DOCKETED	
Docket Number:	11-AFC-04
Project Title:	Rio Mesa Solar Electric
TN #:	233552
Document Title:	Applicant's Supplemental Response to Data Request 16 and 26 Additional Information Regarding Soils
Description:	N/A
Filer:	Marichka Haws
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	6/19/2020 3:06:23 PM
Docketed Date:	6/19/2020

APPLICANT'S SUPPLEMENTAL RESPONSE TO DATA REQUEST 16 AND 26: ADDITIONAL INFORMATION REGARDING SOILS

In this section of Applicant's Supplemental Response to CEC Staff Data Requests 16 and 26, Applicant describes the changes to Soils section that will result from the changes to the Project Description relating to the removal of Unit 3. Per staff's request, Applicant uses a strike-out/underline format to identify changes to the Soils section of the Application for Certification that will result from the changes to the Project Description.

The Soils sub-sections that have been modified are listed in the table of contents below. If there has been no change to a Soils sub-section relating to Applicant's Supplemental Response to Data Request 16 and 26, the section is labeled "no changes" in the table of contents below.

Table of Contents

Tables

Figures

Appendices

5.11 SOILS

5.11.1 Introduction (See Section 2.1.1 for updated project description)

5.11.2 Laws, Ordinances, Regulations and Standards (no changes)

5.11.2.1 Federal

The following paragraphs describe federal LORS that apply to the Project.

National Environmental Policy Act of 1969

The NEPA establishes a public, interdisciplinary framework for Federal agencies reviewing projects under their jurisdiction to consider environmental impacts. NEPA's basic policy is to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment.

The Bureau of Land Management (BLM), as lead Federal agency for the Project, is responsible for preparation of an Environmental Impact Statement (EIS) in compliance with NEPA to evaluate the environmental impacts of the portions of the Rio Mesa SEGF on federal lands. The ~~Rio Mesa Solar III plant and the~~ Project gen-tie line, upgraded Bradshaw Trail access road, and 33kV construction/emergency backup power line are located on lands administered and managed by the BLM. NEPA compliance is required for these portions of the Project through preparation of a Draft and Final EIS. The Applicant anticipates that BLM may consider RMS 1 and 2 as a connected action under NEPA. BLM is also responsible for Native American consultation, including government to government consultation regarding project facilities on BLM land.

The President's Council on Environmental Quality (CEQ) developed guidelines and procedures to assist Federal agencies with NEPA procedures so that environmental justice concerns are effectively identified and addressed. This includes guidelines for public participation, alternatives, and mitigation.

Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977 (no changes)

USDA Engineering Standards (no changes)

Bureau of Land Management Regulations

Because ~~a plant and a~~ the gen-tie ~~transmission~~ line, access road, and construction/emergency backup supply power line will be constructed across lands under the jurisdiction of BLM, project activities will be conducted in a manner consistent with the California Desert Conservation Area (CDCA) Plan, as amended, and the Northern and Eastern Colorado Desert (NECO) Coordinated Management Plan. The Project will comply with the CDCA and NECO requirements pertaining to land disturbance, soil compaction, and erosion and sediment controls.

5.11.2.2 State (no changes)

5.11.2.3 Local (no changes)

5.11.3 Affected Environment

5.11.3.1 Regional Setting (no changes)

5.11.3.2 Agricultural Resources

No farmlands that are prime, of statewide importance, or unique as defined by the California Department of Conservation are situated on the project site. However, prime farmlands and farmlands of statewide importance are located approximately ~~0.3~~0.8 mile from the project site and approximately 0.7 mile from the transmission line corridor. Unique farmlands are situated approximately ~~0.2~~1.1 mile from the project site and approximately 0.9 mile from the transmission line corridor.

The new access road that will be constructed north of and parallel to 34th Avenue will cross ~~P~~prime farmlands and farmlands of statewide importance~~ also are located within 0.25 mile of the 34th Avenue access road~~. The land use study area for the 33 kV service line also affects parcels with prime farmland, farmland of statewide importance, and unique farmland designations. ~~(s~~See Section 5.6.4 for discussion of the potential effects on land use from these linears. Additional information is provided in Figure 5.6-3 and Table 5.6-6 in Section 5.6, Land Use~~)~~.

Farmlands of local importance, as designated in the Riverside County *General Plan*, are situated on the project site and in the proposed transmission line corridor. In general, the farmlands of local importance are considered to be of locally significant economic importance (Riverside County *General Plan*, Multipurpose Open Space Element 2003).

No land within one mile of the project site or transmission line corridor is subject to a Williamson Act contract. However, agricultural land under Williamson Act Contract is located within the land use study area of the 5.1-mile overbuild portion of the proposed 33 kV service line. No new transmission line poles will be constructed within lands under Williamson Act Contract. For additional discussion, please see Section 5.6, Land Use.

5.11.3.3 Soil Types within the Study Area (no changes)

5.11.3.4 Agricultural Use On and Around the Proposed Site (no changes)

5.11.3.5 Other Soil Conditions (no changes)

5.11.4 Environmental Analysis

5.11.4.1 Soil Loss and Erosion (no changes)

5.11.4.2 Water Erosion

~~An e~~Estimates of soil loss during construction and during long term operations and maintenance conditions by water erosion for the project site are~~is~~ found in Table 5.11-3. These~~is~~ estimates ~~was~~ were developed using the Revised Universal Soil Loss Equation (RUSLE2) program using the assumptions listed below. Note that RUSLE2 accounts for sheet and rill erosion due to surface water runoff and does not account for large scale scour/erosion/sedimentation associated with gullies or major washes. Detailed calculations and assumptions for the RUSLE2 soil loss estimates are found in Appendix 5.11A. A scour and sediment transport study was conducted by the applicant that includes the ephemeral drainages/washes. A summary of the scour analysis for the e~~m~~phemeral drainages is summarized in the water resources section of the AFC (Section 5.15.3.2) and the technical report is included in Appendix 5.11B.

The assumptions used as part of the analysis are summarized below.

- Estimates of soil loss (in tons per acre per year [tons/ac/yr]) were made for the site-specific soil mapping unit characteristics that were available within the RUSLE2 database.
- RUSLE2 rainfall erosivity conditions were estimated for the Rio Mesa SEGF site coordinates using RUSLE2 Riverside County data with an approximate average annual rainfall of 3.6 inches.
- A 100-foot slope length was assumed for all soil units. The median of each soil unit slope class was used for the RUSLE calculations.
- Slopes of 0.5, 1.0, and 2.0 percent were run within RUSLE2. The reported values in Table 5.11-3 represent existing and proposed conditions slopes of 1.0 percent.
- Soil losses were estimated using the RUSLE2 conditions summarized below.
  - Existing condition soil losses were approximated using Management as "bare smooth, no disturbance;" Contouring as "None;" Diversion/terracing as "None;" and Strips and Barriers as "None."
  - Construction soil losses were approximated using Management as "rough bare, freshly disturbed;" Contouring as "None;" Diversion/terracing as "None;" and Strips and Barriers as "None."
  - Construction soil losses assuming implementation of construction BMPs were approximated using the same parameters but adding silt fence (half retardance). Soil stabilization BMPs were not modeled.
  - Long term operations and maintenance conditions were approximated assuming sparse long term vegetation. It was assumed that there will be some drainage controls onsite to mimic existing sheet flow conditions.

Table 5.11-3 illustrates that construction-phase sediment loss/delivery increases over existing conditions without installation of BMPs. With implementation of BMPs during construction, the soil delivery rate (amount of soil transported downstream) is less than under existing conditions, demonstrating the need for installation of proper soil stabilization and sediment control BMPs. Long term operations and

maintenance conditions result in predicted soil loss slightly less than that of the construction phase condition (with BMPs).

It should be recognized that the estimates of accelerated soil loss by water are very conservative (i.e., will tend to overestimate soil loss) because they assume the use of a single BMP (i.e., silt fencing), whereas an actual SWPPP will require the implementation of multiple soil stabilization and soil erosion control measures.

Table 5.11-3
Estimate of Soil Loss by Water Erosion

Soil Map Unit Code	Soil Map Unit Name	Soil Loss (Delivery) in tons/acre/year			
		Existing (No-Project)	Construction (no BMPs)	Construction (with BMPs)	Long Term Operations & Maintenance
CA654	Aco-Rositas-Carrizo	0.14	0.32	0.05	0.04
CA927	Gunsight-Rillito-Chuckwalla	0.12	0.27	0.05	0.03

Notes:
1) Soil loss/delivery is average weighted value from sub-component soils within the soil map unit.
2) Soil loss for construction with BMPs (Best Management Practices) is soil or sediment delivery to downstream area (not soil detachment from slope).

5.11.4.3 Wind Erosion (no changes)

5.11.4.4 Impacts on Jurisdictional Wetlands (no changes)

5.11.4.5 Construction (no changes)

5.11.4.6 Vegetation Clearing and Cutting

To construct the heliostat array fields, some vegetation clearing will occur, but only where necessary to allow for equipment access and stormwater management. In areas where general site grading is not required, vegetation clearing will not occur, except for the drive zones, which will be grubbed, bladed and smoothed.

An approximate 8- to 12-foot-wide linear swath of vegetation along the entire outer edge of the area to be developed will be cleared and grubbed (but not graded except as required for safe passage of vehicles) to create an internal perimeter path for installation of the tortoise and security fencing. Vegetation clearing, with leveling or grading limited to the walls of the washes, will be performed beneath the heliostats where the existing vegetative 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. As noted earlier, the vegetation will be cut with a mower.

Occasional trimming of the vegetation may be required during the operational phase of the Project to control plant regrowth that could affect heliostat mirror movement.

Clearing and grubbing, where shrubs including roots are removed, will be performed in different portions of the project area, as follows: maintenance roads for each plant; drive zone paths; the power blocks; in the common area where the existing topography must be modified to make suitable parking; building pads, and laydown areas; in the graded portions of the ~~three~~ two plants; and to provide access for installation equipment and materials during construction (areas requiring leveling by grading). For all other areas, existing vegetation (and root systems) will be maintained where feasible to anchor the soil and reduce the potential for erosion. Where existing site topography is favorable, the natural drainage features will be maintained.

5.11.4.7 General Grading and Leveling (no changes)

5.11.4.8 Storm Drainage System (no changes)

5.11.4.9 Erosion and Sediment Control Measures (no changes)

5.11.4.10 Operation (no changes)

5.11.4.11 Effects of Generating Facility Emissions on Soil-Vegetation Systems (no changes)

5.11.4.12 Contaminated Soils (no changes)

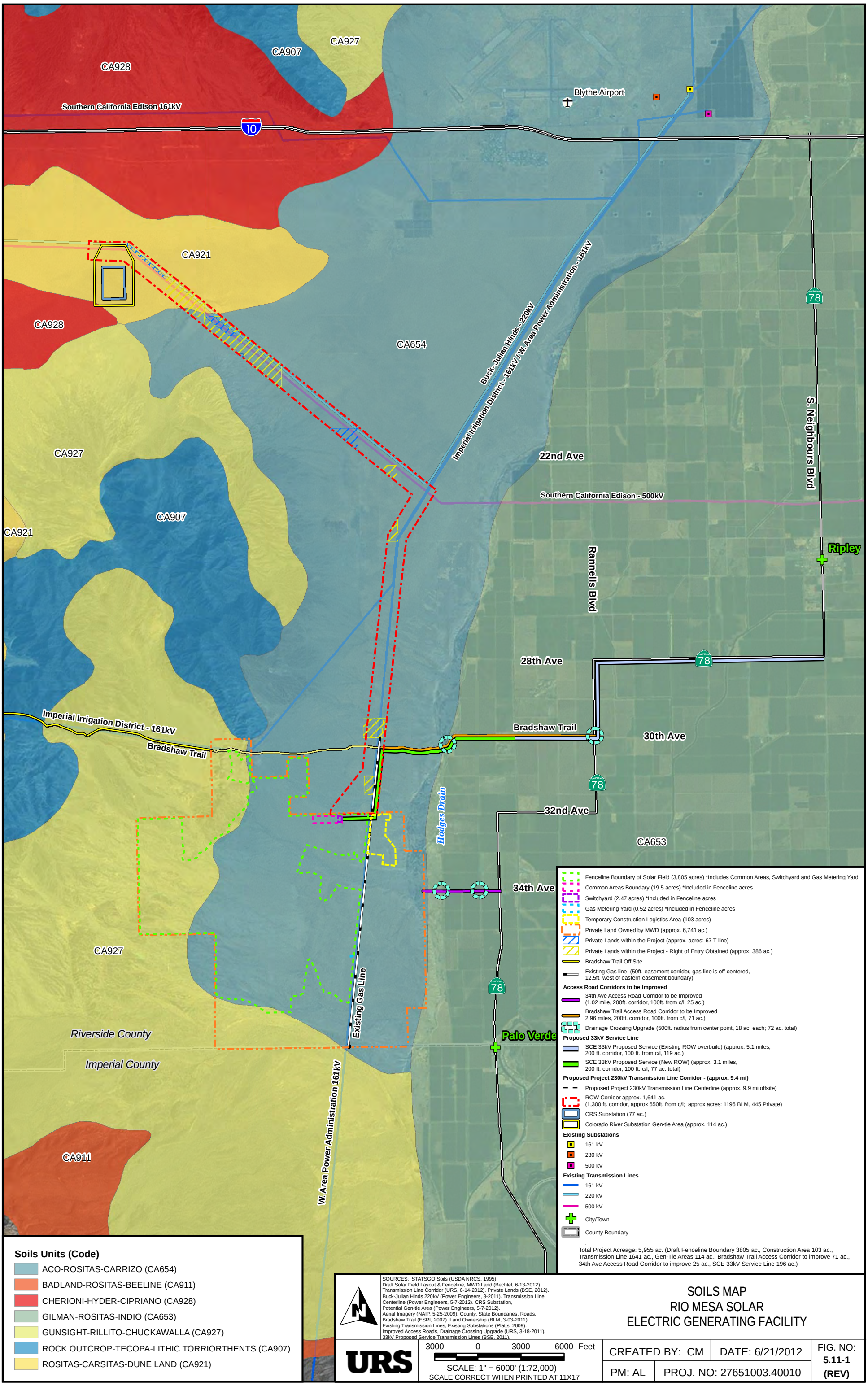
5.11.5 Cumulative Effects (no changes)

5.11.6 Mitigation Measures (no changes)

5.11.7 Involved Agencies and Agency Contacts (no changes)

5.11.8 Permits Required and Permit Schedule (no changes)

5.11.9 References (no changes)



SOURCES: STATSGO Soils (USDA NRCS, 1995).
Draft Solar Field Layout & Fenceline, MWD Land (Bechtel, 6-13-2012).
Transmission Line Corridor (URS, 6-14-2012). Private Lands (BSE, 2012).
Buck-Julian Hinds 220kV (Power Engineers, 8-2011). Transmission Line Centerline (Power Engineers, 5-7-2012). CRS Substation, Potential Gen-tie Area (Power Engineers, 5-7-2012).
Aerial Imagery (NAIP, 5-25-2009). County, State Boundaries, Roads, Bradshaw Trail (ESRI, 2007). Land Ownership (BLM, 3-03-2011).
Existing Transmission Lines, Existing Substations (Platts, 2009).
Improved Access Roads, Drainage Crossing Upgrade (URS, 3-18-2011).
33kV Proposed Service Transmission Lines (BSE, 2011).

URS

3000 0 3000 6000 Feet

SCALE: 1" = 6000' (1:72,000)
SCALE CORRECT WHEN PRINTED AT 11X17

SOILS MAP
RIO MESA SOLAR
ELECTRIC GENERATING FACILITY

CREATED BY: CM	DATE: 6/21/2012	FIG. NO: 5.11-1 (REV)
PM: AL	PROJ. NO: 27651003.40010	

Path: G:\gis\projects\157\27651002\map_docs\mxd\Supplemental\Geology\Soils.mxd, colin_mattison, 6/21/2012, 11:05:42 AM