ROWD	Report of Waste Discharge
SIS	System Impact Study
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
UIC	Underground Injection Control
USEPA	United States Environmental Protection Agency
WDR	Waste Discharge Requirement

**Table 13-1c Key Local Approvals and Permits Potentially Required for Project**

<b>Key Local Riverside County Approvals and Permits Potentially Required</b>			
<b>Regulatory Agency Level</b>	<b>Agency</b>	<b>Agency Information</b>	<b>Permit Potentially Required</b>
Local	Mojave Desert Air Pollution Control District (APCD)	Mojave Desert Air Pollution Control District (APCD), 14306 Park Avenue, Victorville, CA 92392 Alan DeSalvio Tel: (760) 245-1661 x. 6726 email: <a href="mailto:adesalvio@mdaqmd.ca.gov">adesalvio@mdaqmd.ca.gov</a>	<ul style="list-style-type: none"> <li>• Permit to Construct</li> </ul>
Local	Mojave Desert Air Pollution Control District (APCD)	Mojave Desert Air Pollution Control District (APCD), 14306 Park Avenue, Victorville, CA 92392 Alan DeSalvio Tel: (760) 245-1661 x. 6726 email: <a href="mailto:adesalvio@mdaqmd.ca.gov">adesalvio@mdaqmd.ca.gov</a>	<ul style="list-style-type: none"> <li>• Permit to Operate</li> </ul>
Local	Mojave Desert Air Pollution Control District (APCD)	Mojave Desert Air Pollution Control District (APCD), 14306 Park Avenue, Victorville, CA 92392 Alan DeSalvio Tel: (760) 245-1661 x. 6726 email: <a href="mailto:adesalvio@mdaqmd.ca.gov">adesalvio@mdaqmd.ca.gov</a>	<ul style="list-style-type: none"> <li>• Operational Permit</li> </ul>
Local	Riverside County Planning Department	Riverside County Planning Department, Carolyn Syms-Luna, County Planning Director, 4080 Lemon Street, 12th Floor, P.O. Box 1409, Riverside, CA 92502 Tel: (951) 955-6429 Email:	<ul style="list-style-type: none"> <li>• Application for Change of Zone</li> </ul>

## REFERENCES

- CFGF §1600-1607. Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code. Environmental Services Division, Sacramento, CA. CDFG 2012
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- Lichvar, R.W. and S. M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL Publication TR-08-12.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society in collaboration with California Department of Fish and Game. Sacramento, CA.
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- VTN Consulting (VTN). 2011a. Rio Mesa Solar Overall Existing Condition Hydrologic & Hydraulic Analysis. 6 July.
- VTN Consulting (VTN). 2011b. Rio Mesa Solar Final Post Construction Hydrologic & Hydraulic Analysis. 31 August.
- WRA, Inc. 2012a. Rio Mesa Solar Electric Generating Facility - California Department of Fish and Game Jurisdictional Determination Report. Prepared for BrightSource Energy, Inc. 1 November.
- WRA, Inc. 2012b. Rio Mesa Solar Electric Generating Facility Vegetation Mapping Letter Report. Prepared for BrightSource Energy, Inc. 26 October.
- WorleyParsons. 2011. Groundwater Impact Assessment Report, Rio Mesa Solar Generating Facility, Riverside County, California. September.
- WorleyParsons. 2012. Updated Groundwater Resource Impact Modeling Technical Memorandum, Rio Mesa Solar Generating Facility, Riverside County, California. October.

**Attachment 3.**

**Figures**

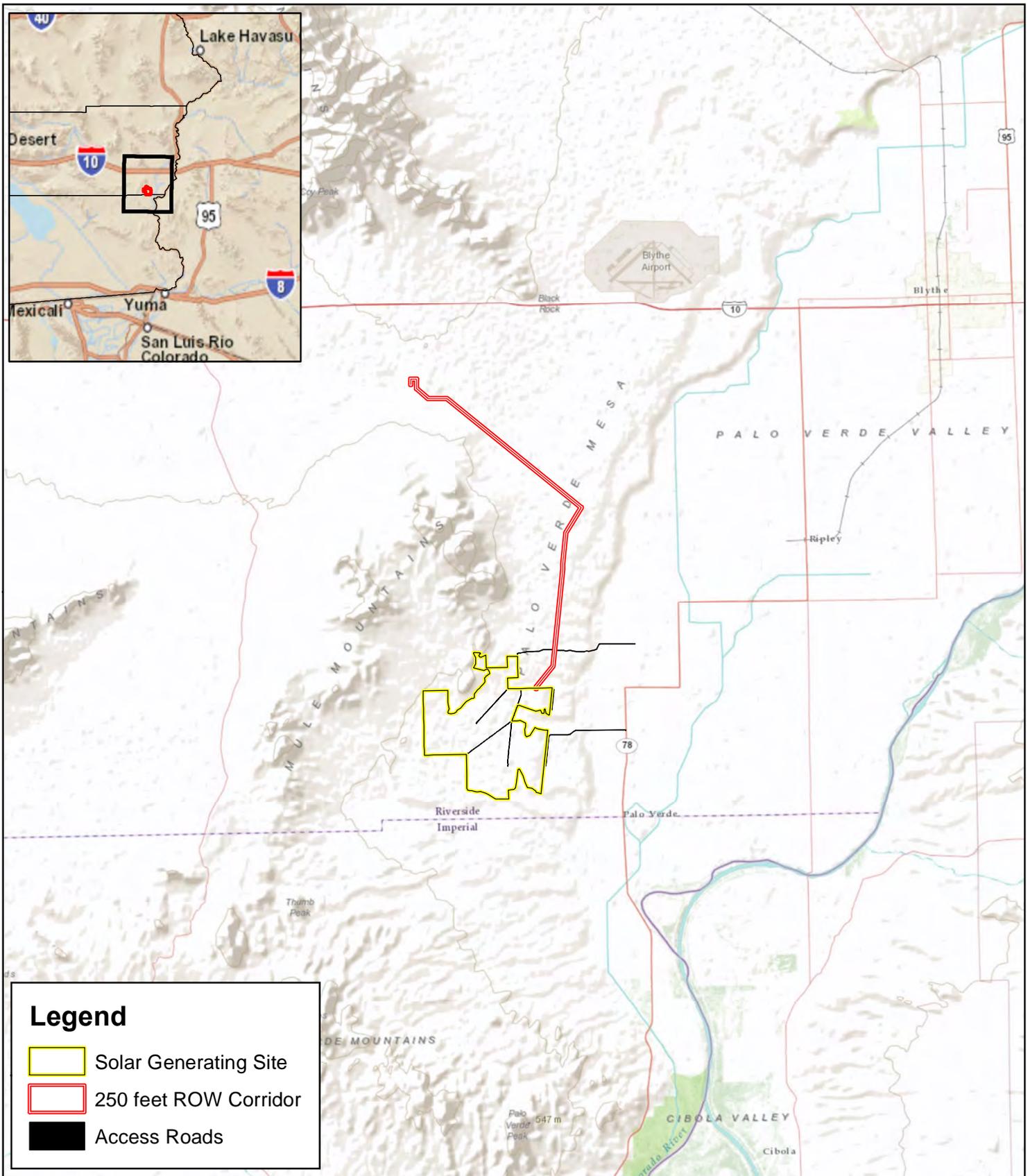
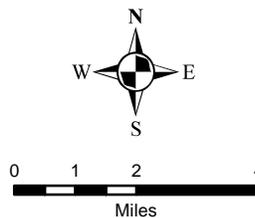


Figure 1. Project Vicinity Map

BrightSource Rio Mesa Site  
Blythe, California



Map By: SG  
Date: October 2012  
Basemap: ESRI World Topo

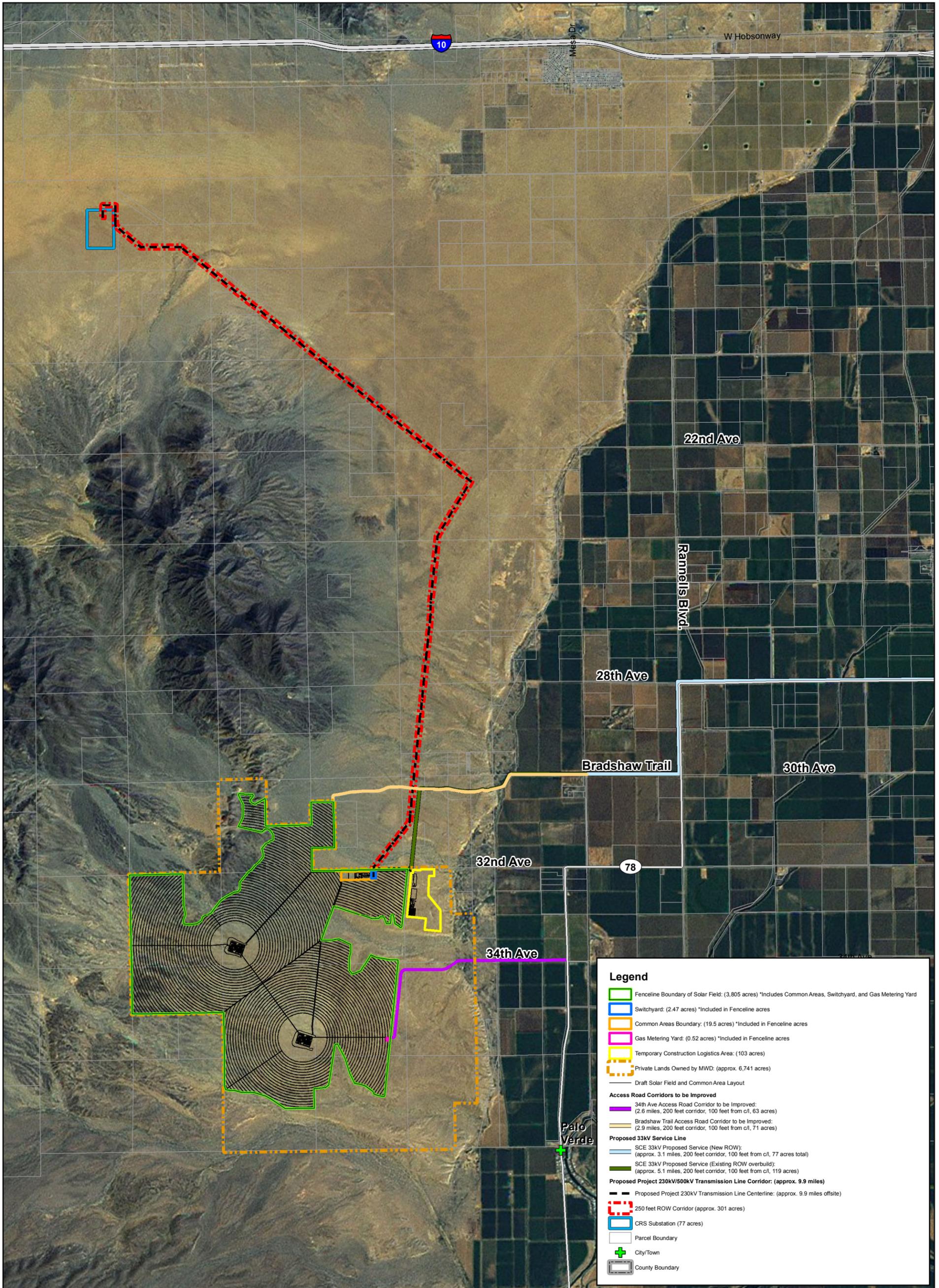
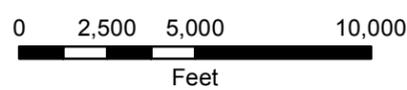


Figure 2. Composite Map Rio Mesa Solar Electric Generating Facility

BrightSource Rio Mesa Site  
Blythe, California



Map By: Chris Zumwalt  
Date: October 2012  
Basemap: ESRI World Imagery

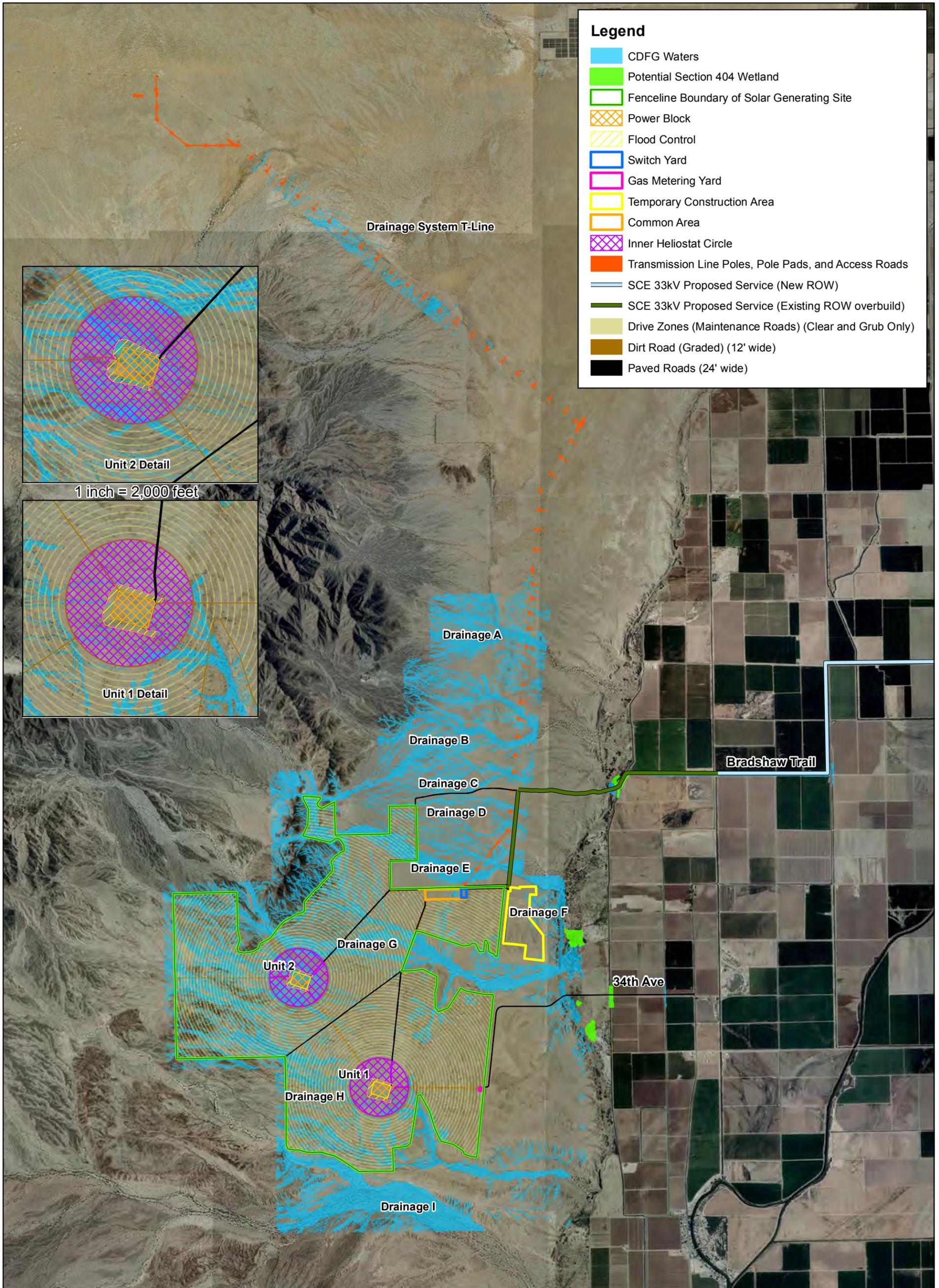
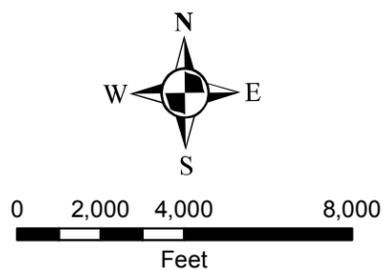


Figure 3. Project Features for CDFG Waters Impacts Analysis (230kV Alternative)

BrightSource Rio Mesa Site  
Blythe, California



Map By: SG  
Date: October 2012  
Basemap: ESRI World Imagery

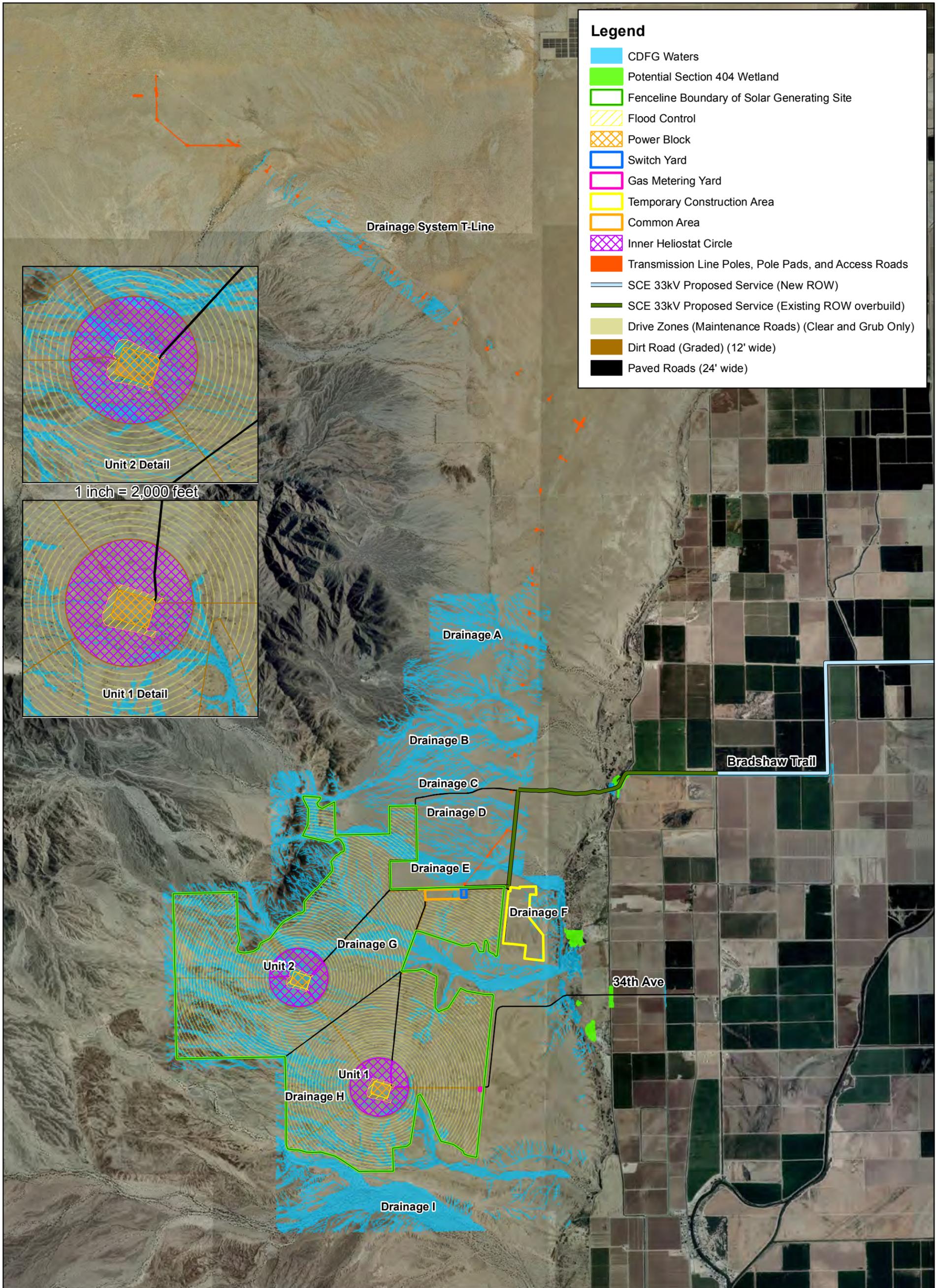
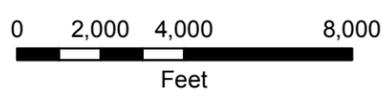


Figure 4. Project Features for CDFG Waters Impacts Analysis (500kV Alternative)

BrightSource Rio Mesa Site  
Blythe, California



Map By: SG  
Date: October 2012  
Basemap: ESRI World Imagery

Rio Mesa Solar Electric Generating Facility 1602 LSAA Application Package

**Attachment 4.**

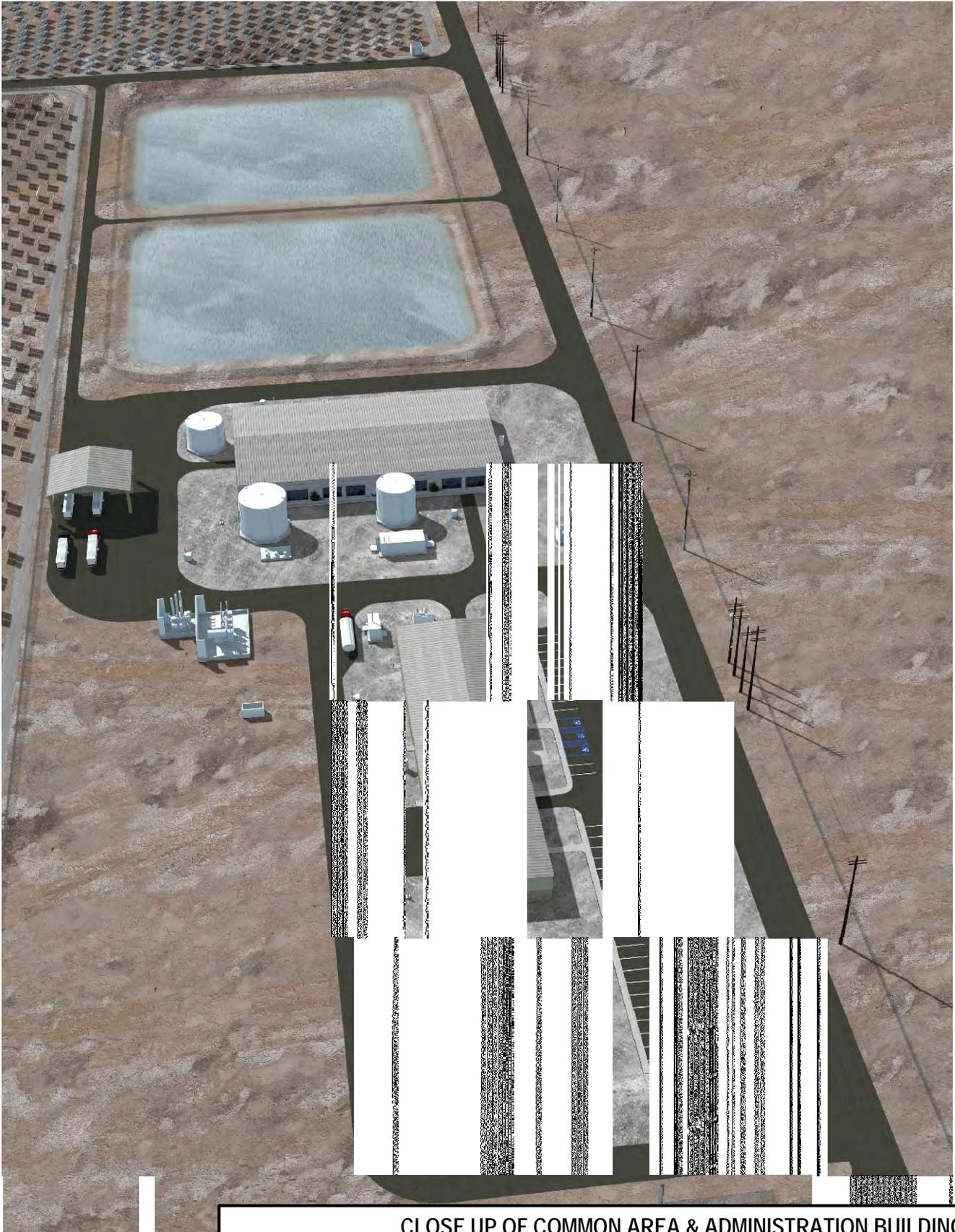
**Project Component Details - Artist Renderings**

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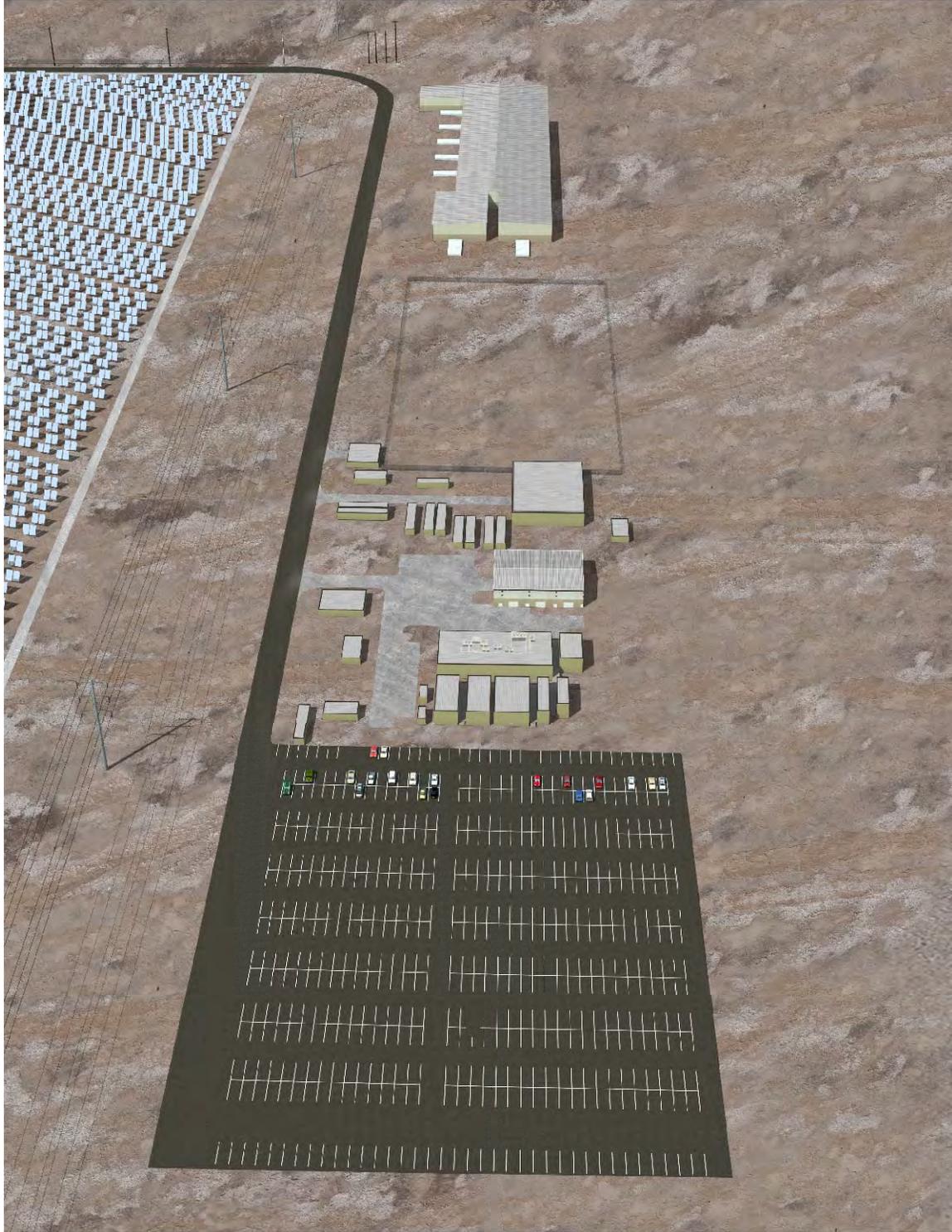
**POST CONSTRUCTION ARTIST'S RENDERING  
RIO MESA SOLAR ELECTRIC GENERATING FACILITY  
RIVERSIDE COUNTY, CALIFORNIA**

SOURCES: URS 2012	NOT TO SCALE	CREATED BY: DS	DATE: 9/4/2012	FIG. NO: <b>3</b>
		PM:AL	PROJ. NO: 27651006.10000	



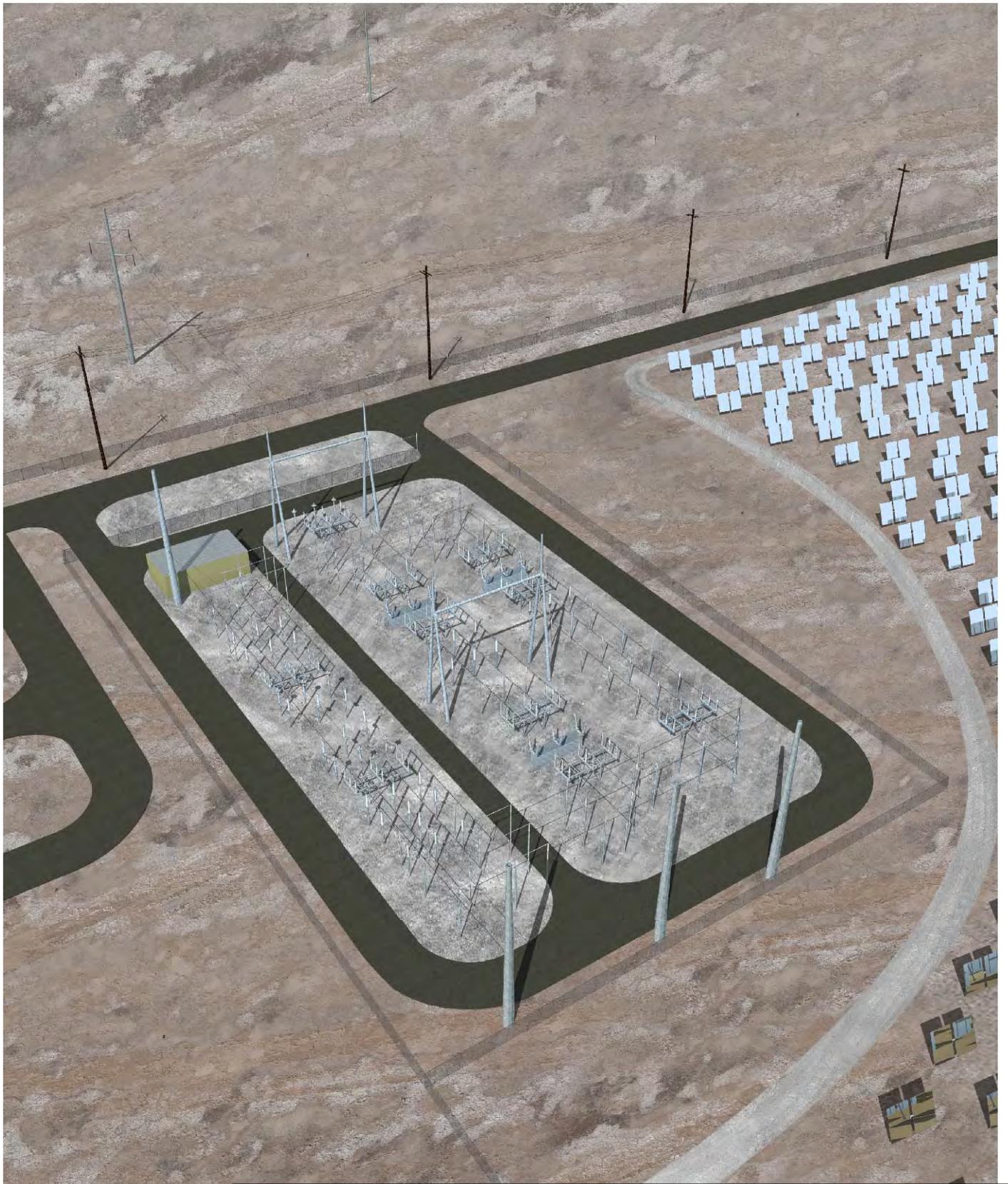
**CLOSE UP OF COMMON AREA & ADMINISTRATION BUILDING  
RIO MESA SOLAR ELECTRIC GENERATING FACILITY  
RIVERSIDE COUNTY, CALIFORNIA**

SOURCES: URS 2012	NOT TO SCALE	CREATED BY: DS	DATE: 9/4/2012	FIG. NO: <b>4</b>
		PM:AL	PROJ. NO: 27651006.10000	



**CLOSE UP OF STAGING AREA  
RIO MESA SOLAR ELECTRIC GENERATING FACILITY  
RIVERSIDE COUNTY, CALIFORNIA**

SOURCES: URS 2012	NOT TO SCALE	CREATED BY: DS	DATE: 9/4/2012	FIG. NO: <b>5</b>
		PM:AL	PROJ. NO: 27651006.10000	



**CLOSE UP OF SUBSTATION  
RIO MESA SOLAR ELECTRIC GENERATING FACILITY  
RIVERSIDE COUNTY, CALIFORNIA**

SOURCES: URS 2012	NOT TO SCALE	CREATED BY: DS	DATE: 8/29/2012	FIG. NO: <b>6</b>
		PM:AL	PROJ. NO: 27651006.10000	

Rio Mesa Solar Electric Generating Facility 1602 LSAA Application Package

**Attachment 5.**  
**Site Photographs**



*Attachment 5. Representative Photographs – Potentially Jurisdictional Dry Washes*  
Top: Blue palo verde – ironwood woodland  
Bottom: Terrace floodplain surrounded by active floodplain in a large wash system  
Photos taken September 20-24, 2012





*Attachment 5. Representative Photographs –  
Potentially Jurisdictional Dry Washes*

Top: Shelving, sediment sorting and wrack  
present in a large wash.

Bottom: Sediment sorting and crested ripples  
present in the low flow channel.

Photos taken September 20-24, 2012





*Attachment 5. Representative Photographs – Potentially Jurisdictional Dry Washes*

Top: Dry wash in other vegetation – creosote bush scrub.

Bottom: Dry wash in other vegetation – allscale scrub.

Photos taken October 13-19, 2012





*Attachment 5. Representative Photographs –  
Potentially Jurisdictional Dry Washes*  
Top: Irrigation ditch with cattail marsh  
vegetation and arrow weed scrub in the  
foreground.

Photo taken September, 2012





*Attachment 5. Representative Photographs - Wetlands*

Top: Sediment layering visible in soil profile SP1.  
Bottom: Faint and indistinct redox concentrations observed at SP1.

Photographs taken September 20-24, 2012





*Attachment 5. Representative Photographs - Wetlands*

Top: Vegetation dominated by bush seepweed.

Bottom: Wetland/upland edge. Wetland is dominated by bush seepweed.

Photographs taken September 20-24, 2012





*Attachment 5. Representative Photographs - Wetlands*

Top: Typical wetland hydrology indicators observed in the wetlands: surface soil cracking.

Bottom: Drift and debris south of the wetland shows flows from Wash 25B entering wetland.

Photographs taken September 20-24, 2012



Rio Mesa Solar Electric Generating Facility 1602 LSAA Application Package

**Attachment 6.**

**CDFG Jurisdictional Determination Report**

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# California Department of Fish and Game

## Section 1602 Jurisdictional Determination Report

Rio Mesa Solar Electric Generating Facility  
Riverside County, California

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**Prepared For:**

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**WRA Contact:**

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Certified Professional Wetland Scientist  
josselyn@wra-ca.com

**Date:**

November 16, 2012



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- Figure 2. Biological Survey Area Detail Map
- Figure 3. Transect Locations
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- Figure 5. Extent of Microphyll Woodlands

## 1.0 INTRODUCTION

On behalf of BrightSource Energy Inc. (BrightSource), WRA, Inc. (WRA) prepared a determination of “State Waters” under Section 1602 of California Department of Fish and Game (CDFG) Code at the Rio Mesa Solar Electric Generating Facility Project in Riverside County, California. WRA staff prepared the determination based on a site inspection performed on September 24 – 28, 2012. The potential Solar Electric Generating Facility footprint (Solar Generating Site) and associated infrastructure (access roads, potential power line right-of-way alignments, and associated construction lands) were surveyed to determine impacts. The comprehensive survey area is referred to in this report as the Biological Survey Area. The location and extent of the Biological Survey Area and Solar Generating Site is depicted on Figures 1 and 2 (all Figures referred to in this report are attached in Appendix A).

### 1.1 Regulatory Background

*California Department of Fish & Game Code Section 1602*

The Department of Fish and Game regulates activities within its jurisdiction under Section 1602(a):

*“1602 (a) An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur...”*

Section 1602(a) is based on Title 14 CCR 720:

*“For the purpose of implementing Sections 1601 and 1603 of the Fish and Game Code which requires submission to the department of general plans sufficient to indicate the nature of a project for construction by or on behalf of any person, governmental agency, state or local, and any public utility, of any project which will divert, obstruct or change the natural flow or bed of any river, stream or lake designated by the department, or will use material from the streambeds designated by the department, all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which may have intermittent flows of water, are hereby designated for such purpose”.*

The term stream, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows:

*“a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72).*

In addition, the Department considers its jurisdiction to include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife.

## 2.0 METHODS

Areas subject to jurisdiction pursuant to Section 1600 of the California Fish and Game Code were determined based the DFG definition.

*“A stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.”*

Thus, field guidance for CDFG Section 1602 jurisdiction is typically understood to include all streams and to extend laterally to the top of bank (TOB). Indicators used for the determination at the Biological Survey Area included the presence of a bed and channel where flows have most recently periodically occurred and resulted in the presence of bank features. If riparian vegetation was present within or at the TOB, then CDFG jurisdiction was mapped as extending to the outer dripline of such vegetation. In addition, CDFG routinely asserts jurisdiction on areas that may be adjacent to a stream that demonstrate a dominance of hydrophytic vegetation, hydric soils and/or wetland hydrology. Therefore, WRA also evaluated all such conditions as potentially subject to CDFG jurisdiction.

### 2.1 Field Delineation Methodology

On September 24-28, 2012, WRA biologists performed a focused evaluation of potential areas under CDFG jurisdiction within the Biological Survey Area. This evaluation was performed concurrently with a delineation of areas under the jurisdiction of the Corps under Section 404 of the Clean Water Act (CWA). Federal jurisdiction is based on the boundary of the active channel as defined by the ordinary high water mark (OHWM). While CDFG jurisdiction can extend beyond the OHWM as discussed above, the use of indicators developed by the Corps of Engineers was useful in defining the active flow channels within dry washes.

Indicators used to define low flow channels and the associated active floodplain that comprises the channel and bank features that were mapped for CDFG jurisdiction are fully described in the *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008) and the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (“Updated Datasheet”, Curtis and Lichvar 2010). The most frequent indicators used to determine the bed and bank of a stream subject to CDFG jurisdiction included a break in the bank slope, change in particle size distribution, silt deposits, litter deposits, and drift materials within the riparian vegetation, if presence.

Prior to conducting the field work, an office review of available resources including the previous delineation map, USGS 7.5-minute topographic maps (USGS 1983), soils maps (USDA 1974) and high-quality aerial imagery was conducted to determine the probable locations of streams within the Biological Survey Area. Recent rainfall data (UCANR 2012) as well as long-term climatic data (USDA 1995) were reviewed to determine if any significant rainfall events had occurred in the months preceding the field assessment. No stream gauge data is available for watercourses within the Biological Survey Area. Using GIS, potential areas of terrace floodplain within the large washes were digitized and loaded onto Trimble GeoXH handheld GPS units with submeter accuracy.

### *Delineation of TOB for Large Dry Washes*

Fieldwork to verify TOB extent followed the office remote assessment. Areas identified as potential terrace floodplain within the large washes were inspected to determine potential jurisdictional status. Transitional areas between the low-flow channels, active floodplains, and terrace floodplains were determined, and indicators associated with the system were noted as per the procedures in Lichvar and McColley (2008). Once the boundaries between low-flow channels, active floodplains, and terrace floodplains were identified, transect surveys were conducted perpendicular to direction of flow at intervals in the large wash systems. The location of surveyed transects is depicted on the attached Figure 3. Using GPS, the TOB locations (i.e. between the active floodplain and terrace floodplain) were mapped in the field to help inform further digitization of the large wash systems using GIS.

Lichvar and McColley (2008) describe that low to moderate rainfall events in the 5- to 10-year recurrence size range may be necessary to engage the active floodplain in wash systems in the Arid West, and that the shifts in vegetative and textural signatures brought on by events of this size are generally used to identify the limits of the stream. Therefore, WRA examined hydrologic models (FLO-2D and HEC-RAS) prepared for the Biological Survey Area (VTN 2011). Models depicting the extent of 5- and 10-year recurrence events were examined and considered in making determinations on the extent of the active floodplain.

### *Delineating TOB for Small Dry Washes*

To accurately characterize the extent and width of smaller ephemeral washes within the Biological Survey Area, pedestrian transects perpendicular to the ephemeral drainages were established at intervals within the Biological Survey Area. Where a wash with bed and banks crossed the transects, data describing the wash width and characteristic vegetation present were recorded. Where a relict or swale feature was encountered, GPS data indicating lack of jurisdiction were recorded. Transect data were then exported into GIS, and data collected in the field were used to inform further mapping refinement in the office.

Due to the shifting nature of dry wash systems, channels that previously carried ordinary flows can be completely abandoned. Indicators that may have been present from these historic flows can remain intact for many years in these relict features. Alternatively, swales are features that may carry flows during high-flow (25-year or greater events), but normally do not transport flows during low to moderate (up to 10-year) events. The bed and banks are generally poorly defined in these features due to the lack of regular flows. When relict features or swales were encountered during transects, the location was noted with GPS.

### *Delineating Riparian Vegetation=Microphyll Woodlands*

During the field work, the presence of riparian vegetation was also assessed. Two plant communities the Blue Palo Verde—Ironwood Woodland Alliance and the Mesquite Bosque Woodland Alliance are the two riparian communities found within the Biological Survey Area. These two plant communities are also considered as microphyll woodlands and are defined where the percent absolute cover by the dominant trees within an area exceeds 3% according to the Manual of California Vegetation (2009). Any vegetative community that fell within these alliances was recorded with the GPS when encountered in the transects. These data were subsequently used to provide a calibration when mapping the extent of these riparian communities using aerial photography. The outer dripline or the extent of coverage by 3%

absolute cover (whichever was greater) was used to determine the extent of the DFG jurisdiction and the presence of these two alliances as microphyll woodland.

### *Wetlands*

The California Department of Fish and Game utilizes the US Fish and Wildlife Service wetland definition as the basis for its wetland designation. This definition is similar to that used to delineate wetlands under Section 404 of the Clean Water Act with the significant difference being that any one criterion (dominance by wetland vegetation, presence of wetland hydrology, or occurrence of hydric soils) can be used to identify a wetland under the State definition whereas all three must be present to identify a wetland under federal guidance. However, the Department does not have a separate authority to regulate activities associated with wetlands unless those wetlands are associated with a stream or lake and therefore regulated under the Fish and Game Code Section 1600.

For purposes of this work, only one wetland area occurs within the Biological Survey Area and it does border a dry wash. Therefore, WRA mapped the extent of this wetland area based on presence of one parameter, the Bush Seepweed alliance as described below.

## **3.0 EXISTING CONDITIONS**

### **3.1 Location and Setting**

The Biological Survey Area is located on the Palo Verde Mesa, primarily on land owned by the Metropolitan Water District of Southern California (MWD) within Riverside County, California. Portions of the Biological Survey Area extend east off of the Mesa along potential access roads and power line right-of-way access alignments. The Biological Survey Area is approximately two miles west of the town of Palo Verde, California and State Route 78 (Figures 1, 2). The Biological Survey Area is located on the Thumb Peak U.S. Geologic Survey (USGS) 7.5-minute quadrangle map (USGS 1983). The Biological Survey Area is currently undeveloped and surrounded by undeveloped land to the north, south, and west with agricultural lands located to the east. Portions of the site are disturbed due to existing infrastructure (transmission lines, pipelines, past military training activities, etc.).

The Solar Generating Site describes the area of project activities including solar generating towers, heliostats and heliostat access ways, roads, substation, and other related development. See Figure 2 for the extent of the Biological Survey Area compared to the smaller Solar Generating Site.

### **3.2 Vegetation**

Vegetation within the Biological Survey Area is described based on vegetation alliance descriptions in the Manual of California Vegetation, Second Edition (Sawyer *et al.* 2009). Plant names given within this report follow Baldwin *et al.* (2012), with those from Hickman (1993) noted in brackets if applicable. Wetland indicator status follows the Corps 2012 Arid West Ratings (Lichvar and Kartesz 2009).

### *Riparian Vegetation Communities*

This two plant communities are also considered “microphyll woodlands” and are included as part of the DFG jurisdiction adjoining delineated streams.

**Blue Palo Verde—Ironwood Woodland Alliance.** Blue palo verde—ironwood woodland occurs on the margins of desert arroyos, seasonal watercourses and washes, bottomlands, middle and upper bajadas and alluvial fans. The community is defined as having 3% or more cover by trees. Soils are often sandy and well-drained, and derived from alluvium or colluvium. Blue palo verde—ironwood woodland is widespread throughout the Colorado Desert (Sawyer et al. 2009). In the Biological Survey Area this woodland community is generally restricted to the border of washes, where it grows at the edge of the active floodplain, or in upland areas with sufficient surface runoff. Blue palo verde (*Parkinsonia florida* [*Cercidium floridum*], FAC) and ironwood (*Olneya tesota*, NL) are the dominant trees. Associated species include creosote bush (*Larrea tridentata*, NL), white bursage (*Ambrosia dumosa*, NL), indigobush (*Psoralea argophylla*, FACU), cheesebush (*Ambrosia* [*Hymenoclea*] *salsola*, NL), spiderling (*Boerhavia* sp., FACU-NL), chinchweed (*Pectis papposa*, NL), big galleta grass (*Hilaria* [*Pleuraphis*] *rigida*, NL) and sixweeks gramma (*Bouteloua barbata*, NL).

**Mesquite Bosque (*Prosopis glandulosa*) Woodland Alliance.** Mesquite bosque occurs on the fringes of playa lakes, river terraces, stream banks, floodplains, rarely-flooded margins of arroyos and washes, and sand dunes. Mesquite bosque occurs throughout California’s southeastern deserts and in the southern San Joaquin Valley (Sawyer et al. 2009). This community does not occur in and around large perennial streams with high hydrologic input, but rather in drier areas with substantial near-surface groundwater supplies. Honey mesquite (*Prosopis glandulosa*, NL) dominated mesquite bosque in the Biological Survey Area, and common associated taxa include white bursage, bush seepweed (*Suaeda nigra* [*S. moquini*], OBL), allscale (*Atriplex polycarpa*, FACU) and spiderling.

### *Wetland Vegetation*

**Bush Seepweed Scrub (*Suaeda* [*S. moquini*] *nigra*) Shrubland Alliance.** Bush seepweed scrub occurs on flat to gently sloping valley bottoms, playas, toe slopes adjacent to alluvial fans, and in bajadas, where soils are deep, saline or alkaline. Bush seepweed scrub occurs across California’s southeastern deserts, and in the Central Coast Ranges, the Southern Mountains and Valleys, the San Joaquin Valley, and in the Northwestern Basin and Range. However, the alliance is restricted primarily to alkaline substrates in desert and semi-desert habitats (Sawyer et al. 2009). Stands were generally monotypic in the Biological Survey Area, though associated taxa at the edge of stands included allscale, honey mesquite and spiderling.

### *Upland Vegetation*

**Creosote Bush Scrub (*Larrea tridentata*) Shrubland Alliance.** Creosote bush scrub occurs in alluvial fans, bajadas, upland slopes, minor intermittent washes, and on desert pavement across California’s southeastern deserts (Sawyer et al. 2009). Creosote bush scrub typically occurs on well-drained secondary soils rather than thin, residual upland soils or areas with high salinity. This community is dominated by creosote bush, but other common associates include white bursage, ocotillo (*Fouquieria splendens*, NL), brittlebush (*Encelia farinosa*, NL) and pencil cholla (*Cylindropuntia* [*Opuntia*] *ramosissima*, NL).

**Allscale Scrub (*Atriplex polycarpa*) Shrubland Alliance.** Allscale scrub occurs in washes, playa lake beds and shores, dissected alluvial fans, rolling hills, terraces, and edges of large,

low gradient washes on carbonate rich, alkaline, sandy, or sandy clay soils throughout the Colorado, Mojave and Great Basin deserts (Sawyer et al. 2009). Allscale tolerates moderately saline conditions or xeric, non-saline upland sites with shallow water tables. The alliance occurs in uplands within the Biological Survey Area, and associated species include honey mesquite, white burr sage and spiderling.

## **4.0 RESULTS**

Areas within the Biological Survey Area that are jurisdictional under Section 1602 of CDFG code are described in the following sections. Section 1602 jurisdictional areas are shown on Figure 4.

### **4.1 Guidelines for Determining Potential Section 1602 Jurisdictional Areas**

The Biological Survey Area contains wetlands, non-wetland streams (dry washes), and riparian areas (blue palo verde—ironwood woodland and mesquite bosque) that are jurisdictional under Section 1602 of CDFG code. All dry washes and wetlands delineated within the Biological Survey Area were assumed to provide benefits for wildlife and plants, and were therefore assumed to be Section 1602 jurisdictional features. The lateral extent of jurisdiction from each dry wash or wetland area was determined using the following guidelines.

1. Areas containing typical riparian vegetation communities clearly dependent on or strongly influenced by water, such as blue palo verde—ironwood woodland stands and mesquite bosque, were considered to be Section 1602 jurisdictional areas. These woodland areas were largely within, but sometimes extended beyond the TOB of the dry wash.
2. Dry washes lacking riparian vegetation, but defined by the presence of a bed and bank were considered to be Section 1602 jurisdictional areas.
3. Wetlands, to the mapped extent of the dominance of wetland vegetation were considered to be Section 1602 jurisdictional areas.

### **4.2 Potential Section 1602 Jurisdictional Areas**

#### *4.2.1 Wetlands*

Seasonal wetlands dominated by bush seepweed, an obligate classified species (Lichvar and Kartesz 2009) were mapped in the eastern portion of the Biological Survey Area, outside of the Solar Generating Site, in topographically low areas that collect runoff from the adjacent mesa lands to the west. Vegetation in these wetlands was composed entirely of bush seepweed. Notably, approximately 40-60 percent of bush seepweed appeared dead or dying, possibly indicating drying conditions within the wetlands. Upland areas lacked indicators of wetland hydrology and were not dominated by bush seepweed, but were dominated by allscale (FACU). Because soils in the wetland lacked hydric soil indicators (see discussion below), areas dominated by bush seepweed but without wetland hydrology indicators were determined to be uplands.

Multiple primary indicators of wetland hydrology were observed in the mapped wetlands, including surface soil cracks, salt crusts, and sediment deposits. The wetlands appear to receive and collect flows from the large dry wash to the west (Wash 25B).

Hydric soil indicators were not observed in the mapped wetland areas. However, due to the presence of dominant hydrophytic vegetation, and multiple primary indicators of wetland hydrology, soils in these areas were determined to be problematic and considered hydric.

#### 4.2.2 *Non-wetland Waters*

##### Large dry washes

Four large dry wash systems traverse the Biological Survey Area from a west-to-east direction. The four large washes are described in detail in the project hydrologic analysis (VTN 2011), and are summarized here:

- “Wash 45” – This is the largest of the washes and is located along the Biological Survey Area’s southern boundary
- “Wash 30” – This wash is located approximately 0.75 mile north of Wash 45
- “Wash 25B” – Located approximately 2.4 miles north of Wash 30
- “Wash 0” – This wash is located approximately 1.1 mile north of Wash 25B

The large dry washes on the Biological Survey Area are compound channels as described in Lichvar and McColley (2008), where a complex mosaic of terraces are located within an active floodplain with frequently shifting low-flow channels. We used indicators for the low channel and active floodplain as outlined in Corps guidance to identify the top of bank which generally corresponded to the edge of the terraces within the complex of shifting low-flow channels. Most often, these indicators included a break in slope, scour and a shift in dominant vegetation.

Vegetation within large washes typically varied by geomorphic position within the system. Low-flow channels below top of bank were often devoid of vegetation or contained only scattered annual herbs and young shrubs. On terraces, above top of bank, vegetation was more developed, and some terraces within large wash systems supported mature riparian trees including blue palo verde and ironwood.

##### Small dry washes

Aside from the four large wash systems, numerous smaller, ephemeral dry washes traverse the Biological Survey Area, generally from west to east. These washes range from small (one-half to one foot wide) to relatively broad (over 10 feet wide). These smaller washes are generally less complex than the larger systems, and usually lack compound channels containing active and terrace floodplains present in the large washes. Indicators used to identify top of bank generally included a break in slope, scour, and a shift in dominant vegetation. Substrates of active channels range from sandy to gravelly. Larger cobbles and small boulders that are present in the larger systems are generally absent from these smaller features.

Vegetation within smaller washes typically varies by size of the wash and location within the active floodplain. Active low-flow channels, below top of bank, were typically devoid of vegetation. Vegetation was generally concentrated outside of the active channel, above top of bank. Typical vegetation included non-riparian communities containing creosote bush, big galleta grass, and chinchweed.

### 4.2.3 Riparian Vegetation

Blue palo verde and ironwood are both slow-growing, long-lived trees that grow in desert arroyo margins, seasonal watercourses and washes, bottomlands, middle and upper bajadas and alluvial fans, and lower slope environments throughout the Sonoran Desert (Sawyer et al. 2009, Baldwin ed. 2011). Blue palo verde—ironwood woodland is extensive throughout the Sonoran Desert, especially in washes and alluvial fans (Evens and Hartman 2007). Stands with blue palo verde dominant are usually found in the lower reaches of major washes, and stands with ironwood dominant occur in the upper reaches of washes and on alluvial fans (Evens and Hartman 2007). Where adequate moisture is available this alliance can occur outside of wash habitats, though in drier parts of the Sonoran Desert, this alliance is restricted to washes (Sawyer et al. 2009). For both species, wetting and scarification of seeds due to flash-flooding facilitates germination (Sawyer et al. 2009).

Within the Biological Survey Area, blue palo verde—ironwood woodland is strongly associated with large dry wash systems, where it grows generally within or immediately on the top of bank. Blue palo verde and ironwood trees also occur outside of the large wash systems and in upland areas. These trees are not associated with an active wash feature and are likely associated with relict features. We mapped stands of blue palo verde-ironwood woodland as areas associated with active wash systems containing three percent absolute cover or greater of blue palo verde and/or ironwood. Individual trees or areas not meeting 3 percent absolute cover were not mapped as habitat.

Mesquite bosque stands were also mapped in the Biological Survey Area. Mesquite bosque stands are located in the eastern portion of the Biological Survey Area, on the historic Colorado River floodplain. Stands containing three percent absolute cover or greater of mesquite were included in CDFG jurisdiction.

## 5.0 DFG 1602 JURISDICTIONAL AREAS AND MICROPHYLL WOODLANDS

The Biological Survey Area contains approximately 1,572.50 acres of habitat (dry washes, associated riparian habitat and wetlands) that would fall under DFG Section 1602 jurisdiction (Table 1). Within the Solar Generating Site, there are approximately 484.51 acres of habitat subject to DFG jurisdiction.

When only considering the blue palo verde—ironwood and mesquite bosque woodlands (microphyll woodlands), there are approximately 1350.65 acres within the Biological Survey Area and 449.80 acres within the Solar Generating Site (Figure 5). This is less than the Section 1602 jurisdictional areas as many smaller dry washes did not contain woodland habitats.

Table 1. Summary of Jurisdictional Areas and Microphyll Woodland Habitat

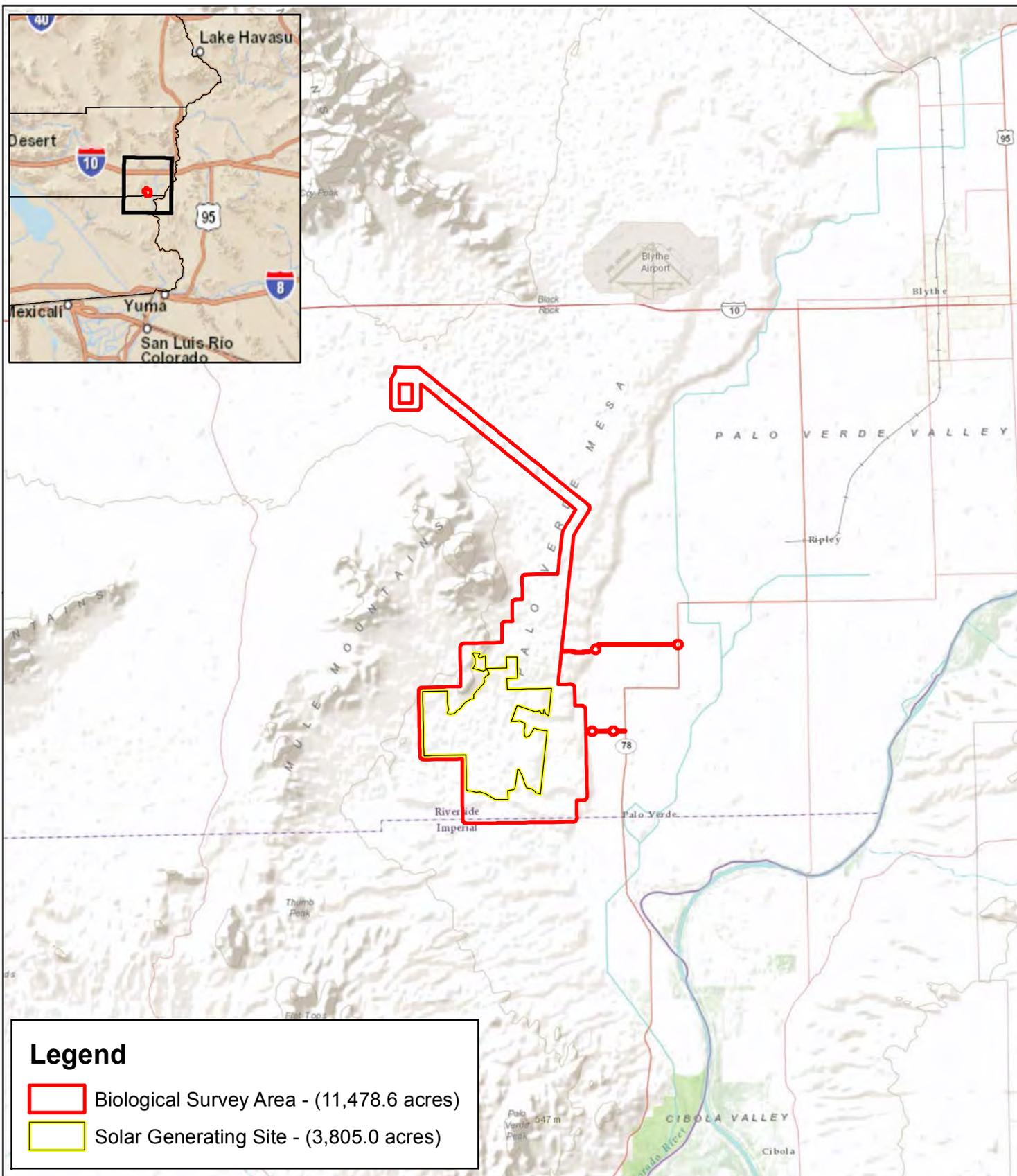
Habitats	Within the Biological Survey Area (acres)	Within the Solar Generating Site (acres)
Wetlands	18.9	0
Section 1602 Dry Washes (including riparian habitat)	1,569.8	484.5
Blue Palo Verde/Ironwood and Mesquite Bosque (microphyll woodland)	1350.7	449.8

## 6.0 REFERENCES

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**APPENDIX A**  
**PROJECT FIGURES**

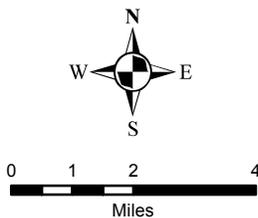


**Legend**

- Biological Survey Area - (11,478.6 acres)
- Solar Generating Site - (3,805.0 acres)

Figure 1. Project Vicinity Map

BrightSource Rio Mesa Site  
Blythe, California



Map By: SG  
Date: October 2012  
Basemap: ESRI World Topo

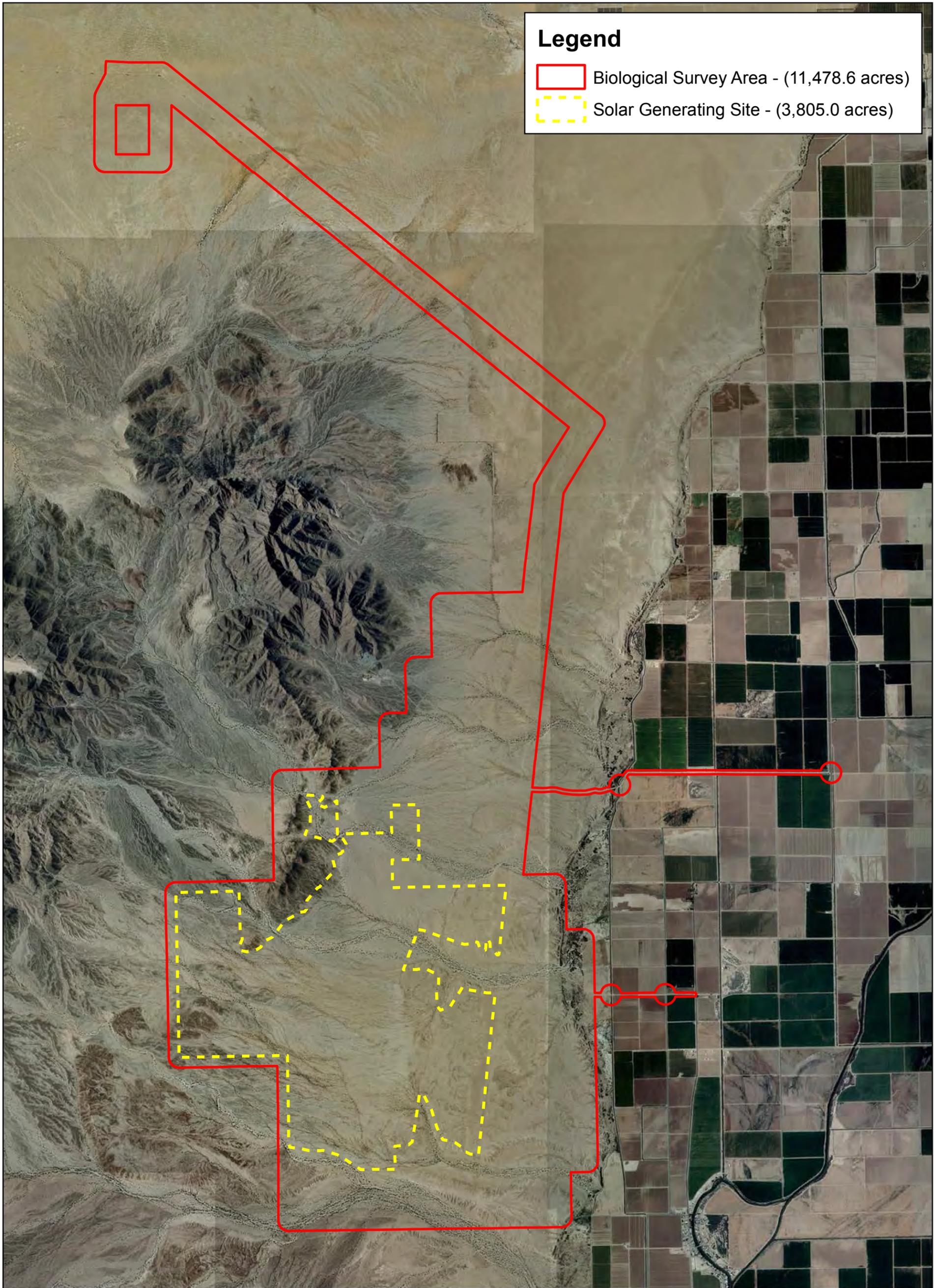


Figure 2. Aerial Site Map

BrightSource Rio Mesa Site  
Blythe, California



0 2,000 4,000 8,000  
Feet



Map By: SG  
Date: October 2012  
Basemap: ESRI World Imagery

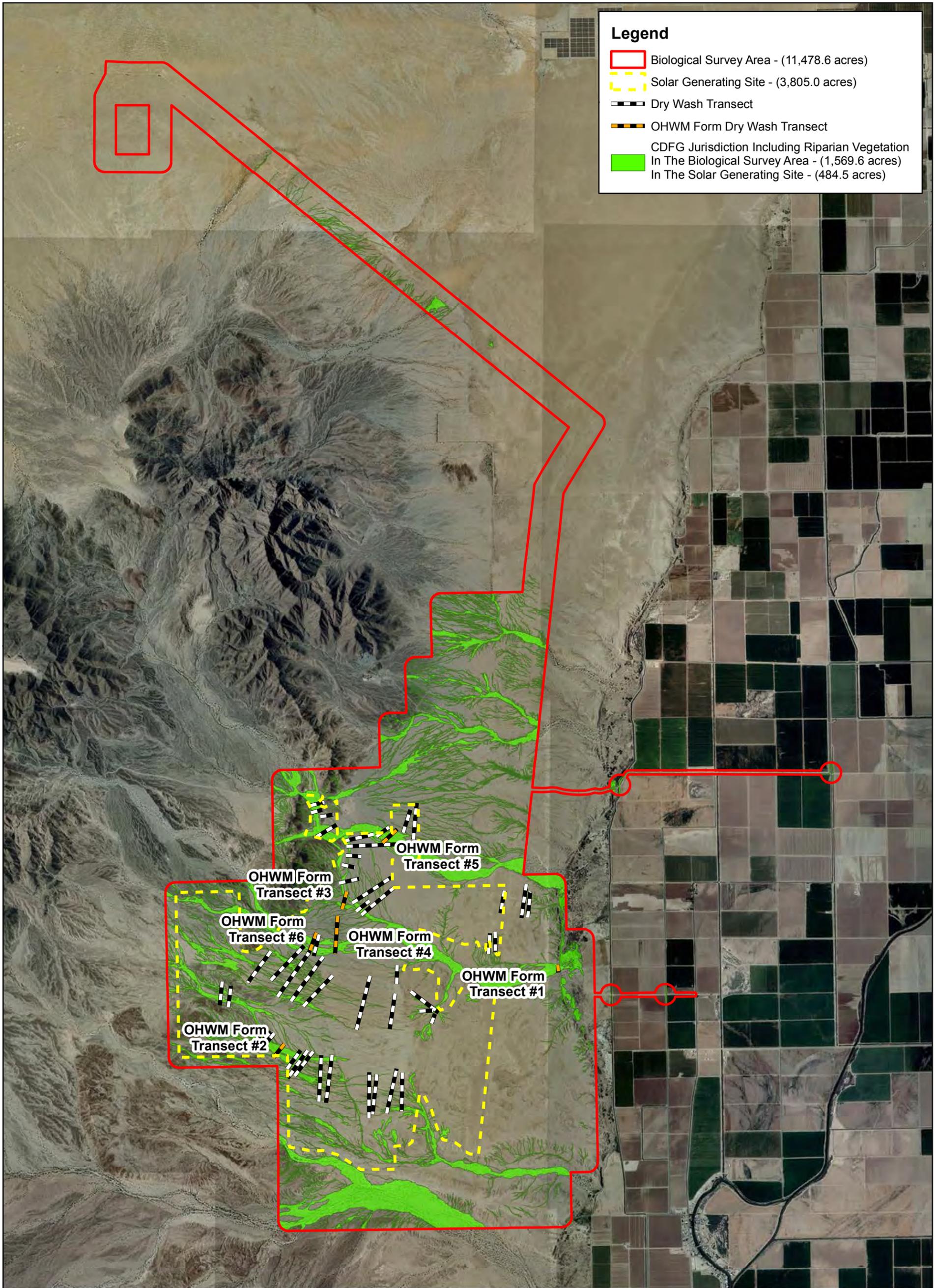
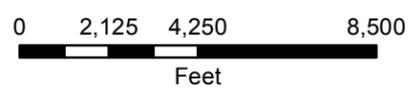


Figure 3. Transect Locations

BrightSource Rio Mesa Site  
Blythe, California



Map By: SG  
Date: October 2012  
Basemap: ESRI World Imagery

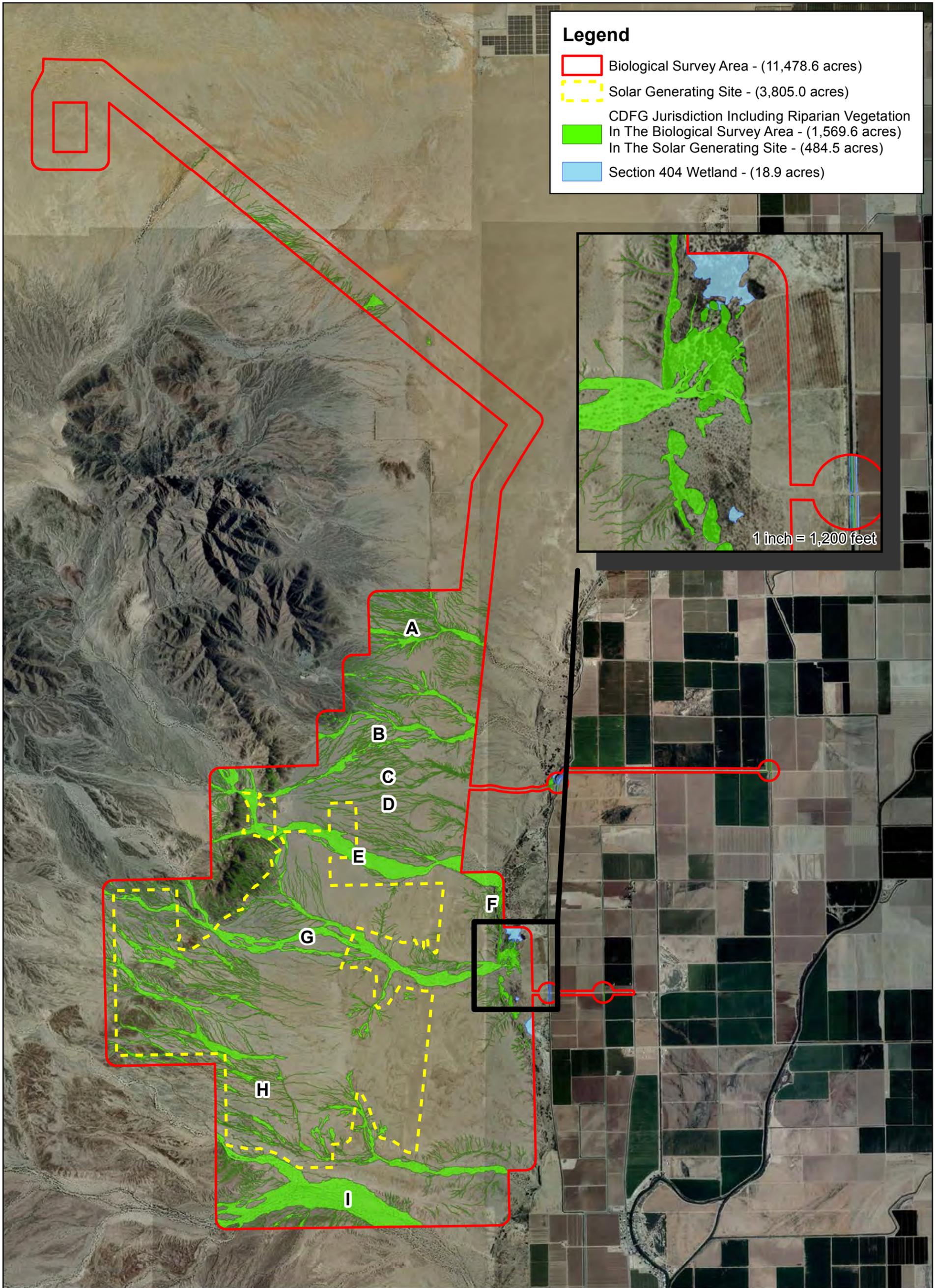
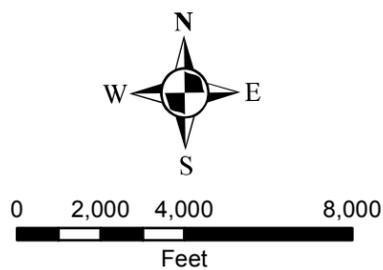
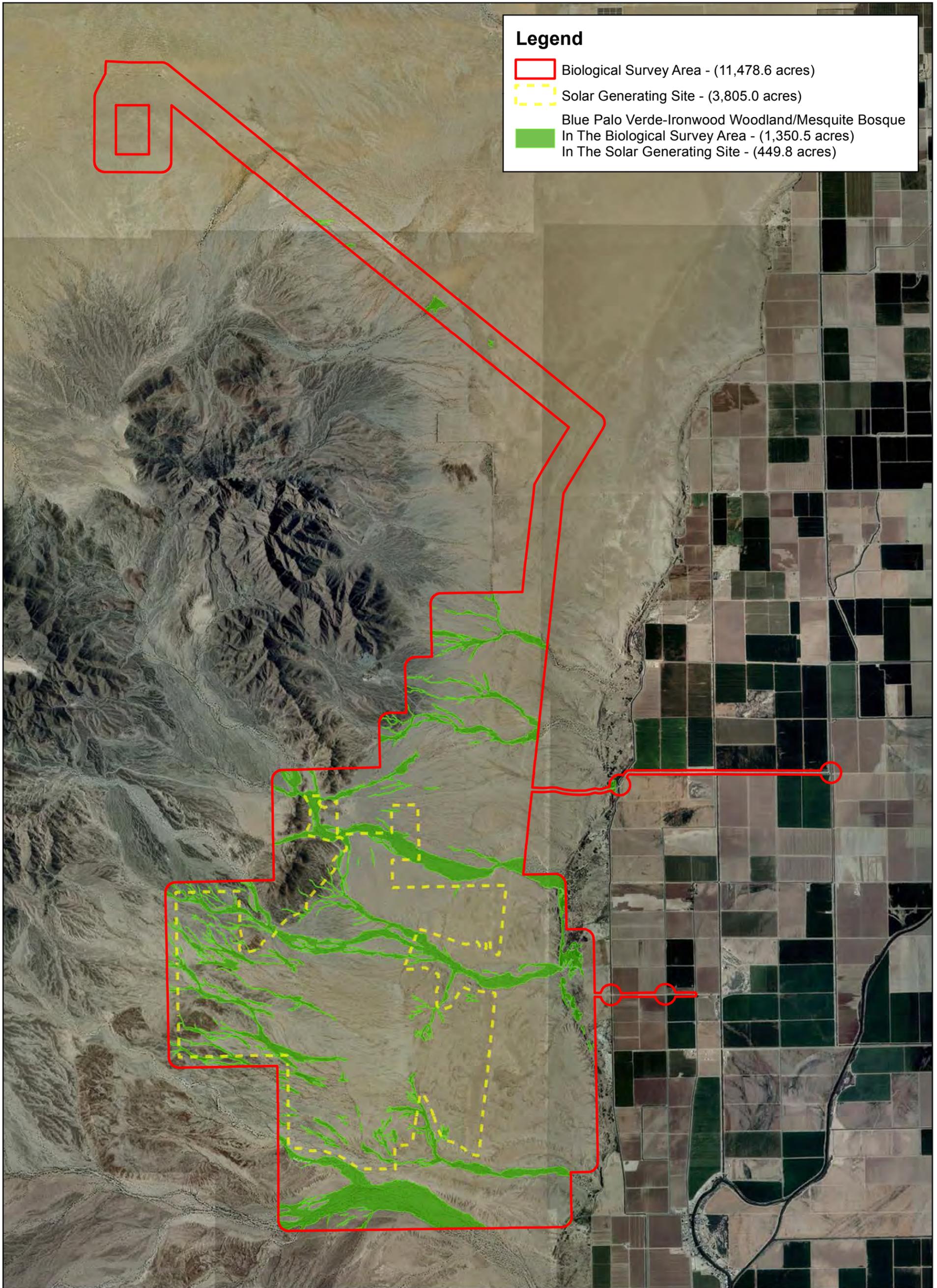


Figure 4. CDFG Jurisdiction Including Section 404 Wetlands

BrightSource Rio Mesa Site  
Blythe, California



Map By: SG  
Date: October 2012  
Basemap: ESRI World Imagery

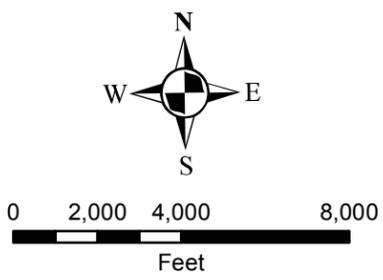


**Legend**

- Biological Survey Area - (11,478.6 acres)
- Solar Generating Site - (3,805.0 acres)
- Blue Palo Verde-Ironwood Woodland/Mesquite Bosque  
In The Biological Survey Area - (1,350.5 acres)  
In The Solar Generating Site - (449.8 acres)

Figure 5. CDFG Riparian Vegetation (Microphyll Woodland)

BrightSource Rio Mesa Site  
Blythe, California



Map By: SG  
Date: October 2012  
Basemap: ESRI World Imagery

Rio Mesa Solar Electric Generating Facility 1602 LSAA Application Package

**Attachment 7.**

**Vegetation Mapping Letter Report**



November 14, 2012

BrightSource Energy, Inc.  
1999 Harrison St., Suite 2150  
Oakland, CA 94612  
Attn: Todd Stewart, Project Development and Senior Director

Dear Todd:

**Re: Rio Mesa Solar Generating Facility, Vegetation Mapping Letter Report**

On behalf of BrightSource Energy Inc. (BrightSource), WRA, Inc. (WRA) has prepared this report containing additional information on the vegetation communities found within the Rio Mesa Solar Electric Generating Facility Project (Project Area) in Riverside County, California. Between October 13 and 19, 2012, WRA, Inc. (WRA) performed detailed vegetation mapping within the Biological Survey Area to update and refine the mapping previously reported by URS (2011). This letter describes the methods and results of the vegetation mapping performed by WRA within the proposed Solar Electric Generating Facility footprint (Solar Generating Site) and associated infrastructure (access roads, potential power line right-of-way alignments, and associated construction lands) including a buffer area around those features. The comprehensive survey area is referred as the Biological Survey Area (BSA).

*Purpose of Providing Additional Information*

This additional information is being submitted to correct the extent and classification of the previously mapped vegetation communities as reported in URS (2011) for the BSA. This additional information is based on field inspection and re-classification of vegetative communities based on species composition and coverage determined from walking transects within the BSA.

*Methods*

Prior to all field studies, WRA generated field maps at a scale sufficient (1:300) to navigate through the BSA, and identify and note distinct features (e.g. vegetation changes, individual trees, rock outcrops). Field maps contained the most recent high-quality aerial photograph (2010). Field maps contained both dry wash and microphyll woodland polygons mapped recently by WRA (2012a and 2012b), in addition to the boundaries of the BSA, the Project Area, and all project features (heliostat ring roads, access roads, etc.). WRA biologists carried handheld Trimble GeoXH 6000 GPS receivers with sub-foot accuracy to aid in navigation and mapping of vegetation communities. The GPS receivers contained the same data layers as the field maps.

Biological communities were identified based on vegetation alliance or vegetation associations described in *A Manual of California Vegetation Second Edition* (Sawyer et al. 2009). However,

in some cases it was necessary to identify variants of these vegetation alliances in order to better match observed conditions.

Sensitive biological communities were identified using species specific presence and quantitative vegetative criteria as described in the Manual (ibid). They are defined by the California of Department of Fish and Game as those alliances with a State (“S”) ranking of S1 through S3, communities considered jurisdictional under Sections 404 or 401 of the Clean Water Act and/or Section 1602 of the California Fish and Game Code, and communities afforded special consideration under the California Desert Native Plants Act. Non-sensitive biological communities were classified as those not afforded special consideration under CEQA or other state, federal, or local laws, regulations or ordinances.

Vegetation was mapped in the field by two WRA biologists over October 13 to 19, 2012. Rainfall in August and September 2012 was sufficient to result in leaf growth in many of the shrubs and trees and many herbaceous species were in flower. Once a biological community was identified in the field, its boundaries were hand-drawn on the field map. These boundaries were later digitized using ArcGIS in the office. Minimum mapping units for sensitive and non-sensitive communities are given in Table 1 below.

Table 1. Minimum mapping units

		Area	Square feet
Biological communities	Sensitive vegetation alliances	0.25	11,250
	Non-sensitive vegetation alliances	1	45,000

Vegetation within the Biological Survey Area is described based on vegetation alliance descriptions in the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Plant names given within this report follow Baldwin et al. (2012), with those from Hickman (1993) noted in brackets if applicable.

### Results

Sixteen vegetation communities were observed in the BSA, and 13 communities were observed in the Project Area. These communities are summarized in Table 2, and described in detail below. Figure 1 shows the extent and distribution of vegetation mapped in the BSA and Project Area. The previous vegetation mapping study (URS 2011) reported areas of desert dune habitat within the northern section of the BSA. WRA observed areas of loose, sandy soils within this section of the BSA; however, vegetation cover within these areas was high enough to warrant mapping the vegetation alliances as shown in Figure 1, and not desert dune as was previously mapped.

Table 2. Vegetation observed in the BSA and Project Area

Vegetation Type	Acreage	
	BSA	Project Area
<b>Sensitive</b>		
<i>Dry Wash Habitats</i>		
Blue palo verde-desert ironwood woodland alliance	1301.8	462.3
Mesquite bosque woodland alliance	48.7	1.0
Agriculture	0.0	0.0

Vegetation Type	Acreage	
	BSA	Project Area
Allscale Scrub Shrubland Alliance	0.9	0.0
Big Galleta Grass Herbaceous Alliance	2.0	0.0
Brittlebush - Ferocactus Scrub	1.3	0.0
Bush Seepweed Scrub Shrubland Alliance	0.0	0.0
Creosote Bush - Burro-bush Shrubland Alliance	18.2	12.7
Creosote Bush Scrub With Ocotillo Association	0.3	0.0
Creosote Bush Shrubland Alliance	185.0	27.8
Developed	1.7	0.3
Irrigation Ditch	8.4	2.6
Narrow Leaf Cattail Herbaceous Alliance	0.8	0.2
Tamarisk Thickets Semi-natural Shrubland Stands <sup>1</sup>	0.5	0.2
<i>Wetland Habitat Types</i>		
Bush seepweed scrub shrubland alliance	16.4	0.0
Narrowleaf cattail herbaceous alliance	0.3	0.0
Arrowweed scrub shrubland alliance	1.4	1.0
<i>CDFG Sensitive Alliance Habitat Type</i>		
Big galleta grass herbaceous alliance	70.5	13.5
<i>California Native Desert Plants Act/California Native Plant Protection Act Habitat Types</i>		
Brittlebush-ferocactus scrub	101.0	0.0
Creosote bush scrub with ocotillo association	37.0	34.2
Total Sensitive Communities	1795.9	551.1
<b>Non-Sensitive</b>		
Creosote bush-brittlebush shrubland alliance	1.4	0.0
Creosote bush-burrobush shrubland alliance	935.6	470.7
Creosote bush shrubland alliance	8419.1	3219.9
Allscale scrub shrubland alliance	59.9	1.7
Tamarisk thickets semi-natural shrubland stands	2.6	0.1
Irrigation ditch	0.1	0.0
Agriculture	114.0	14.6
Developed	164.6	21.3
Total Non-Sensitive Communities	9697.5	3685.8
<b>Total</b>	<b>11493.4</b>	<b>4236.8</b>

\*BSA includes 14.88 acres of expanded study area near the north end of the Gen-Tie alignment, Bradshaw Trail access right-of-way (ROW), and the 34<sup>th</sup> Ave. ROW.

\*\*Project Area includes solar generator site, construction areas, and ROW for linear components (gen-tie line, 33 kV line, and access roads).

### *Sensitive Alliances*

**Blue Palo Verde—Ironwood (*Parkinsonia florida* [*Cercidium floridum*])—*Olneya tesota*) Woodland Alliance (G4 S3.2).** Blue palo verde – ironwood woodland occurs on the margins of desert arroyos, seasonal watercourses and washes, bottomlands, middle and upper bajadas and alluvial fans. Soils are often sandy and well-drained, and derived from alluvium or colluvium. Blue palo verde – ironwood woodland occurs throughout the Colorado and Sonoran Desert sections of California. This vegetation alliance contains greater than three percent absolute cover of ironwood in the tall shrub or tree canopy, greater than three percent absolute cover of blue palo verde in the tall shrub or tree canopy, or greater than two percent absolute cover of ironwood and/or blue palo verde in the canopy layer together or on their own (Sawyer et al. 2009).

In the BSA this woodland community is generally restricted to washes, where it grows at the edge of the active floodplain. Blue palo verde (*Parkinsonia florida* [*Cercidium floridum*]) and ironwood (*Olneya tesota*) are the dominant trees. Associated species include creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), indigobush (*Psoralea arborescens*), cheesebush (*Ambrosia* [*Hymenoclea*] *salsola*), sweetbush (*Bebbia juncea*), spiderling (*Boerhavia* sp.), chinchweed (*Pectis papposa*), big galleta grass (*Hilaria* [*Pleuraphis*] *rigida*) and sixweeks grama (*Bouteloua barbata*).

**Mesquite (*Prosopis glandulosa*) Bosque Woodland Alliance (G5 S3.2).** Mesquite thicket (bosque) occurs on the fringes of playa lakes, river terraces, stream banks, floodplains, rarely-flooded margins of arroyos and washes, and sand dunes. Mesquite bosque occurs throughout California's southeastern deserts and in the southern San Joaquin Valley. The honey mesquite woodland alliance contains greater than three percent absolute cover of honey mesquite. Honey mesquite is the dominant species in the community and is not exceeded in cover by any other species of microphyllous tall shrub or tree (Sawyer et al. 2009).

Honey mesquite (*Prosopis glandulosa*) dominated mesquite bosque in the BSA, and stands are common on the far eastern slopes of the Rio Mesa, and on the historic Colorado River floodplain below. Common associated taxa include burrobush, bush seepweed (*Suaeda nigra* [*S. moquini*]), allscale (*Atriplex polycarpa*), fourwing saltbush (*Atriplex canescens*) and spiderling.

**Brittlebush (*Encelia farinosa*) / Ferocactus (*Ferocactus cylindraceus*) Scrub (Unranked/Sensitive Community).** Brittlebush scrub as described in Sawyer et al. (2009) is a G5 S4 ranked community. Brittlebush scrub occurs on alluvial fans, bajadas, colluvium, rocky hillslopes and on slopes of small washes and rills. Soils are well drained, rocky, and may be covered by desert pavement. The brittlebush scrub shrubland alliance contains greater than one percent absolute cover of brittlebush in the shrub canopy with no other woody species exhibiting greater cover (Sawyer et al. 2009). However, California barrel cactus (*Ferocactus cylindraceus*) is a conspicuous associated species in this community. California barrel cactus is a regulated plant under the California Desert Native Plants Act, therefore, this community is considered sensitive.

This alliance is restricted to rocky hillslopes of the southern Mule Mountain Range in the northwestern portion of the BSA. Brittlebush is the dominant shrub with open to sparse canopy closure. Common associated taxa include California barrel cactus, creosote bush, and

sixweeks grama.

**Bush Seepweed (*Suaeda nigra* [*S. moquinii*]) Scrub Shrubland Alliance (G5 S3.2).** Bush seepweed scrub occurs on flat to gently sloping valley bottoms, playas, toe slopes adjacent to alluvial fans, and in bajadas, where soils are deep, saline or alkaline. Bush seepweed scrub occurs across California's southeastern deserts, and in the Central Coast Ranges, the Southern Mountains and Valleys, the San Joaquin Valley, and in the Northwestern Basin and Range. However, the alliance is restricted primarily to alkaline substrates in desert and semi-desert habitats. Bush seepweed thickets contain greater than two percent absolute cover of bush seepweed with no other shrub occurring at a greater or equal cover (Sawyer et al. 2009).

Stands were generally monotypic in the BSA, though associated taxa at the edge of stands included allscale, honey mesquite and spiderling.

**Creosote Bush (*Larrea tridentata*) – Burrobush (*Ambrosia dumosa*) Scrub with Ocotillo (*Fouquieria splendens*) Association (G5 S5/Sensitive Community).** Though the creosote bush – burrobush scrubland alliance as described above is a non-sensitive community, Sawyer et al. (2009) and Evens and Hartman (2007) describe a unique vegetation association containing ocotillo (*Fouquieria splendens*). In this association, creosote bush and burrobush occur at a similar percentage of cover in the shrub canopy with ocotillo evenly spaced in the overstory at one to four percent cover throughout the community. Ocotillo is a regulated plant under the California Desert Native Plants Act, therefore, this community is considered sensitive.

This alliance is found at the edge of extensive desert pavements on gently sloping, well drained soils in the southern portion of the BSA. Emergent ocotillo is present at low cover, while creosote bush and rhatany (*Krameria bicolor* [*K. grayi*]) are dominant in the shrub canopy. Common associated taxa include burrobush, big galleta grass, trailing windmills (*Allionia incarnata*) and sixweeks grama. Emergent blue palo verde is also present at low cover.

**Big Galleta Grass Shrub – Steppe (*Hilaria* [*Pleuraphis*] *rigida*) Herbaceous Alliance (G3 S2.2).** Big galleta grass shrub-steppe occurs on flat ridges, lower bajadas, slopes, dune aprons, and stabilized dunes with fine textured soils that are well-drained. Stands occur on sandy and upland sites throughout the Sonoran Desert, but are largely restricted to sandy areas, dune fields, and narrow strands along drainages and washes. This alliance contains 10-35 percent absolute cover of big galleta grass in the herbaceous layer with emergent shrubs or trees at less than 10 percent absolute cover. Alternatively, big galleta grass may be greater than or equal to two percent absolute cover in the herbaceous layer with herbaceous cover exceeding shrub or tree cover (Sawyer et al. 2009).

In the BSA, this herbaceous community is found on sandy soils along the Gen-Tie Road, and on slopes of fine-textured sandy soils comprising the far eastern edge of the Rio Mesa. Big galleta grass is also common along narrow active and relic washes within the BSA, however, these were generally included in the surrounding vegetation alliance due to the relatively small size of the community. Common associated species include creosote bush, blue palo verde, California caltrop (*Kallstroemia californica*), burrobush, fanleaf crinklemat (*Tiquilia plicata*), and sixweeks grama.

**Cattail Marshes (*Typha* (*angustifolia*, *domingensis*, *latifolia*)) Herbaceous Alliance (G5 S5).** Cattail marshes occur in semi-permanently flooded freshwater or brackish marsh areas where soils are clayey or silty, and poorly drained. In the Sonoran Desert, cattail stands occur in marshes and also commonly occupy shallow irrigation ditches. In the cattail marsh

herbaceous alliance, *Typha angustifolia*, *T. domingensis*, and/or *T. latifolia* occur at greater than 50 percent relative cover in the herbaceous layer (Sawyer et al. 2009).

In the BSA, cattail marsh stands occur in standing water of irrigation ditches adjacent to agricultural fields along the eastern edge of right-of-way access areas. Narrow-leaved cattail (*Typha angustifolia*) is the species that was observed in these monotypic cattail marsh stands. Stands were often surrounded by tamarisk (*Tamarix sp.*) thickets and arrow weed (*Pluchea sericea*) scrub.

**Arrow Weed Thickets (*Pluchea sericea*) Shrubland Alliance (G3 S3.3).** Arrow weed thickets occur around springs, seeps, irrigation ditches, canyon bottoms, stream borders, and seasonally flooded washes with soils that are usually saline or alkaline. In the Sonoran desert, stands are common along the Colorado River margins and in associated tributaries and irrigation canals. The arrow weed thicket shrubland alliance contains greater than or equal to two percent cover of arrow weed with no other species having an equal or greater cover in the shrub canopy (Sawyer et al. 2009).

In the BSA, arrow weed thickets are located on the edge of irrigation ditches adjacent to agricultural fields along the eastern edge of right-of-way access areas (Bradshaw Trail). Arrow weed thickets grow in monotypic bands adjacent to other riparian vegetation. Arrow weed thickets occur adjacent to saltscale scrub (*Atriplex spp.*), tamarisk thickets, bush seepweed scrub, and cattail marsh-dominated communities that are also common along irrigation ditches.

#### *Non-sensitive Alliances*

**Fourwing Saltbush (*Atriplex canescens*) Scrub Shrubland Alliance (G5 S4).** Fourwing saltbush scrub occurs on playas, old beach and shores, lake deposits, dissected alluvial fans and rolling hills, generally in alkaline soil conditions. The fourwing saltbush alliance contains greater than two percent absolute cover and fifty percent relative cover of fourwing saltbush in the shrub canopy (Sawyer et al. 2009).

This alliance occurs at the toeslope of the Rio Mesa in the eastern portion of the BSA, at the edge of the historic Colorado River floodplain. It also occurs along graded road berms and on disturbed soils associated with agriculture and irrigation canals in the western portion of the Project Area. Fourwing saltbush (*Atriplex canescens*) is dominant or co-dominant in the shrub canopy. Associated taxa include allscale, bush seepweed, arrow weed and spiderling.

**Allscale (*Atriplex polycarpa*) Shrubland Alliance (G5 S4).** Allscale scrub occurs in washes, playa lake beds and shores, and other areas with poorly drained, finely textured alkaline soils, throughout the Colorado, Mojave and Great Basin deserts. The allscale scrub shrubland alliance contains greater than two percent absolute cover and fifty percent relative cover of allscale in the shrub canopy (Sawyer et al. 2009). Total cover is often low with much bare ground between widely spaced shrubs.

This alliance is restricted to the historic Colorado River floodplain, in the eastern portion of the BSA. Common associated taxa include bush seepweed, fourwing saltbush and honey mesquite.

**Creosote Bush (*Larrea tridentata*) Scrub Shrubland Alliance (G5 S5).** Creosote bush scrub occurs in alluvial fans, bajadas, upland slopes, minor intermittent washes, and on desert pavement across California's southeastern deserts. In the creosote bush scrub shrubland alliance, no other shrub species occur at a percentage of cover greater than creosote bush with

the following exceptions: rayless goldenhead (*Acamptopappus sphaerocephalus*), sweetbush (*Bebbia juncea*), green rabbitbrush (*Ericameria teretifolia*), or rhatany (*Krameria spp.*). Additionally, burrobush and brittlebush (*Encelia farinosa*) are absent from this alliance or occur at less than one percent cover (otherwise, the community would be included in a creosote bush – burrobush or creosote bush – brittlebush alliance). Mormon tea (*Ephedra nevadensis*) or buck horn cholla (*Cylindropuntia acanthocarpa*) may have higher cover than creosote bush, but no more than twice as high (Sawyer et al. 2009).

This alliance is widespread in the BSA. Creosote bush is dominant in the shrub canopy. Common associated taxa include rhatany (*Krameria bicolor* [*K. grayi*]), burrobush, brittlebush, *Cylindropuntia* [*Opuntia*] *ramosissima*, California caltrop, trailing windmills, spiderling and sixweeks grama.

**Creosote Bush – Burrobush Scrub (*Larrea tridentata* – *Ambrosia dumosa*) Shrubland Alliance (G5 S5).** Creosote bush – burrobush scrub occurs along minor washes and rills, and on alluvial fans, bajadas (broad lower slopes of foothills and mountains), and upland slopes on well-drained soils. Stands are common throughout California's southwestern deserts, with stands in the Sonoran Desert region exhibiting lower diversity than other locations due to lower climatic and topographic variation in the region. The creosote bush – burrobush scrub alliance contains both creosote bush and burrobush at greater than or equal to one percent absolute cover in the shrub canopy with both species exhibiting more than twice the cover of any other shrub species present. Burrobush may occur at greater cover than creosote bush. Rayless goldenhead, sweetbush, buck horn cholla, Mormon tea, green rabbitbrush, or rhatany may have higher cover than creosote bush or burrobush, but by no more than three times (Sawyer et al. 2009).

The creosote bush – burrobush scrub community is very common throughout the BSA, especially in locations where washes and hydrologic inputs are prevalent. Stands are especially common along the edges of minor washes and on slopes between areas of concentrated hydrologic activity. Stands are also widespread in the northern section of the BSA on fine sandy soils. Common associated species include blue palo verde, ironwood, big galleta grass, white rhatany, trailing windmills, sixweeks grama, and chinchweed (*Pectis papposa*).

**Creosote Bush – Brittle Bush Scrub (*Larrea tridentata* – *Encelia farinosa*) Shrubland Alliance (G5 S4).** Creosote bush – brittle bush scrub occurs along small washes and rills, and on alluvial fans, bajadas, and colluvium on upland slopes. Stands occur on well-drained slopes throughout the Sonoran Desert. It has been noted that this community typically occurs on hotter, rockier, and steeper slopes with less diversity and a lower percentage of cover of annual herbs than the creosote bush – burrobush scrub alliance described above. In this alliance, both creosote bush and brittlebush occur at greater than one percent absolute cover with no other woody species exceeding their cover. Burrobush, desert agave (*Agave deserti*), prickly pear (*Opuntia spp.*), and ocotillo may be present in the community at less than five percent absolute cover (Sawyer et al. 2009).

In the BSA, one stand of creosote bush – brittle bush scrub was observed on a rocky, north-facing hillslope with sparse shrub cover. Associated species in this area included California barrel cactus and burrobush. No other associated species were observed and plant cover in this rocky habitat was sparse.

**Tamarisk Thickets (*Tamarix spp.*) Semi-Natural Shrubland Stands, (No Rank/Non-Native Community).** Tamarisk thickets occur on arroyo margins, lake margins, ditches, washes, rivers, and other watercourses with sufficient hydrology to support tamarisk (*Tamarix spp.*)

shrubs and trees. In the Sonoran Desert, stands are wide-ranging and occur in a variety of riparian habitats throughout the Colorado River watershed. Tamarisk thickets contain greater than three percent absolute cover and 60 percent relative cover of tamarisk compared to other microphyllous trees or shrubs. There may be a minor presence of native species in this alliance (Sawyer et al. 2009).

In the BSA, tamarisk thickets occur on the edge of irrigation ditches adjacent to agricultural fields along the eastern edge of right-of-way access areas. Tamarisk stands also occur in and around the potential forested/shrub wetland and adjacent to agriculture fields on the eastern boundary of the BSA. Associated species include bush seepweed, allscale, arrow weed, and other shrubs tolerant of wet and saline soil conditions.

### **Irrigation Ditches**

Irrigation ditches include Hodges Drain, and several other non-named, man-made, bermed ditches that regularly carry irrigation water for use in the agricultural fields within and adjacent to the BSA. Irrigation ditches may contain sparse weedy or native vegetation, including tamarisk, arrow weed, or cattails.

### **Developed**

Developed areas include paved or bladed roads or graded areas, built structures, and associated infrastructure. Vegetation cover is lacking or sparse, generally non-native, weedy vegetation.

### *Mapping Units Removed from Previous Study*

The previous vegetation mapping study (URS 2011) reported areas of desert dune habitat within the northern section of the BSA. WRA observed areas of loose, sandy soils within this section of the BSA, however, vegetation cover within these areas was high enough to warrant mapping the vegetation alliances as shown in Figure 1, and not desert dune as was previously mapped.

Sincerely,

A handwritten signature in black ink, appearing to read 'MJosselyn', with a long horizontal flourish extending to the right.

Michael Josselyn, PhD PWS  
WRA, Inc.

*Attachments*

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Sources Cited:

- Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkeley, CA.
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- Hickman, J.C., ed. 1993. The Jepson Manual of Higher Plants of California. University of California Press. Berkeley and Los Angeles, California.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society in collaboration with California Department of Fish and Game. Sacramento, CA.
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- WRA, Inc. (WRA). 2012a. Revised Preliminary Jurisdictional Determination Report, Rio Mesa Solar Electric Generating Facility, Riverside County, California. Prepared for BrightSource, Inc. October 5.
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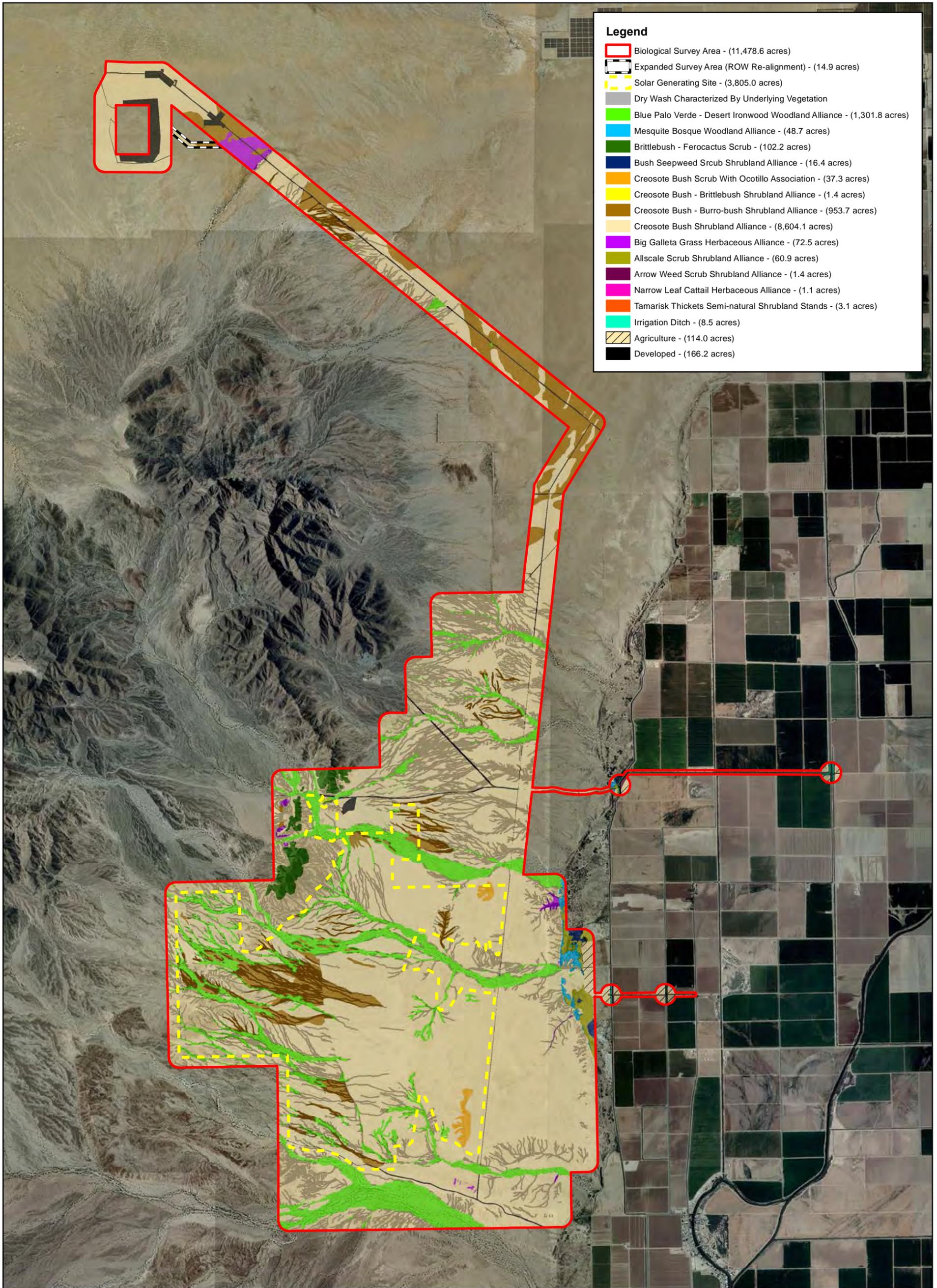
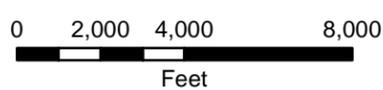


Figure 1. Vegetation Communities

BrightSource Rio Mesa Site  
Blythe, California



Map By: SG  
Date: October 2012  
Basemap: ESRI World Imagery



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA  
1516 NINTH STREET, SACRAMENTO, CA 95814  
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION FOR THE  
RIO MESA SOLAR ELECTRIC  
GENERATING FACILITY**

DOCKET NO. 11-AFC-04  
PROOF OF SERVICE  
(Revised 11/2/12)

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DECLARATION OF SERVICE

I, Kwame Thompson, declare that on November 30, 2012, I served and filed a copy of the attached document Application for a Lake and Streambed Alteration Agreement, dated November, 2012. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at: <http://www.energy.ca.gov/sitingcases/riomesa/index.html>.

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following manner:

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

**For service to all other parties:**

- Served electronically to all e-mail addresses on the Proof of Service list;
- Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses marked **"hard copy required"** or where no e-mail address is provided.

**AND**

**For filing with the Docket Unit at the Energy Commission:**

- by sending electronic copies to the e-mail address below (preferred method); **OR**
- by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

**CALIFORNIA ENERGY COMMISSION – DOCKET UNIT**  
Attn: Docket No. 11-AFC-04  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512  
[docket@energy.ca.gov](mailto:docket@energy.ca.gov)

***OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:***

- Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission  
Michael J. Levy, Chief Counsel  
1516 Ninth Street MS-14  
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[michael.levy@energy.ca.gov](mailto:michael.levy@energy.ca.gov)

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Original Signed by: \_\_\_\_\_  
Kwame Thompson