

Appendix A

Initial Study/NOP/NOP Comments

Appendix A1

Initial Study/NOP



Scarlet Solar Energy Project

Initial Study

prepared by

County of Fresno
Department of Public Works and Planning
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September 2018

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Initial Study

1. Project Title

Scarlet Solar Energy Project

2. Lead Agency

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3. Project Applicant

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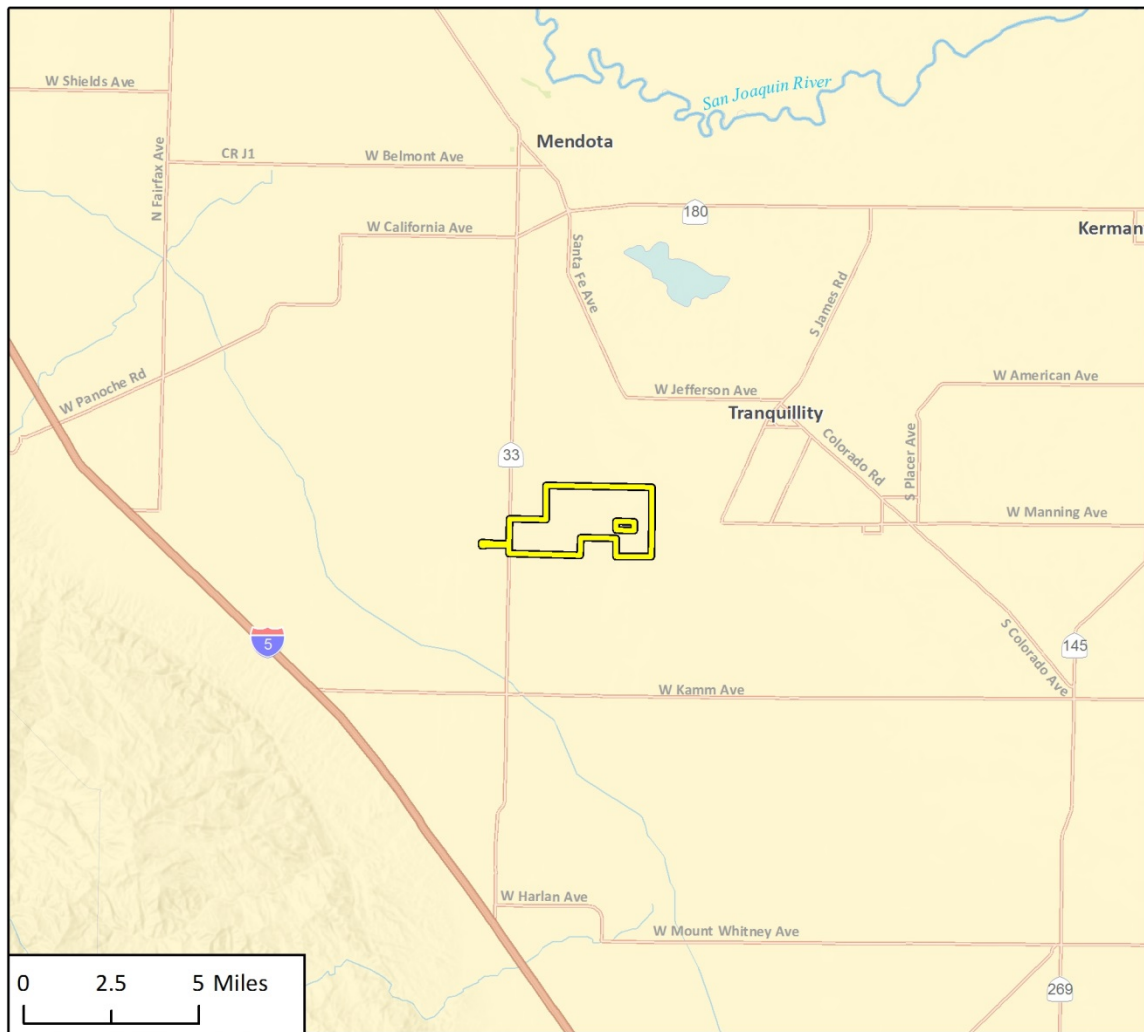
4. Project Location

The project site is located in unincorporated Fresno County, approximately 3.5 miles west-southwest of the community of Tranquillity and approximately 6.5 miles east of Interstate 5 (I-5). The project site is northeast of and adjacent to the Tranquillity Solar Generating Facility, currently under construction. The project site would encompass up to 33 parcels¹ located generally south of West South Avenue, north of West Dinuba Avenue, east of Ohio Avenue and State Route 33 (SR 33, South Derrick Avenue), and west of South San Mateo Avenue. Figure 1 and Figure 2 show the location of the project site on regional and local scales, respectively. Figure 3 shows the preliminary site plan. Figures 2 and 3 show that the project site encompasses approximately 76 acres of federally owned land that are not part of the Project.²

¹ The Project would be constructed on any or all of assessor parcels 028-07-134, 028-07-139, 028-07-140, 028-07-141, 028-07-143, 028-07-144, 028-07-145, 028-07-147, 028-07-148, 028-07-149, 028-08-166, 028-11-101, 028-11-102, 028-11-104, 028-11-106, 028-11-107, 028-11-109, 028-11-110, 028-11-112, 028-11-113, 028-11-114, 028-11-115, 028-11-116, 028-11-117, 028-11-119, 028-11-120, 028-12-061, 028-12-062, 028-10-074, 028-10-072, 028-10-082, 028-10-081, and 028-101-75S.

² The project site excludes assessor parcels 028-12-033, 028-12-035, 028-12-037, and 028-12-039.

Figure 1 Regional Location



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 Project Location



Fig 1 Regional Location

Figure 2 Project Location

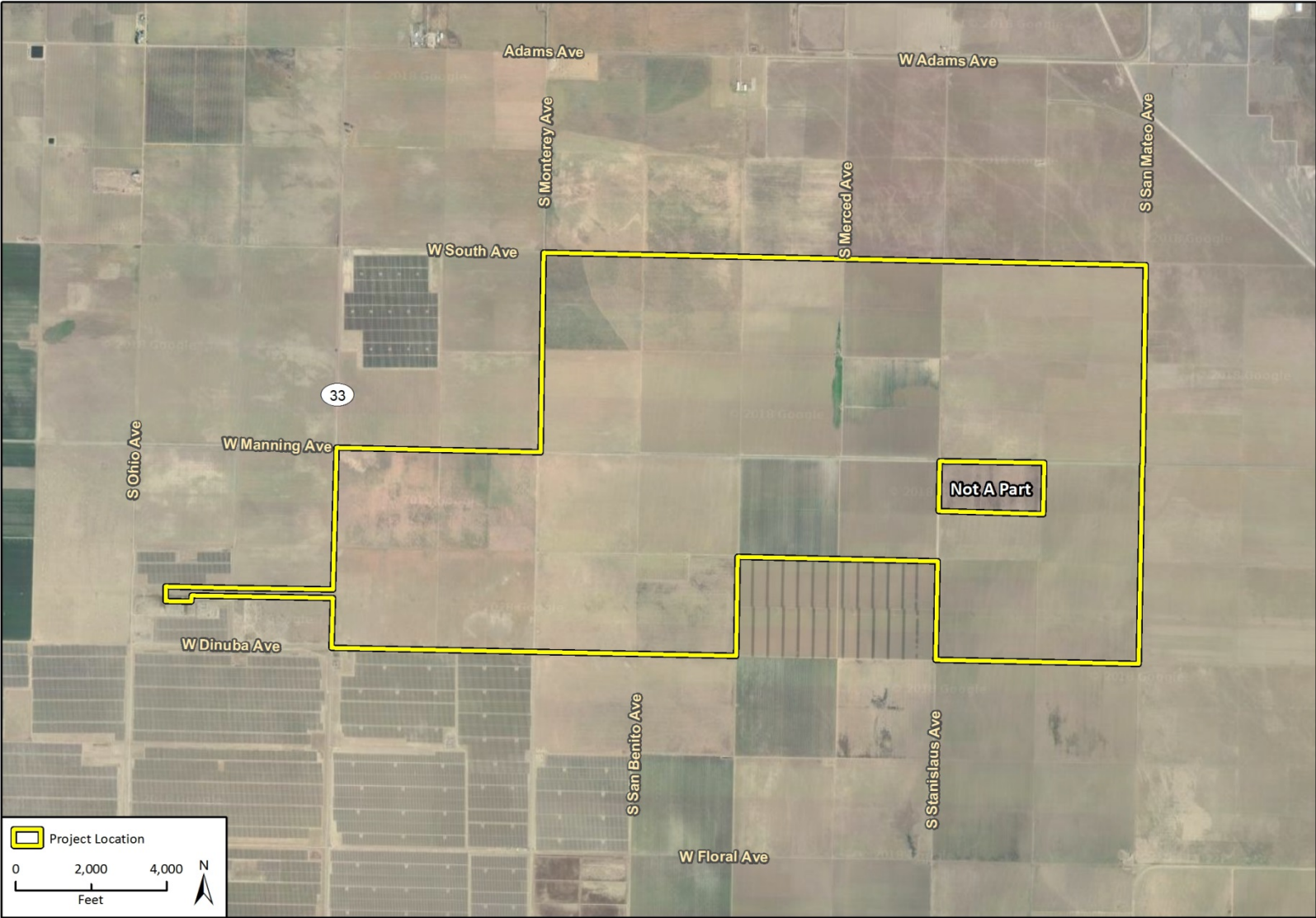
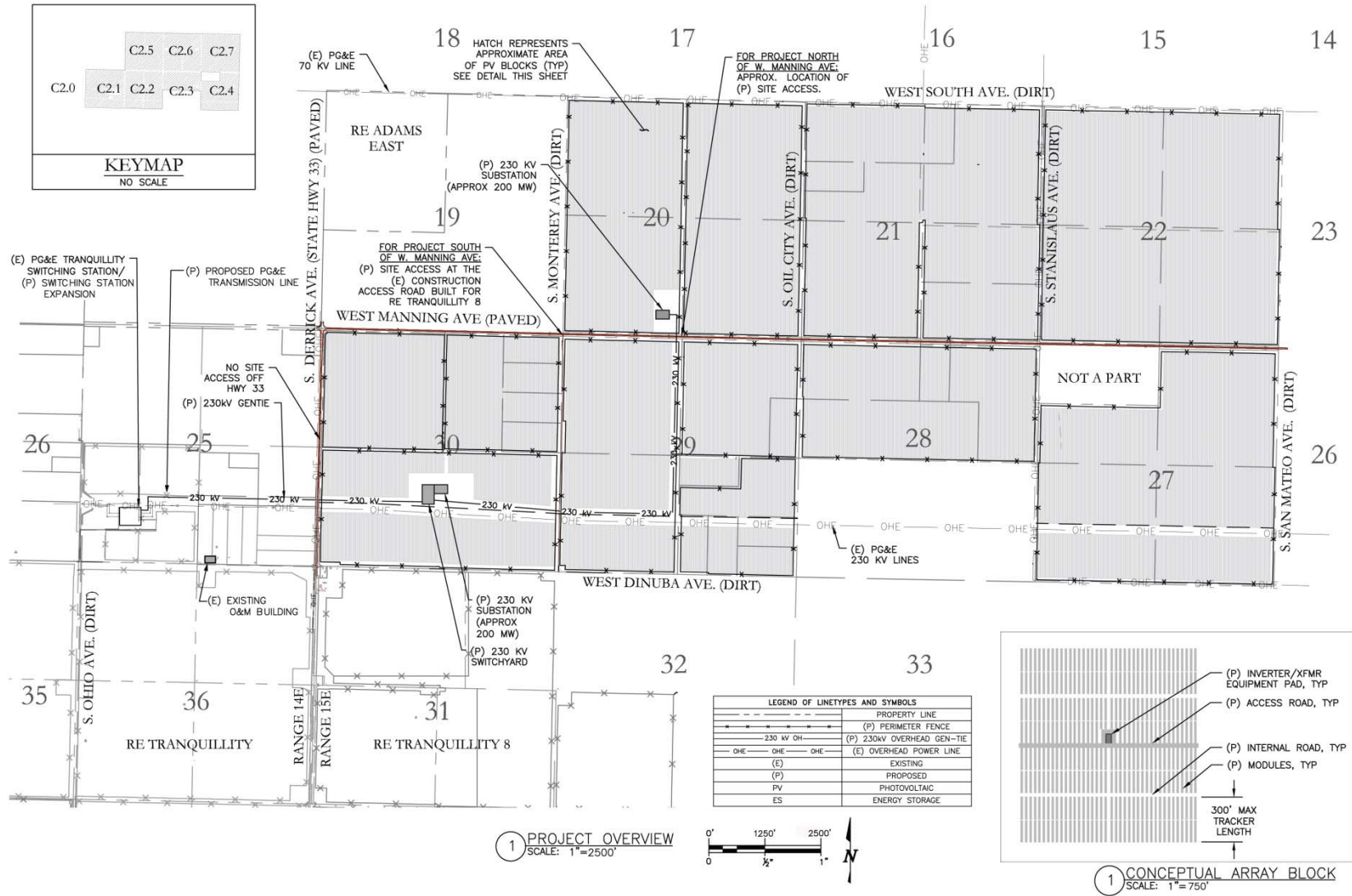


Figure 3 Site Plan



Source: Recurrent Energy, 2017.

5. General Plan Designation

Agriculture

6. Zoning

AE-20 (Exclusive Agricultural, 20-acre minimum parcel size)

7. Description of Project

The Scarlet Solar Energy Project (Project) is proposed by RE Scarlet LLC (Applicant), a wholly owned subsidiary of Recurrent Energy (RE) LLC. The Applicant has applied to the Fresno County Department of Public Works and Planning (the County) for an Unclassified Conditional Use Permit ([CUP] No. 3555) to construct, operate, maintain, and decommission a solar photovoltaic (PV) electricity generating facility (referred to in this document as the solar facility) and energy storage system and associated infrastructure to be known as the Scarlet Solar Energy Project. The solar facility would generate a total of up to 400 megawatts (MW) of alternating current (AC) at the point of electrical grid interconnection on approximately 4,089 acres in unincorporated western Fresno County. The solar facility would provide solar power to utility customers by interconnecting to the regional electricity grid at Pacific Gas and Electric Company's (PG&E) Tranquillity Switching Station located just west of the project site.

Expansion of PG&E's Tranquillity Switching Station and installation of approximately 1,900 feet of 230 kilovolt (kV) transmission line is necessary to connect the Scarlet solar facility to the statewide high-voltage electrical grid. While the County does not have approval authority over PG&E's switching station expansion and transmission line, which is under the jurisdiction of the California Public Utilities Commission, the environmental impacts of the switching station expansion and transmission line are reviewed as part of the Project.

The Project would operate year-round to generate solar electricity during daylight hours, and would store and dispatch power at the energy storage system during both daylight and non-daylight hours. The Project is anticipated to be constructed in continuous phases, with the first phase beginning in mid-2020. The exact timing of the last phase is dependent on opportunities in the solar market, but it is currently anticipated to be online as early as late 2021.

Components of the Project would include the following, which are further described below:

- Groups of solar arrays (arrays include PV modules and steel support structures, electrical inverters, transformers, cabling, and other infrastructure);
- Two electrical substations;
- A switchyard, including one high-voltage 230 kV utility switchyard, a 140-foot radio tower for telecommunications, and two 150-foot dead-end structures;
- Approximately 3.1 miles of 230 kV generator intertie (gen-tie) transmission line (from the substations and the 230 kV switchyard) to connect to PG&E's Tranquillity Switching Station;
- Improvements to PG&E electrical infrastructure, including a minor expansion of PG&E's Tranquillity Switching Station and approximately 1,900 feet of PG&E 230 kV transmission line to connect the 230 kV gen-tie line to the Tranquillity Switching Station;

- A 400 MW energy storage system, consisting of battery or flywheel enclosures and electrical cabling; and
- Other necessary infrastructure, including one permanent operation and maintenance (O&M) building, a septic system and leach field, a supervisory control and data acquisition (SCADA) system, a meteorological data system, buried conduit for electrical wires, overhead collector lines, on-site access roads, a shared busbar,³ and wildlife-friendly security fencing.

Photovoltaic Modules and Support Structures

The solar facility would include an estimated two million to six million solar modules, although the precise module count would depend on the technology ultimately selected. The ultimate decision for the module types and racking systems described herein would depend on market conditions and environmental factors, including the recycling potential of the modules at the end of their useful lives. Types of modules that may be installed include thin-film modules (including cadmium telluride [CdTe or “cad tel”] and copper indium gallium diselenide technologies), crystalline silicon modules, or any other commercially available PV technology. Solar thermal technology is not being considered. Module mounting systems that may be installed include either fixed-tilt or tracking technology, depending on the PV modules ultimately selected.

The PV modules will be manufactured at an off-site location and transported to the solar facility site. Modules will be arranged in strings with a maximum height of 12 feet. Module faces will be minimally reflective, dark in color, and highly absorptive of light. Modules will be arranged on the site in solar arrays. For single-axis tracking systems, the length of each row of modules will be approximately 300 feet along the north/south axis. For fixed-tilt systems, a row consists of multiple “tables” (four modules high by 10 modules wide, depending on design), each table approximately 65 feet along the east/west axis, with 1 foot spacing between each table. Spacing between each row will be a minimum of 4 feet. The solar module arrays would generate electricity directly from sunlight, and collect the electricity to a single point at one of the Project substations. The substations would interconnect to PG&E’s transmission and distribution system.

Structures supporting the PV modules would consist of steel piles (e.g., cylindrical pipes, H-beams, or similar), which will be driven into the soil using pneumatic techniques, such as a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The piles typically will be spaced 10 feet apart. For a single-axis tracking system, piles typically will be installed to a reveal height of approximately 4 feet above grade, while for a fixed-tilt system the reveal height would vary based on the racking configuration specified in the final design. For single-axis tracking systems, following pile installation the associated motors, torque tubes, and drivelines (if applicable) will be placed and secured. Some designs allow for PV modules to be secured directly to the torque tubes using appropriate module clamps. For some single-axis tracking systems, and for all fixed-tilt systems, a galvanized metal racking system, which secures the PV modules to the installed foundations, will then be field-assembled and attached according to the manufacturer’s guidelines.

Fixed-tilt arrays will be oriented along an east-west axis with modules facing generally south. Tracking arrays will be oriented along a north-south axis with modules tracking east to west to follow the movement of the sun. The total height of the module system measured from ground

³ A busbar is a system of electrical conductors in a generating or receiving station on which power is concentrated for distribution to several electrical circuits.

surface will be up to 12 feet. For fixed-tilt systems, the modules will be fixed at an approximate 20- to 60-degree angle or as otherwise determined necessary during final Project design.

Where excavations are required, the majority of proposed construction activities will be limited to less than 6 feet in depth, however, some excavations, such as those undertaken for the installation of electricity collector poles and dead-end structures, may reach depths of 20 feet or more.

Energy Storage System

The Project could include, at the Applicant's option, a battery or flywheel storage system capable of storing up to 400 MW of electricity and conducting energy to the regional electricity grid. If provided, the storage system would consist of battery or flywheel banks housed in electrical enclosures and buried electrical conduit. The Project could use one of a number of commercially available energy storage technologies, including but not limited to Lithium-ion (Li-ion), flow, or sodium sulfur batteries, or mechanical fly wheels. Battery systems are operationally silent and flywheel systems have a noise rating of 45 dBA.

The energy storage system will either be dispersed throughout the Project site, connected to the PV array via direct current ("DC-coupled"); or concentrated in one location on the site, connected to the PV array via alternating current ("AC-coupled"). Whether a DC-coupled system or an AC-coupled system is chosen for installation will depend on market conditions and the availability of commercial options.

For a DC-coupled system, energy storage containers and a DC to DC converter/optimizer will be co-located at the inverter equipment areas throughout the site. These containers would include a heating, ventilation, and air conditioning (HVAC) system and monitoring, controls, and operational management systems that will maintain normal battery operation and provide alerts in the case of malfunction.

For an AC-coupled system, the same energy storage containers with related equipment (minus the DC to DC converter/optimizer) will be grouped together in one area on the site. An AC-coupled system may alternatively use a single building to house all of the batteries and associated equipment.

The monitoring, controls, and operational management systems would connect to the overall solar facility management system and use sensors to monitor the performance of the energy storage system, detect malfunctions or conditions requiring maintenance. Management systems would provide plant operators with notification of these conditions in real time. The containers would include fire suppression systems, as necessary, for Li-ion battery systems. Flow battery containers would include secondary containment, as necessary, for circulating fluid systems.

Energy from the storage system will be conducted to the grid through the PV system inverters in the case of a DC-coupled system, or directly to the grid from the storage system in the case of an AC-coupled system. With the use of bi-directional inverters with electricity backflow preventers, both DC-coupled and AC-coupled energy storage systems could also be charged by the electrical grid (as well as be charged by the PV modules), and therefore provide grid support.

After the operating life of the solar facility is complete, the energy storage system will be decommissioned along with the rest of the solar facility. Batteries may be disposed of as hazardous waste, or recycled, depending on available technology. Li-ion batteries and their constituent parts will likely be recycled. Li-ion batteries contain a variety of valuable metals in addition to lithium, and recycling of these batteries is expected to become increasingly commonplace with the increased use

of batteries in consumer goods and electric vehicles. Some batteries may have the capacity to be reused at the end of the operating life of the project. The chemical components of flow batteries may either be disposed of as hazardous waste (i.e., neutralization of the liquid within the battery), or they may comprise valuable elements which will also be recycled or reused.

Inverters and Transformers

The Project will be designed and laid out in approximately 2 MW increments which would include an inverter equipment area measuring approximately 40 feet by 25 feet. However, the final increment sizes ultimately would depend on available technology and market conditions. Each 2 MW increment would include an inverter-transformer station constructed on a concrete pad or steel skid, and centrally located within the PV arrays. Each inverter-transformer station would contain a DC combiner (which would collect DC electrical power from the PV modules), up to four inverters, a transformer, an auxiliary power transformer, and a switchboard approximately 8 to 11 feet high. If required based on site meteorological conditions, an inverter shade structure will be installed at each pad. The shade structure would consist of wood or metal supports and a durable outdoor material shade structure (metal, vinyl, or similar). The shade structure would extend up to 10 feet above the top of the inverter pad. Inverters could be unidirectional (most common), or bidirectional, depending on whether battery charging from the grid would take place.

Modules will be electrically connected into module strings using wiring secured to the module racking system. Underground cables, either rated for direct bury or installed in PVC conduit, will be installed to convey the DC electricity from the modules via combiner boxes located throughout the PV arrays, to inverters to convert the DC to AC. The output voltage of the inverters will be stepped up to 34.5 kV, the collection system voltage, via transformers located in close proximity to the inverters. The 34.5 kV level collection cables will either be buried underground or installed overhead on wood poles up to 70 feet tall. Some of the wood poles could be located at the outside edge of the property line, but a majority of these poles are expected to be located interior to the site. Between 300 and 500 wood poles located at 250-foot intervals could be installed across the entire Project site. The typical height of the poles will be approximately 50 to 60 feet, with diameters varying from 12 to 14 inches.

Project Substations and Gen-Tie Transmission Lines

The two substations would transform voltage from 34.5 kV to 230 kV. The area of each substation and associated equipment will be approximately 30,000 square feet (150 feet by 200 feet). Figure 3 shows the substation locations. Each substation would collect consolidated intermediate voltage via cables from the PV collector system.

Structural components in each substation area would include:

- Power transformers (approximately 25 feet by 40 feet, and 25 feet high);
- Footings for power transformers;
- Pre-fabricated control buildings (each approximately 23 feet by 15 feet, and 12 feet high) to enclose the protection and control equipment, including relays and low-voltage switchgear;
- Footings (up to 12 feet deep) for the control enclosure structure ;
- Metering stand and capacitor bank(s);
- Circuit breakers and air disconnect switches;
- A telecommunications tower up to 65 feet in height;

- One microwave tower adjacent to the control building comprising a monopole structure up to 50 feet in height mounted with an antenna up to 5 feet in diameter;
- Dead-end structure(s) to connect substations to the PG&E Tranquillity Switching Station; and
- Two equipment storage containers measuring 40 feet by 8 feet by 9 feet each.

The substation areas will be graded and compacted to an approximately level grade. Concrete pads will be constructed on site as foundations for substation equipment, and the remaining area will be graveled to a maximum depth of approximately 6 inches. Because each of the substation transformers would contain mineral oil, the substations will be designed to accommodate an accidental spill of transformer fluid by the use of containment-style mounting. Each substation will be surrounded by an up-to 8-foot high chain link fence topped with one foot of barbed wire. Each of the dead-end structures would require foundations excavated to a depth of 20 feet or more.

Electrical transformers, switchgear, and related substation facilities will be designed and constructed to transform medium-voltage power from the Project's delivery system to the 230 kV gen-tie transmission lines (carried on either a single set of double-circuit structures or two sets of single-circuit transmission structures) connecting the project site to the PG&E Switching Station via a new segment of transmission line. The gen-tie structures would include tubular steel poles and H-frame structures with foundations excavated to a depth of 20 feet or more. The overhead gen-tie line will be up to approximately 3.1 miles long and consist of up to 30 structures. The structures could be up to 150 feet tall, although most will likely be no more than 110 feet high.

Other electrical upgrades within the California Independent System Operator (CAISO) system could be triggered in part by the proposed Project in combination with other projects in the CAISO queue. In particular, it is anticipated that lower voltage power lines could require reconductoring. Reconductoring is the process of replacing a lower-capacity conductor on existing power poles. Reconductoring associated with the Project would not require new ground disturbance and will typically be completed during daylight hours over the course of six weeks or less by a crew of line-working personnel.

PG&E Tranquillity Switching Station Expansion and Transmission Line

To accommodate the solar facility and interconnect the 230 kV gen-tie line to the PG&E Tranquillity Switching Station, PG&E would complete improvements to its electrical facilities, including expansion of the existing Tranquillity Switching Station and construction of a new 230 kV transmission line. The Tranquillity Switching Station will be expanded to the north approximately 200 feet, increasing the size of the switching station by approximately 3 acres, to accommodate a new bay for the Project and a potential additional bay to accommodate the switching station's ultimate configuration. The switching station's electrical busbar will not increase in size. The new 230 kV transmission line will extend from the Tranquillity Switching Station to a point located just east of the Tranquillity Solar Project boundary. The PG&E transmission line will include approximately 1,900 feet of 230 kV conductor strung on approximately six new or existing tubular steel poles that will be approximately 140 feet high.

Other Infrastructure

Operation and Maintenance Building

An operation and maintenance (O&M) building to accommodate eight permanent operation and maintenance staff will be required for the Project. The Applicant may use an existing home/trailer

that is located northwest of the intersection of West Dinuba Avenue and SR 33, and is already in use by the Applicant for the Tranquillity Solar Project. If a new O&M building is constructed, it will be approximately 2,000 square feet in size (approximately 40 feet by 50 feet by 15 feet at its tallest point) and located within the project site near the main substation. The O&M building would include permanent plumbing and restroom facilities for use by the staff, including an underground septic system and leach field. Personnel temporarily on-site to perform periodic module washing (up to 4 times per year) will be provided with portable restrooms on the project site, as well as bottled water for drinking and hand washing. The O&M building will be constructed on concrete foundations.

Septic System and Leach Field

A septic system and leach field will be installed adjacent to the O&M building to support the restroom facilities and sewage needs at the O&M building during operation. Wastewater from the building would be discharged into the septic tank for minimum detention period of 24 hours where most of the solids would be removed. The septic tank would be 1,500 gallons and designed and constructed according to the Fresno County Local Agency Management Plan.

Supervisory Control and Data Acquisition System (SCADA)

The facility will be designed with a comprehensive SCADA system to allow remote monitoring of facility operation and/or remote control of critical components. The fiber optic or other cabling required for the monitoring system typically will be installed in buried conduit, leading to a SCADA system cabinet centrally located within the project site or a series of appropriately located SCADA system cabinets constructed within the O&M buildings. The dimensions of each cabinet will be approximately 20 feet by 8 feet by 9 feet high. External telecommunications connections to the SCADA system cabinets could be provided through wireless or hard wired connections to locally available commercial service providers. The Project's SCADA system would interconnect to this fiber optic network at PG&E's Tranquillity Switching Station.

Meteorological Data Collection System

The Project would include a meteorological (met) data collection system. Each met station would have multiple weather sensors: a pyranometer for measuring solar irradiance, a thermometer to measure air temperature, a barometric pressure sensor to measure air pressure, and wind sensors to measure speed and direction. The 4-foot horizontal cross-arm of each met system would include the pyranometer mounted on the left hand side and the two wind sensors installed on a vertical mast to the right. The temperature sensor will be mounted inside the solar shield behind the main mast. Each sensor will be connected by cable to a data logger inside the enclosure next to the temperature sensor.

Access Roads

The main access to the solar facility will be provided from West Manning Avenue to South Monterey Avenue with multiple points of ingress/egress for emergency access. Public access and vehicle use of West Manning Avenue (paved) and unpaved roadways⁴ in the Project area will not be affected by the Project. In addition, there is a California Department of Transportation (Caltrans) future right-of-

⁴ It should be noted that these unpaved roads are private roads that are not maintained by the County.

way adjacent to SR 33, which will be avoided by the Project. The Project modules and electrical infrastructure will be set back from the existing SR 33 highway by a minimum of 50 feet plus additional clearance for any deed restrictions and the future right-of-way.

The on-site roadway system would include a perimeter road, access roads, and internal roads. The perimeter road and main access roads will be approximately 20 to 30 feet wide and constructed to be consistent with facility maintenance requirements and Fresno County Fire Department standards. These roads will be surfaced with gravel, compacted dirt, or another commercially available surface. Internal roads would have permeable surfaces and be approximately 12 to 20 feet in width or as otherwise required by Fresno County Fire Department standards. They will be treated to create a durable, dustless surface for use during construction and operation. This would likely involve surfacing with gravel, compacted native soil, or a dust palliative and would not involve lime treatment. Temporary driveway aprons to points of ingress/egress during construction and decommissioning, such as along West Manning Avenue to South Monterey Avenue, may be up to 80 feet wide to accommodate construction traffic; however, permanent driveway aprons will be built according to Fresno County Improvement Standards.

Fencing

The boundary of the solar facility will be secured by up to 8-foot-high chain-link perimeter fences, topped with three-strand barbed wire. The fence design will be “wildlife friendly,” i.e., the bottom of the fence will be 5 inches above ground, on average, as measured from the top of the ground to the lowest point of the bottom of the fence. Public access rights on roadways through the project site will not be affected by the type of project fencing. Existing public vehicle use of West Manning Avenue and other private unpaved roadways would continue through the project site.

Lighting

Motion sensitive, directional security lights will be installed to provide adequate illumination around the substation areas, each inverter cluster, at gates, and along perimeter fencing. All lighting will be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties. All lighting also would conform to applicable Fresno County rules and regulations for outdoor lighting.

Water Requirements

During the construction phase, if grading and grubbing is required, it is anticipated that a total of up to 360 acre-feet⁵ of water will be used for dust suppression (including truck wheel washing) and other purposes (Recurrent Energy 2018). If grading and grubbing is not required, water needs will be less. During construction, non-potable water will be obtained from an existing private well on the Tranquillity Solar Project site and/or purchased from the Westlands Water District and trucked to the site from a well within 5 miles. During construction and decommissioning, potable water, for drinking and hand washing, will be brought to the site by a bottled water service provider.

During the operation and maintenance phase (which would last up to 40 years), the Project would require approximately 20-acre-feet annually for module washing, maintenance, and the O&M building restroom facilities, equivalent to 0.05 acre-feet (or 16,250 gallons) per MW annually. Of

⁵ One acre-foot of water equals 325,851 gallons – approximately the amount needed to cover an acre (roughly a football field) of ground one foot deep.

this, approximately 1.5 acre-feet of non-potable water will be used by employees on-site for washing or rinsing equipment, hand washing, and other non-toilet uses. Approximately 14.7 acre-feet will be used for washing the modules up to four times a year (up to 3.7 acre-feet of water per washing period). The remaining estimated water will be used to support on-site sheep (if grazing is used for weed control) and other miscellaneous needs (Recurrent Energy 2018). Operational water will be trucked in from an off-site local municipal water purveyor, likely the City of Fresno or City of Mendota. Potable water will be supplied to the O&M building by a licensed provider.

Wastewater

During construction, restroom facilities will be provided by portable units to be serviced by licensed providers. A septic system and leach field will be installed adjacent to the O&M building to support the restroom facilities and sewage needs during operation. Personnel on-site to perform module washing (up to four times per year) will be provided with portable restrooms serviced by a licensed provider. Anticipated peak flow is 600 gallons into the leach field per day during Project operation (or 0.67 acre-feet per year) (Recurrent Energy 2018). No surface discharges are proposed, other than natural stormwater runoff. A Waste Discharge Permit will not be required from the Regional Water Quality Control Board because the Project will not exceed 2,500 gallons per day of sewage. The septic system will be required to be permitted by the Fresno County Department of Public Works and Planning. The septic system and leach field testing procedures and design will meet all applicable specifications and regulations.

Solid Waste

Construction and decommissioning of the Project would involve the use of hazardous materials, such as fuels and greases to fuel and service construction equipment. Such substances may be stored in temporary aboveground storage tanks or sheds located on the project site. The fuels stored on-site will be in a locked container within a fenced and secure temporary staging area. If the quantities stored are estimated to be in excess of 1,320⁶ gallons, storage will be undertaken in compliance with the Spill Prevention, Control, and Countermeasure (SPCC) Rule and a Hazardous Materials Business Plan, which will be developed prior to construction for submission to the Fresno County Division of Environmental Health. However, quantities are not likely to be in excess of 1,320 gallons. Trucks and construction vehicles will be serviced from off-site facilities. The use, storage, transport, and disposal of hazardous materials used in construction of the facility will be carried out in accordance with federal, state, and county regulations. No extremely hazardous substances (i.e., those governed pursuant to Title 40, Part 335 of the Code of Federal Regulations) are anticipated to be produced, used, stored, transported, or disposed of as a result of construction. Material Safety Data Sheets for all applicable materials present on-site will be made readily available to on-site personnel.

Construction materials will be sorted on-site throughout construction and transported to appropriate waste management facilities. Recyclable materials will be separated from non-recyclable items and stored until they could be transported to a designated recycling facility. It is anticipated that at least 20 percent of construction waste will be recyclable, and 50 percent of

⁶ Effective January 1, 2008 the Certified Unified Program Agencies are vested with the responsibility and authority to implement the Aboveground Petroleum Storage Act. Owners or operators of aboveground petroleum storage tanks are required to file a storage statement and implement spill prevention measures according to the Aboveground Petroleum Storage Act of 1990. Facilities with a single tank or cumulative aboveground storage capacities of 1,320 gallons or greater of petroleum are covered by this law.

those materials will be recycled (Recurrent Energy 2018). Wooden construction waste (such as wood from wood pallets) will be sold, recycled, or chipped and spread on the project site for weed control as appropriate. Other compostable materials, such as vegetation, might also be composted off-site. Non-hazardous construction materials that cannot be reused or recycled will be disposed of at municipal or county landfills. Hazardous waste and electrical waste will not be placed in a landfill, but rather will be transported to a hazardous waste handling facility (e.g., electronic-waste recycling). All contractors and workers will be educated about waste sorting, appropriate recycling storage areas, and how to reduce landfill waste.

Operation and maintenance activities would produce negligible volumes of solid and liquid wastes and are not expected to require hazardous materials. Storage batteries will likely be lithium-ion, which will be recycled. However, if they are not lithium-ion, the batteries would need to be periodically disposed of, approximately every six years. The transformers that will be located at the substations would use biodegradable seed oil, which is not a hazardous material. Oil disposal would occur in accordance with applicable regulations. PV modules and the inverters would not produce any waste during operation.

Project Construction

Construction Schedule and Workforce

Construction equipment would operate between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday for up to a maximum of 8 hours per piece of equipment, daily. Weekend construction work is not expected to be required, but may occur on occasion, depending on schedule considerations. All construction work, including any weekend work, will be required to comply with the Fresno County noise ordinance.

Construction of the Project would commence as early as mid-2020, and the last phase will be expected to be complete as early as late 2021 depending on opportunities in the solar market. Total duration of continuous construction will be approximately 18 months. The anticipated construction processes, schedule, and workforce are described in this section.

Agricultural activities are expected to continue during the Project construction phase on portions of the project site not being actively disturbed by construction activities.

Assuming continuous construction, phasing will be as follows:

- **Solar Facility Phase 1**, Site Preparation, would extend for approximately 16 weeks, or 80 working days.
- **Solar Facility Phase 2**, PV Module System Installation (foundations, tracker racks, and modules), would extend for a duration of approximately 56 weeks, or 282 working days, and would overlap Phase 1 by approximately 14 weeks.
- **Solar Facility Phase 3**, Installation of Inverters, Substations, and Connection, would extend for a duration of 24 weeks, or 121 working days, and overlap Phase 2 by about 16 weeks.
- **Energy Storage System Phase 1**, Site Preparation, would extend for a duration of up to 5 weeks, or 25 working days, and may overlap with Phase 3 of the solar facility construction.
- **Energy Storage System Phase 2**, Foundations, Structures, and DC Electrical System Installation, would extend for a duration of up to 35 weeks, or 175 working days.
- **Energy Storage System Phase 3**, Inverter, Substation, and AC Electrical System Installation, would extend for a duration of up to 29 weeks, or 145 days.

The total number of construction workers at any given time would range between 132 and 678. The exact timing of installation of the energy storage system is unknown, but it may overlap with construction of the final phase of the solar facility. The majority of the labor force is expected to be from Fresno and the surrounding communities with an average round-trip commute of 100 miles (Recurrent Energy 2018).

Solar Facility Phase 1 and Energy Storage System Phase 1: Site Preparation

STAGING AND OTHER TEMPORARY WORK AREAS

A staging/refueling area will be located at or near the primary access point to the project. Assuming continuous construction, one main staging area will be located near West Manning Avenue at the western end of the site. Preparation of laydown areas would include grubbing, clearing, grading, and compaction. The staging and laydown areas will be used for material and equipment storage, reporting location for workers, parking areas for vehicles and equipment, and the ultimate location of the O&M building. Laydown areas would encompass up to 10 acres and will be secured with an 8-foot fence. Temporary power will be provided via mobile generators or local distribution lines.

ACCESS ROADS

The solar facility's on-site roadway system would include a perimeter road, access roads, and internal roads, which are described above. Road construction would proceed as follows: the ground will be grubbed (cleared of vegetation), scarified (loosened up), moisture conditioned, compacted, and graded with a crown in the center.

SECURITY FENCING

As described above, Project fencing would include perimeter fencing. Fence posts will be spaced approximately 10 feet apart, drilled and grouted or driven pneumatically into the soil profile up to an estimated 5 feet deep.

CONSTRUCTION-RELATED GRADING

As necessary for equipment access, the site will be grubbed and scarified. As the site is nearly flat and has been historically graded/tilled, Project-related grading will be minimal and occur only as necessary to level dips and hills. The site cut and fill will be approximately balanced, or minimal import/export will be necessary. During Phase 1 (site preparation), an average of 35 acres in various portions of the site will be disturbed daily at any given time. During Phase 2, an average of 25 acres would undergo installation at any one time, with an estimated maximum active disturbance area of up to 90 acres when Phase 1 and 2 overlap.

EROSION AND SEDIMENT CONTROL AND POLLUTION PREVENTION

The Applicant would prepare a single or multiple Stormwater Pollution Prevention Plans (SWPPP), which will be based on the final engineering design. The SWPPP will be prepared by a qualified engineer or erosion control specialist, and will be implemented before construction. The SWPPP will be designed to reduce potential impacts related to erosion and surface water quality during construction activities and throughout the life of the Project. It would include Project information and best management practices (BMPs). The BMPs would include dewatering procedures, stormwater runoff quality control measures, concrete waste management, watering for dust

control, and construction of perimeter silt fences, as needed. The SWPPP will be submitted to the RWQCB and Fresno County prior to issuance of any building or grading permits.

Solar Facility Phase 2: Photovoltaic Module System

Phase 2 would involve PV module installation, array assembly, and racking. The structure supporting the PV module arrays would consist of steel piles (e.g., cylindrical pipes, H-beams, or similar), which will be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. The piles typically are spaced 10 feet apart. For a single-axis tracking system, piles typically will be installed to a reveal height of approximately 4 feet above grade, while for a fixed-tilt system the reveal height would vary based on the racking configuration specified in the final design. For single-axis tracking systems, following pile installation the associated motors, torque tubes, and drivelines (if applicable) will be placed and secured. Some designs allow for PV modules to be secured directly to the torque tubes using appropriate module clamps. For some single-axis tracking systems and for all fixed-tilt systems, a galvanized metal racking system, which secures the PV modules to the installed foundations, will then be field-assembled and attached according to the manufacturer's guidelines.

Solar Facility Phase 3 and Energy Storage System Phases 2 and 3: Inverters, Transformers, Substations, Electrical Collector System and Energy Storage System

Underground cables to connect module strings will be installed using ordinary trenching techniques, which typically include a rubber-tired backhoe excavator or trencher. Wire depths will be in accordance with local, State, and Federal requirements, and will likely be buried at a minimum of 18 inches below grade, by excavating a trench approximately 3 to 6 feet wide to accommodate the conduits or direct buried cables. After excavation, cable rated for direct burial or cables installed inside a polyvinyl chloride (PVC) conduit will be installed in the trench, and, the excavated soil will likely be used to fill the trench and lightly compressed. All cabling excavations will be to a maximum depth of 10 feet.

All electrical inverters and the transformer will be placed on concrete foundation structures or steel skids. In lieu of steel skids or pre-cast concrete foundations, foundations for the transformer and inverter locations will be formed with plywood and poured-in-place concrete, and reinforced with structural rebar. Commissioning of equipment would include testing, calibration of equipment, and troubleshooting. The substation equipment, inverters, collector system, and PV array systems will be tested prior to commencement of commercial operations. Upon completion of successful testing, the equipment will be energized.

The substation areas will be excavated for the transformer equipment and control building foundation and oil containment area. The site area for the substations will be graded and compacted to an approximately level grade. Foundations for the substation will be formed with plywood and reinforced with structural rebar. Concrete pads will be constructed as foundations for substation equipment, and the remaining area will be graveled. Concrete for foundations will be brought on-site from a batching plant in Fresno County.

The 400 MW energy storage system, including battery or flywheel enclosures and electrical cabling, will be installed at the project site, concurrently with Phase 3. The system will be largely assembled off-site and transported to the project site for installation.

CONSTRUCTION SITE RESTORATION AND REVEGETATION

Following the completion of major construction, the project site will be re-seeded/re-vegetated with low-growing plant species appropriate for maintaining soil quality and controlling weed growth to reduce fire hazards. Vegetation will be selected based on growth habit (lower growing cover will be preferred) and suitability for the area. Site restoration activities would include:

- On-site repurposing or removal of all vegetative material from grubbing, clearing, and pruning;
- Removal of all trash and construction debris;
- Removal of temporary construction fencing marking the perimeter of sensitive areas (washes, set-aside areas, cultural area); and
- Removal of all construction equipment and any supplies and materials that were not consumed on-site.

Following the completion of site restoration activities, the construction staging areas will be restored to their original condition by the planting of appropriate species.

CONSTRUCTION ACCESS, EQUIPMENT, AND TRAFFIC

All materials for the Project's construction will be delivered by truck. The majority of truck traffic would occur on designated truck routes and major streets. Flatbed trailers and trucks will be used to transport construction equipment and construction materials to the site. Project components will be assembled on-site.

CONSTRUCTION PERSONNEL TRAINING

Biological Resources

Prior to construction, a qualified biologist will be retained by the Applicant to conduct environmental awareness training for Project personnel. Such training would communicate information related to the protection of sensitive biological resources that might be present at the project site, and would include:

- A description of species of concern and associated habitats.
- The general provisions of applicable environmental regulations and the need to adhere to the provisions of the regulations.
- General measures being implemented to conserve the species of concern as they relate to the Project.

The training would include a discussion of the defined access routes to the project site and project site boundaries within which Project activities must be accomplished. Construction employees would strictly limit their activities, vehicles, equipment, and construction materials to the Project footprint and designated staging areas and routes of travel. The construction areas will be the minimal area necessary to complete the Project and will be specified in the construction plans. Construction areas will be demarcated on-site, and employees will be instructed to limit activities to these areas.

Fire Suppression and Safety Training

The Applicant would coordinate with the California Office of the State Fire Marshall and the Fresno County Fire Department to provide training for personnel to safely interrupt electrical power in the event of emergency incidents requiring fire suppression or rescue activities.

To minimize fire risk, combustible vegetation or agricultural products on and around the project site boundary will be actively managed by the Project owner or its affiliates. Combustible vegetation will either be limited in height or removed. In addition, fire breaks—in the form of 20-foot-wide roads—will be constructed around the Project boundary.

The Applicant would coordinate with the Fresno County Fire District in the development of a Fire Prevention and Emergency Action Plan for the site to address potential exposure to fire and other hazards in the project site. The plan would include at least the following provisions:

- **Fire Prevention Training.** The Applicant would provide training for fire personnel in the safe interruption of electrical power for emergency incidents requiring fire suppression or rescue activities.
- **Emergency Action Training.** The Applicant would train all construction and operation and maintenance personnel in:
 - Evacuation routes from the project site to safe areas, in the event of fire or other natural hazards.
 - Coordination with local fire department, sheriff department, and emergency medical services.
 - Safety measures in accordance with the California Occupational Safety and Health Administration (Cal/OSHA) regulations and guidance for construction, which will be reviewed by all Project construction staff prior to starting work. Safety measures would include those that address potential electrical incidents and fire hazards.
- **Fire Prevention Measures.** The Applicant would implement the following measures during Project construction and operation:
 - All applicable Fresno County improvement standards will be followed, to ensure accessibility and ground clearance of emergency vehicles (e.g., fire engines);
 - Vegetation will be maintained to reduce potential fire hazards at the project site;
 - Smoking will be prohibited at the project site, except within designated areas;
 - Work crews will be required to park vehicles away from flammable vegetation such as dry grass and brush. At the end of each workday, heavy equipment will be required to be parked over mineral soil, asphalt, or concrete, where available, to reduce the risk of fire; and
 - Fire-suppression equipment (e.g., fire extinguishers) will be made available on the project site at all times. All heavy equipment will be required to include mechanisms for fire suppression, including spark arresters or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers.

Operation and Maintenance

Upon commissioning, the Project would enter the operation phase. The solar modules at the site would operate during daylight 7 days per week, 365 days per year. Operational activities at the project site would include: solar module washing; vegetation, weed, and pest management; security; responding to automated electronic alerts based on monitored data, including actual versus expected

tolerances for system output and other key performance metrics; and communicating with customers, transmission system operators, and other entities involved in facility operations.

Up to eight permanent staff could be on the site at any one time for ongoing facility maintenance and repairs. On intermittent occasions, up to 25 workers could be required on-site if repairs or replacement of equipment were needed in addition to module washing. The duration of scheduled maintenance activities would vary in accordance with the required task, but could involve up to 40 workers full-time for up to two weeks up to four times per year for module washing, and a similar number and duration for workers regularly visiting the site for routine maintenance activities. The maximum number of staff on-site at any time will be 48 (40 temporary staff and eight permanent staff). The majority of the operational labor force is expected to be from Fresno and the surrounding communities with an average anticipated commute of 50 miles one way.

The facility will be designed with a comprehensive SCADA system to allow remote monitoring of facility operation and/or remote control of critical components.

Site Maintenance

The project site maintenance program will be largely conducted on-site during daytime hours. Equipment repairs could take place in the early morning or evening when the plant will be producing the least amount of energy. Key program elements would include maintenance activities originating from the on-site operation and maintenance facilities and/or a regional operations and maintenance facility located within Fresno County, and on-site maintenance as required to clear weeds for ground-mount systems. Maintenance typically would include module repairs; module washing; maintenance of transformers, inverters, and other electrical equipment as needed; maintenance of the oil/water separator system; and road and fence repairs. Visual inspections of the transformers and the oil/water separator system will be conducted monthly. Pest and weed management also will be performed in accordance with the Pest and Weed Management Plan. On-site vegetation will be managed to ensure access to all areas of the site and to screen Project elements as needed. Solar modules will be washed up to four times each year using light utility vehicles with tow-behind water trailers, as needed to maintain optimal electricity production. No chemical cleaners will be used for module washing.

As part of ongoing operations and maintenance, the energy storage system will be inspected once a year at minimum. Regular preventative maintenance would include checking security of DC and AC connections, replacement of fans, filters, and pumps as required or recommended, fire suppression system inspection as required, and validating measurements of key electrical and environmental sensors.

Fire Suppression and Safety Training

The fire suppression and safety training that would occur during the operations and maintenance phase of the Project will be similar to that described for the construction phase. It would occur annually and for every new employee.

Decommissioning and Site Reclamation

Decommissioning of Equipment

The Project is anticipated to have an operating life of up to 40 years. After this period, the facility will be either repowered or decommissioned. Repowering after the operating life is not anticipated

at this time; however, if repowering were to be pursued, it would require the owner to obtain all required permit approvals, including a revised Unclassified CUP. Project decommissioning would occur in accordance with the expiration of the Unclassified CUP and would involve the removal of all above-grade facilities, buried electrical conduit, and all concrete foundations in accordance with a Reclamation Plan. Utility-owned infrastructure will not be removed at the time the Project is decommissioned. In the event that a structure breaks off 4 feet or more beneath the ground surface, the remaining section will be left in place. If the structure breaks off in the upper 4-foot portion of soil, it will be excavated and removed. Equipment will be repurposed off-site, recycled, or disposed of in a landfill as appropriate. Decommissioning would involve the use of heavy equipment and personnel similar to that used for construction.

For the entire project site, decommissioning activities are expected to require approximately 3,000 truck trips, a workforce of approximately 100 workers, and would take up to 24 months. Decommissioning may occur simultaneously or individually as parts of the solar facility go offline. Appropriate hazardous materials control and erosion control measures will be used throughout the decommissioning process. It is anticipated that such controls will be substantially similar to those implemented during construction.

Site Reclamation

A Reclamation Plan containing details regarding site reclamation and decommissioning will be submitted by the applicant to Fresno County prior to submittal of the draft environmental impact report (EIR). All road and other areas compacted during original construction or by equipment used for decommissioning will be tilled in a manner adequate to restore the sub-grade material to the proper density and depth consistent with adjacent properties. Low areas will be filled with clean, compatible sub-grade material. After proper sub-grade depth is established, locally sourced (from the City of Fresno or other location within 50 miles of the project site) topsoil will be placed to a depth and density consistent with adjacent properties. Locally sourced compost will be applied to the topsoil, and the entire site will be tilled to further loosen the soil and blend in the compost. An appropriate seed mixture will be broadcast or drilled across the site, and weed-free mulch will be applied to stabilize the soil and retain moisture for seedling germination and establishment.

8. Surrounding Land Uses and Setting

The project site is in unincorporated Fresno County along the western edge of San Joaquin Valley, which extends south from the Sacramento-San Joaquin River Delta in the north to the Tehachapi Mountains in the south. The Diablo coastal mountain range forms the valley's western border, while the Sierra Nevada mountain range forms the valley's border to the east. The region is dominated by agricultural uses and the topography is relatively flat with elevations rising gradually to the east, west, south, and north. The existing land use at the project site is primarily dry-farmed agriculture that has been intermittently irrigated. All of the parcels, except for one (APN 028-11-112), are currently owned by Westlands Water District.⁷ For the past 10 years, the project site has been periodically in low-yield agricultural production (tilled, seeded, and harvested for winter wheat);

⁷ The Westlands Water District acquired these properties as part of the following settlements: (1) the September 3, 2002 settlement agreement reached among the United States, Westlands Water District, and others in the Summer Peck Ranch et al. v. Bureau of Reclamation et al. lawsuit; (2) the Britz settlement (a separate action executed on September 3, 2002); and (3) the 2002 settlement agreement reached in the Sagouspe et al. v. Westlands Water District et al. lawsuit.

occasionally irrigated (drip or sprinkler) and harvested for alfalfa seed or other crops; or disked twice a year and left fallow. The site is subject to high levels of selenium and a water table with drainage insufficient for most commercially irrigated crops. Furthermore, the project site (except APN 028-11-112) is part of Westlands Water District settlements that require a non-irrigation covenant upon transfer of ownership. For the portion of the project site that is cultivated without the benefit of irrigation, the productivity of these crops depends entirely on rainfall. When the unirrigated crops fail to mature to harvest, the land is grazed as rangeland grasses. There are no Williamson Act contracts binding any of the parcels.⁸

A small portion of the Project area is located on the Tranquillity Solar Project site and is currently developed with the Tranquillity Switching Station. Two existing PG&E overhead transmission lines are located on the north side of Dinuba Avenue, along the southern portion of the project site (see Figure 3). There are also existing PG&E utility lines at the site that would remain in place with an easement granted to PG&E for access.

The project site surrounds approximately 76 acres of federally owned land that are not proposed as part of the Project. This land will not be contained within the Project security fence and the existing legal access will be retained. It is anticipated that the existing use of this land for occasional dry farming followed by periods of fallow use would continue if the Project is approved. This land is not subject to a Williamson Act contract.

Roadways surrounding the solar facility comprise West Dinuba Avenue and SR 33 (West Derrick Avenue), both of which are paved, as well as South San Mateo Avenue and West South Avenue, which are dirt. These roads range between 15-feet and 50-feet wide and provide a buffer between the project site and the parcels to the north, west, south, and east.

Existing land uses surrounding the project site consist of agriculture, solar development, and two rural residences. Non-irrigated agricultural land surrounds the project site to the north, east, and west. These lands are owned mostly by Westlands Water District, which keeps them in various states of low-value agricultural production. The Tranquillity Solar Generating Facility and two rural residences border the project site to the south. The Adams East Solar Facility is located approximately 0.4 mile northwest of the project site.

9. Other Public Agencies Whose Approval is Required

The following discretionary approvals from other agencies may be required for the Project:

- **California Regional Water Quality Control Board:** coverage under the General Construction Permit for storm water discharges associated with construction activities;
- **Caltrans:** encroachment permit for project-related improvements in the SR 33 right-of-way, oversized/overweight permit and Traffic Control Plan for the transportation of substation transformers; and
- **California Public Utilities Commission:** certification of power sales contracts and authorization of PG&E's construction of transmission line and expansion of switching station.

⁸ The Williamson Act (also known as the California Land Conservation Act of 1965) enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. The contracted land is then restricted to agricultural and compatible uses through a rolling-term, 10 year contract between the private land owner and the local government.

Environmental Factors Potentially Affected

This Project would potentially affect the environmental factors checked below, involving at least one impact that is “Potentially Significant” or “Potentially Significant Unless Mitigation Incorporated” as indicated by the checklist on the following pages.

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> Aesthetics | <input checked="" type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology and Soils |
| <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials | <input checked="" type="checkbox"/> Hydrology and Water Quality |
| <input checked="" type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Tribal Cultural Resources | <input checked="" type="checkbox"/> Utilities and Service Systems |
| <input checked="" type="checkbox"/> Mandatory Findings of Significance | | |

Determination

Based on this initial evaluation:

- I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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- I find that although the proposed Project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Printed Name

Title

Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Potentially Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a. Would the Project have a substantial adverse effect on a scenic vista?

The County of Fresno General Plan Open Space and Conservation Element identifies scenic vistas in the county (County of Fresno 2000a). There are no designated scenic vistas in the viewshed of the project site. Therefore, no impact to a scenic vista would result from implementation of the Project.

NO IMPACT

b. Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The Caltrans *Scenic Highway Mapping System* identifies one designated state scenic highway segment and three eligible state scenic highway segments in Fresno County (Caltrans 2018). These highway segments are between 20 and 50 miles from the project site. Therefore, the project site is not located in the viewshed of any of these highways.

Though not designated as a state scenic highway, I-5 is listed as a scenic roadway in the Fresno General Plan Open Space and Conservation Element (County of Fresno 2000a). The General Plan Environmental Impact Report designates I-5 as a scenic roadway due to the continuous unrestrictive views of adjacent coastal foothills that extend westward (County of Fresno 2000c: 4.16-1). The project site is located over 6 miles east of I-5 and would not obstruct views of the coastal foothills to

the west. For these reasons, there would be no impact from the Project on scenic resources viewed from a scenic highway.

NO IMPACT

- c. *Would the Project substantially degrade the existing visual character or quality of the site and its surroundings?*

The visual character of the project site and surrounding area is generally open and rural in nature. The site is located in a region dominated by agricultural uses, interspersed with rural residences and solar development. The Project would involve the construction, operation, maintenance, and decommissioning of a 400 MW solar PV electricity generating facility, a 400 MW energy storage system, and associated infrastructure on a site that is primarily dry-farmed agriculture. While the Project would be visually compatible with the existing solar development in the Project area, it would alter the existing rural and agricultural character of the site as a result of converting agricultural land to a solar energy facility. This change to the project site's visual character is a potentially significant impact and will be analyzed further in an Environmental Impact Report (EIR) for the Project.

POTENTIALLY SIGNIFICANT IMPACT

- d. *Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

The project site is located in a rural area in Fresno County where existing levels of light and glare are limited to security lighting at adjacent solar facilities, small exterior lights on adjacent residences, and minimal street lighting along SR 33. There are no existing sources of light or glare on the project site. Project operations would require minimal lighting for safety and security functions. Motion sensitive, directional security lights would be installed to provide adequate illumination around the substation areas, at each inverter cluster, at gates, and along perimeter fencing. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties. All lighting also would conform to applicable Fresno County rules and regulations for outdoor lighting.

The solar PV module faces would be minimally reflective, dark in color, and highly absorptive of light. Therefore, it is not anticipated that they would result in substantial glare. However, light and glare produced at the project site could be potentially visible by motorists on the adjacent roadways, SR 33, and I-5. Additionally, light and glare produced by the proposed project would be visible to people in the residences located southeast of the intersection of Dinuba Avenue and west of Derrick Avenue. Although the Project is not expected to create a new source of substantial light or glare affecting day or nighttime views, this issue will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

Improvements to PG&E electrical infrastructure would include expansion of the Tranquillity Switching Station and installation of approximately 1,900 feet of transmission line. These improvements are located within the project site which is not in the viewshed of a scenic vista or scenic highway. Similarly, they would have no impact on scenic vistas or scenic highways.

The Tranquillity Switching Station would be expanded north up to 190 feet, increasing the size of the switching station by up to 2 acres. The transmission line would include up to 1,900 feet of 230 kV conductor strung on up to 10 new or existing poles that would be up to 150 feet high (approximately 70 feet taller than existing poles). While these improvements would be visually compatible with the existing solar development in the area, potential changes to the visual character will be analyzed further in the EIR. In addition, for the same reasons as described above, the PG&E improvements are not expected to create a new source of substantial light or glare affecting day or night time views. However, this issue will be analyzed further in an EIR.

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2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the Project:

- | | | | | |
|--|---|---|---|---|
| a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ■ | □ | □ | □ |
| b. Conflict with existing zoning for agricultural use or a Williamson Act contract? | ■ | □ | □ | □ |
| c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? | □ | □ | □ | ■ |
| d. Result in the loss of forest land or conversion of forest land to non-forest use? | □ | □ | □ | ■ |
| e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? | ■ | □ | □ | □ |

- a. *Would the Project convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*
- e. *Would the Project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?*

The Farmland Mapping and Monitoring Program designates lands in the project site as either Farmland of Statewide Importance or Farmland of Local Importance (California Department of

Conservation 2014). The existing land use of the project site is primarily dry-farmed agriculture that has been intermittently irrigated. For the past 10 years, the project site has been irregularly in low-yield agricultural production (tilled, seeded, and harvested for winter wheat); occasionally irrigated (drip or sprinkler) and harvested for alfalfa seed or other crops; or disked twice a year and left fallow. Because of this situation, construction of the Project would convert Farmland to non-agricultural (solar) use. Impacts to Farmland from implementation of the Project would be potentially significant and will be evaluated in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- b. *Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

The project site is not under Williamson Act contract and would not conflict with such a contract (Department of Conservation 2016). However, the entire project site is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) (Fresno County 2011). Solar energy facilities may be allowed in this zone by discretionary approval of an Unclassified Conditional Use Permit. Because the Project is located on land zoned for agricultural use, this issue will be analyzed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- c. *Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*
- d. *Would the Project result in the loss of forest land or conversion of forest land to non-forest use?*

The project site and immediate vicinity does not contain any land defined as forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)). Therefore, the Project would not conflict with existing zoning of forest land or result in the loss or conversion of forest land. No impact to forest land would occur as a result of the project.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The portion of the project site on which the PG&E improvements would be made is designated as Farmland of Local Importance (California Department of Conservation 2014). Therefore, the PG&E improvements alone would have no impact on Farmland, as defined above. However, because the project site as a whole contains some Farmland of Statewide Importance, potential impacts on Farmland will be evaluated in an EIR.

The PG&E improvements are located within the project site which is not under Williamson Act contract and would not conflict with such a contract (Department of Conservation 2016). The project site is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size). The potential for the Project, including the PG&E improvements, to conflict with existing zoning for agricultural use will be evaluated in an EIR.

The PG&E improvements are located within the project site; therefore, for the same reasons discussed above, these improvements would have no impact on forest land or timberland.

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■

- a. *Would the Project conflict with or obstruct implementation of the applicable air quality plan?*
- b. *Would the Project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*
- c. *Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?*
- d. *Would the Project expose sensitive receptors to substantial pollutant concentrations?*

The project site is located in the San Joaquin Valley Air Basin (Air Basin), which is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The Air Basin is in nonattainment for the federal and state standards for ozone and particulate matter (PM_{2.5}) and state standards for PM₁₀. The Air Basin is unclassified or classified as attainment for all other pollutant standards (California Air Resources Board 2017, SJVAPCD 2012). Implementation of the Project would generate both short-term construction-related emissions and long-term operational emissions with the potential to violate SJVAPCD standards or result in a cumulatively considerable increase in criteria pollutants. In addition, sensitive receptors (residences) adjacent to the project

site (southeast of the intersection of West Dinuba Avenue and South Derrick Avenue/SR 33) have the potential to be adversely affected by air pollutant emissions associated with Project construction. These air quality impacts would be potentially significant and will be assessed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

e. Would the Project create objectionable odors affecting a substantial number of people?

Substantial objectionable odors are normally associated with agriculture, wastewater treatment, industrial uses, or landfills. The Project involves the construction, operation and maintenance, and decommissioning of a solar energy facility and associated infrastructure that do not produce objectionable odors. No impact would occur from implementation of the Project.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

Implementation of the PG&E improvements would generate short-term construction-related emissions with the potential to violate SJVAPCD standards, result in a cumulatively considerable increase in criteria pollutants, and adversely affect nearby sensitive receptors (residences). Emissions of air pollutants will be quantified and potential impacts on air quality will be assessed in an EIR. For the same reasons as described above, no impact related to objectionable odors would occur from implementation of the PG&E improvements.

4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	■

- a. *Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?*
- b. *Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*
- d. *Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*
- e. *Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

The project site is located on undeveloped land and, although previously-disturbed, has the potential to support sensitive species and/or habitats. In addition, the project site is in the vicinity of the Pacific Flyway, a significant avian migration route. Construction, operation and maintenance, and decommissioning of the Project could adversely affect sensitive species and/or habitats, nesting and migratory birds, and conflict with local policies protecting biological resources. Impacts would be potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- c. *Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

The project site consists of agricultural land and is not traversed by any drainages or washes. The project site does not contain any federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, and other waters). Therefore, the Project would have no impact on federally protected wetlands.

NO IMPACT

- f. *Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

The project site is not located in the boundaries of any adopted Habitat Conservation Plan or Natural Community Conservation Plan (California Department of Fish and Wildlife 2017, County of Fresno 2000a). Therefore, the Project would not conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan and no impact would occur.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The PG&E improvements are located within the project site, which has the potential to support sensitive species and/or habitats. In addition, the project site is near the Pacific Flyway. Therefore, implementation of the PG&E improvements could adversely affect sensitive species and/or habitats, nesting and migratory birds, and conflict with local policies protecting biological resources; therefore potential impacts require further evaluation in an EIR.

As discussed above, the project site does not contain wetlands as defined by Section 404 of the Clean Water Act and is not located in the boundaries of an adopted Habitat Conservation Plan or Natural Community Conservation Plan. Therefore, the Project, including PG&E improvements would have no impact on federally protected wetlands and would not conflict with provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan.

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5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Disturb any human remains, including those interred outside of formal cemeteries?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a. *Would the Project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*

According to a Cultural Resources Report by Rincon Consultants (2018), a historic well with associated water pump was identified on the project site. However, this resource was not found to be listed or eligible for listing on a register of historic resources. No other historic resources were identified on the project site. Therefore, potential impacts to a historical resource as defined in §15064.5 would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- b. *Would the Project cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?*
- c. *Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?*
- d. *Would the Project disturb any human remains, including those interred outside of formal cemeteries?*

The project site is currently in agricultural use with regular ground disturbing activities occurring during harvest and crop rotation. Formal assessment of paleontological and cultural resources, conducted by Rincon Consultants in 2018, did not reveal any listed or eligible archeological resources or paleontological resources on the project site. Therefore, the likelihood of encountering cultural or archeological resources, unique paleontological or geologic features, or human remains on the project site is minimal. However, grading and earth moving activities during proposed construction and decommissioning have the potential to disturb previously undiscovered cultural or

archaeological resources, unique paleontological or geologic features, and human remains. Impacts to such resources from implementation of the project would be potentially significant, and will be analyzed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The PG&E improvements are located within the project site that does not contain historical resource as defined in §15064.5 or known archeological or paleontological resources. However, construction and decommissioning activities have the potential to disturb previously undiscovered archaeological resources, unique paleontological or geologic features, and human remains for the same reasons discussed above. Impacts from implementation of the PG&E improvements would be potentially significant with regard to criteria b–d and will be evaluated in an EIR. Impacts would be less than significant with regard to criteria a.

6 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Strong seismic ground shaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a.1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

The project site is not located in an Earthquake Fault Rupture hazard zone as defined under the Alquist-Priolo Earthquake Fault Zoning Act, and no active or potentially active faults are mapped at the project site. The closest active faults to the project site are the Nunez Fault, located 25 miles south, and the Creeping Section of the San Andres Fault, located 35 miles southwest. There is no substantial evidence that an otherwise active fault capable of producing fault rupture underlies the project site (California Department of Conservation 2015). Therefore, the Project would not expose people or structures to potential substantial adverse effects from fault rupture and this impact would be less than significant.

NO IMPACT

- a.2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*

The project site is not located in an Alquist-Priolo Earthquake Fault Zone and no known faults cross the project site. Nonetheless, it is located in a seismically active region where several fault systems are considered to be active or potentially active. The closest active faults to the project site are the Nunez Fault, located 25 miles south, and the Creeping Section of the San Andres Fault, located 35 miles southwest (California Department of Conservation 2015). The project site may be subject to ground shaking in the event of an earthquake originating along one of the faults designated as active or potentially active in the project vicinity. Impacts related to seismic ground shaking would be potentially significant and warrant further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- a.3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?*
- c. Would the Project be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

Liquefaction is a process in which soil is temporarily transformed to fluid form during intense and prolonged ground shaking or because of a sudden shock or strain. Liquefaction occurs typically in areas where the groundwater is less than 30 feet from the surface and where the soils are composed of poorly consolidated fine to medium sand. The project site is not located in a liquefaction hazard zone, but is located in an area of historic shallow groundwater that increases the potential for liquefaction hazard (California Department of Conservation 2010; Kleinfelder 2015). Impacts related to liquefaction would be potentially significant and thus warrant further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- a.4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?*

The project site is located on relatively flat terrain in the San Joaquin Valley. Hillside and other geographic features associated with landslide hazards are not present at the project site (California

Department of Conservation 2010). Therefore, the Project would not expose people or structures to risk of loss, injury, or death involving landslides. No impact would result.

NO IMPACT

b. Would the Project result in substantial soil erosion or the loss of topsoil?

Construction and decommissioning of the Project would involve grading of the project site. Grading results in soil disturbance, which increases the likelihood of erosion by breaking up large soil clods into smaller particles with a greater surface area that are more easily dislodged by raindrops, running water, or wind. Although the Project would not require the grading of any steep slopes or major earthworks, erosion could occur during construction or decommissioning. Impacts related to soil erosion would be potentially significant and will be addressed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

d. Would the Project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

The project site is anticipated to be underlain by fine-grained clays and silts with some sands (Kleinfelder 2015). Soft clays and silts may be compressible and are anticipated to be moderately to highly expansive. Impacts related to expansive soils would be potentially significant and will be further evaluated in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

e. Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The Project includes the construction of a septic tank and leach field near the corner of West Dinuba Avenue and SR 33, adjacent to the operation and maintenance building to support the restroom facilities. Shallow groundwater is present throughout the project site (Westwood Professional Services 2017). Due to the presence of shallow groundwater, impacts would be potentially significant and warrant further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The PG&E improvements are located within the project site. For the same reasons discussed above, the potential for the PG&E improvements to result in impacts related to strong seismic ground shaking, seismic-related ground failure, soil erosion or the loss of topsoil, liquefaction, and expansive soils, will further be analyzed in an EIR. Also for the same reasons discussed above, the PG&E improvements would have no impact with respect to rupture of a known earthquake fault or landslides. The PG&E improvements do not include a septic tank or alternative wastewater disposal system and unlike the solar facility, would have no impact with regard to criteria e.

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7 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the Project:

- | | | | | |
|---|---|---|---|---|
| a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ■ | □ | □ | □ |
| b. Conflict with any applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases? | ■ | □ | □ | □ |

- a. *Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*
- b. *Would the Project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Construction, operation and maintenance, and decommissioning of the Project would require equipment and vehicle use that would generate greenhouse gas (GHG) emissions. The Project consists of a renewable energy production facility (solar PV power generating facility) that would meet the requirements of California Renewable Portfolio Standard Program and the California Global Warming Solutions Act (AB 32 and SB 32) for the reduction of GHG emissions through production of renewable energy. In the long-term, the Project is expected to provide a net benefit with respect to the reduction of GHG emissions. The Project’s GHG emissions will be quantified and analyzed in detail in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The construction and operation of the PG&E improvements would result in similar but fewer GHG emissions than the solar facility. These improvements are part of the Project, which is a renewable energy production facility that would meet the requirements of California Renewable Portfolio Standard Program and the California Global Warming Solutions Act (AB 32 and SB 32). For the same reason discussed above, GHG emissions will be quantified and potential impacts will be analyzed in detail in an EIR.

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8 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the Project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a Project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a. *Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*
- b. *Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

The Project would involve the transport, use, and disposal of hazardous materials and wastes during construction, operation, and decommissioning that could result in potential adverse health and environmental impacts if these materials were used, stored, or disposed of improperly, causing accidents and spills. Potential direct and indirect impacts of such releases could degrade soil and water quality or expose humans and the environment to the harmful effects of hazardous materials.

Excavation and grading activities associated with the Project construction and decommissioning could result in harmful exposures to subsurface materials, such as residual pesticides, Coccidioides (Valley Fever) fungus spores, or other unanticipated hazardous materials. Accidental releases of hazardous materials stored and used during Project construction, operation and maintenance, and decommissioning also could occur. Proper operation and management of on-site wastewater facilities, transformer duct banks, and stored oil would be required. There may also be plugged and abandoned oil exploration wells and/or former agricultural wells on the project site that if not properly identified and address could create a significant hazard to the public or the environment as a result of accidental release. Impacts would be potentially significant and will be analyzed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- c. *Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*

The project site is not located within 0.25 mile of an existing or proposed school. No impact would occur as a result of the Project.

NO IMPACT

- d. *Would the Project be located on a site included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

The Project would not be located on a site included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and would not create a significant hazard to the public (U.S. Environmental Protection Agency 2018; Department of Toxic Substances Control 2018; State Water Resources Control Board 2018). No impact would occur as a result of the Project.

NO IMPACT

- e. *For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?*
- f. *For a Project near a private airstrip, would it result in a safety hazard for people residing or working in the Project area?*

The nearest airport to the project site is William Robert Johnston Municipal Airport, located approximately 9.5 miles north of the project site (Federal Aviation Administration 2018). The Project is not located in an airport land use plan and would not result in a safety hazard for people residing or working in the Project area. There would be no impact as a result of the Project.

NO IMPACT

- g. *Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Neither Project construction nor operation and maintenance would involve the closure of roadways, interfere with identified evacuation routes, restrict access for emergency response vehicles, or restrict access to critical facilities such as hospitals or fire stations. The Project would not impair access to or operation of the Fresno County Emergency Operations Center because it is located approximately 35 miles away. The nearest hospitals to the project site are in Coalinga and Fresno, both approximately 30 miles away. Impacts of the Project on emergency response and evacuation plans would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- h. *Would the Project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

The proposed Project is not located in a high or very high fire severity hazard zone (CAL FIRE 2007). Regardless, the Project includes fire prevention measures that would be implemented in order to minimize fire risk, which will be further discussed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

Implementation of the PG&E improvements would involve the transport, use, and disposal of a small amount of hazardous materials and wastes during construction and operation that could result in potential adverse health and environmental impacts if these materials are used, stored, or disposed of improperly, causing accidents and spills. Construction of the PG&E improvements would

also include ground-disturbing activities that could result in harmful exposures to subsurface materials, such as residual pesticides, *Coccidioides* (Valley Fever) fungus spores, or other unanticipated hazardous materials. For the same reasons discussed above, the PG&E improvements have the potential to create a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials and will be further analyzed in an EIR. Fire prevention measures would also apply to these improvements and will be further analyzed in an EIR.

The PG&E improvements are located within the project site and therefore would not emit hazardous materials within 0.25 mile of a school, would not be located on a site included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5, and would not create aviation hazards. Also for the same reasons discussed above, construction, operation, and decommissioning of the PG&E improvements would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

9 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Violate any water quality standards or waste discharge requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Otherwise substantially degrade water quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g. Place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Place structures in a 100-year flood hazard area that would impede or redirect flood flows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Result in inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the Project violate any water quality standards or waste discharge requirements?*
- c. *Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?*
- d. *Would the Project substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?*
- e. *Would the Project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*
- f. *Would the Project otherwise substantially degrade water quality?*

Construction of the Project would involve ground disturbance and grading that could loosen existing surface soils and sediments, increasing the potential for erosion during storm events. Ground disturbance, grading, and the installation of impervious surfaces during construction could also alter the existing drainage and infiltration pattern of the site. Impervious and/or disturbed ground surfaces have the potential to increase the rate and volume of stormwater runoff, and thereby potentially increase possible on- or off-site flooding. Additionally, if dewatering is needed during construction due to shallow groundwater at the project site, dewatering activities would discharge directly to the land surface in the vicinity of the construction site and potentially result in soil erosion.

The use of construction equipment may involve the accidental release of fuel, oils, and other potentially hazardous substances at the site. Application of water for dust suppression or module washing could generate runoff that may transport pollutants (e.g., sediment, dissolved solids). These

pollutants could be delivered to surface water bodies during storm events, and/or be infiltrated into groundwater and the underlying aquifer, resulting in the degradation of water quality standards. Impacts would be potentially significant and require further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- b. *Would the Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering or the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?*

The Project would require up to 360 acre-feet of water during construction and 20 acre-feet annually during operations. Project-related impacts on groundwater supplies would be potentially significant and warrant further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- g. *Would the Project place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?*

Portions of the east side of the project site are designated a Federal Emergency Management Agency Flood Hazard Zone A (1% Annual Chance Flood Hazard) and the remainder of the site is designated Zone X (Area of Minimal Flood Hazard) (Westwood Professional Services 2017). However, there is no housing associated with this Project, nor is there any nearby housing downstream from the site. Therefore, the Project would have a less than significant impact regarding placing housing in a 100-year flood hazard area.

LESS THAN SIGNIFICANT IMPACT

- h. *Would the Project place structures in a 100-year flood hazard area that would impede or redirect flood flows?*

A portion of the project site falls in a 100-year flood hazard area, and there is potential for the Project to place structures in a 100-year flood hazard area and impede or redirect flood flows. Impacts would be potentially significant and require further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- i. *Would the Project expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam?*

The project site is not located in a designated dam inundation area for any major stream or region (County of Fresno 2009). Therefore, the Project would not expose people or structures to a significant risk involving flooding as a result of the failure of a levee or dam and no impact would result.

NO IMPACT

- j. *Would the Project result in inundation by seiche, tsunami, or mudflow?*

The project site is not located in an area subject to inundation by seiche, tsunami, or mudflow. No impact would occur as a result of the Project (County of Fresno 2009).

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

Similar to the solar facility, construction of the PG&E improvements would involve grading and ground disturbing activities, but the area would be much smaller. For the same reasons discussed above, the PG&E improvements have the potential to result in erosion, increase the rate or amount of surface runoff, provide additional sources of polluted runoff, and degrade water quality and these potential impacts require further analysis in an EIR.

The PG&E improvements would only require a small amount of water for dust suppression during construction and none during operations. However, potential impacts on groundwater supply will further be evaluated in an EIR.

The PG&E improvements are located within the project site. For the same reasons discussed above, the PG&E improvements would not be located in a designated dam inundation area, seiche, tsunami, or mudflow hazard zone, and consequently would not result in significant impacts with regard to these issues. Also, unlike the solar facility, the PG&E improvements would not be located in a 100-year flood hazard zone and would have no impact with regards to flood hazards.

10 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Conflict with an applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. Would the Project physically divide an established community?

The project site is located in a rural area in unincorporated Fresno County, approximately 3.5 miles southwest of the community of Tranquillity at the closest point. There are no other established communities in the area. Therefore, the Project would not physically divide an established community, and no impact would occur with respect to this issue.

NO IMPACT

b. Would the Project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The project site is designated as Agriculture in the Fresno County General Plan (2000a) and is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) (Fresno County 2011). Solar energy facilities are allowed in any zone district by discretionary approval of an Unclassified Conditional Use Permit. This issue will be analyzed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

c. Would the Project conflict with an applicable habitat conservation plan or natural community conservation plan?

The Project would not be constructed in the boundaries of any adopted habitat conservation plan or natural community conservation plan. The closest habitat conservation plan is the Eastern Fresno

Habitat Plan that governs an area approximately 45 miles northeast of the project site. There are no adopted natural community conservation plans in Fresno County (California Department of Fish and Wildlife 2017; County of Fresno 2000a). No impact would occur as a result of the Project.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The PG&E improvements are located within the project site. For the same reasons discussed above, the PG&E improvements would not physically divide an established community or conflict with an applicable habitat conservation plan or natural community conservation plan.

The entire project site is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size). The potential for the Project, including the PG&E improvements, to conflict with existing zoning will be evaluated in an EIR.

11 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*
- b. *Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

The Project would not result in the loss of availability of known mineral resources or of a locally important mineral resource recovery site delineated in the Fresno County General Plan (2000b). The project site is not located in a mineral resource zone as defined by the California Department of Conservation California Geological Survey. In addition, the project site is not located on, adjacent to, or near mineral resources or recovery sites according to the Mineral Resources Data System, administered by the U.S. Geological Survey. The Project would not entail construction of structures or facilities for the purposes of extraction or exploration of mineral resources and the Project would not result in the loss of availability of a mineral resource of local, regional, or statewide importance. No impact would occur with respect to mineral resources.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The PG&E improvements are located within the project site. For the same reason as discussed above, these improvements would have no impact to mineral resources.

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12 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	■	□	□	□
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	■	□	□	□
c. A substantial permanent increase in ambient noise levels above those existing prior to implementation of the project?	■	□	□	□
d. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the project?	■	□	□	□
e. For a Project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	□	□	□	■
f. For a Project near a private airstrip, would it expose people residing or working in the Project area to excessive noise?	□	□	□	■

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- a. *Would the Project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*
 - c. *Would the Project result in a substantial permanent increase in ambient noise levels above levels existing without the project?*
 - d. *Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the project?*

The County of Fresno General Plan Health and Safety Element and Noise Ordinance (Chapter 8.40 of the Fresno County Development Code) establish standards for acceptable noise levels. Construction and decommissioning of the Project would result in a short-term increase in noise levels from the use of construction equipment and construction traffic. However, the Noise Ordinance exempts noise from construction activities from the standards provided if they take place after 6:00 a.m. and before 9:00 p.m. Monday through Friday, or after 7:00 a.m. and before 5:00 p.m. on weekends. As stated in Section 7, Description of Project, construction equipment would operate between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday. Weekend work, although unlikely, could occur and would similarly adhere to the time limits in the Noise Ordinance (i.e., weekend work would take place after 7:00 a.m. and before 5:00 p.m.). Decommissioning activities would also follow this work schedule. Therefore, short-term construction and decommissioning activities associated with the Project would be exempt from the County's noise policies and standards and there would be no conflict relative to Fresno County noise policies or standards. Nevertheless construction-related noise will be evaluated further in an EIR.

Operation and maintenance of the Project would generate long-term operational noise from stationary equipment, such as transformers and inverters, generation-tie lines, and maintenance vehicle travel that could result in exposure of nearby residences to noise levels in excess of standards and limits established by Fresno County. Noise-related impacts would be potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- b. Would the Project result in exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?*

Grading and other ground-disturbing activities would generate new short-term ground borne vibration and ground borne noise during the Project's construction and decommissioning phases that could affect nearby residents. This impact would be potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- e. For a Project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?*
- f. For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the project area to excessive noise?*

The nearest airport to the project site is William Robert Johnston Municipal Airport, located approximately 9.5 miles north of the project site (Federal Aviation Administration 2018). The Project is not located in an airport land use plan; therefore, it would not expose people residing or working in the Project area to excessive noise levels. No impact would result from implementation of the Project.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

Implementation of the PG&E improvements would result in a short-term increase in noise levels and ground borne vibration from the use of construction equipment and construction traffic, as well as a

long-term increase in operational noise from the switching station and transmission line. For the same reasons described above, impacts related to noise and vibration will be further analyzed in an EIR.

The PG&E improvements are located within the project site, which as described above is not located in an airport land use plan or within the vicinity of a private airstrip; therefore, the PG&E improvements would not expose people residing or working in the Project area to excessive noise levels.

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13 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

The Project would not include any new homes or businesses and would not directly induce substantial population growth. The Project would directly generate short-term employment during construction and decommissioning, and up to eight full-time jobs during Project operation. The total number of construction workers at any given time would range between 132 and 678. However, these jobs are not expected to induce substantial population growth because Project needs can be met by the existing available Fresno County construction labor pool. The California Employment Development Department reported that the unemployment rate in the Fresno County was 8.7 percent in March 2018 (as compared to the statewide unemployment rate of 4.2 percent) (California Employment Development Department 2018). Based on this data, the number of new jobs that would be created by the Project could be served by the existing available Fresno County labor pool.

The Project would include a perimeter road, access roads, and internal roads; however, these roads would be solely for the purpose of access to the project site during construction and operation and would not increase access to urban areas that would remove obstacles to growth or indirectly increase population growth.

While the Project would contribute to energy supply, which can indirectly support population growth, development of the Project is a response to the state's need for renewable energy to meet its Renewable Portfolio Standard and would interconnect with the state's infrastructure. The power generated would be added to the state's electricity grid, with the intent that it would displace fossil-fueled power plants and their associated GHG emissions. The Project is not proposed for development as a source of base-load power in response to growth in demand for electricity.

Therefore, the Project would not indirectly induce substantial population growth. Impacts of the Project on population growth would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- b. *Would the Project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*
- c. *Would the Project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

The project site is currently agricultural land and no housing or other occupied structures are present. Therefore, the Project would not displace any housing or people. No impact would occur from implementation of the Project.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

For the same reasons discussed above, the PG&E improvements would not directly or indirectly induce substantial population growth. Furthermore, the PG&E improvements would be located on the project site, which does not contain housing or other occupied structures. Therefore implementation of the PG&E improvements would not displace any housing or people.

14 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1 Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2 Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3 Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4 Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5 Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a.1-5. Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, other public facilities?

The Project is a solar energy facility that would neither involve the construction of new or physically altered governmental facilities nor result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts. Increases in demand for public services requiring new or physically altered governmental facilities typically are associated with substantial increases in population. The Project would not include new residences or development on a scale so large that it could not be provided with services through existing facilities. Therefore, impacts to public services would be less than significant.

LESS THAN SIGNIFICANT IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

For the same reasons as discussed above, impacts to public services as a result of the Project, including the PG&E improvements, would be less than significant.

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15 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*
- b. *Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

The Project involves the construction, operation and maintenance, and decommissioning of a solar facility and energy storage system. As discussed in Section 13, Population and Housing, and Section 14, Public Services, the Project does not include new residences and would not increase the population. Therefore, the Project would not result in substantial new population growth that would result in physical deterioration of existing recreational facilities or require the construction of new or expanded recreational facilities. No impact to recreational facilities would result from implementation of the Project.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The PG&E improvements do not include new residences and would not increase the population. For the same reason as discussed above, the PG&E improvements would have no impact on recreational facilities.

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16 Transportation/Traffic

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	■	□	□	□
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	■	□	□	□
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	□	□	□	■
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	■	□	□	□
e. Result in inadequate emergency access?	■	□	□	□
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	□	□	□	■

- a. *Would the Project conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?*
- b. *Would the Project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?*
- d. *Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?*
- e. *Would the Project result in inadequate emergency access?*

The Project would increase traffic compared to existing conditions, primarily during construction. Trips generated as a result of the Project have the potential to impact area intersections and roadway segments and contribute to cumulative traffic increases. The Project may increase hazards, result in inadequate emergency access, or conflict with applicable plans and policies. Traffic impacts would be potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- c. *Would the Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

The nearest public airport to the project site is the William Robert Johnson Municipal Airport, located approximately 9.5 miles to the north of the project site (Federal Aviation Administration 2018). The Project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. No impact would result from implementation of the Project.

NO IMPACT

- f. *Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?*

There are no existing or planned pedestrian, bicycle, or transit facilities in the Project area with which the Project could interfere (County of Fresno 2010a, 2013; Fresno Council of Governments 2018). The Project would not introduce a barrier to non-motorized travel. Therefore, it would not conflict with adopted policies, plans, or programs supporting public transit, bicycle, or pedestrian modes of transportation. The Project also would not decrease the performance or safety of public transit, bicycle, or pedestrian facilities because there are no such facilities in the affected area. Therefore, no impact would result from implementation of the Project.

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The PG&E improvements would generate a small number of vehicle trips primarily during construction. While the number of trips would be less than those generated by the solar facility, the potential to impact area intersections and roadway segments and contribute to cumulative traffic

increases will be evaluated in an EIR. Implementation of the PG&E improvements may also increase hazards, result in inadequate emergency access, or conflict with applicable plans and policies. Traffic impacts from the PG&E improvements would be potentially significant and will be analyzed in an EIR.

The PG&E improvements are located within the project site, which as described above, is not located in the vicinity of an airport or of existing or planned pedestrian, bicycle, or transit facilities. Therefore, the PG&E improvements would have no impact on air traffic patterns or the performance or safety of public transit, bicycle, or pedestrian facilities.

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17 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

California Assembly Bill 52 of 2014 (AB 52) was enacted July 1, 2015, and expands CEQA by defining a new resource category, "tribal cultural resources." AB 52 establishes that "A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It states further that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, and in applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe

AB 52 also establishes a formal consultation process for California Native American tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

a. Would the Project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)

b. Would the Project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 2024.1?

The Project is located in the immediate area of interest for the Table Mountain Rancheria. A search of the Native American Heritage Commission Sacred Lands Inventory identified no known Native American traditional sites/places on the project site (Rincon Consultants 2016). The County conducted consultation under AB 52, providing notification to the Table Mountain Rancheria, Dumna Wo Wah, Santa Rosa Rancheria, and the Picayune Rancheria of the Chukchansi Indians on May 4, 2018. Table Mountain Rancheria declined participation in a letter dated May 17, 2018, and no other responses were received within 30 days. No impact to tribal cultural resources would occur as a result of the Project..

NO IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

The PG&E improvements are located within the project site. For the same reasons described above impacts to tribal cultural resources (criteria a and b) will be discussed in an EIR.

18 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a. *Would the Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

During construction, restroom facilities would be provided in the form of portable units to be serviced by licensed providers. During operation of the Project, a septic system and leach field would be installed adjacent to the O&M building to support the restroom facilities and sewage

needs of eight permanent staff (eight hours per day). Anticipated peak flow is 600 gallons into the leach field per day during Project operation (or 0.67 acre-feet per year) (Recurrent Energy 2018). No surface discharges are proposed beyond natural stormwater runoff. A Waste Discharge Permit would not be required from the Regional Water Quality Control Board because the Project would not exceed 2,500 gallons of sewage per day. Personnel on-site to perform module washing (up to four times per year) would be provided with portable restrooms serviced by a licensed provider. No wastewater would be generated during panel washing, as water would be absorbed into the surrounding soil or would evaporate. Therefore, the Project would not exceed wastewater treatment requirements of the Regional Water Quality Control Board and no impact would result.

NO IMPACT

- b. *Would the Project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

The Project includes installation of a septic tank and leach field and would not result in the expansion of existing water facilities or in the construction of new water facilities. Water for the Project would be brought in by truck. The septic system would be required to be permitted by the Fresno County Department of Public Works and Planning. The septic system and leach field testing procedures and design would meet all applicable specifications and regulations. However, this will be discussed in further detail in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- c. *Would the Project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

The Project involves the construction, operation and maintenance, and decommissioning of a solar facility and energy storage system and associated infrastructure. The Project would increase impervious surfaces and require the construction of stormwater drainage facilities. Therefore, impacts would be potentially significant and warrant further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- d. *Would the Project have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?*

Water would be required for the construction, operation and maintenance, and decommissioning phases of the Project. A water supply assessment will be prepared for the Project to evaluate potential impacts, which will be discussed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- e. *Would the Project result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

The project site is located in rural unincorporated Fresno County and would not be served by a municipal wastewater treatment provider. No impact would occur as a result of the Project.

NO IMPACT

- f. *Would the Project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*
- g. *Would the Project comply with federal, state, and local statutes and regulations related to solid waste?*

The project site is serviced by the American Avenue Landfill, which has a remaining capacity of 29,385,535 cubic yards (CalRecycle 2018). Operation and maintenance activities associated with the Project are not anticipated to produce a substantial amount of solid waste. However, large amounts of solid waste are anticipated during the construction and decommissioning phases of the Project. Decommissioning would occur after the American Avenue landfill reaches its permitted capacity; therefore, decommissioning waste would be hauled to the nearest active landfill. Currently, the nearest landfills after American Avenue are the City of Clovis landfill, located in Clovis in Fresno County, and the Billy Wright Disposal Site, located in Los Banos in Merced County. Impacts would be potentially significant and will require further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

Unlike the solar facility, the PG&E improvements would not generate wastewater or require new water or wastewater treatment facilities or expansion of existing facilities. Therefore, no impact would result with respect to these issues.

Expansion of the Tranquillity Switching Station would increase impervious surfaces, and therefore could require the construction of stormwater drainage facilities. For the same reasons described above, potential impacts related to storm water drainage facilities will require further analysis in an EIR.

Construction of the PG&E improvements would require a small amount of water for dust suppression during, which will further be discussed in an EIR. Construction and decommissioning of the PG&E improvements would generate a small amount of solid waste. For the reasons described above, potential impacts require further analysis in an EIR.

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19 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

Does the project:

- | | | | | |
|---|---|---|---|---|
| a. Have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ■ | □ | □ | □ |
| b. Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | ■ | □ | □ | □ |
| c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ■ | □ | □ | □ |

- a. *Does the Project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

As noted under Section 4, *Biological Resources*, and Section 5, *Cultural Resources*, implementation of the proposed Project would have potentially significant impacts on special status species and cultural and paleontological resources such that further analysis in an EIR is warranted.

POTENTIALLY SIGNIFICANT IMPACT

- b. *Does the Project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Impacts of the Project in conjunction with other projects in the surrounding area may be cumulatively considerable relative to aesthetics, air quality, cultural resources, GHG emissions, hydrology and water quality, noise, traffic and circulation, and /or utilities and service systems. Cumulative impacts of the Project would be potentially significant and warrant further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

- c. *Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, geology and soils, noise, and traffic safety. As detailed in the preceding responses, the Project would potentially have environmental effects that cause substantial adverse effects in the issue areas of air quality, geology and soils, hazards and hazardous materials, noise, and traffic. Impacts to human beings would be potentially significant and warrant further analysis in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

PG&E Tranquillity Switching Station Expansion and Transmission Line

For the same reasons as discussed above, the PG&E improvements have the potential to result in significant impacts on special status species and cultural and paleontological resources. Similarly, in conjunction with other projects, the PG&E improvements, may result in cumulative impacts relative to aesthetics, air quality, cultural resources, GHG emissions, hydrology and water quality, noise, traffic and circulation, and /or utilities and service systems. The PG&E improvements would potentially have environmental effects that cause substantial adverse effects in the issue areas of air quality, geology and soils, hazards and hazardous materials, noise, and traffic safety and could cause substantial adverse effects on human beings. Potential impacts require further analysis in an EIR.

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List of Preparers

Rincon Consultants, Inc. prepared this Initial Study under contract to the County of Fresno. Persons involved in data gathering analysis, project management, and quality control are listed below:

RINCON CONSULTANTS, INC.

Richard Daulton, Principal
Shauna Callery, Senior Project Manager
Katherine Green, Associate Planner
Carolyn Neer, Associate Planner
April Durham, Technical Editor

**NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT
AND PUBLIC SCOPING MEETING FOR THE
SCARLET SOLAR ENERGY PROJECT**

Date: September 12, 2018

To: State Clearinghouse, Responsible Agencies, Trustee Agencies, and Interested Parties

From: County of Fresno, Department of Public Works and Planning
Development Services and Capital Projects Division
2220 Tulare Street, Sixth Floor
Fresno, CA 93721

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Scarlet Solar Energy Project (Conditional Use Permit Application No. 3555)

Action: The County of Fresno (County) will be the Lead Agency and will prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the Scarlet Solar Energy Project. The EIR will analyze potential environmental impacts of the proposed project (EIR No. 7230).

Project Title: Scarlet Solar Energy Project

Project Applicant: RE Scarlet LLC

Project Summary:

RE Scarlet LLC (Applicant), a wholly owned subsidiary of Recurrent Energy (RE) LLC, has submitted to the County Unclassified Conditional Use Permit Application No. 3555 to construct, operate, maintain, and ultimately decommission a 400-megawatt (MW) solar photovoltaic (PV) electricity generating facility and 400 MW energy storage system and associated infrastructure to be known as the Scarlet Solar Energy Project (Project). The Project would provide solar power to utility customers by interconnecting to the regional electricity grid at Pacific Gas and Electric Company's (PG&E) Tranquillity Switching Station. The approximately 4,089-acre Project site is in unincorporated Fresno County, approximately 3.5 miles west-southwest of the community of Tranquillity and approximately 6.5 miles east of Interstate 5. The Project site is primarily dry-farmed agriculture that has been intermittently irrigated. A more detailed description is provided below.

The project description, location, and the potential environmental effects are summarized in the attachment. A copy of the Initial Study is not attached, but is available at the following locations:

- Fresno County Public Works and Planning Department, 2220 Tulare Street, Fresno, CA 93721
- Fresno County website: www.co.fresno.ca.us/EIR

Written Comments:

As required by Section 15082 and CEQA Guidelines, this Notice of Preparation (NOP) has been prepared and distributed to solicit comments from potential Responsible and Trustee Agencies and other public agencies so that Project-related concerns relevant to each agency's statutory responsibilities in connection with the Project can be addressed in the EIR, as well as any related issues from interested parties other than potential Responsible and Trustee Agencies, including other agencies and affected members of the public. The EIR will be the environmental document of reference for Responsible and Trustee Agencies when considering subsequent discretionary approvals.

The County requests that any potential Responsible or Trustee Agencies responding to this NOP reply in a manner consistent with Section 15082(b) of the CEQA Guidelines, which allows for submittal of any comments in response to this notice no later than 30 days after receipt of the NOP. Comments in response to this NOP will be accepted through **5:00 p.m., Monday, October 15, 2018.**

Please send your written comments to:

Attn: Christina Monfette
Fresno County Department of Public Works and Planning
Development Services and Capital Projects Division
2220 Tulare Street, Sixth Floor
Fresno, CA 93721
Phone: (559) 600-4245 Fax: (559) 600-4200
Email: cmonfette@FresnoCountyCA.gov

Please reference EIR No. 7230, Scarlet Solar Energy Project. Please include your name, address, and phone number and/or email address so that we may contact you for clarification, if necessary.

Public Scoping Meeting:

Consistent with the California Public Resources Code and Section 15083(c)(1), (2)(A) to (D) of the CEQA Guidelines, a public scoping meeting will be held to solicit public and agency comments on the scope and content of the Draft EIR. The Public Scoping Meeting will be held on:

Date: October 11, 2018
Time: 5:30 p.m. to 6:30 p.m.
Place: Mendota Library

The meeting is an opportunity to gather information from the public regarding the potential environmental impacts of the project that need to be evaluated in the EIR. It is not intended to be a hearing on the merits of the project. Therefore, members of the public should focus their comments on potential significant changes to the environment that may occur as a direct result of the Project.

Signature: _____
Marianne Mollring, Senior Planner

Date: _____

NOTICE OF PREPARATION ATTACHMENT SCARLET SOLAR ENERGY PROJECT

Project Location:

The Project site is located in unincorporated Fresno County, approximately 3.5 miles west-southwest of the community of Tranquillity and approximately 6.5 miles east of Interstate 5. The site includes up to 33 parcels¹ located generally south of West South Avenue, north of West Dinuba Avenue, east of Ohio Avenue and State Route 33 (SR 33, South Derrick Avenue), and west of South San Mateo Avenue. See Figure 1, Scarlet Solar Project Site Location.

Physical Setting:

The Project site consists of disturbed agricultural land that is primarily dry-farmed, typically for grain or forage crops. The site is subject to high levels of selenium and a water table with drainage insufficient for most commercially-irrigated crops. All of the parcels, except for one, are currently owned by Westlands Water District and are part of Westlands Water District settlements. Eleven of the site's Westlands Water District parcels are currently under a non-irrigation covenant; over at least the past five years, some of these parcels have been farmed but none have been irrigated. Upon transfer of ownership, non-irrigation covenants will apply to all the parcels that had been owned by Westlands Water District. For the portion of the Project site that is cultivated without the benefit of irrigation, the productivity of these crops depends entirely on rainfall.

A small portion of the Project area is located on the Tranquillity Solar Project site and is currently developed with the Tranquillity Switching Station. Two existing PG&E overhead transmission lines are located on the north side of Dinuba Avenue, along the southern portion of the Project site. There are also existing PG&E utility lines at the site that would remain in place with an easement granted to PG&E for access.

Adjacent land uses include agriculture to the north, east, and west of the Scarlet Solar Energy Project site and two rural residences and the Tranquillity Solar Facility to the south.

General Plan Designation: Agriculture

Zoning: AE-20 (Exclusive Agricultural, 20-acre minimum parcel size)

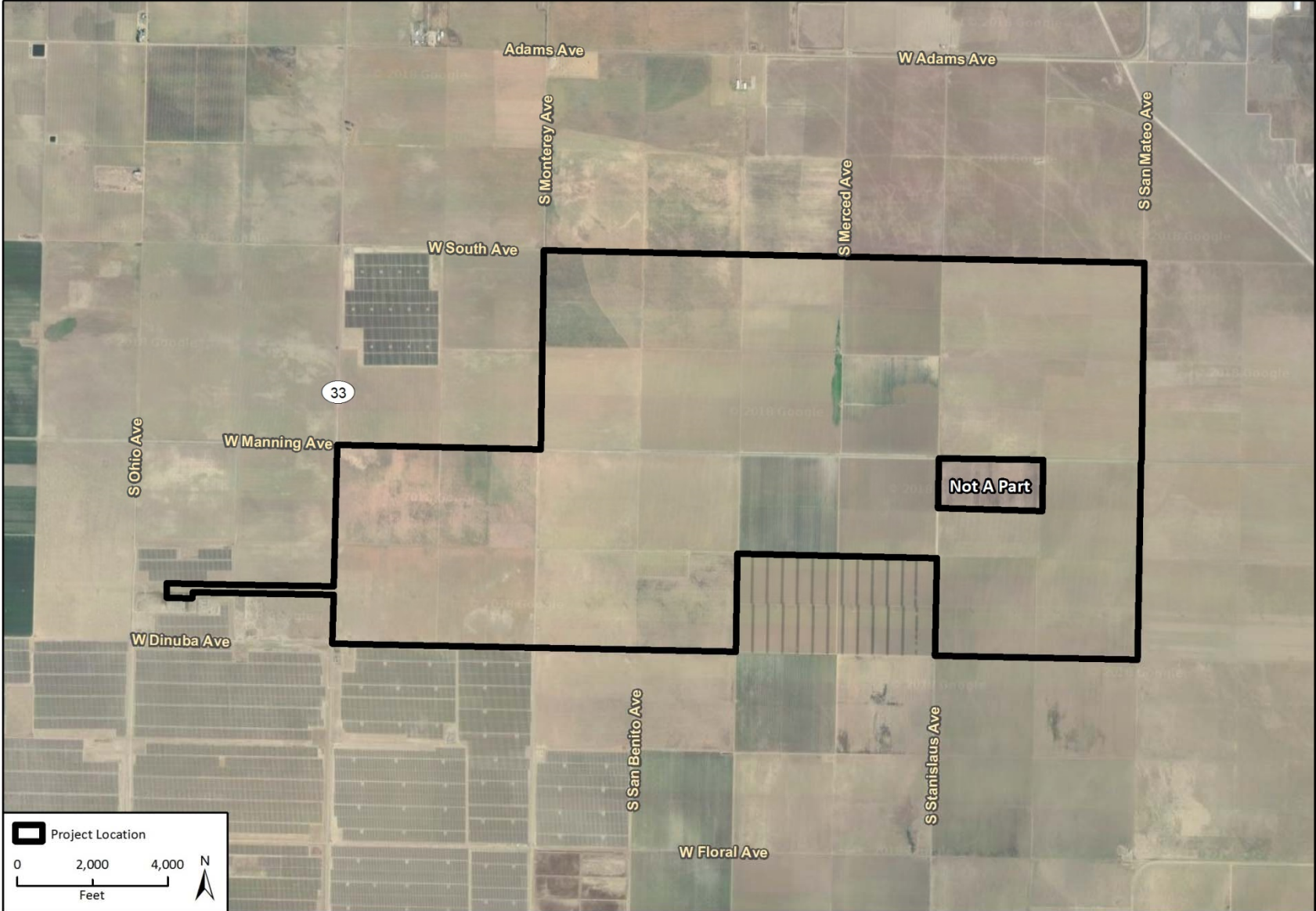
Major Components of the Project:

The Project consists of two major components: the solar facility and the PG&E improvements. The solar facility would include solar PV modules, support structures, electrical inverters, intermediate voltage transformers, two electrical substations, and a switchyard, and a generation intertie (gen-tie) transmission line. Each substation area would include an electrical control building. Other necessary infrastructure would include a permanent operation and maintenance building, a supervisory control and data acquisition (SCADA) system, up to 400 MW of on-site battery storage, meteorological data system, telecommunications infrastructure, access roads, and security fencing. The solar PV modules at the site would operate year-round to generate solar electricity during daylight hours and would generate up to 400 MW of solar power.

¹ The Project would be constructed on any or all of assessor parcels 028-07-134, 028-07-139, 028-07-140, 028-07-141, 028-07-143, 028-07-144, 028-07-145, 028-07-147, 028-07-148, 028-07-149, 028-08-166, 028-11-101, 028-11-102, 028-11-104, 028-11-106, 028-11-107, 028-11-109, 028-11-110, 028-11-112, 028-11-113, 028-11-114, 028-11-115, 028-11-116, 028-11-117, 028-11-119, 028-11-120, 028-12-061, 028-12-062, 028-10-074, 028-10-072, 028-10-082, 028-10-081, and 028-101-75S.

Improvements to PG&E electrical infrastructure would include expansion of PG&E's Tranquillity Switching Station and approximately 1,900 feet of 230 kV transmission line to connect the solar facility's 230 kV gen-tie line to the Tranquillity Switching Station.

Figure 1: Scarlet Solar Energy Project Site Location



Imagery provided by Google and its licensors © 2018.

Fig 1 Project Location_DemoSample_Stack

Alternatives to be Analyzed in the EIR:

In accordance with Section 15126.6 of the CEQA Guidelines, the Draft EIR will assess a range of reasonable alternatives to the Project. The range of alternatives to be addressed will include a No Project Alternative as well as other alternatives that would attain most of the basic objectives of the Project while avoiding or reducing any of its significant environmental effects. Potential alternatives will be identified during the coordinated consultation and scoping process.

Potential Environmental Effects and Issues Scoped for EIR:

The Initial Study describes the proposed Project's potential environmental effects. Issue areas that may be determined to be potentially significant include:

- Aesthetics
- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Transportation/Traffic
- Utilities and Service Systems

Issues determined not to be significant under CEQA thresholds of significance include:

- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Tribal Cultural Resources

Appendix A2

NOP Comments

From: [Jonas, Chuck](#)
To: [Monfette, Christina](#)
Subject: RE: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study
Date: Wednesday, September 26, 2018 2:56:06 PM
Attachments: [image002.png](#)
[image003.png](#)

No Comments



Chuck Jonas CBO | Chief Building Inspector

**Department of Public Works and Planning
Development Services and Capital Projects**

2220 Tulare St. Suite A Fresno, CA 93721

Main Office: (559) 600-4497 Direct: (559) 600-4217

[Your input matters! Customer Service Survey](#)

From: Mollring, Marianne

Sent: Thursday, September 13, 2018 8:58 AM

To: White, Steven <stwhite@fresnocountyca.gov>; Jimenez, Bernard <BJimenez@fresnocountyca.gov>; Thompson, John R. <jothompson@fresnocountyca.gov>; Kettler, William <WKettler@fresnocountyca.gov>; Motta, Chris <CMotta@fresnocountyca.gov>; Khorsand, Mohammad <mkhorsand@fresnocountyca.gov>; Mtunga, Tawanda <tmtunga@fresnocountyca.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Jonas, Chuck <CJonas@fresnocountyca.gov>; Kennedy, Laurie <lkenedy@fresnocountyca.gov>; Daniele, Frank <FDaniele@fresnocountyca.gov>; Lopez, Nadia <nllopez@fresnocountyca.gov>; Alimi, Mohammad <malimi@fresnocountyca.gov>; Allen, Glenn <glallen@fresnocountyca.gov>; Wright, Les <lwright@fresnocountyca.gov>; Dictos, Paul <pdictos@fresnocountyca.gov>; Patricia Cole <patricia_cole@fws.gov>; 'matt.scroggins@waterboards.ca.gov' <matt.scroggins@waterboards.ca.gov>; Dave Padilla <dave.padilla@dot.ca.gov>; Chris Christopherson - Fresno County Fire Protection District (chris.christopherson@fire.ca.gov) <chris.christopherson@fire.ca.gov>; 'ceqa@valleyair.org' <ceqa@valleyair.org>

Cc: Monfette, Christina <cmonfette@fresnocountyca.gov>

Subject: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study

Please address any correspondence or questions related to environmental and/or policy/design issues to, Chrissy Monfette, Planner, Development Services and Capital Projects Division, Fresno County Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno, CA 93721, or call (559) 600-4245, or email cmonfette@co.fresno.ca.us.

The Notice of Preparation and Initial Study are available on the County website at:

www.co.fresno.ca.us/EIR.

PROJECT: RE Scarlet LLC, has submitted Unclassified Conditional Use Permit Application No. 3555 to construct, operate, maintain, and ultimately decommission a 400-megawatt (MW) solar photovoltaic (PV) electricity generating facility and 400 MW energy storage system and associated infrastructure to be known as the Scarlet Solar Energy Project (Project). The Project would provide solar power to utility customers by interconnecting to the regional

electricity grid at Pacific Gas and Electric Company's (PG&E) Tranquillity Switching Station.

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APPLICANT: RE Scarlet, LLC

DEADLINE: We must have your comments by **October 15, 2018**. Any comments received after this date may not be used.

NOTE - THIS WILL BE OUR ONLY REQUEST FOR WRITTEN COMMENTS. If you do not have comments, please provide a "NO COMMENT" response to our office by the above deadline (e-mail is also acceptable; see email address below).



Marianne Mollring, AICP, GISP | Senior Planner

Department of Public Works and Planning |

Development Services and Capital Projects Division

2220 Tulare St. 6th Floor Fresno, CA 93721

Main Office: (559) 600-4497 Direct: (559) 600-4569

[Your input matters! Customer Service Survey](#)

From: [Christopherson, Chris@CALFIRE](mailto:Christopherson_Chris@CALFIRE)
To: [Monfette, Christina](mailto:Monfette_Christina)
Cc: [Rodriguez, Diane@CALFIRE](mailto:Rodriguez_Diane@CALFIRE)
Subject: Fw: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study
Date: Tuesday, September 18, 2018 10:50:47 AM
Attachments: [image002.png](#)
[EIR 7230 NOP Routing.pdf](#)

Christina,

Fresno County Fire Protection District has no additional comments for the EIR of this project.

Thank you,

Chris Christopherson
Battalion Chief 4320
Fire Prevention/Law Enforcement
CAL FIRE - Fresno County Fire
559.493.4320 Office
559.281.4320 Cell
Chris.Christopherson@fire.ca.gov

From: Mollring, Marianne <mmollring@fresnocountyca.gov>
Sent: Thursday, September 13, 2018 8:58 AM
To: White, Steven; Jimenez, Bernard; Thompson, John R.; Kettler, William; Motta, Chris; Khorsand, Mohammad; Mtunga, Tawanda; Luna, Hector; Jonas, Chuck; Kennedy, Laurie; Daniele, Frank; Lopez, Nadia; Alimi, Mohammad; Allen, Glenn; Wright, Les; Dictos, Paul; Patricia Cole; Scroggins, Matt@Waterboards; Padilla, Dave@DOT; Christopherson, Chris@CALFIRE; 'ceqa@valleyair.org'
Cc: Monfette, Christina
Subject: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study

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APPLICANT: RE Scarlet, LLC

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Marianne Mollring, AICP, GISP | Senior Planner
Department of Public Works and Planning |
Development Services and Capital Projects Division
2220 Tulare St. 6th Floor Fresno, CA 93721
Main Office: (559) 600-4497 Direct: (559) 600-4569
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To: [Monfette, Christina](mailto:Monfette_Christina)
Cc: [Rodriguez, Diane@CALFIRE](mailto:Rodriguez_Diane@CALFIRE)
Subject: Fw: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study
Date: Tuesday, September 18, 2018 10:50:47 AM
Attachments: [image002.png](#)
[EIR 7230 NOP Routing.pdf](#)

Christina,

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Thank you,

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Sent: Thursday, September 13, 2018 8:58 AM
To: White, Steven; Jimenez, Bernard; Thompson, John R.; Kettler, William; Motta, Chris; Khorsand, Mohammad; Mtunga, Tawanda; Luna, Hector; Jonas, Chuck; Kennedy, Laurie; Daniele, Frank; Lopez, Nadia; Alimi, Mohammad; Allen, Glenn; Wright, Les; Dictos, Paul; Patricia Cole; Scroggins, Matt@Waterboards; Padilla, Dave@DOT; Christopherson, Chris@CALFIRE; 'ceqa@valleyair.org'
Cc: Monfette, Christina
Subject: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study

Please address any correspondence or questions related to environmental and/or policy/design issues to, Chrissy Monfette, Planner, Development Services and Capital Projects Division, Fresno County Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno, CA 93721, or call (559) 600-4245, or email cmonfette@co.fresno.ca.us.

The Notice of Preparation and Initial Study are available on the County website at: www.co.fresno.ca.us/EIR.

PROJECT: RE Scarlet LLC, has submitted Unclassified Conditional Use Permit Application No. 3555 to construct, operate, maintain, and ultimately decommission a 400-megawatt (MW) solar photovoltaic (PV) electricity generating facility and 400 MW energy storage system and associated infrastructure to be known as the Scarlet Solar Energy Project (Project). The Project would provide solar power to utility customers by interconnecting to the regional electricity grid at Pacific Gas and Electric Company's (PG&E)

Tranquillity Switching Station.

The approximately 4,089-acre Project site is in unincorporated Fresno County, approximately 3.5 miles west-southwest of the community of Tranquillity and approximately 6.5 miles east of Interstate 5. The site includes up to 33 parcels located generally south of West South Avenue, north of West Dinuba Avenue, east of Ohio Avenue and State Route 33 (SR 33, South Derrick Avenue), and west of South San Mateo Avenue.

As required by Section 15082 and CEQA Guidelines, this Notice of Preparation (NOP) has been prepared and distributed to solicit comments from potential Responsible and Trustee Agencies and other public agencies so that Project-related concerns relevant to each agency's statutory responsibilities in connection with the Project can be addressed in the EIR, as well as any related issues from interested parties other than potential Responsible and Trustee Agencies, including other agencies and affected members of the public.

APPLICANT: RE Scarlet, LLC

DEADLINE: We must have your comments by **October 15, 2018**. Any comments received after this date may not be used.

NOTE - THIS WILL BE OUR ONLY REQUEST FOR WRITTEN COMMENTS. If you do not have comments, please provide a "NO COMMENT" response to our office by the above deadline (e-mail is also acceptable; see email address below).



Marianne Mollring, AICP, GISP | **Senior Planner**
Department of Public Works and Planning |
Development Services and Capital Projects Division
2220 Tulare St. 6th Floor Fresno, CA 93721
Main Office: (559) 600-4497 Direct: (559) 600-4569
[Your input matters! Customer Service Survey](#)



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
08ESMF00-
2018-TA-3240

Marianne Mollring, Senior Planner
Fresno County Department of Public Works and Planning
Development Services and Capital Projects Division
2220 Tulare St., 6th Floor
Fresno, California 93721

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OCT 12 2018

FRESNO COUNTY
DEPT. OF
PUBLIC WORKS & PLANNING

Subject: Comments on EIR 7230 Scarlet Solar Energy Project Notice of Preparation
(NOP)/Initial Study.

Dear Ms. Mollring:

The U. S. Fish and Wildlife Service (Service) has reviewed EIR 7230 Scarlet Solar Energy Project NOP/Initial Study received September 13, 2018, regarding the proposed construction, operation, maintenance, and ultimate decommission a 400-megawatt (MW) solar photovoltaic (PV) electricity generating facility and 400 MW energy storage system and associated infrastructure to be known as the Scarlet Solar Energy Project (proposed project).

This response is pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act). Section 9(a)(1) of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

The proposed project consists of two major components, a solar facility and Pacific Gas & Electric Company improvements. The solar facility would include solar PV modules, support structures, electrical inverters, intermediate voltage transformers, two electrical substations, and a switchyard, and a generation intertie (gen-tie) transmission line. Each substation area would include an electrical control building. Other necessary infrastructure would include a permanent operation and maintenance building, a supervisory control and data acquisition system, up to 400 MW of on-site battery storage, meteorological data system, telecommunications infrastructure, access roads, and security fencing. The solar PV modules at the site would operate year-round to generate solar electricity during daylight hours and would generate up to 400 MW of solar power. Improvements to the electrical infrastructure would include expansion of the Tranquillity Switching Station and approximately 1,900 feet of 230 kV transmission line to connect the solar facility's 230 kV gen-tie line to the switching station. The proposed project site is located in unincorporated Fresno County, approximately 3.5 miles west-southwest of the community of Tranquillity and approximately 6.5

miles east of Interstate 5. The site includes up to 33 parcels located generally south of West South Avenue, north of West Dinuba Avenue, east of Ohio Avenue and State Route 33 (SR 33, South Derrick Avenue), and west of South San Mateo Avenue.

A review of the available aerial imagery shows portions of the proposed project site are on undeveloped land, surrounded by a larger matrix of land that is fallow or undeveloped. According to the California Natural Diversity Database, the proposed project is within 10 miles of vernal pool fairy shrimp occurrences (*Branchinecta lynchi*, federally threatened) from 2009, longhorn fairy shrimp occurrences (*Branchinecta longiantenna*, federally endangered) from 2009, and San Joaquin woolly-thread occurrences (*Lembertia congdonii*, federally endangered) from 2013; and within 5 miles of a San Joaquin kit fox occurrence (*Vulpes macrotis mutica*, kit fox; federally endangered) from 1997.

Although no site specific data is available, vernal pools and swales (low lying trough-like depressions that temporarily pool water) may provide suitable habitat for the vernal pool fairy shrimp. Similarly, alkaline pools may provide suitable habitat for the longhorn tadpole shrimp. Upland habitats may provide suitable habitat for the kit fox and San Joaquin woolly-threads. The Service recommends a search of the Service's Information Planning and Consultation system at <http://ecos.fws.gov/ipac> to obtain a full list of federally-listed species that may occur on the proposed project site. In addition, we recommend that a qualified biologist conduct a habitat assessment of the proposed project site to determine whether the site contains suitable habitat for these or any other listed species. If any listed species occur on or near the proposed project site, we recommend that you contact the Service to determine whether any further coordination is needed.

Thank you for the opportunity to review this project. If you have questions regarding this response, please contact Sarah Yates at sarah_d_yates@fws.gov, (916) 414-6625, or me, patricia_cole@fws.gov at the letterhead address or at (916) 414-6544.

Sincerely,



Patricia Cole
Chief, San Joaquin Valley Division

NATIVE AMERICAN HERITAGE COMMISSION

Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Email: nahc@nahc.ca.gov
Website: <http://www.nahc.ca.gov>
Twitter: @CA_NAHC



September 19, 2018

Chrissy Monfette
Fresno County
2220 Tulare Street, 6th Floor
Fresno, CA 93721

RECEIVED
SEP 24 2018

FRESNO COUNTY
DEPT. OF
PUBLIC WORKS & PLANNING

RE: SCH# 2018091022 Scarlet Solar Energy Project, Fresno County

Dear Ms. Monfette:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
 - a. A brief description of the project.
 - b. The lead agency contact information.
 - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
 - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).
2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subs. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
 - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).
3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
 - a. Alternatives to the project.
 - b. Recommended mitigation measures.
 - c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).
4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
 - a. Type of environmental review necessary.
 - b. Significance of the tribal cultural resources.
 - c. Significance of the project's impacts on tribal cultural resources.
 - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).
5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).
6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
 - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
 - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
 - a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
 - a. Avoidance and preservation of the resources in place, including, but not limited to:
 - i. Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i. Protecting the cultural character and integrity of the resource.
 - ii. Protecting the traditional use of the resource.
 - iii. Protecting the confidentiality of the resource.
 - c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
 - e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
 - f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
 - a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
 - b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. **Tribal Consultation:** If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. **No Statutory Time Limit on SB 18 Tribal Consultation.** There is no statutory time limit on SB 18 tribal consultation.
3. **Confidentiality:** Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. **Conclusion of SB 18 Tribal Consultation:** Consultation should be concluded at the point in which:
 - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
 - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
 - a. If part or all of the APE has been previously surveyed for cultural resources.
 - b. If any known cultural resources have already been recorded on or adjacent to the APE.
 - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
 - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
 - b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
 - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
 - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
 - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Sharaya.Souza@nahc.ca.gov.

Sincerely,

for 
Sharaya Souza
Staff Services Analyst

cc: State Clearinghouse

From: [Mollring, Marianne](#)
To: [Monfette, Christina](#)
Subject: FW: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study
Date: Tuesday, September 18, 2018 9:50:22 AM
Attachments: [image004.png](#)
[image002.png](#)

Hi Chrissy,
For your file.
mm

From: Daniele, Frank
Sent: Tuesday, September 18, 2018 8:43 AM
To: Mollring, Marianne <mmollring@fresnocountyca.gov>
Cc: Nakagawa, Wendy <WNakagawa@fresnocountyca.gov>; Kooner, Harpreet <HKooner@fresnocountyca.gov>; Thompson, John R. <jothompson@fresnocountyca.gov>
Subject: RE: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study

Road Maintenance has reviewed the NOP for the proposed solar facility and has the following comments.

1. Based on the review of similar types of solar projects, the transportation impacts from the construction traffic could be significant. The traffic study should not only examine level of service on roadways and intersections, but it should also explore the impacts of concentrated truck traffic on the structural viability of the pavement section.
2. In order to lessen impacts to the existing structural section, the traffic impact study should analyze the traffic index resulting from the construction traffic and construct structural improvements to the haul route roads in advance of the hauling operations. Using a pavement management methodology, the impacts and resultant construction improvement requirements would generally be lessened if the structural improvements are done before the road is deteriorated beyond simple overlay and repair improvements that will be needed as a result of the construction truck traffic.
3. The traffic study should explore various alternatives to address this likely required mitigation to address structural pavement section needs, and include a phasing plan for implementation if necessary.
4. If hauling operations are commenced prior to any pavement section improvements, then the applicant should also be required to provide routine maintenance of the haul routes if and when the roads are impacted by the construction traffic.



Frank L. Daniele, PE | **Supervising Engineer**

Department of Public Works and Planning | Road Maintenance and Operations Division

2220 Tulare St. 6th Floor Fresno, CA 93721

Main Office: (559) 600-4240 Direct: (559) 600-4268

[Your input matters! Customer Service Survey](#)

From: Mollring, Marianne

Sent: Thursday, September 13, 2018 8:58 AM

To: White, Steven <stwhite@fresnocountyca.gov>; Jimenez, Bernard <BJimenez@fresnocountyca.gov>; Thompson, John R. <jothompson@fresnocountyca.gov>; Kettler, William <WKettler@fresnocountyca.gov>; Motta, Chris <CMotta@fresnocountyca.gov>; Khorsand, Mohammad <mkhorsand@fresnocountyca.gov>; Mtunga, Tawanda <tmtunga@fresnocountyca.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Jonas, Chuck <CJonas@fresnocountyca.gov>; Kennedy, Laurie <lkennedy@fresnocountyca.gov>; Daniele, Frank <FDaniele@fresnocountyca.gov>; Lopez, Nadia <nllopez@fresnocountyca.gov>; Alimi, Mohammad <malimi@fresnocountyca.gov>; Allen, Glenn <glallen@fresnocountyca.gov>; Wright, Les <lwright@fresnocountyca.gov>; Dictos, Paul <pdictos@fresnocountyca.gov>; Patricia Cole <patricia_cole@fws.gov>; 'matt.scroggins@waterboards.ca.gov' <matt.scroggins@waterboards.ca.gov>; Dave Padilla <dave.padilla@dot.ca.gov>; Chris Christopherson - Fresno County Fire Protection District (chris.christopherson@fire.ca.gov) <chris.christopherson@fire.ca.gov>; 'ceqa@valleyair.org' <ceqa@valleyair.org>

Cc: Monfette, Christina <cmonfette@fresnocountyca.gov>

Subject: EIR 7230 - Scarlet Solar Energy Project - Notice of Preparation/Initial Study

Please address any correspondence or questions related to environmental and/or policy/design issues to, Chrissy Monfette, Planner, Development Services and Capital Projects Division, Fresno County Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno, CA 93721, or call (559) 600-4245, or email cmonfette@co.fresno.ca.us.

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www.co.fresno.ca.us/EIR.

PROJECT: RE Scarlet LLC, has submitted Unclassified Conditional Use Permit Application No. 3555 to construct, operate, maintain, and ultimately decommission a 400-megawatt (MW) solar photovoltaic (PV) electricity generating facility and 400 MW energy storage system and associated infrastructure to be known as the Scarlet Solar Energy Project (Project). The Project would provide solar power to utility customers by interconnecting to the regional electricity grid at Pacific Gas and Electric Company's (PG&E) Tranquillity Switching Station.

The approximately 4,089-acre Project site is in unincorporated Fresno County, approximately 3.5 miles west-southwest of the community of Tranquillity and approximately 6.5 miles east of Interstate 5. The site includes up to 33 parcels located generally south of West South Avenue, north of West Dinuba Avenue, east of Ohio Avenue and State Route 33 (SR 33, South Derrick Avenue), and west of South San Mateo Avenue.

As required by Section 15082 and CEQA Guidelines, this Notice of Preparation (NOP) has been prepared and distributed to solicit comments from potential Responsible and Trustee Agencies and other public agencies so that Project-related concerns relevant to each agency's statutory responsibilities in connection with the Project can be addressed in the EIR, as well as any related issues from interested parties other than potential Responsible and Trustee Agencies, including other agencies and affected members of the public.

APPLICANT: RE Scarlet, LLC

DEADLINE: We must have your comments by **October 15, 2018**. Any comments received after this date may not be used.

NOTE - THIS WILL BE OUR ONLY REQUEST FOR WRITTEN COMMENTS. If you do not have comments, please provide a “NO COMMENT” response to our office by the above deadline (e-mail is also acceptable; see email address below).



Marianne Mollring, AICP, GISP | Senior Planner

Department of Public Works and Planning |

Development Services and Capital Projects Division

2220 Tulare St. 6th Floor Fresno, CA 93721

Main Office: (559) 600-4497 Direct: (559) 600-4569

[Your input matters! Customer Service Survey](#)



October 1, 2018

FRESNO COUNTY
DEPT. OF
PUBLIC WORKS & PLANNING

Chrissy Monfette
County of Fresno
Department of Public Works and Planning
2220 Tulare Street, Sixth Floor
Fresno, CA 93721

**Project: Notice of Preparation – Environmental Impact Report No. 7230 for
Unclassified Conditional Use Permit Application No. 3555**

District CEQA Reference No: 20180962

Dear Ms. Monfette:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) for the Scarlet Solar Energy Project which consists of the construction, operation and ultimately decommission of a 400-megawatt (MW) solar photovoltaic electricity generating facility and 400 MW energy storage system and associated infrastructure (Project) located on a 4,089-acre site in the unincorporated area of Fresno County. The District offers the following comments:

General Comments

- 1) The District's initial review of the NOP concludes that emissions resulting from construction and/or operation of the Project may exceed the following thresholds of significance: 100 tons per year of carbon monoxide (CO), 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), 27 tons per year of oxides of sulfur (SOx), 15 tons per year of particulate matter of 10 microns or less in size (PM10), or 15 tons per year of particulate matter of 2.5 microns or less in size (PM2.5).

Samir Sheikh
Executive Director/Air Pollution Control Officer

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Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
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Emissions Analysis

- 2) At the federal level for the National Ambient Air Quality Standards (NAAQS), the District is currently designated as extreme nonattainment for the 8-hour ozone standards; nonattainment for the PM2.5 standards; and attainment for the 1-Hour ozone, PM10 and CO standards. At the state level, the District is currently designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 California Ambient Air Quality Standards (CAAQS). The District recommends that the Air Quality section of the Environmental Impact Report (EIR) include a discussion of the following impacts:
- a) **Criteria Pollutants:** Project related criteria pollutant emissions should be identified and quantified. The discussion should include existing and post-project emissions.
 - i) **Construction Emissions:** Construction emissions are short-term emissions and should be evaluated separately from operational emissions. For reference, the District's annual criteria thresholds of significance for construction are: 100 tons per year of CO, 10 tons per year of NOx, 10 tons per year of ROG, 27 tons per year of SOx, 15 tons per year of PM10, or 15 tons per year of PM2.5.
 - *Recommended Mitigation Measure if needed:* To reduce impacts from construction related exhaust emissions, the District recommends feasible mitigation for the project to utilize off-road construction fleets that can achieve fleet average emissions equal to or cleaner than the Tier III emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations. This can be achieved through any combination of uncontrolled engines and engines complying with Tier III and above engine standards.
 - ii) **Operational Emissions:** Permitted (stationary sources) and non-permitted (mobile sources) sources should be analyzed separately. For reference, the annual criteria thresholds of significance for operation of permitted and non-permitted sources each are: 100 tons per year of CO, 10 tons per year of NOx, 10 tons per year of ROG, 27 tons per year of SOx, 15 tons per year of PM10, or 15 tons per year of PM2.5.
 - iii) **Recommended Model:** Project related criteria pollutant emissions from construction and operation non-permitted (limited to equipment not subject to District permits) should be identified and quantified. Emissions analysis should be performed using CalEEMod (**California Emission Estimator Model**), which uses the most recent approved version of relevant Air Resources Board (ARB) emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

- b) **Nuisance Odors:** The Project should be evaluated to determine the likelihood that the Project would result in nuisance odors. Nuisance odors are subjective, thus the District has not established thresholds of significance for nuisance odors. Nuisance odors may be assessed qualitatively taking into consideration of Project design elements and proximity to off-site receptors that potentially would be exposed objectionable odors.
- c) **Health Risk Screening/Assessment:** A Health Risk Screening/Assessment identifies potential Toxic Air Contaminants (TAC's) impact on surrounding sensitive receptors such as hospitals, daycare centers, schools, work-sites, and residences. TAC's are air pollutants identified by the Office of Environmental Health Hazard Assessment/California Air Resources Board (OEHHA/CARB) (<https://www.arb.ca.gov/toxics/healthval/healthval.htm>) that pose a present or potential hazard to human health. A common source of TACs can be attributed to diesel exhaust emitted from both mobile and stationary sources. Industry specific TACs generated must also be identified and quantified.

The District recommends the Project be evaluated for potential health impacts to surrounding receptors (on-site and off-site) resulting from operational and multi-year construction TAC emissions.

- i) The District recommends conducting a screening analysis that includes all sources of emissions. A screening analysis is used to identify projects which may have a significant health impact. A prioritization, using CAPCOA's updated methodology, is the recommended screening method. A prioritization score of 10 or greater is considered to be significant and a refined Health Risk Assessment (HRA) should be performed. The prioritization calculator can be found at:
http://www.valleyair.org/busind/pto/emission_factors/Criteria/Toxics/Utilities/PRIORITIZATION%20RMR%202016.XLS.
- ii) The District recommends a refined HRA for projects that result in a prioritization score of 10 or greater. It is recommended that the Project proponent contact the District to review the proposed modeling protocol. The Project would be considered to have a significant health risk if the HRA demonstrates that the Project related health impacts would exceed the District's significance threshold of 20 in a million for carcinogenic risk and 1.0 for the Acute and Chronic Hazard Indices.

More information on toxic emission factors, prioritizations and HRAs can be obtained by:

- E-Mailing inquiries to: hramodeler@valleyair.org; or
- The District can be contacted at (559) 230-6000 for assistance; or

- Visiting the Districts website (Modeling Guidance) at http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm

- d) **Ambient Air Quality Analysis:** An ambient air quality analysis (AAQA) uses air dispersion modeling to determine if emissions increases from a project will cause or contribute to a violation of the ambient air quality standards. The District recommends that an AAQA be performed for the Project if emissions exceed 100 pounds per day of any pollutant.

If an AAQA is performed, the analysis should include emissions from both Project specific permitted and non-permitted equipment and activities. The District recommends consultation with District staff to determine the appropriate model and input data to use in the analysis. Specific information for assessing significance, including screening tools and modeling guidance is available online at the District's website www.valleyair.org/ceqa.

- 3) In addition to the discussions on potential impacts identified above, the District recommends the EIR also include the following discussions:

- a) A discussion of the methodology, model assumptions, inputs and results used in characterizing the Project's impact on air quality. To comply with CEQA requirements for full disclosure, the District recommends that the modeling outputs be provided as appendices to the EIR. The District further recommends that the District be provided with an electronic copy of all input and output files for all modeling.
- b) A discussion of the components and phases of the Project and the associated emission projections, including ongoing emissions from each previous phase.
- c) A discussion of Project design elements and mitigation measures, including characterization of the effectiveness of each mitigation measure incorporated into the Project.
- d) A discussion of whether the Project would result in a cumulatively considerable net increase of any criteria pollutant or precursor for which the San Joaquin Valley Air Basin is in non-attainment. More information on the District's attainment status can be found online by visiting the District's website at: <http://valleyair.org/aqinfo/attainment.htm>.

District Rules and Regulations

- 4) The Project may be subject to District rules and regulations, including: Regulation VIII (Fugitive PM10 Prohibitions), Rule 4102 (Nuisance), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the Project may

be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants).

- 5) Based on information provided, the Project would equal or exceed the relevant District Rule 9510 (Indirect Source Review) applicability threshold of 9,000 square feet of space. Therefore, the District concludes that the Project is subject to District Rule 9510.

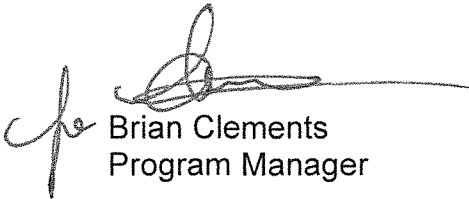
Any applicant subject to District Rule 9510 is required to submit an Air Impact Assessment (AIA) application to the District no later than applying for final discretionary approval. If approval of the subject project constitutes the last discretionary approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first building permit, be made a condition of project approval. Information about how to comply with District Rule 9510 can be found online at: <http://www.valleyair.org/ISR/ISRHome.htm>.

- 6) The above list of rules is neither exhaustive nor exclusive. To identify other District rules or regulations that apply to this Project or to obtain information about District permit requirements, the applicant is strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (559) 230-5888. Current District rules can be found online at the District's website at: www.valleyair.org/rules/1ruleslist.htm.

The District recommends that a copy of the District's comments be provided to the Project proponent. If you have any questions or require further information, please call Mark Montelongo at (559) 230-5905.

Sincerely,

Arnaud Marjollet
Director of Permit Services



Brian Clements
Program Manager

AM: mm



Inter Office Memo

DATE: September 19, 2018

TO: Marianne Mollring
Development Services Division

FROM: Hector Luna
Development Services Division

SUBJECT: CUP 3555

1. Per "Other Infrastructure" heading of the Operational Statement, eight (8) permanent employees will occupy the Operations and Maintenance Building (O&M), therefore 4 parking stalls shall be required (one of which shall be ADA can accessible compliant) for O&M building.
2. A driveway, minimum of 24 feet and a maximum of 35 feet in width as approved by the Road Maintenance and Operation Division for the first 100 feet, off the edge of the ultimate right-of-way and shall be concrete or asphalt.
3. An encroachment permit shall be required from the State of California (Caltrans) for any work done on the state right-of-way (Hwy 33).
4. Internal access roads shall comply with required widths by the Fire District for emergency apparatus.
5. Any proposed gate that provides initial access to this site shall be setback from the edge of the road right-of-way a minimum of 20 feet or the length of the longest vehicle to enter the site, whichever is greater.
6. No building height or structure erected in this District (AE) shall not exceed thirty-five (35) feet in height; per Section 816.5.D of the Zoning Ordinance. An Encroachment Permit will be required for any improvements within the County right-of-way prior to commencement of construction.

7. A dust palliative should be required on all parking and circulation areas.
8. Outdoor lighting should be hooded and directed away from adjoining streets and properties.
9. All proposed signs, require submittal to the Department of Public Works and Planning permits counter to verify compliance with the Zoning Ordinance. Off-site advertising for commercial uses are prohibited in the AE (Exclusive Agriculture) Zone District.



State of California • Natural Resources Agency
Department of Conservation
Division of Land Resource Protection
801 K Street • MS 14-15
Sacramento, CA 95814
(916) 324-0850 • FAX (916) 327-3430

Edmund G. Brown Jr., *Governor*
Clayton Haas, *Acting Director*

September 27, 2018

RECEIVED
OCT 03 2018

FRESNO COUNTY
DEPT. OF
PUBLIC WORKS & PLANNING

VIA EMAIL: CMONFETTE@CO.FRESNO.CA.US

Ms. Chrissy Monfette
Fresno County
2220 Tulare Street, 6th Floor
Fresno, CA 93721

Dear Ms. Monfette:

NOTICE OF PREPARATION FOR THE SCARLET SOLAR ENERGY PROJECT DRAFT ENVIRONMENTAL IMPACT REPORT, SCH# 2018091022

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the Notice of Preparation submitted by Fresno County (County) for the Scarlet Solar Energy Project. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following comments and recommendations with respect to the proposed project's potential impacts on agricultural land and resources.

Project Description

The applicant has applied to the Fresno County Department of Public Works and Planning for an Unclassified Conditional Use Permit to construct, operate, maintain, and decommission a solar photovoltaic electricity generating facility and energy storage system and associated infrastructure. The solar facility would generate up to 400 megawatts and would be located on approximately 4, 089 acres in unincorporated western Fresno County. The existing land use of the project site is primarily dry farmed and has been classified as Farmland of Statewide Importance or Farmland of Local Importance by the Department of Conservation's Farmland Mapping and Monitoring Program.¹

Department Comments

The conversion of agricultural land represents a permanent reduction and significant impact to California's agricultural land resources. Under CEQA, a lead agency should not approve a project if there are feasible alternatives or feasible mitigation measures available that would lessen the significant effects of the project.² All mitigation measures that are potentially feasible should be included in the Draft Environmental Impact Report (DEIR). A measure brought to the attention of the lead agency should not be left out unless it is infeasible based on its elements.

¹ California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, <https://maps.conservation.ca.gov/dlrp/ciff/>, 2014.

² California Environmental Quality Act Statute and Guidelines, Association of Environmental Professionals, 2017, Section 21002, page 2.

Agricultural conservation easements on land of at least equal quality and size can mitigate the project impacts in accordance with CEQA Guideline § 15370. The Department highlights agricultural conservation easements because of their acceptance and use by lead agencies as an appropriate mitigation measure under CEQA. Agricultural conservation easements are an available mitigation tool and should always be considered; however, any other feasible mitigation measures should also be considered.

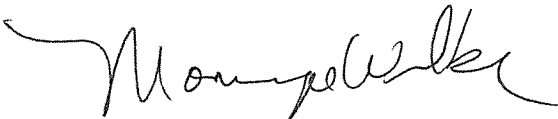
Conclusion

The Department recommends the following discussion under the Agricultural Resources section of the DEIR:

- Type, amount, and location of farmland conversion resulting directly and indirectly from implementation of the proposed project.
- Impacts on any current and future agricultural operations in the vicinity; e.g., land-use conflicts, increases in land values and taxes, loss of agricultural support infrastructure such as processing facilities, etc.
- Incremental impacts leading to cumulative impacts on agricultural land. This would include impacts from the proposed project, as well as impacts from past, current, and likely future projects.
- Proposed mitigation measure for all impacted agricultural lands within the proposed project area.

Thank you for giving us the opportunity to comment on the Notice of Preparation for the Scarlet Solar Energy Project Draft Environmental Impact Report. Please provide this Department with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov.

Sincerely,



Monique Wilber
Conservation Program Support Supervisor

Appendix B

Reclamation Plan

Scarlet Solar Energy Project

Reclamation Plan

Prepared for

**Fresno County Department of Public Works and Planning
Development Services Division**

2220 Tulare Street 6th Floor
Fresno, CA 93721

Prepared by

HELIX Environmental Planning, Inc.

11 Natoma Street, Suite 155
Folsom, CA 95630

April 2021 | EDP-01

DRAFT

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ACRONYMS AND ABBREVIATIONS

AC	alternating current
CDA	Community Development Agency
County	County of Fresno
CUP	Conditional Use Permit
DC	direct current
dS/m	decisiemens per meter
EC	electrical conductivity
ESP	exchangeable sodium percentage
gen-tie	generation intertie
MMRP	Mitigation, Monitoring and Reporting Program
NAS Lemoore	Naval Air Station Lemoore
O&M	Operations and Maintenance
PG&E	Pacific Gas & Electric Company
Plan	Scarlet Solar Energy Project Reclamation Plan
PV	photovoltaic
SCADA	supervisory control and data acquisition

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1.0 INTRODUCTION

1.1 PURPOSE OF THE PLAN

The Scarlet Solar Energy Project Reclamation Plan (Plan) outlines a framework for decommissioning and post-operational restoration of the Scarlet Solar Energy Project (project). This Plan is submitted to fulfill the requirements of the Fresno County Solar Facility Guidelines (Fresno County 2017) and mitigation measures related to post-operational site reclamation.

The purpose of this Plan is to outline a framework for the removal of the installed power generation equipment and to return the project site to a condition as close to a pre-construction state as possible. The project energy generation equipment is expected to have a life of up to 35 years. At the end of the useful life of the project, the project owner or operator will prepare the project site such that it may be re-used or sold, or will provide the County of Fresno (County) with the financial assurances to conduct such work in the event that the owner or operator is incapable of performing such work. The procedures outlined in this Plan will ensure that the project owner, operator, and contractors protect public health and safety, provide environmental protection, and comply with applicable regulations. Additionally, should the facility not be reused this Plan describes methods to decommission the facility and restore the site to pre-development conditions. Should the site be recommissioned rather than decommissioned, it will be done so in accordance with County permitting requirements.

A Final Reclamation Plan will be prepared and finalized in the months prior to decommissioning which will address the approved project, proposed land uses of the site post-decommissioning, and the applicable rules and regulations in place at that time.

1.2 FRESNO COUNTY SOLAR FACILITY GUIDELINES

The Fresno County Solar Facility Guidelines (Fresno County 2017) requires that as part of the application review process, the applicant will provide a Reclamation Plan detailing the lease life, timeline for removal of the improvements and specific measures to return the site to the agricultural capability prior to installation of solar improvements. The Guidelines also include detailed guidance for the minimum content of Reclamation Plans (addressed in Section 2 of this Plan).

1.3 PROJECT LOCATION AND OVERVIEW

The project site is an approximately 4,089-acre site located in unincorporated Fresno County, approximately 3.5 miles west-southwest of the community of Tranquillity and approximately 6.5 miles east of Interstate 5 (I-5). The existing Pacific Gas and Electric Company's (PG&E) Tranquillity Solar Generating Facility is approximately 0.75 mile west of the project site. The project site would encompass up to 33 parcels¹ generally located south of West South Avenue, north of West Dinuba Avenue, east of South Ohio Avenue and State Route (SR) 33 (South Derrick Avenue), and west of South San Mateo Avenue.

¹ The project would be constructed on any or all of parcels with the following assessor parcel numbers (APN) 028-07-134, 028-07-139, 028-07-140, 028-07-141, 028-07-143, 028-07-144, 028-07-145, 028-07-147, 028-07-148, 028-07-149, 028-08-166, 028-11-101, 028-11-102, 028-11-104, 028-11-106, 028-11-107, 028-11-109, 028-11-110, 028-11-112, 028-11-113, 028-11-114, 028-11-115, 028-11-116, 028-11-117, 028-11-119, 028-11-120, 028-12-061, 028-12-062, 028-10-074, 028-10-072, 028-10-082, 028-10-081, and 028-101-755.

All of the parcels, except for one (APN 028-11-112), are currently owned by Westlands Water District.² Refer to Figure 1 in Attachment A for the project site in the region, and Figure 2 for an aerial image of the project site.

The project is proposed to construct, operate, maintain, and decommission a 400-megawatt (MW) solar photovoltaic (PV) electricity generating facility, energy storage system, and associated infrastructure. The project would provide solar power to utility customers by interconnecting to the regional electricity grid at PG&E Tranquillity Switching Station. The proposed facility is intended to operate year-round.

The project would operate year-round to generate solar electricity during daylight hours and would store and dispatch power to the energy storage system during both daylight and non-daylight hours. The project is anticipated to be constructed in continuous phases, with the first phase beginning in mid-2021. The exact timing of the last phase is dependent on opportunities in the solar market, but it is currently anticipated to be online as early as late 2022.

Components of the project would include the following, which are further described below:

- Groups of solar arrays (arrays include PV modules and steel support structures, electrical inverters, transformers, cabling, and other infrastructure);
- One electrical substation;
- A switchyard, including one high-voltage 230 kV utility switchyard, telecommunications infrastructure, and two 65-foot high dead-end structures;
- Approximately 3.5 miles of 230 kV generation intertie (gen-tie) transmission line (from the substations and the project 230 kV switchyard) to connect to the existing PG&E Tranquillity Switching Station;
- Improvements to PG&E electrical infrastructure, including a minor expansion of PG&E's Tranquillity Switching Station and approximately 1,900 feet of PG&E 230 kV transmission line to connect the 230 kV gen-tie line to the Tranquillity Switching Station;
- A 400 MW energy storage system, consisting of battery or flywheel enclosures and electrical cabling; and
- Other necessary infrastructure, including one permanent operations and maintenance (O&M) building, a septic system and leach field, a supervisory control and data acquisition (SCADA) system, a meteorological data system, buried conduit for electrical wires, overhead collector lines, on-site access roads, a shared busbar,³ lighting, and wildlife-friendly security fencing.

This project is anticipated to remain in operation for up to 35 years from completion of construction. Figure 3 in Attachment A shows the location of the components of the proposed project and associated facilities.

² The Westlands Water District acquired these properties as part of the following settlements: (1) the September 3, 2002 settlement agreement reached among the United States, Westlands Water District, and others in the Sumner Peck Ranch et al. v. Bureau of Reclamation et al. lawsuit; (2) the Britz settlement (a separate action executed on September 3, 2002); and (3) the 2002 settlement agreement reached in the Sagoupe et al. v. Westlands Water District et al. lawsuit.

³ A busbar is a system of electrical conductors in a generating or receiving station on which power is concentrated for distribution to several electrical circuits.

2.0 RECLAMATION PLAN CONTENT

The County Solar Facility Guidelines include guidelines for preparing a Reclamation Plan (Fresno County 2020). Each of the requirements is addressed individually below.

1. Description of present use of the site;

The existing land use of the project site is primarily dry-farmed agriculture. For the past 10 years, the project site intermittently has been in low-yield agricultural production (tilled, seeded, and harvested for winter wheat); intermittently irrigated (drip or sprinkler) and harvested for alfalfa seed or other crops; or disked twice a year and left fallow. Some of the parcels in the project footprint are part of Westlands Water District settlements that require a non-irrigation covenant upon transfer of ownership (refer to Figure 4 in Attachment A).

2. Describe the proposed alternative use of the land (all equipment to be installed above and underground, structures, fencing, etc.);

Section 1.3 includes a description of the proposed project facilities. The PV modules will be installed on steel posts supported by piles. Inverters, transformers, substations, electrical storage system containers, and the O&M building will be installed on concrete pads. The collection system will be installed overhead and/or underground. Additional facilities include the 230 kV utility switchyard, telecommunications infrastructure, two 65-foot high dead-end structures, SCADA system, meteorological data system, septic system with leach field, and wildlife-friendly security fencing.

3. Duration of the alternative use of the property (specify termination date);

The proposed facility is expected to be in commercial operation for approximately 35 years from the commencement of operations. Extension of use would be in accordance with County permitting requirements.

4. Address ownership of the property (lease or sale);

The project site is presently owned by Westlands Water District. Westlands Water District has executed an option agreement for purchase and sale with RE Scarlet LLC, a wholly owned subsidiary of EDP Renewables North America LLC. Consequently, RE Scarlet LLC would become the owner of the real property at commencement of construction of the project.

Approximately 76 acres of federally owned land are surrounded by the project site but are not proposed to be included in the project.

5. Describe how the subject property will be reclaimed to its previous agricultural condition (if applicable), specifically:
 - a. Timeline for completion of reclamation after solar facility lease has terminated (identify phasing if needed); and
 - b. Handling of any hazardous chemicals/materials to be removed; and

- c. Removal of all equipment, structures, buildings and improvements at and above grade; and
- d. Removal of any below-grade foundations;
- e. Removal of any below-grade infrastructure (cables/lines, etc.) that are no longer deemed necessary by the local public utility company; and
- f. Detail any grading necessary to return the site to original grade; and
- g. Type of crops to be planted; and
- h. Irrigation system details to be used (existing wells, pumps, etc. should remain throughout the solar facility use).

Procedures to remove the facility and restore the project back to pre-project conditions are included in Section 3 of this Plan. It should be noted that although the property has been historically used for agricultural production, a number of the parcels no longer have rights to water delivery from the Westlands Water District, the present property owner. In consideration of these restrictions, this Plan contemplates decommissioning the project, stabilizing the site, but does not propose additional actions to restore agricultural capacity to the property beyond its present condition on those parcels.

- 6. A Site Plan shall be submitted along with the text of the Reclamation Plan showing the location of equipment, structures, above and underground utilities, fencing, buffer area, reclamation phasing, etc.

A Site Plan is included in Attachment A.

- 7. An engineering cost estimate of reclaiming the site to its previous agricultural condition shall be submitted for review and approval.

Per the Solar Facility Guidelines for a Final Reclamation Plan, the engineer cost estimate to implement the Reclamation Plan will be provided following project approval and will be included in this Plan as Attachment B.

- 8. Financial assurances equal to the cost of reclaiming the land to its previous agricultural condition shall be submitted to ensure the reclamation is performed according to the approved plan. Financial assurances shall be made to the County of Fresno and may take the form of cash, letter of credit or bond that complies with Section 66499 of the California Government Code, et. seq.

Financial assurances will be provided based on the engineer cost estimate noted under item 7, above.

- 9. Evidence that all owners of record have been notified of the proposed Reclamation Plan.

As discussed under item 4, above, RE Scarlet LLC, a wholly-owned subsidiary of EDP Renewables North America LLC, will be purchasing the real property from the current property owner (Westlands Water District) prior to the start of construction. Given that the current property owner will no longer have an ownership interest in the real property once construction commences, there will be no need to notify Westlands Water District of the Plan.

3.0 BASELINE CONDITIONS

3.1 SOIL CONDITIONS

Table 1 describes the project’s soil classifications according to various systems used in California. Refer to Figure 5 in Attachment A for the distribution of soils on the project site. The majority of the site consists of the Tranquillity clay and Ciervo clay as only 390 square feet of Calfax clay soil exists on-site.

Table 1 - Project site soils land capability classification and storie index scores

Map Symbol	Mapping Unit	Acres	Proportion Project Site	LCC Rating	LCC Rating Value	Storie Index Rating Class
286	Tranquillity clay (Irrigated)	1,783	.43	IIIw	60	Grade 4-Poor
	Tranquillity clay (Nonirrigated)	930	.23	VIIw	10	
461	Ciervo clay (Irrigated)	850	.21	IIIs	60	Grade 4-Poor
	Ciervo clay (Nonirrigated)	526	.13	VIIs	10	
482	Calfax clay (Irrigated)	0	0	IIIs	60	Grade 2-Good
	Calfax clay (Nonirrigated)	0.01	0	VIIs	10	
TOTAL		4,089	1.00	--	--	--

Source: NRCS 2019

Notes: LCC – Land Capability Classification.

Land Capability Classification (LCC) demonstrates the suitability of soils for growing field crops. Based on LCC, the site’s LCC non-irrigated soil rating is Class 7 and its irrigated soil rating is Class 3. Class 3 soils have severe limitations that reduce the choice of plants or require special conservation practices, or both. Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

The Storie Index Rating provides a numeric rating (based on a 100-point scale) of the relative degree of suitability or value of a given soil for intensive agriculture use. This rating is based upon soil characteristics only.

3.2 HISTORICAL AGRICULTURAL USE

The project site is primarily dry-farmed agriculture that has been intermittently irrigated. For the past 10 years, the project site has been in low-yield agricultural production (tilled, seeded, and harvested for winter wheat); intermittently irrigated (drip or sprinkler) and harvested for alfalfa seed or other crops; or disced twice a year and left fallow. The site is subject to high levels of selenium and a water table that does not provide for sufficient drainage for most commercially irrigated crops. Furthermore, some of the parcels in the project footprint are part of Westlands Water District settlements that require a non-irrigation covenant upon transfer of ownership (refer to Figure 4 in Attachment A).

For the portion of the project site that is cultivated without the benefit of irrigation, the productivity of these crops depends entirely on rainfall. When the unirrigated crops fail to mature to harvest, the land is grazed as rangeland grasses.

4.0 PROJECT FACILITY AND EQUIPMENT

The project would be comprised of solar panels, inverters, access roads, an O&M building, septic system and leach field, and electrical equipment including substations, battery storage enclosures, and wiring.

The site would be secured by an up to eight-foot-high chain link perimeter fence, topped with three-strand barbed wire, through which multiple points of ingress/egress would be accessed by locked gates.

4.1 FOUNDATIONS

Concrete foundations (equipment pads) will be required for energy storage containers, substation dead-end structures, project inverters, transformers, and switchgear. The O&M building will be constructed on a concrete foundation. Foundations will vary in depth based on micro-siting of these elements, but will range from approximately four inches to 36 inches. PV arrays will be supported by steel piles that are driven directly into the substrate and will not require concrete foundations.

4.2 SOLAR PV ARRAYS AND RACKING

The PV modules will be manufactured at an off-site location and then transported to the Project site. The PV modules will be mounted on a galvanized metal racking system (that would include a metal single-axis utility-scale tracker or a fixed-tilt racking system) and would be connected to inverter- transformer stations. The modules will be made of a semiconductor material covered by a tempered glass pane or otherwise sealed for long-term outdoor durability. PV modules would be dark colored, highly absorptive, and minimally reflective. As previously mentioned, the structures supporting the PV modules consist of steel piles, driven into the substrate.

4.3 ENERGY STORAGE SYSTEM

The project could include, at the applicant's option, a battery or flywheel storage system capable of storing up to 400 MW of electricity and conducting energy to the regional electricity grid. If provided, the storage system would consist of battery or flywheel banks housed in electrical enclosures and buried electrical conduit. The project could use one of a number of commercially available energy storage technologies, including but not limited to Lithium-ion (Li-ion), flow batteries, sodium sulfur or mechanical fly wheels. The energy storage system will either be dispersed throughout the project site, connected to the PV array via direct current ("DC-coupled"); or concentrated in one location on the site, connected to the PV array via alternating current ("AC-coupled").

4.4 ELECTRICAL COLLECTION, INVERTERS, AND TRANSFORMERS

Panels would be electrically connected into panel strings using wiring attached to the panel racking system. Panel strings would be electrically connected to one other via overhead and/or underground wiring installed from the panel strings to combiner boxes located throughout the PV arrays. Wire depths would be in accordance with local, state, and federal codes, and would likely be buried at a minimum of 18 inches below grade by excavating a trench wide enough to accommodate the cables. To accommodate the cables, a polyvinyl chloride (PVC) conduit may be installed in the trench, or, alternatively, cable rated for direct burial would be installed. Where used, overhead cables would be installed on wood poles up to 50 feet in height.

Each 2 MW block of the project would include an inverter-transformer station. Each inverter-transformer station would be construction on a concrete pad or steel skid measuring approximately 40 feet by 25 feet; however, the final size would depend on available technology and market conditions. Each inverter and transformer station would contain a DC combiner (which would collect DC electrical power from the PV modules), up to four inverters, a transformer, an auxiliary power transformer, and a switchboard approximately 8 to 11 feet high. If required based on site meteorological conditions, an inverter shade structure would be installed at each pad. The shade structure would consist of wood or metal supports and a durable outdoor material shade structure (metal, vinyl, or similar). The shade structure would extend up to 10 feet above the top of the inverter pad.

4.5 SUBSTATION AND GEN-TIE TRANSMISSION LINES

The project would include one substation. Each substation would occupy an approximately 27,000-square-foot (150 feet by 180 feet) area enclosed by an approximately 8-foot-high chain link fence topped with one foot of barbed wire.

Structural components in each substation area would include transformers, footings, control buildings, metering stand, capacitor bank, circuit breaker and air disconnect switches, fiber optic telecommunications infrastructure, lighting mast, dead-end structure, and equipment storage containers. The substation area would be graded and compacted and the equipment placed on concrete pads.

Because the substation transformers would contain oil as an insulating fluid, the substation would be designed to accommodate an accidental spill of transformer fluid using containment-style mounting. Each of the dead-end structures would require foundations excavated to a depth of 20 feet or more.

The gen-tie structures would include tubular steel poles and H-frame structures with foundations excavated to a depth of 20 feet or more. The overhead gen-tie line would be up to approximately 3.5 miles long and consist of up to 30 structures. The structures could be up to 150 feet tall, although most would likely be no more than 110 feet.

4.6 SUPPORT FACILITIES

Support facilities include the 2,000-square-foot O&M building, SCADA system, and the meteorological data collection system. The O&M building will be located on a concrete foundation and would include plumbing, a septic system and leach field.

The SCADA system will include buried fiber optic cables, and the SCADA system cabinet would be located in the O&M building. Telecommunication systems associated with the SCADA system will interconnect at PG&E's Tranquillity Switching Station.

4.7 FENCING

A dual purpose security and wildlife fence will be constructed around the project and will enclose all operational areas throughout the lifetime of the project through decommissioning. The fence design will reach up to 8 feet high and would consist of approximately 6-foot-high chain-link galvanized metal fence topped by three strands of barbed wire approximately 1 foot high.

4.8 DRIVEWAYS

The perimeter road and main access roads would be approximately 20 to 30 feet wide and constructed to be consistent with facility maintenance requirements and Fresno County Fire Department standards. These roads would be surfaced with gravel, compacted dirt, or another commercially available surface. Internal roads would have permeable surfaces and be approximately 12 to 20 feet in width or as otherwise required by Fresno County Fire Department standards. They would be treated to create a durable, dustless surface for use during construction and operation. This would likely involve surfacing with gravel, compacted native soil, or a dust palliative.

5.0 DECOMMISSIONING AND RESTORATION PROCESS

Decommissioning of the project is assumed to begin approximately 35 years after operation of the project is initiated. Project decommissioning may incorporate sale and/or recycling of some components; however, this Draft Reclamation Plan assumes that all equipment and facilities within and associated with the facility will be removed. Decommissioning will be conducted in accordance with a Final Reclamation Plan that will be finalized in the months prior to initiation of decommissioning activities.

5.1 DECOMMISSIONING PROCEDURES AND TIMING

All decommissioning, reclamation, and restoration activities will adhere to the requirements of appropriate governing authorities, and will be in accordance with all applicable federal, provincial, and local permits. The reclamation and restoration process comprises removal of above ground structures; removal of below ground foundations and infrastructure to 3 feet below ground surface; and restoration of topsoil, re-vegetation, and seeding. Electrical conduit and other materials that break off more than 3 feet below the ground surface would be decommissioned in place. Appropriate temporary (construction-related) erosion and sedimentation control best management practices (BMP) will be used during the reclamation phase of the project. The BMPs will be inspected on a regular basis to ensure their function.

Reclamation of the project will occur within 24 months of either: (i) the expiration of the project's CUP or (ii) the abandonment of the project without the project owner making efforts to cure a disruption of electricity production, whichever occurs first.

5.2 SITE PREPARATION ACTIVITIES

The project site will be prepared prior to commencement of decommissioning and salvage activities (including removal of facilities, Section 5.3, and site restoration, Section 5.6). These preparatory measures will include electrical inspections as well as inspections of any water tanks on site, access routes, drainage crossings, security fences, and gates to ensure all such components are safe and functional. Following these inspections, preparatory measures may be required including, but not limited to, electrical improvements, road improvements, as-needed vegetation clearing, fencing and gate repair, and removal and disposal of materials generated from the above-listed activities. Creation of temporary work area(s) to provide sufficient area for the lay-down of the disassembled project components and loading onto trucks will be required.

5.3 REMOVAL OF FACILITIES

This section describes the materials and other equipment that will require removal or salvage during the decommissioning process. Prior to, during, and after removal, project equipment and component will be inspected to ensure all components are safe and functional.

The equipment will generally be removed in reverse order of the installation, as follows:

1. The solar facility will be disconnected from the utility power grid.
2. PV modules will be disconnected, collected, and either shipped to another project, salvaged, or submitted to a collection and recycling or disposal program. During decommissioning, PV panels will be de-energized and dismantled from the torque tubes by sliding the panels off the mounting saddles once the connector clips are removed. Next, the PV solar panels and rack supports will be removed in their entirety from the site. The panels will be carefully removed by hand and the rack supports will be removed by excavators with attachments, or other similar equipment. The panels will be placed on pallets and transported off-site.
3. Aboveground and underground electrical interconnection and distribution cables that are no longer deemed necessary by the local public utility company will be removed to approximately 3 feet below ground surface and disposed of or recycled off-site by an approved recycling facility.
4. PV module racking systems will be removed and may be recycled off-site by a metals recycler. The racking structure supporting the PV panels will be unbolted and disassembled using standard hand tools. The vertical steel piles, poles, and posts supporting the racks and all steel support piles will be completely removed and transported off-site for salvage or reuse. Other equipment and/or material will be removed from the site for resale, scrap value, recycled, or disposal depending on market conditions.
5. Electrical demolition includes the electrical equipment and infrastructure. CD combiner boxes, power aggregation wiring, Power Conversion Stations (CD recombiner/inverter/transformer modular units), sensors, weather stations, the gen-tie line connecting to the substation. Power Conversion Stations will be removed by cutting and removing the conduit and using a crane to place the unit in a salvage truck. All additional above ground cables would be cut and removed, including above ground conductors and grounding cable, and overhead lines. Decommissioning will require dismantling and removal of all aboveground electrical equipment and conduit to a depth of 3 feet below grade. Removal of substation equipment includes transformers, switches, structures, overhead lines, equipment pads, and grounding grid. Underground equipment to be removed consists of underground cables, conduit, and electrical lines. Equipment will be de-energized prior to removal; salvaged (where possible); placed in appropriate shipping containers; and secured in a truck transport trailer for transport off-site. All conductors are assumed to be removed and aggregated for recycling. All subterranean conduit, Power Conversion Stations, and other electrical equipment will be removed for off-site recycling or disposal. All decommissioning, recycling, and disposal of electrical devices, equipment and wiring/cablings will be conducted in accordance with applicable local, state, and federal standards and guidelines.
6. The larger slab-on-grade concrete foundations and support pads will be broken up by mechanical equipment (such as a backhoe-hydraulic hammer/shovel, or jackhammer), loaded onto trucks,

and removed from the site. Concrete pads will be recycled or reused as clean fill at another location.

7. The gen-tie to the PG&E Tranquillity Switching Station will be removed. Overhead electrical lines and poles will be removed and recycled, reused, or disposed of in accordance with regulatory requirements at the time of decommissioning, and holes from pole removal will be filled with clean fill.
8. The septic system and leach field will be removed.
9. Fencing will be removed and will be recycled off-site by an approved recycler.
10. Interior driveways and pre-fabricated bridges can either remain on-site for future use or be removed. Gravel will be repurposed either on- or off-site.

5.4 DEBRIS MANAGEMENT, DISPOSAL, AND RECYCLING

During the demolition process, removed materials and demolition debris will be placed in designated locations within the project site. The stockpiles will then be transported to an off-site recycling center, used equipment market for resale, or an approved landfill depending on the material being disposed of. Equipment will be salvaged or recycled wherever possible.

5.5 HAZARDOUS WASTE

Relatively small quantities of hazardous materials would be used during decommissioning. Disposal and transportation of hazardous wastes will be conducted in compliance with appropriate state and federal laws, ordinances, regulations, and standards.

5.6 SITE RESTORATION

Soils will be restored to pre-project topographic conditions to prepare the site for the continuation of agricultural land uses. APNs with a non-irrigation covenant will be restored using a rangeland seed mix of grasses and forage crops, and areas planned for crop production within 12 months following decommissioning will be left unplanted.

All driveways and other areas compacted during original construction or by equipment used in the decommissioning will be tilled in a manner adequate to restore the sub-grade material to the proper density and depth consistent with adjacent properties. Holes and low areas resulting from the removal of project features such as piles, poles, and foundations will be filled with clean, compatible sub-grade material resulting from on-site decommissioning activities. After proper sub-grade depth is established, locally-sourced topsoil would be placed to a depth and density consistent with adjacent properties.

As previously mentioned, areas that will be revegetated may be limited to areas disturbed during decommissioning activities and that won't be used for crop production within 12 months following decommissioning. Areas planned for revegetation restoration will be prepared as followed: 1) Mow area; 2) Disk area; 3) Hydraulic seeding project site using a rangeland seed mix of grasses and forage crops.

6.0 DECOMMISSIONING COSTS AND FINANCIAL ASSURANCES

Prior to the issuance of the grading permit, the project owner will provide financial assurance in an amount sufficient to reclaim the site to its previous conditions in accordance with the approved Reclamation Plan. Financial assurances will be made to the County of Fresno and may take the form of cash, letter of credit or bond that complies with Section 66499 of the California Government Code, et. seq.

The bond instrument will be based on a decommissioning cost estimate provided by the project owner and based on the final approved design of the project. This estimate will consider any project components that are expected to be left in place at the request of and for the benefit of the subsequent landowner (e.g., access roads, electrical lines, O&M building).

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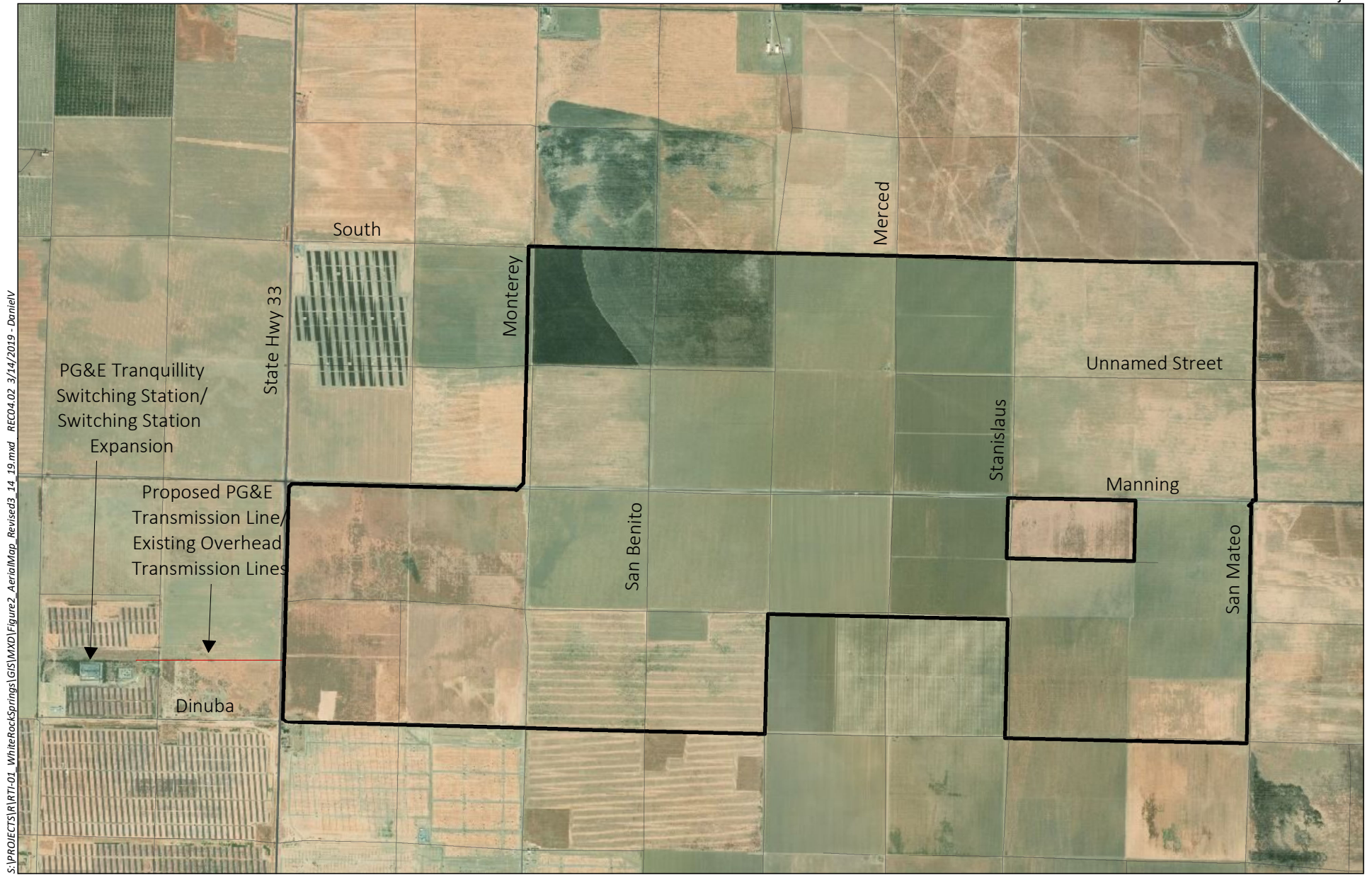
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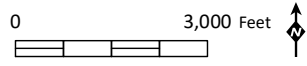
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Attachment A

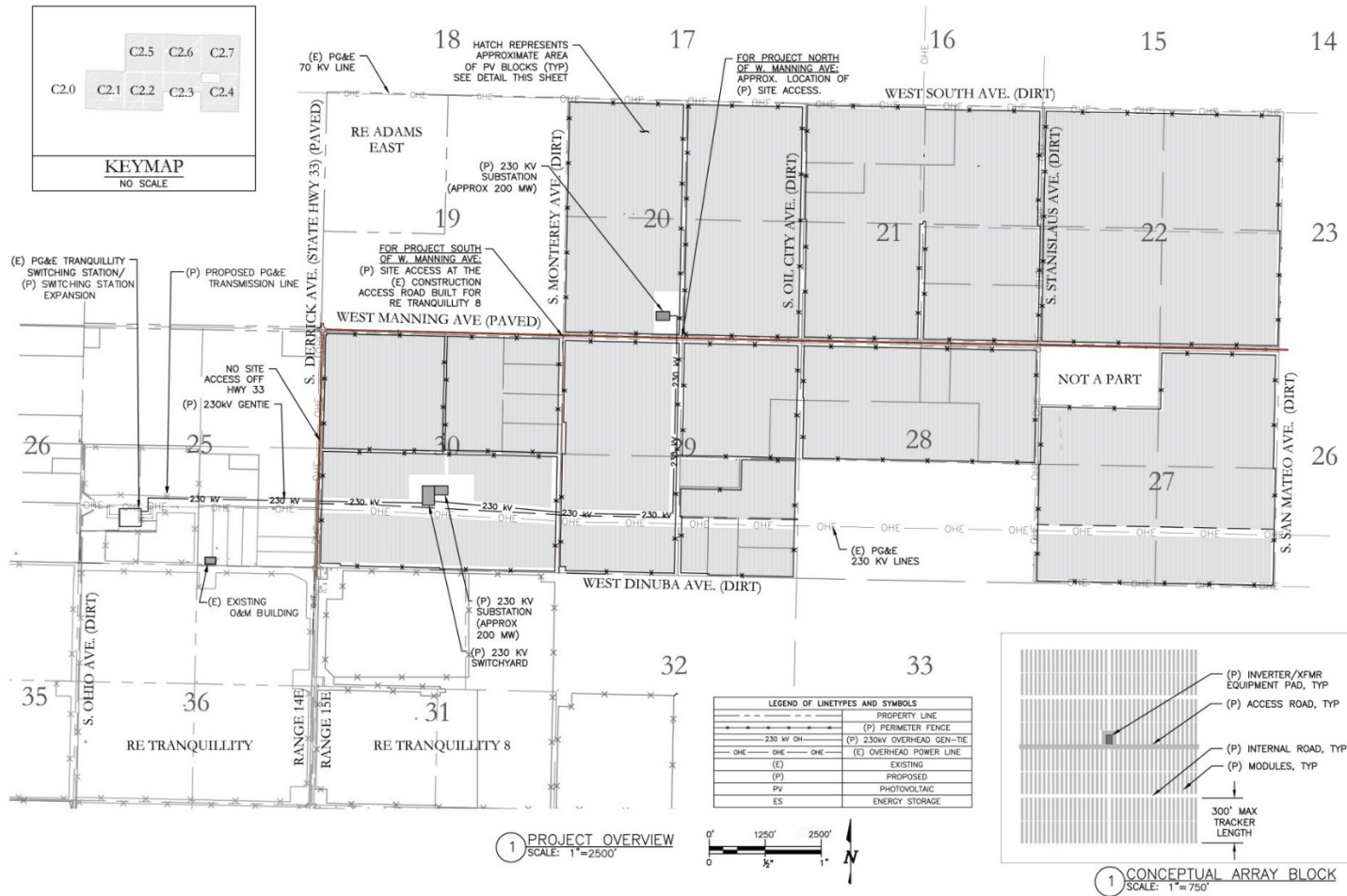
Figures



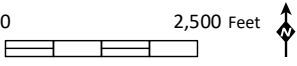
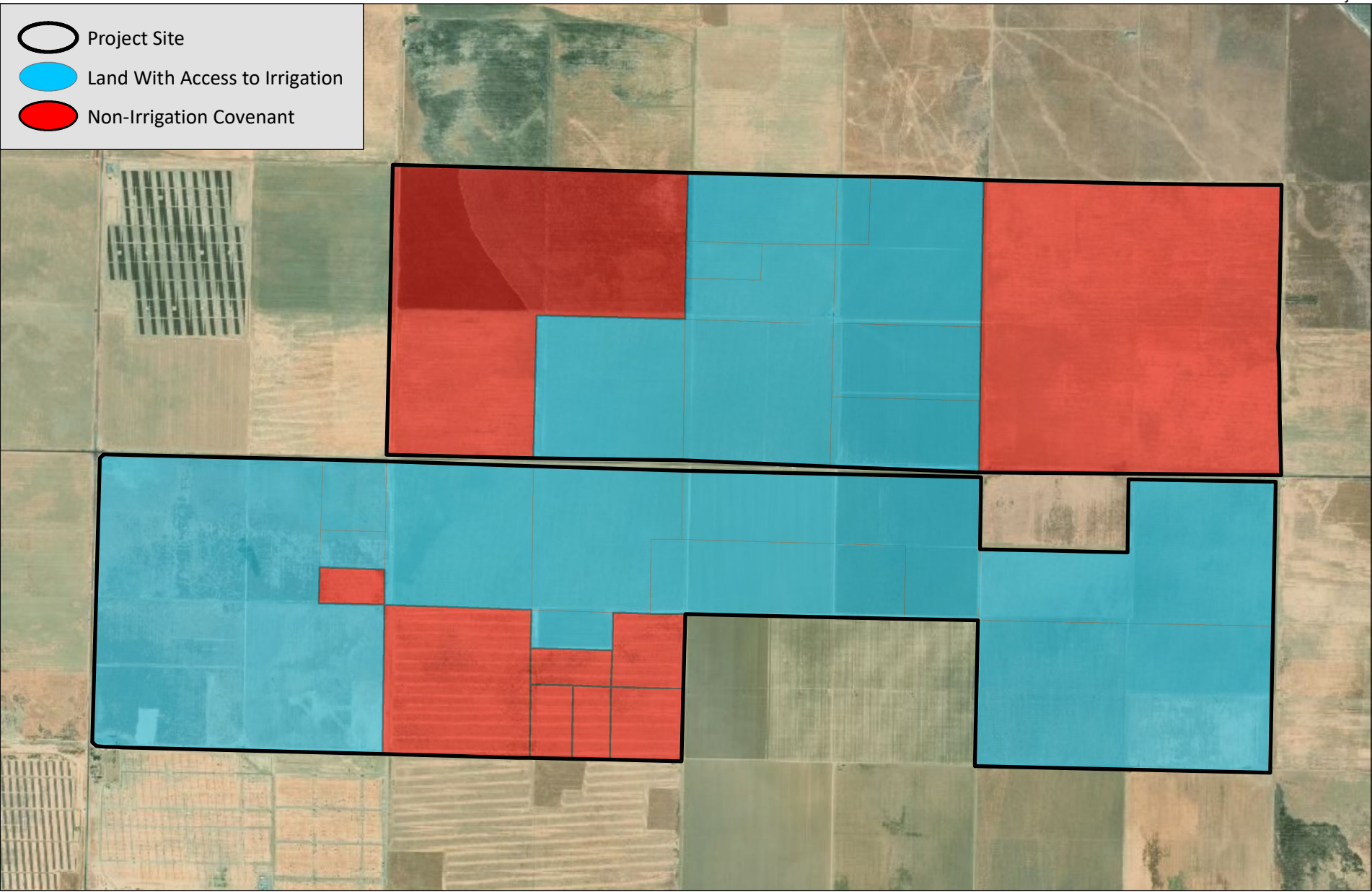
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Source: Sacramento County, Esri 2017



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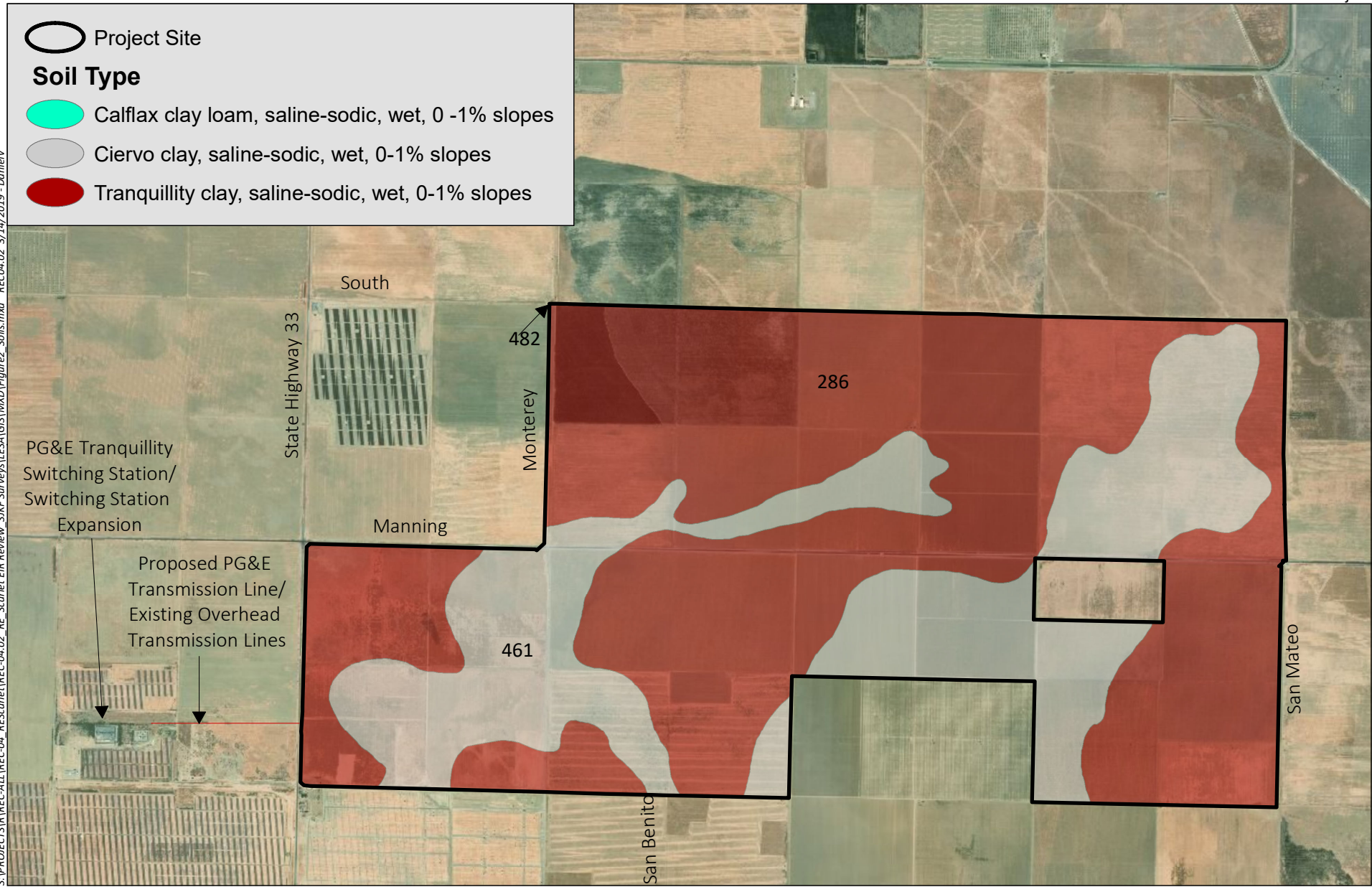
Source: Sacramento County, Esri 2017

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○ Project Site

Soil Type

- Calflax clay loam, saline-sodic, wet, 0-1% slopes
- Ciervo clay, saline-sodic, wet, 0-1% slopes
- Tranquillity clay, saline-sodic, wet, 0-1% slopes



Source: ESRI, USDA, USGS, Soil (USDA NRCS)

Appendix C

Land Evaluation and Site Assessment (LESA)

RE Scarlet Solar Energy Project

Land Evaluation and Site Assessment (LESA)

March 2019 | REC-04.02

Prepared for:

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1.0 INTRODUCTION

HELIX Environmental Planning, Inc. (HELIX) has prepared this California Land Evaluation and Site Assessment LESA for the RE Scarlet Solar Energy Project (project) proposed by RE Scarlet LLC (Applicant), a wholly owned subsidiary of Recurrent Energy, LLC. (RE). The purpose of this LESA is to provide agencies and decision makers with a method for quantitatively considering potentially significant impacts or effects on agricultural lands in the environmental review process (Public Resources Code Section 21095); including the California Environmental Quality Act (CEQA). Appendix G of the State CEQA Guidelines identifies the California Agricultural LESA Model as an optional model to use in assessing impacts to agriculture and farmland.

The LESA system is a point-based approach that is composed of six different factors. The two “Land Evaluation” factors are based upon measures of soil resource quality, while the four “Site Assessment” factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential for significant impacts, based upon a range of established scoring thresholds (Department of Conservation 1997).

1.1 Project Description

The proposed project consists of the construction, operation, and decommissioning of a 400 megawatt (MW) solar photovoltaic (PV) generating facility on an approximately 4,089-acre site in unincorporated western Fresno County. The Project would provide solar power to utility customers by interconnecting to the regional electricity grid at Pacific Gas and Electric Company's (PG&E) Tranquillity Switching Station located approximately 0.75 mile west of the project site.

The project would operate year-round to generate solar electricity during daylight hours and would store and dispatch power to the energy storage system during both daylight and non-daylight hours. The project is anticipated to be constructed in four continuous phases, with the first phase beginning in mid-2020. The exact timing of the last phase is dependent on opportunities in the solar market, but it is currently anticipated to be online as early as late 2021.

Components of the project would include the following, which are further described below:

- Groups of solar arrays (arrays include PV modules and steel support structures, electrical inverters, transformers, cabling, and other infrastructure);
- Two electrical substations;
- A switchyard, including one high-voltage 230-kiloVolt (kV) utility switchyard, a 140-foot high radio tower for telecommunications, and two 150-foot high dead-end structures;
- Approximately 3.1 miles of 230 kV generation intertie (gen-tie) transmission line which would connect to PG&E's Tranquillity Switching Station via a new segment of transmission line;

- Improvements to PG&E electrical infrastructure, including a minor expansion of PG&E's Tranquillity Switching Station and approximately 1,900 feet of PG&E 230 kV transmission line to connect the 230-kV gen-tie line to the Tranquillity Switching Station;
- A 400 MW energy storage system, consisting of battery or flywheel enclosures and electrical cabling; and
- Other necessary infrastructure, including one permanent operation and maintenance (O&M) building, a septic system and leach field, a supervisory control and data acquisition (SCADA) system, a meteorological data system, buried conduit for electrical wires, overhead collector lines, on-site access roads, a shared busbar,¹ and wildlife-friendly security fencing.

1.2 Project Location and Setting

The project site is located in unincorporated Fresno County, approximately 3.5 miles west-southwest of the community of Tranquillity and approximately 6.5 miles east of Interstate 5 (I-5). The project site is northeast of and adjacent to the operational Tranquillity Solar Generating Facility. The project site would encompass up to 33 assessor parcel numbers (APNs) located generally south of West South Avenue, north of West Dinuba Avenue, east of South Ohio Avenue and State Route 33 (SR 33, South Derrick Avenue), and west of South San Mateo Avenue. Refer to Figure 1 in Appendix A for the project location in the region, and Figure 2 for an aerial image of the project site.

The project site is designated Agriculture in the Fresno County General Plan (2000) and is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size). Existing land use at the project site is primarily dry-farmed agriculture that has been intermittently irrigated. For the past 10 years, the project site has been periodically in low-yield agricultural production (tilled, seeded, and harvested for winter wheat); occasionally irrigated (drip or sprinkler) and harvested for alfalfa seed or other crops; or disked twice a year and left fallow. None of the project site is under a Williamson Act or Farmland Security Zone contract.

Approximately 76 acres of federally owned land are surrounded by the project site but are not proposed to be included in the project. This land would not be contained within the project security fence, and the existing legal access would be retained. This property is used for occasional dry farming followed by periods of fallow use.

Existing land uses surrounding the project site consist of agriculture, solar development, and few rural residences.

¹ A busbar is a system of electrical conductors in a generating or receiving station on which power is concentrated for distribution to several electrical circuits.

2.0 REGULATORY SETTING

2.1 Federal

Farmland Protection Policy Act (7 U.S.C. Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. Further, the FPPA directs federal programs to be compatible with State and local policies for the protection of farmlands. The FPPA does not authorize the Federal Government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners of such land. Information regarding the FPPA is provided for background information in this agricultural technical report.

The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years.

For the purpose of the FPPA, farmland includes prime farmland, unique farmland, and farmland of statewide or local importance, defined as follows in 7 U.S.C. Section 4201: *Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage; unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops, as determined by the Secretary. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Examples of such crops include citrus, tree nuts, olives, cranberries, fruits, and vegetables; and Farmland, other than prime or unique farmland, that is of statewide or local importance for the production of food, feed, fiber, forage, or oilseed crops, as determined by the appropriate State or unit of local government agency or agencies, and that the Secretary determines should be considered as farmland for the purposes of this chapter.*

Projects are subject to the FPPA requirements if they may irreversibly convert farmland (directly by a federal agency (NRCS 2018)). As the Project does not have federal involvement, the FPPA is not applicable in this situation.

2.2 State

California Department of Conservation

The California Department of Conservation (DOC) is the state agency that administers both the State Farmland Mapping and Monitoring Program (FMMP) and the California Land Conservation Act, or more commonly known as “The Williamson Act”. The FMMP compiles information on the state’s important farmlands, including tracking farmland proposed for development, and provides this information to state and local government agencies for use in planning and for decision makers. The FMMP Important

Farmland Maps are based on a classification system that combines technical soil ratings and current land use. Important Farmland Categories include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-up Land, and Other Land. FMMP's Important Farmland Maps require that Prime Farmland, meet the following criteria: 1) Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date, which equates to four years. Therefore, the land must have been used for irrigated agricultural production at some point in time during a four-year period of time prior to the most recent date of the Important Farmland Map date; and 2) The soil must meet the physical and chemical criteria for Prime Farmland or Farmland of Statewide Importance as determined by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). NRCS compiles lists of which soils in each survey area meet the quality criteria. Factors considered in qualification of a soil by NRCS include:

- Water moisture regimes, available water capacity, and developed irrigation water supply
- Soil temperature range
- Acid-alkali balance
- Water table
- Soil sodium content
- Flooding (uncontrolled runoff from natural precipitation)
- Erodibility
- Permeability rate
- Rock fragment content
- Soil rooting depth

The soils information presented in this analysis is derived from statewide soils maps that have been prepared by both state and federal government entities. The DOC, Division of Land Resource Protection, and the USDA, NRCS, both conduct regular and ongoing assessments of soil types and then prepare detailed soil maps. Once soils are mapped, they are grouped into the following categories that have specific definitions. The categories and definitions are as follows:

Prime Farmland. In California, the FMMP maps all statewide farmlands. The FMMP's soils study area is contiguous with modern soil surveys developed by the USDA. The FMMP requires that any land designated as Prime meet the following criteria related to land use and soils:

- Farmland that has the best combination of physical and chemical features able to sustain long term agricultural production;
- Has the soil quality, growing season, and moisture supply needed to produce sustained high yields; and
- Must have been used for irrigated agricultural production at some time during the four years prior to the mapping date (DOC 2018).

Unique Farmland. This category of farmland is categorized as having lesser quality soils; but is still used for the production of leading agricultural crops. This farmland is typically irrigated but can also include non-irrigated orchards or vineyards found in some climatic zones in the state. These lands must have been used for irrigated agricultural production at some time during the four years prior to the mapping date (DOC 2018).

Farmland of Local Importance. Lands that have been determined by local jurisdictional authorities such as county boards of supervisors or local advisory committees to have a specific importance to the local agricultural economy are considered Farmland of Local Importance (DOC 2018).

The FMMP has three other categories of land:

Grazing Land. Land that is particularly suited to the grazing of livestock given existing vegetation. This particular designation was developed in concert with the California Cattlemen’s Association, UC Cooperative Extension, and a host of other groups with an interest in grazing and livestock (DOC 2018).

Urban and Built-Up Land. This category refers to land that is occupied by structures with a building density of at least one unit to 1.5 acres or six structures to a 10-acre parcel. This category includes land uses such as residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other developed purposes (DOC 2018).

Other Land. All other lands that do not fall into the categories above are subsumed into this category. Examples of these lands include low-density rural developments, brush, timber, wetland, riparian areas not suitable for livestock grazing, confined livestock poultry or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. In addition, vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land (DOC 2018).

The California Department of Conservation developed the California LESA Model. Embedded within the Model is the NRCS soils information upon which the FMMP is woven. Hence, since the soils data is already included in the LESA Model and Analysis, no further discussion is presented here except to state that there are no prime soils on the site, therefore not mapped as Prime Farmland. All soils are mapped by the FMMP as non-prime.

The California Land Conservation Act of 1965 or the Williamson Act

The California Land Conservation Act of 1965, better known as the Williamson Act mentioned above, provides for reduced property taxation on agricultural land in exchange for a 10-year continuously rolling agreement. The purpose of the Williamson Act is the long-term conservation of agricultural and open space lands. The Act establishes a program to enroll land in Williamson Act whereby the land is enforceably restricted to agricultural, open space, or recreational uses or uses deemed to be “compatible” with the agricultural land uses or compatible recreational uses as outlined in the Act in exchange for reduced property tax assessments.

The Act requires that each participating local government have a set of uniform rules for administering Williamson Act and Farmland Security Zone contracts within its jurisdiction. The County’s Rules establish the basic requirements of all contracts and are incorporated as a part of each contract. In order to qualify for a Williamson Act contract, parcels must meet certain criteria such as zoning, minimum parcel

size, availability of agricultural water, and minimum acreage. None of the project site is under a Williamson Act contract.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. (Government Code sections 51296-51297.4) Farmland Security Zone Act contracts are sometimes referred to as “Super Williamson Act Contracts”. Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone contracts must be for an initial term of at least 20 years. As with Williamson Act contracts, each year an additional year is automatically added to the contract term unless a notice of nonrenewal is given. In return for a further 35% reduction in the property tax value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses during the term of the contract. Farmland Security Zone contracts may also be cancelled, but only upon finding that cancellation would both service the purposes of the Williamson Act, and that cancellation would be in the public interest (Government Code Section 51297). None of the project site is under a Farmland Security Zone contract.

2.3 County

Fresno County - Local Documents, Policies and Requirements

Fresno County General Plan

The Fresno County General Plan (2000) is an overarching, comprehensive document that provides for the long-term protection of the County’s agricultural, natural and cultural resources as well as for development within the County. In conformance with the State’s general plan requirements, the Plan outlines policies, standards and programs to guide day-to-day land use decisions, which directly affect the County’s future. Further, the General Plan for Fresno County has the following aims and purposes:

- Establishing within County government a framework for analyzing local and regional conditions and needs in order to respond effectively to the problems and opportunities facing Fresno County;
- Identifying Fresno County's economic, environmental, and social goals;
- Recording the County government's policies and standards for the maintenance and improvement of existing development and the location and characteristics of future development;
- Providing Fresno County's citizens with information about their community and with opportunities to participate in the local planning and decision-making process;
- Improving the coordination of community development and environmental protection activities among the County, cities, and regional, State, and Federal agencies; and

- Establishing a basis for subsequent planning efforts, such as preparation and updating of community plans, specific plans, redevelopment plans, and special studies to deal with unique problems or areas in the community.

Further, the General Plan framed the goals, policies and programs for the County within a Vision Statement. “The County sees its primary role to be the protector of prime agricultural lands, open space, recreational opportunities, and environmental quality, and the coordinator of countywide efforts to promote economic development.” The Vision Statement is supported by ten (10) major themes. The themes relevant to this report have been excerpted and are included below:

Economic Development: The plan seeks to promote job growth and reduce unemployment through the enhancement and expansion of its traditional agricultural economic base and through the diversification of its economic base, expanding such business clusters as information technology, industrial machinery, and tourism.

Agricultural Land Protection: The plan seeks to protect its productive agricultural land as the county’s most valuable natural resource and the historical basis of its economy through directing new urban growth to cities and existing unincorporated communities and by limiting the encroachment of incompatible development upon agricultural areas.

Resource Protection: The plan seeks to protect and promote the careful management of the county’s natural resources, such as its soils, water, air quality, minerals, and wildlife and its habitat, to support the county’s economic goals and to maintain the county’s environmental quality.

Enhanced Quality of Life: The plan strives throughout all its elements to improve the attractiveness of the county to existing residents, new residents, and visitors through increased prosperity, attractive forms of new development, protection of open space and view corridors, promotion of cultural facilities and activities, efficient delivery of services, and expansion of recreational opportunities.

The Agricultural and Land Use Element of the General Plan contains goals and policies as well as implementation programs and standards for development and agricultural and nonagricultural uses within agriculturally zoned areas of the County. The Agriculture Element outlines definitions for Agriculture within the context of the Agriculture Element. These are summarized below:

Agricultural Land:

- **Productive (Prime) Agricultural Land:** Soils which are suitable for the production of most climatically adapted irrigated crops. Such land includes the following soils:
 - All land which qualifies for rating as Class I or II soils in the Natural Resources Conservation Service land use capability classifications;
 - Land which qualifies for rating with a Storie index rating of 80 through 100; and
 - Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one (1) animal unit per acre as defined by the USDA.
- **Potentially Productive Agricultural Land:** Soils, which within the realm of economic possibility can be altered using certain reclamation or modification practices to make them more

productive for essential food crops such as grain and vegetables. Included are certain Class III and IV soils and soils with a Storie index of 60-80.

3.0 LESA EVALUATION

The site was evaluated using the California LESA Model to rate the quality and availability of agricultural resources for the project site and to identify whether the proposed project would meet the threshold criteria as a significant impact to Agricultural Resources under the State CEQA Guidelines. The LESA evaluates land use and site assessment factors to identify if the project would result in a significant agricultural resources impact. The factors are evaluated in the following sections.

The proposed improvements to the PG&E electrical infrastructure are not included in the study area for this LESA because they are associated with existing facilities – the PG&E segment of the transmission line extension would occur within an existing PG&E easement along existing infrastructure and the minor expansion of the PG&E’s Tranquillity Switching Station would occur within the existing property boundaries of the PG&E facility.

3.1 Land Evaluation

The Land Evaluation (LE) portion of the LESA Model focuses on two main components that are separately rated:

1. **The Land Capability Classification Rating:** The Land Capability Classification (LCC) Rating indicates the suitability of soils for most kinds of crops. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating.
2. **The Storie Index Rating:** The Storie Index provides a numeric rating (based upon a 100-point scale) of the relative degree of suitability or value of a given soil for intensive agriculture use. This rating is based upon soil characteristics only.

The LESA Model assigns ratings to each LCC and multiplies that number by the proportion of the project area that contains each soil class to find the LCC score. The Storie Index score is calculated by multiplying the proportion of the project within each soil type by the soil type’s Storie Index rating value. The final LE Scores are entered into the Final LESA Score Sheet as shown in Table 7, later in this report.

Soils on the project site are saline-sodic clays and clay loams in three soil series (NRCS 2019). These include Tranquillity clay (saline-sodic, wet) (map # 286), Ciervo clay (saline-sodic, wet; map # 461), and Calfax clay loam (saline-sodic, wet; map # 482). The majority of the site consists of the Tranquillity clay and Ciervo clay as only 390 square feet of Calfax clay soil exists on-site. Refer to Figure 3 (Appendix A) for the distribution of soil types in the project site and Table 1 for the acres and proportion of the project site with each of the soil types. The NRCS Soil survey prepared for the proposed project is included in Appendix B.

The LCC and Store Index Ratings and Scores (LE Scores) are presented in Table 1. The project receives an LCC Score of 42 and a Store Index Score of 23.26.

Table 1
PROJECT SITE SOILS LAND CAPABILITY CLASSIFICATION AND STORIE INDEX SCORES

Map Symbol	Mapping Unit	Acres	Proportion Project Site	LCC Rating	LCC Rating Value	LCC Score	Storie Index Rating Class	Storie Index Rating Value	Storie Index Score
286	Tranquility clay (Irrigated)	1,783	.43	IIIw	60	25.8	Grade 4-Poor	21	13.06
	Tranquility clay (Nonirrigated)	930	.23	VIIw	10	2.3			
461	Ciervo clay (Irrigated)	850	.21	IIIs	60	12.6	Grade 4-Poor	30	10.2
	Ciervo clay (Nonirrigated)	526	.13	VIIs	10	1.3			
482	Calfax clay (Irrigated)	0	0	IIIs	60	0	Grade 2-Good	65	0
	Calfax clay (Nonirrigated)	0.01	0	VIIs	10	0			
TOTAL		4,089	1.00	--	--	42	--	--	23.26

Source: NRCS 2019; DOC 1997

Notes: LCC – Land Capability Classification.

The project site's soils LCC and Storie Index rating were derived from a custom soils report prepared for the site from NRCS in 2019.

Scoring of the LCC and Storie Index ratings are derived from Appendix B of DOC 1997. The LCC score is derived by multiplying the proportion of the project site by the LCC rating. The Storie Index score is derived by multiplying the proportion of the project site by the Storie Index rating.

3.2 Site Assessment Factors

The California LESA Model includes four Site Assessment (SA) factors that are separately rated and include:

1. Project Size Rating
2. Water Resources Availability Rating
3. Surrounding Agricultural Land Rating
4. Surrounding Protected Resource Land Rating

The final SA scores are entered into the Final LESA Score Sheet as shown in Table 7, later in this report.

A. Project Size Rating

The Project Size Rating recognizes the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions. Larger operations tend to have greater impacts upon the local economy through direct employment, as well as impacts upon supporting industries and food processing industries (DOC 1997).

In terms of agricultural productivity, the size of the farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide greater economic return per acre unit.

The Project Size Rating is based on Project Size Scores that are assigned to acreage ranges for each LCC Rating (DOC 1997). To determine the Project Size Rating for a project, the Project Size Score for each LCC Rating that has been developed by the DOI (1997) is assigned to the total acres of each LCC Rating Class for the project site. The LCC Rating that generates the highest Project Size Score is identified. The maximum score for any LCC Rating is 100 Points. Under the Project Size Rating, relatively fewer acres of high-quality soils are required to achieve a maximum Project Size Score. Alternatively, a maximum score on lesser quality soils could also achieve a maximum Project Size Score. Table 2 provides the Project Size Score for the project site. The project receives a Project Size Score of 100.

Table 2
PROJECT SIZE SCORE

	LCC Class I-II	LCC Class III	LCC Class IV-VIII
Total Acres	0	2,635	1,457
Project Size Score per Acres	0	100	100
Highest Project Size Score	100		

Source: NRCS 2019; DOC 1997

Notes: Project Size Score is from Project Size Scoring Table in Appendix B of DOC 1997.

B. Water Resources Availability Rating

The Water Resource Availability Rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought. The availability is scored based on irrigation feasibility, physical and economic restrictions. Table 3 presents the Water Resource Availability Scoring (DOC 1997).

A Water Supply Assessment (Rincon 2018) was prepared for the project which identifies water sources and availability for the proposed project. The project site is located within the jurisdiction of the Westlands Water District (WWD), which delivers water to agricultural users primarily from groundwater and surface water from the Central Valley Project (CVP). Despite being within WWD's jurisdiction, the project site receives no surface water allocation from WWD and obtains irrigation water from two on-site wells. Approximately 1,457 acres of the project site are subject to a non-irrigation covenant as a result of a 2002 settlement agreement between the former landowners, the WWD and the USBR, to settle claims related to drainage services on the parcels (Rincon 2018). Figure 3 depicts portions of the project site with access to irrigation and portions unable to be irrigated due to the non-irrigation covenant. While irrigated production is not feasible on the lands under the non-irrigation covenant, dryland production is feasible if the site receives enough rainfall. The project site falls under the Water Resource Availability Options 1 and 2 (refer to Table 3 for descriptions of the Options). Table 4 provides the water resources availability score for the project site based on the Options. The project receives a 73 score for the Water Resource Availability Rating.

Table 3
WATER RESOURCE AVAILABILITY SCORING

Option	Non-Drought Years			Drought Years			Water Resource Score
	Restrictions			Restrictions			
	Irrigated Production Feasible?	Physical Restrictions?	Economic Restrictions?	Irrigated Production Feasible?	Physical Restrictions?	Economic Restrictions?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	N/A	N/A	50
9	YES	NO	YES	NO	N/A	N/A	45
10	YES	YES	NO	NO	N/A	N/A	35
11	YES	YES	YES	NO	N/A	N/A	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

Source: Appendix B of DOC 1997

Table 4
WATER RESOURCE AVAILABILITY

Option	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score
1	Ground Water	0.64	100	64
2	No Irrigation Source	0.36	25	9
TOTAL		1.00	--	73

Source: Rincon 2018; DOC 1997

Notes: Weighted Availability Score is from Project Size Scoring Table in Appendix B of DOC 1997. Weighted Availability Score is derived by multiplying the proportion of project area by the water availability score.

C. Surrounding Agricultural and Protected Resource Land Ratings

The evaluation of surrounding agricultural and protected resource lands includes assigning a rating to surrounding and protected resource lands within the zone of influence (ZOI) of the project site. The ratings are provided by the DOC and provide a measurement of the level of agricultural use for lands within the ZOI of the subject parcel. The ZOI includes the project site and surrounding lands within 0.25 mile from the project boundary. Parcels that are intersected by the 0.25-mile buffer are evaluated

in their entirety and based upon the percentage of agricultural land in the ZOI, the project site is assigned a surrounding agricultural land score. The LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production (DOC 1997).

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating and is scored in a similar manner. Protected resource lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted land;
- Publicly owned lands maintained as park, forest, or watershed resources; and
- Lands with agricultural, wildlife habitat, open space, or other natural easements that restrict the conversion of such land to urban or industrial uses.

The ratings for surrounding agricultural and protected resource lands are based on the rating chart developed by the DOC. Table 5 presents the Surrounding Agricultural Use and Protected Land Scoring (DOC 1997).

Table 5
SURROUNDING AGRICULTURAL USE AND PROTECTED LAND SCORING

Percent of Project's ZOI in Agricultural Use	Surrounding Agricultural Land Score	Percent of Project's ZOI Defined as Protected	Surrounding Protected Resource Land Score
90-100	10	90-100	100
80-89	90	80-89	90
75-79	80	75-79	80
70-74	70	70-74	70
65-69	60	65-69	60
60-64	50	60-64	50
55-59	40	55-59	40
50-54	30	50-54	30
45-49	20	45-49	20
40-44	10	40-44	10
40<	0	40<	0

Source: Appendix B of DOC 1997

The ZOI for the project totals 7,368 acres. To determine the extent of surrounding agricultural and protected resource lands in the project's ZOI, land use data was obtained from the 2018 U.S. Department of Agriculture Crop Layer (USDA 2018) and the California Department of Water Resources Land Use Viewer (CADWR 2014). Aerial imagery from Google Earth was also reviewed to confirm the land use data. The three sources all showed varying results and land was considered to be agricultural land if any of these three sources depicted the land in agricultural use. This analysis method provided

the most conservative results. Fresno County Williamson Act contracts (DOC 2016) were reviewed to determine parcels in the ZOI located on Williamson Act contracted lands. Table 6 provides the acres per parcel, and the determination of whether or not the parcel is in agricultural land use, and whether or not it is considered to be a protected resource land. Figure 4 presents the lands in agricultural land use and Williamson Act contracted lands (protected resource lands). USDA Crop data for the project site is provided in Appendix C.

As presented in Table 6, all parcels located within the ZOI for the proposed project are considered to be in agricultural land use and four parcels located within the ZOI are located on Williamson Act contracted land. The ZOI contains no other protected resource land. Table 7 summarizes the total acres and percent of the ZOI in agricultural land use and protected resource lands and provides the score for each based on the DOC scoring (Table 5). As shown in Table 7, the ZOI receives a 100 score for Agricultural Land Use Rating and 0 score for the Protected Resource Land Rating.

Table 6
AGRICULTURAL LAND USE AND PROTECTED RESOURCE LAND

Assessor Parcel Number	Acres	Agricultural Land	Protected Resource Land?
028-081-31S	22.66	Yes	No
028-071-29ST	42.36	Yes	No
028-071-30ST	20.40	Yes	No
028-060-40SU	2.59	Yes	No
028-060-69ST	250.53	Yes	No
028-111-37ST	30.76	Yes	No
028-120-58ST	319.04	Yes	No
028-081-41ST	61.20	Yes	No
028-081-42ST	60.99	Yes	No
028-111-38T	11.49	Yes	No
028-081-61ST	206.28	Yes	No
028-081-68ST	41.41	Yes	No
028-170-42ST	18.05	Yes	No
028-101-58ST	37.72	Yes	No
028-060-41ST	117.50	Yes	No
028-071-28T	31.23	Yes	No
028-081-39T	33.89	Yes	No
028-170-44ST	18.87	Yes	No
028-071-23ST	311.75	Yes	No
028-071-31ST	11.00	Yes	No
028-170-48ST	19.02	Yes	No
028-170-60ST	40.54	Yes	No
0281-113-2ST	48.36	Yes	No
028-120-23T	160.99	Yes	No

Table 6
AGRICULTURAL LAND USE AND PROTECTED RESOURCE LAND (cont.)

Assessor Parcel Number	Acres	Agricultural Land	Protected Resource Land?
028-111-21S	320.71	Yes	Williamson Act
028-120-53ST	645.52	Yes	No
028-111-35ST	22.8	Yes	No
028-111-34S	24.98	Yes	Williamson Act
028-111-33ST	20.47	Yes	No
028-111-27ST	162.42	Yes	No
028-111-28ST	20.36	Yes	No
028-111-49S	1.17	Yes	No
028-111-59S	6.07	Yes	Williamson Act
028-071-36ST	78.38	Yes	No
028-111-22ST	160.73	Yes	No
028-101-74ST	165.65	Yes	No
028-120-33ST	20.51	Yes	No
028-120-37ST	19.91	Yes	No
028-081-67ST	92.12	Yes	No
028-101-75S	81.68	Yes	No
028-120-39ST	19.61	Yes	No
028-071-06ST	324.9	Yes	No
028-071-01ST	627.77	Yes	No
028-071-33ST	152.97	Yes	No
028-081-34S	19.34	Yes	No
028-081-36ST	160.96	Yes	No
028-081-33S	22.29	Yes	No
028-081-32S	21.95	Yes	No
028-081-30ST	233.77	Yes	No
028-111-61ST	310.38	Yes	No
028-120-35ST	19.85	Yes	No
028-071-35ST	80.23	Yes	No
028-071-54S	191.83	Yes	No
028-071-55ST	121.54	Yes	No
028-111-29	19.30	Yes	Williamson Act
028-120-31ST	648.68	Yes	No
028-101-78S	630.7	Yes	No

Table 7
SURROUNDING AGRICULTURAL LAND AND PROTECTED RESOURCE LAND SITE ASSESSMENT SCORE

Total Acreage within Zone of Influence	Acres in Agricultural Production	Percent in Agriculture	Acres of Protected Resource Land	Percent in Protected Resource Land	Surrounding Agricultural Land Score	Surrounding Protected Resource Land Score (from LESA Manual Table 7)
7,368	7,368	100%	371	5%	100	0

4.0 SUMMARY

The LESA Model is weighted so that half of the total LESA score of a given project is derived equally from the LE and SA Ratings. The Final LESA Score is calculated by multiplying the total score for each of the LE and SA factors by the factor weight to determine the weighted score and then the total weighted score is compared against the LESA Model thresholds assigned by the DOC (Table 8) to determine if the project would result in a potentially significant impact.

Table 8
CALIFORNIA LAND EVALUATION SITE ASSESSMENT MODEL SCORING THRESHOLDS

Total LESA Score	Scoring Decision
0 to 39 points	Not considered significant
40 to 59 points	Considered significant only if LE and SA subscores are greater than or equal to 20 points
60 to 79 points	Considered significant unless either LE or SA subscores is less than 20 points
80 to 100 points	Considered significant

Source: DOC 1997

Notes: LE- Land Evaluation, SA- Site Assessment

As shown in Table 9, the weighted LE subscore is 16.32, while the weighted SA subscore is 40.95. The final LESA Model score for the project is 57.27. As shown in Table 8, a final LESA score between 40 and 59 is considered significant only if LE or SA subscores are each greater than or equal to 20 points. The weighted SA subscore is greater than 20, but the weighted LE subscore is only 16.32 (less than 20 points); therefore, the proposed project would have a less than significant impact on agricultural resources.

Table 9
FINAL LAND EVALUATION SITE ASSESSMENT SCORE SHEET SUMMARY

	Factor Score (0-100 points)	Factor Weighting (Total = 1.00)	Weighted Factor Rating
Land Evaluation			
LCC Rating	42	0.25	10.5
Storie Index Rating	23.26	0.25	5.82
Land Evaluation Subscore			16.32
Site Assessment			
Project Size Rating	100	0.15	15
Water Resource Availability Rating	73	0.15	10.95
Surrounding Agricultural Land Rating	100	0.15	15
Surrounding Protected Resource Lands Rating	0	0.05	0
Site Assessment Subscore			40.95
		TOTAL	57.27

Notes: LCC – Land E- Land Evaluation, SA- Site Assessment.

Weighted factor rating is determined by multiplying the factor score by the factor weighting.

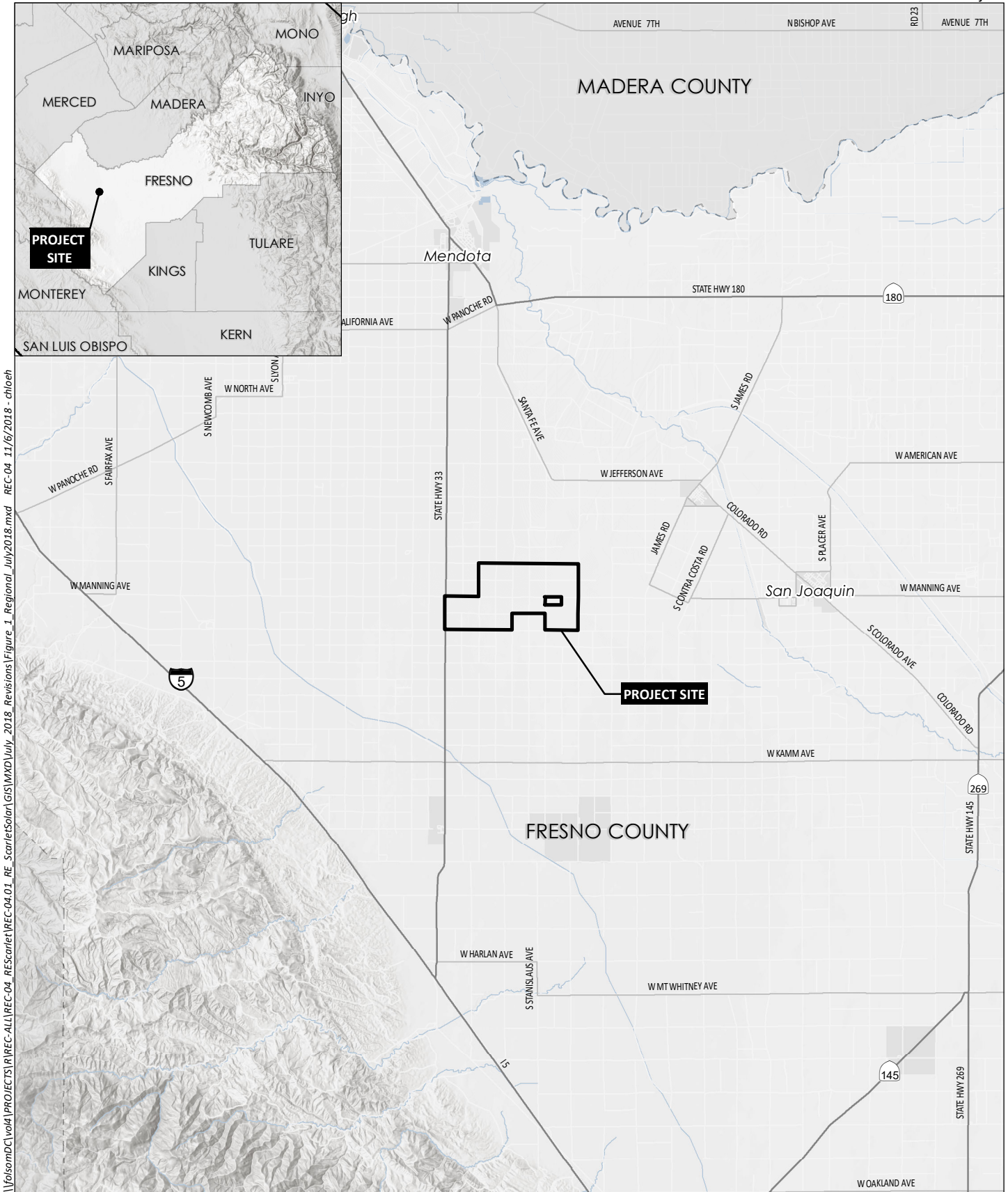
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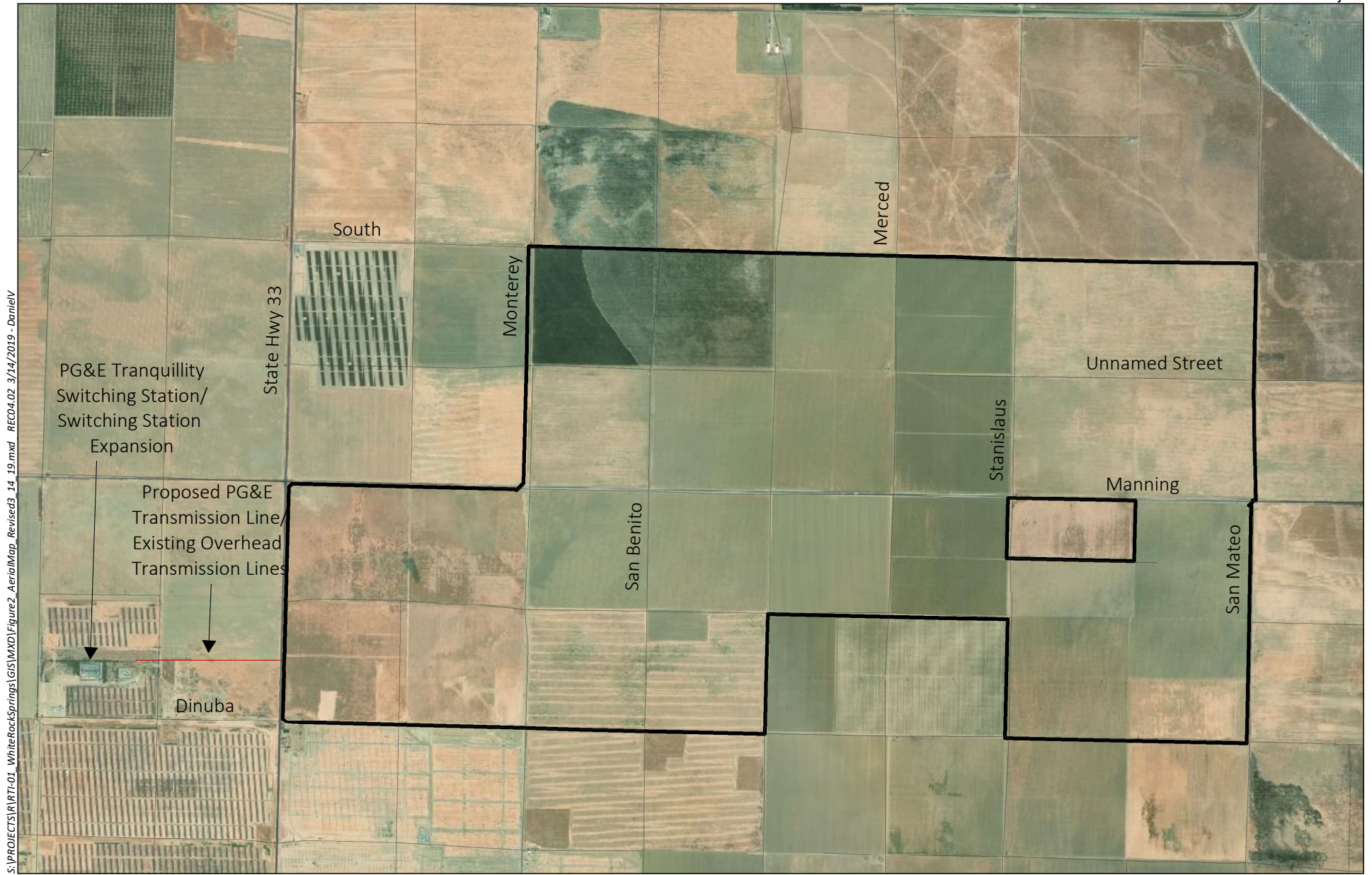
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Appendix A

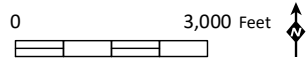
Figures



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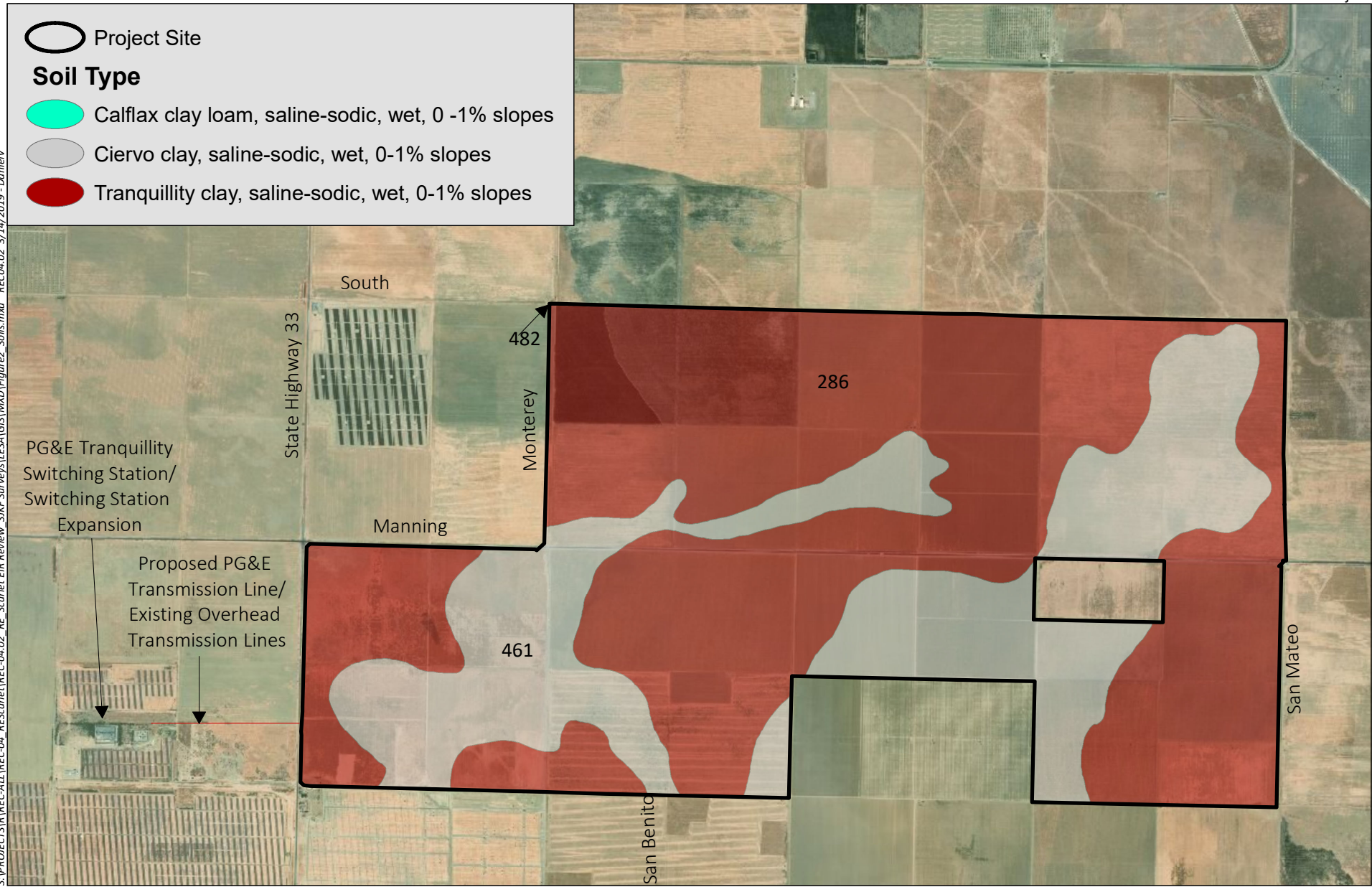
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○ Project Site

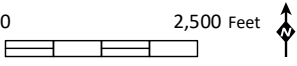
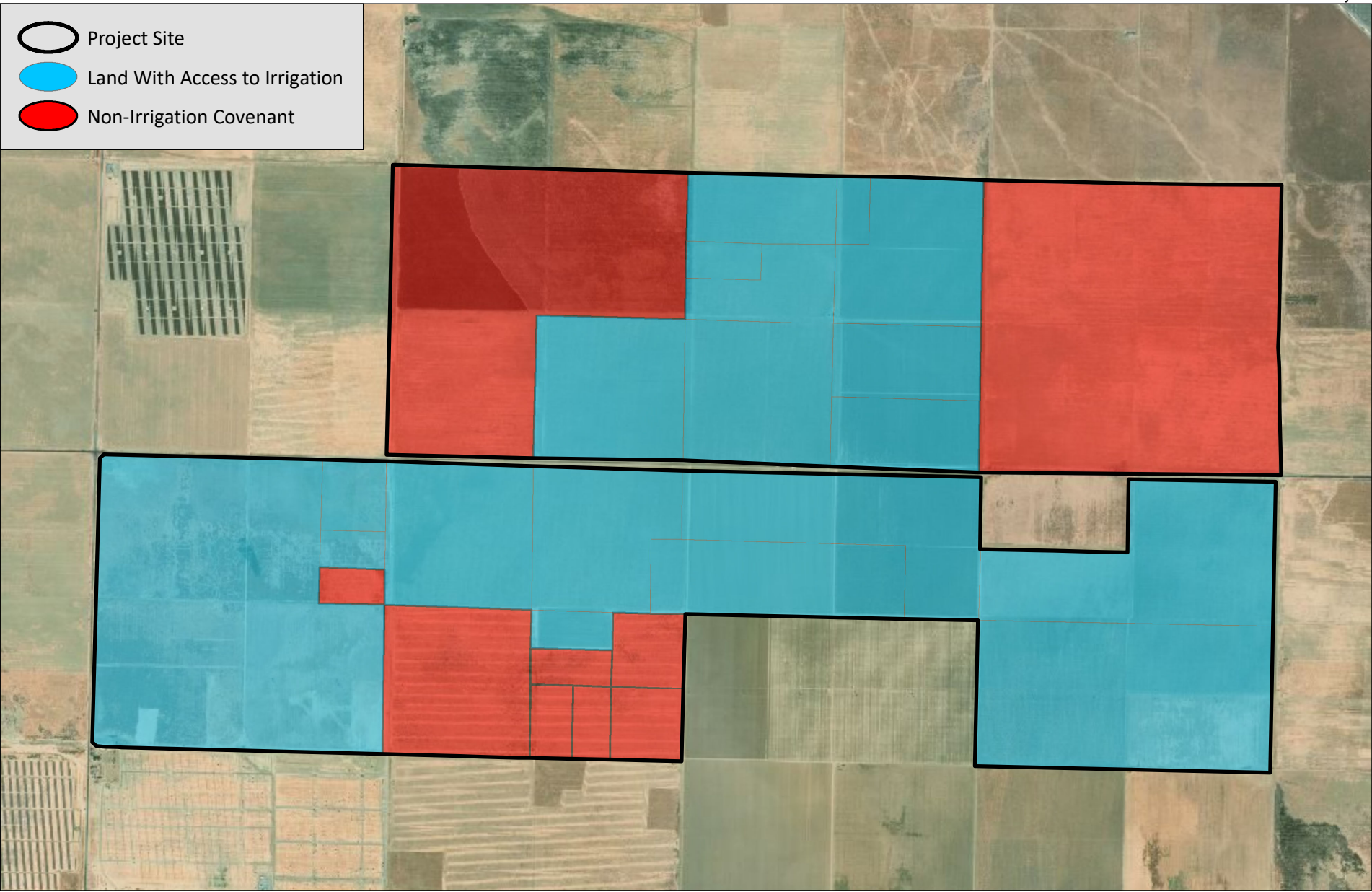
Soil Type

- Calflax clay loam, saline-sodic, wet, 0-1% slopes
- Ciervo clay, saline-sodic, wet, 0-1% slopes
- Tranquillity clay, saline-sodic, wet, 0-1% slopes



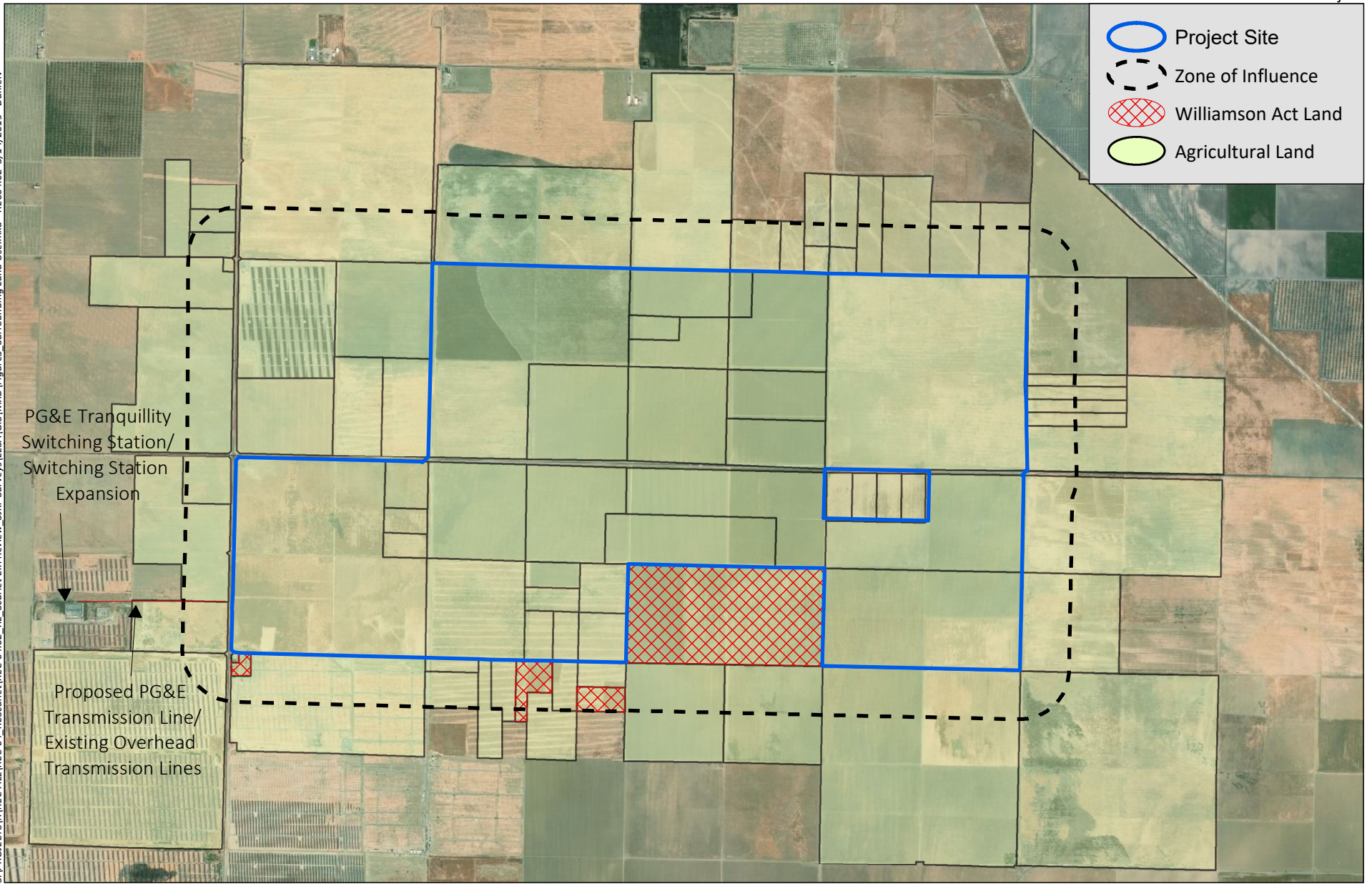
Source: ESRI, USDA, USGS, Soil (USDA NRCS)





S:\PROJECTS\REC-ALL\REC-04_RE_Scarlet\REC-04_02_RE_Scarlet EIR Review_SJKF Surveys\LESA\GIS\MXD\Figure4_WaterAvailability.mxd RECO4.02_3/14/2019 - Daniel V

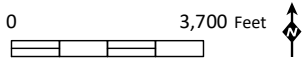


Source: Sacramento County, Esri 2017

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-  Project Site
-  Zone of Influence
-  Williamson Act Land
-  Agricultural Land

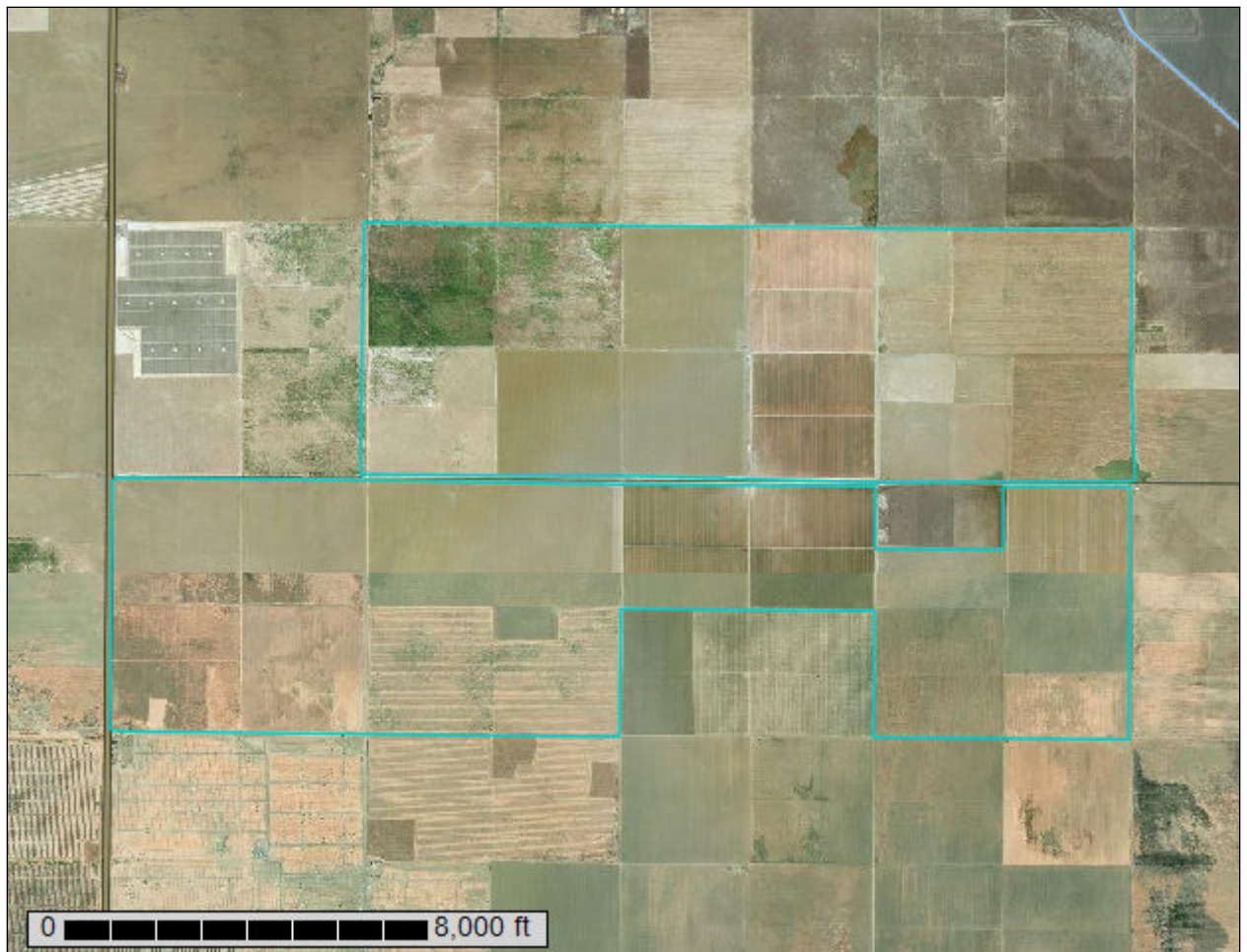


Source: Sacramento County, Esri 2017

Appendix B

NRCS Soils Report

Custom Soil Resource Report for RE Scarlett LESA



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

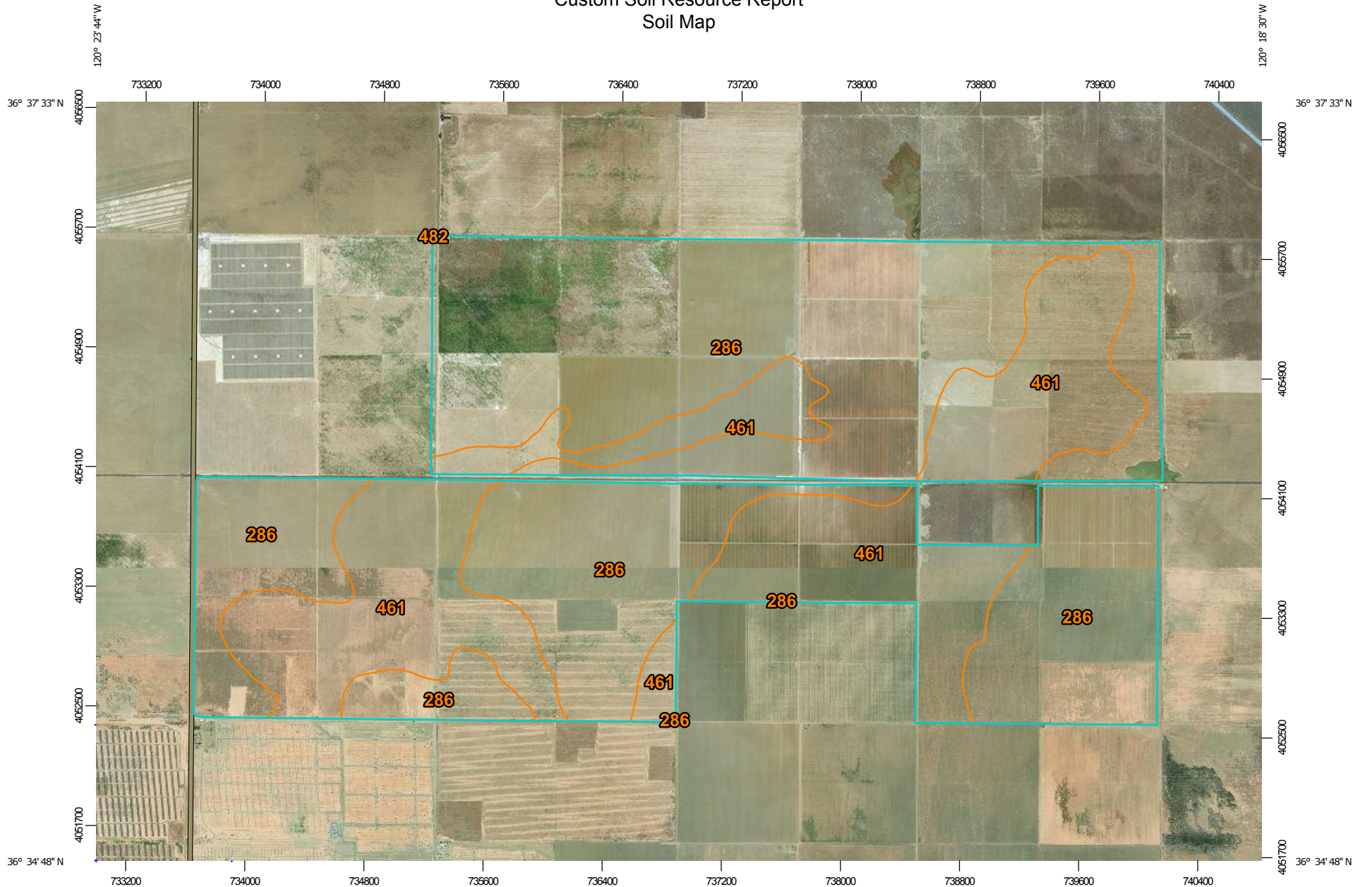
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

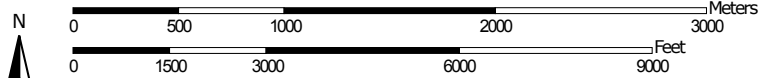
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:35,800 if printed on A landscape (11" x 8.5") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fresno County, California, Western Part
 Survey Area Data: Version 13, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 9, 2015—Oct 1, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
286	Tranquillity clay, saline-sodic, wet, 0 to 1 percent slopes	2,715.0	66.4%
461	Ciervo clay, saline-sodic, wet, 0 to 1 percent slopes	1,376.7	33.6%
482	Calflax clay loam, saline-sodic, wet, 0 to 1 percent slopes, MLRA 17	0.0	0.0%
Totals for Area of Interest		4,091.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

Custom Soil Resource Report

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Fresno County, California, Western Part

286—Tranquillity clay, saline-sodic, wet, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hnz5

Elevation: 160 to 260 feet

Mean annual precipitation: 7 to 8 inches

Mean annual air temperature: 62 to 64 degrees F

Frost-free period: 220 to 250 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Tranquillity, clay, saline-sodic, wet, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tranquillity, Clay, Saline-sodic, Wet

Setting

Landform: Fan skirts

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap1 - 0 to 6 inches: clay

Ap2 - 6 to 16 inches: clay

Bknssyz1 - 16 to 31 inches: clay

Bknssyz2 - 31 to 48 inches: clay

Bknyz - 48 to 65 inches: silty clay

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low
(0.00 to 0.06 in/hr)

Depth to water table: About 48 to 60 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Gypsum, maximum in profile: 8 percent

Salinity, maximum in profile: Moderately saline (8.0 to 15.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 50.0

Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Ciervo, clay, saline-sodic, wet

Percent of map unit: 4 percent
Landform: Fan skirts
Hydric soil rating: No

Tranquillity, clay, saline-sodic

Percent of map unit: 3 percent
Landform: Fan skirts
Hydric soil rating: No

Calflax, clay loam, saline-sodic, wet

Percent of map unit: 2 percent
Landform: Fan skirts
Hydric soil rating: No

Tachi, clay

Percent of map unit: 2 percent
Landform: Flood plains on basin floors
Hydric soil rating: Yes

Gepford, clay

Percent of map unit: 2 percent
Landform: Flood plains on basin floors
Hydric soil rating: Yes

Armona, loam, partially drained

Percent of map unit: 1 percent
Landform: Flood plains on basin floors
Hydric soil rating: Yes

Lethent, silt loam

Percent of map unit: 1 percent
Landform: Fan remnants
Hydric soil rating: No

461—Ciervo clay, saline-sodic, wet, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: hp03
Elevation: 170 to 330 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 240 to 270 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Ciervo, clay, saline-sodic, wet, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ciervo, Clay, Saline-sodic, Wet

Setting

Landform: Fan skirts
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 17 inches: clay
Bw - 17 to 27 inches: clay
Bknyz - 27 to 41 inches: silty clay
Bknz - 41 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low
(0.00 to 0.06 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 50.0
Available water storage in profile: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Ciervo, clay, saline-sodic

Percent of map unit: 6 percent
Landform: Fan skirts
Hydric soil rating: No

Tranquillity, clay, saline-sodic, wet

Percent of map unit: 5 percent
Landform: Fan skirts
Hydric soil rating: No

Ciervo, clay loam, saline-sodic, wet

Percent of map unit: 5 percent
Landform: Fan skirts
Hydric soil rating: No

Calflax, clay loam, saline-sodic, wet

Percent of map unit: 4 percent

Landform: Fan skirts

Hydric soil rating: No

482—Calflax clay loam, saline-sodic, wet, 0 to 1 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2vncl

Elevation: 160 to 340 feet

Mean annual precipitation: 7 to 9 inches

Mean annual air temperature: 62 to 64 degrees F

Frost-free period: 230 to 250 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Calflax, clay loam, saline-sodic, wet, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Calflax, Clay Loam, Saline-sodic, Wet

Setting

Landform: Fan skirts

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 8 inches: clay loam

Bw - 8 to 26 inches: clay loam

Bny - 26 to 33 inches: loam

Bnyz1 - 33 to 47 inches: silt loam

Bnyz2 - 47 to 65 inches: loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 48 to 60 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 3 percent

Gypsum, maximum in profile: 5 percent

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Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 40.0

Available water storage in profile: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Ciervo, clay, saline-sodic, wet

Percent of map unit: 6 percent

Landform: Fan skirts

Hydric soil rating: No

Cerini, clay loam

Percent of map unit: 2 percent

Landform: Alluvial fans

Hydric soil rating: No

Posochanet, clay loam, saline-sodic, wet

Percent of map unit: 2 percent

Landform: Fan skirts

Hydric soil rating: No

Lethent, clay loam

Percent of map unit: 2 percent

Landform: Fan remnants

Hydric soil rating: No

Kimberlina, fine sandy loam

Percent of map unit: 1 percent

Hydric soil rating: No

Garces, silt loam

Percent of map unit: 1 percent

Hydric soil rating: No

Twisselman, clay, saline-sodic

Percent of map unit: 1 percent

Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

California Revised Storie Index (CA) (Storie Index)

The Revised Storie Index is a rating system based on soil properties that govern the potential for soil map unit components to be used for irrigated agriculture in California.

The Revised Storie Index assesses the productivity of a soil from the following four characteristics:

- Factor A: degree of soil profile development
- Factor B: texture of the surface layer
- Factor C: steepness of slope
- Factor X: drainage class, landform, erosion class, flooding and ponding frequency and duration, soil pH, soluble salt content as measured by electrical conductivity, and sodium adsorption ratio

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Revised Storie Index numerical ratings have been combined into six classes as follows:

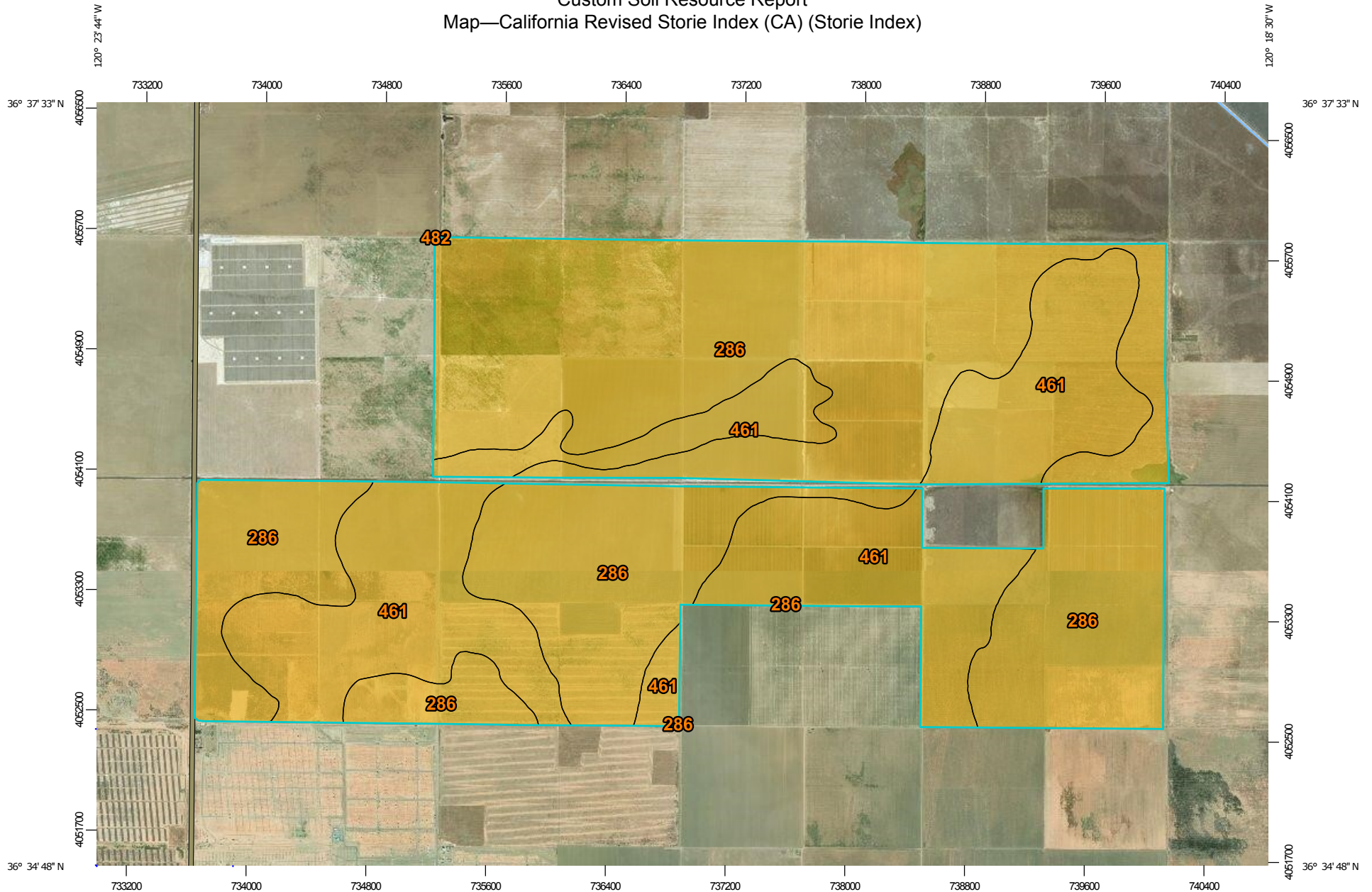
- Grade 1: Excellent (81 to 100)
- Grade 2: Good (61 to 80)
- Grade 3: Fair (41 to 60)
- Grade 4: Poor (21 to 40)
- Grade 5: Very poor (11 to 20)
- Grade 6: Nonagricultural (10 or less)

The components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as the one shown for the map unit. The percent composition of each component in a particular map unit is given to help the user better understand the extent to which the rating applies to the map unit.

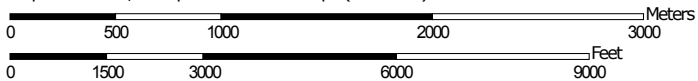
Other components with different ratings may occur in each map unit. The ratings for all components, regardless the aggregated rating of the map unit, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Custom Soil Resource Report

Map—California Revised Storie Index (CA) (Storie Index)



Map Scale: 1:35,800 if printed on A landscape (11" x 8.5") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84



Custom Soil Resource Report









MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils





Soil Rating Polygons





-  Grade 1 - Excellent
-  Grade 2 - Good
-  Grade 3 - Fair
-  Grade 4 - Poor
-  Grade 5 - Very Poor
-  Grade 6 - Nonagricultural
-  Not rated
-  Not rated or not available

Soil Rating Lines


-  Grade 1 - Excellent
-  Grade 2 - Good
-  Grade 3 - Fair
-  Grade 4 - Poor
-  Grade 5 - Very Poor
-  Grade 6 - Nonagricultural
-  Not rated
-  Not rated or not available

Soil Rating Points






-  Grade 1 - Excellent
-  Grade 2 - Good
-  Grade 3 - Fair
-  Grade 4 - Poor

-  Grade 5 - Very Poor
-  Grade 6 - Nonagricultural
-  Not rated
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fresno County, California, Western Part
 Survey Area Data: Version 13, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 9, 2015—Oct 1, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—California Revised Storie Index (CA) (Storie Index)

Map unit symbol	Map unit name	Rating	Component name (percent)	Acres in AOI	Percent of AOI
286	Tranquillity clay, saline-sodic, wet, 0 to 1 percent slopes	Grade 4 - Poor	Tranquillity, clay, saline-sodic, wet (85%)	2,715.0	66.4%
461	Ciervo clay, saline-sodic, wet, 0 to 1 percent slopes	Grade 4 - Poor	Ciervo, clay, saline-sodic, wet (80%)	1,376.7	33.6%
482	Calflax clay loam, saline-sodic, wet, 0 to 1 percent slopes, MLRA 17	Grade 2 - Good	Calflax, clay loam, saline-sodic, wet (85%)	0.0	0.0%
Totals for Area of Interest				4,091.7	100.0%

Rating Options—California Revised Storie Index (CA) (Storie Index)

Aggregation Method: Dominant Condition

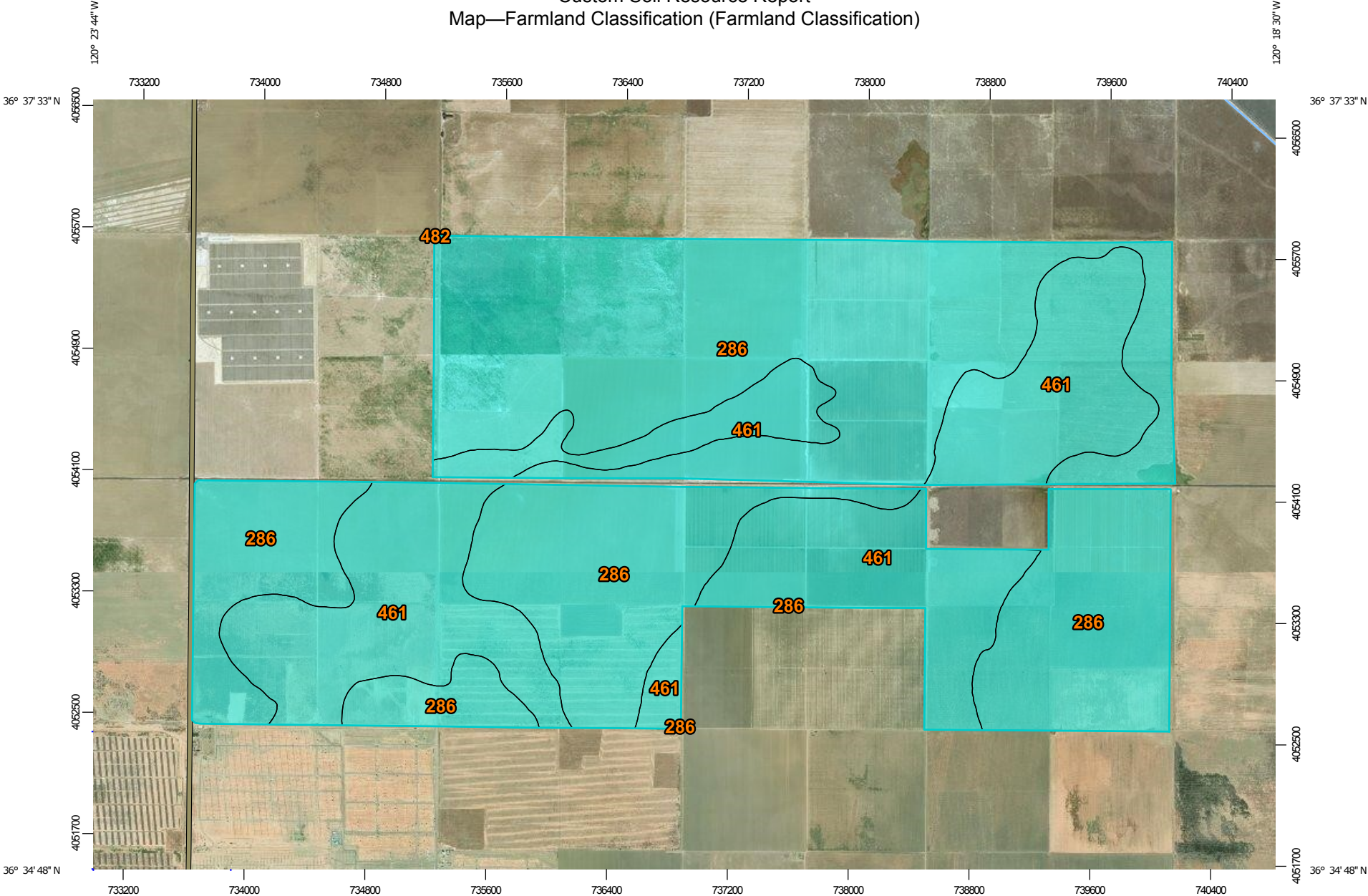
Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Farmland Classification (Farmland Classification)

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Custom Soil Resource Report Map—Farmland Classification (Farmland Classification)



Map Scale: 1:35,800 if printed on A landscape (11" x 8.5") sheet.


0 500 1000 2000 3000 Meters
0 1500 3000 6000 9000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

Custom Soil Resource Report









MAP LEGEND








Area of Interest (AOI)

 Area of Interest (AOI)




Soils








Soil Rating Polygons






-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available







Soil Rating Lines










-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained

-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available








Soil Rating Points

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
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-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Water Features

MAP INFORMATION

-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fresno County, California, Western Part
Survey Area Data: Version 13, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

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482	Calflax clay loam, saline-sodic, wet, 0 to 1 percent slopes, MLRA 17	Farmland of statewide importance	0.0	0.0%
Totals for Area of Interest			4,091.7	100.0%

Rating Options—Farmland Classification (Farmland Classification)

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
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United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

















Appendix C

USDA CropScape and
Cropland Data Layer






CDL2018 Area of Interest

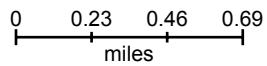
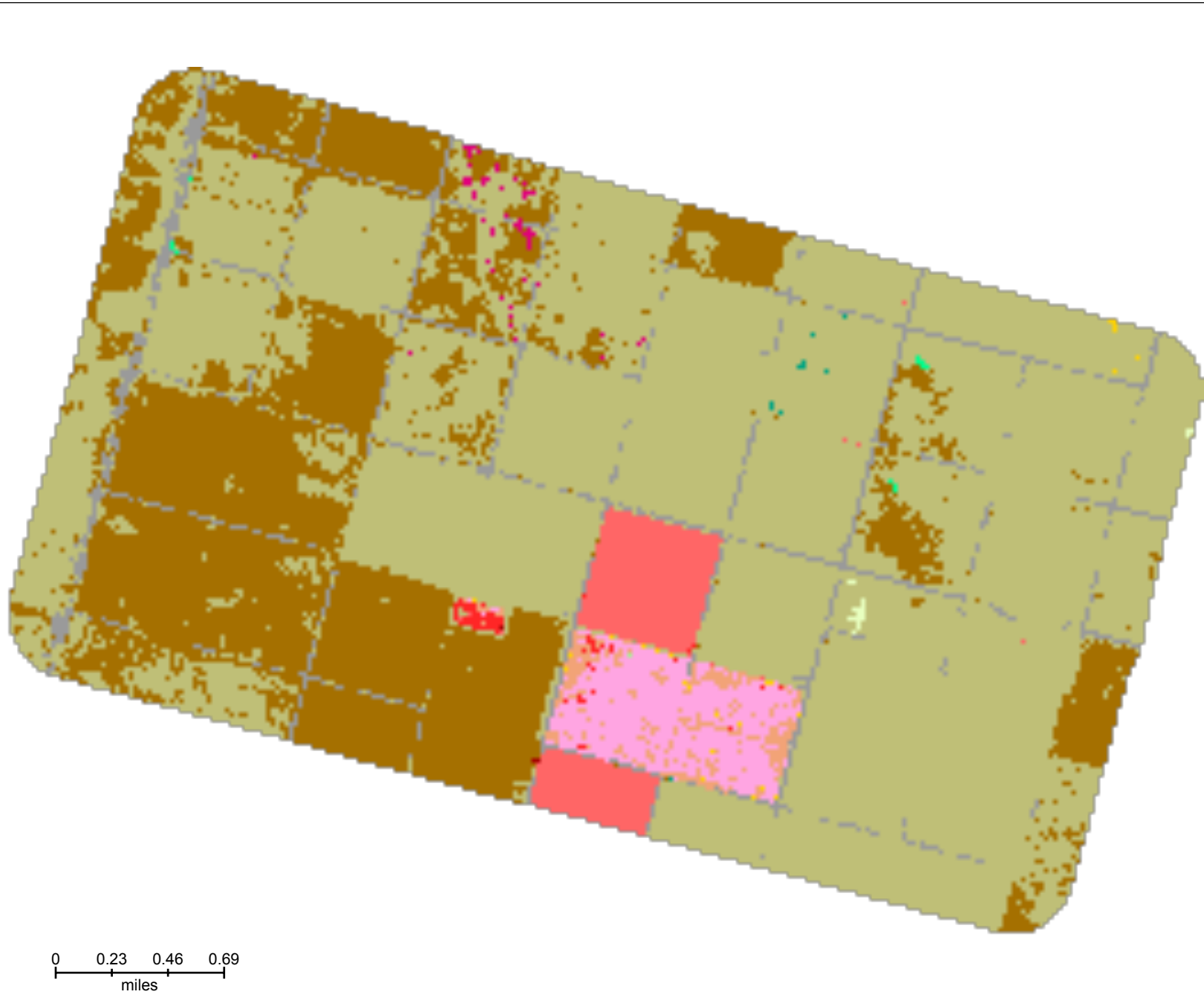
Land Cover Categories
(by decreasing acreage)

AGRICULTURE*

-  Fallow/Idle Cropland
-  Winter Wheat
-  Garlic
-  Alfalfa
-  Tomatoes
-  Cotton
-  Barley
-  Grass/Pasture
-  Dbl Crop WinWht/Corn
-  Pistachios
-  Corn
-  Almonds
-  Lettuce
-  Dry Beans
-  Other Tree Crops
-  Cantaloupes

NON-AGRICULTURE

-  Developed/Open Space
-  Developed/Low Intensity
-  Developed/Medium Intensity
-  Developed/High Intensity
-  Barren



* Only top 16 agriculture categories are listed.

Appendix D

Air Quality and Greenhouse Gas Emissions Modeling

RE Solar Scarlet Project - 400 MW
Emissions Factors Used in Analysis

Exhaust Emissions Factors for Equipment in San Joaquin Valley Unified APCD														
Equipment ^{1, 2, 3}	Fuel Type	Consumption (gallons/hr)	Max HP	HC lbs/hr	ROG lbs/hr	TOG lbs/hr	CO lbs/hr	NOx lbs/hr	CO ₂ lbs/hr	PM ₁₀ lbs/hr	PM _{2.5} lbs/hr	Total PM lbs/hr	SO _x lbs/hr	NH ₃ lbs/hr
Aerial Lift	diesel	2.08E+00	175	7.14E-03	8.64E-03	1.03E-02	2.52E-01	8.72E-02	4.68E+01	2.84E-03	2.61E-03	2.84E-03	4.32E-04	3.82E-04
Backhoe	diesel	1.59E+00	100	1.77E-02	2.14E-02	2.55E-02	2.41E-01	2.17E-01	3.57E+01	1.36E-02	1.25E-02	1.36E-02	3.30E-04	2.92E-04
Bulldozer, large	diesel	4.46E+00	300	1.06E-01	1.28E-01	1.53E-01	6.74E-01	1.37E+00	1.00E+02	6.65E-02	6.12E-02	6.65E-02	9.26E-04	8.20E-04
Concrete Truck	diesel	4.74E+00	300	5.16E-02	6.25E-02	7.43E-02	3.32E-01	7.82E-01	1.07E+02	2.97E-02	2.74E-02	2.97E-02	9.84E-04	8.70E-04
Crane	diesel	2.19E+00	175	4.12E-02	4.99E-02	5.93E-02	3.32E-01	5.15E-01	4.93E+01	2.77E-02	2.55E-02	2.77E-02	4.55E-04	4.02E-04
Excavator	diesel	4.32E+00	300	2.73E-02	3.30E-02	3.93E-02	2.09E-01	3.77E-01	9.71E+01	1.15E-02	1.06E-02	1.15E-02	8.97E-04	7.93E-04
FE Loader	diesel	1.59E+00	100	1.77E-02	2.14E-02	2.55E-02	2.41E-01	2.17E-01	3.57E+01	1.36E-02	1.25E-02	1.36E-02	3.30E-04	2.92E-04
Forklift	diesel	8.56E-01	100	1.36E-02	1.64E-02	1.96E-02	1.37E-01	1.49E-01	1.93E+01	1.10E-02	1.02E-02	1.10E-02	1.78E-04	1.57E-04
Generator Set	diesel	1.40E+00	50	2.71E-02	3.23E-02	3.91E-02	2.18E-01	2.22E-01	3.06E+01	1.10E-02	1.01E-02	1.10E-02	3.96E-04	2.57E-04
Portable Generator	diesel	8.92E-01	50	1.43E-02	1.73E-02	2.05E-02	2.06E-01	1.10E-01	2.01E+01	1.63E-03	1.50E-03	1.63E-03	1.85E-04	1.64E-04
Grader	diesel	3.15E+00	175	6.16E-02	7.45E-02	8.86E-02	4.80E-01	7.27E-01	7.08E+01	4.06E-02	3.73E-02	4.06E-02	6.53E-04	5.78E-04
Gravel Truck (Dumper)	gasoline	3.24E+00	100	6.03E-02	5.54E-02	6.63E-02	1.82E+00	2.19E-01	6.79E+01	4.73E-03	3.57E-03	5.26E-03	6.56E-04	8.29E-04
HD Truck	diesel	4.74E+00	300	5.16E-02	6.25E-02	7.43E-02	3.32E-01	7.82E-01	1.07E+02	2.97E-02	2.74E-02	2.97E-02	9.84E-04	8.70E-04
Instrument/Signal Board	diesel	9.13E-01	50	3.08E-02	3.73E-02	4.44E-02	1.88E-01	1.75E-01	2.05E+01	1.41E-02	1.30E-02	1.41E-02	1.89E-04	1.68E-04
Pile Driver (excavator mount)	diesel	1.76E+00	100	3.08E-02	3.73E-02	4.43E-02	2.77E-01	3.45E-01	3.96E+01	2.56E-02	2.35E-02	2.56E-02	3.65E-04	3.23E-04
Roller	diesel	2.79E+00	175	2.11E-02	2.56E-02	3.04E-02	3.49E-01	2.91E-01	6.27E+01	1.34E-02	1.23E-02	1.34E-02	5.79E-04	5.12E-04
Scrapper	diesel	2.27E+00	100	4.79E-02	5.79E-02	6.89E-02	3.89E-01	5.93E-01	5.10E+01	4.37E-02	4.02E-02	4.37E-02	4.70E-04	4.16E-04
Skid Steer	diesel	1.34E+00	75	8.90E-03	1.08E-02	1.28E-02	1.43E-01	1.43E-01	3.02E+01	6.10E-03	5.61E-03	6.10E-03	2.79E-04	2.47E-04
Surface Equipment/Pavers	diesel	1.73E+00	100	2.15E-02	2.61E-02	3.10E-02	2.60E-01	2.76E-01	3.90E+01	1.77E-02	1.63E-02	1.77E-02	3.60E-04	3.18E-04
Tractor, small	gasoline	2.92E+00	100	4.51E-02	4.15E-02	4.96E-02	2.91E+00	1.16E-01	5.16E+01	3.60E-03	2.72E-03	4.00E-03	4.99E-04	7.46E-04
Trencher	diesel	2.18E+00	100	4.40E-02	5.32E-02	6.33E-02	3.48E-01	4.87E-01	4.91E+01	3.69E-02	3.40E-02	3.69E-02	4.53E-04	4.01E-04
Water Buffalo	gasoline	5.52E-01	10 hp water pump	5.25E-02	4.83E-02	5.78E-02	3.20E+00	4.28E-02	5.40E+00	2.60E-03	1.97E-03	2.89E-03	1.50E-04	1.41E-04
Water Truck	diesel	4.74E+00	300	5.16E-02	6.25E-02	7.43E-02	3.32E-01	7.82E-01	1.07E+02	2.97E-02	2.74E-02	2.97E-02	9.84E-04	8.70E-04

1. Emissions factors for diesel and gasoline equip developed from the CARB 2017 Off-Road Inventory Model for year 2020. Horsepower ratings rounded up to next highest category to provide a conservative estimate of total emissions. Note that emission factors from the 2017 Inventory Model are substantially lower than in the previous OFFROAD2011 model because of changed assumptions by CARB regarding load factors, hours of use, fuel consumption, and equipment population.
 2. *Other Construction Equipment* used for water truck, HD truck, concrete truck, pile driver and instrument/signal board.
 3. *Off Highway Trucks* used for flatbed truck.

On-Road Mobile Vehicle Emission Factors Used in Analysis

Source: Fresno County, EMFAC 2014 Annual Average, Year 2020

Vehicle Type	Fuel Consumption (gallons/miles)	Running Emissions, grams/mile												
		Speed	ROG	TOG	CO	NO _x	CO ₂	PM ₁₀ (g/mile)			PM _{2.5} * (g/mile)			
								Exhaust	Tire Wear	Brake	Exhaust	Tire Wear	Brake	SO _x
LDA, gas	0.07655	10	0.052	0.076	1.157	0.093	686.140	0.007	0.008	0.037	0.007	0.002000001	0.01575	0.00277
LDA, gas	0.00121	55	0.009	0.013	0.559	0.054	248.962	0.001	0.008	0.037	0.001	0.002	0.016	0.00277
LDT2, gas	0.21092	10	0.079	0.115	1.697	0.173	932.752	0.007	0.008	0.037	0.007	0.002000001	0.01575	0.00377
LDT2, gas	0.00334	55	0.014	0.021	0.811	0.100	338.430	0.001	0.008	0.037	0.001	0.002	0.016	0.00377
MHDT, gas	0.92714	10	0.469	0.684	5.809	1.100	3,266.299	0.005	0.012	0.130	0.005	0.003	0.056	0.01272
MHDT, gas	0.31275	55	0.094	0.137	2.781	0.711	922.193	0.001	0.012	0.130	0.001	0.003	0.056	0.01272
MDV, gas	0.28301	10	0.175	0.248	3.133	0.339	1,263.534	0.007	0.008	0.037	0.007	0.002000001	0.01575	0.00519
MDV, gas	0.00449	55	0.034	0.047	1.496	0.202	465.995	0.001	0.008	0.037	0.001	0.002	0.016	0.00519
LHDT2, dsl	0.28554	10	0.559	0.636	2.350	2.338	1,179.489	0.062	0.012	0.089	0.059	0.003000001	0.03822	0.00613
LHDT2, dsl	0.18308	55	0.079	0.090	0.521	3.092	534.924	0.019	0.012	0.089	0.019	0.003	0.038	0.00613
MHDT, dsl	0.04455	10	0.696	0.793	1.642	8.434	1,997.864	0.082	0.012	0.130	0.078	0.003000001	0.05586	0.01155
MHDT, dsl	0.01265	55	0.057	0.065	0.240	1.638	1,042.348	0.061	0.012	0.130	0.058	0.003	0.056	0.01155
HHDT, dsl	0.03137	10	0.792	1.075	3.387	16.350	2975.168	0.040	0.036	0.061	0.038	0.008909205	0.026193	0.01525
HHDT, dsl	0.00237	55	0.052	0.059	0.234	2.864	1,411.840	0.018	0.036	0.061	0.018	0.009	0.026	0.01525

Vehicle Type	Start Emissions, grams/trip							
	ROG	TOG	CO	NO _x	CO ₂	PM ₁₀	PM _{2.5}	SO _x
LDA, gas	0.104	0.114	1.552	0.100	63.660	0.002	0.002	0.0007
LDT2, gas	0.155	0.170	2.278	0.196	86.409	0.002	0.002	0.0009
MHDT, gas	1.002	1.098	17.019	2.251	113.564	0.002	0.002	0.0014
LHD2, gas	0.388	0.425	3.859	1.691	67.045	0.001	0.001	0.0007
MDV, gas	0.341	0.373	4.252	0.398	117.632	0.003	0.002	0.0013
HHDT, gsl	1.511	1.653	48.442	4.002	145.419	0.001	0.001	0.0023
LDA, dsl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000
LDT2, dsl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000
MHDT, dsl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000
LHD2, dsl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000
MDV, dsl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000
HHDT, dsl	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0000

Vehicle Type	Additional ROG Emissions		
	Diurnal (g/vehicle/day)	Hot Soak (g/trip)	Resting Losses (g/vehicle/day)
LDA, gas	0.391	0.132	0.262
LDT2, gas	0.568	0.172	0.425
MHDT, gas	0.108	0.138	0.043
LHD2, gas	0.071	0.132	0.031
MDV, gas	0.752	0.242	0.597
HHDT, gas	0.045	0.086	0.023
LDA, dsl	0.000	0.000	0.000
LDT2, dsl	0.000	0.000	0.000
MHDT, dsl	0.000	0.000	0.000
LHD2, dsl	0.000	0.000	0.000
MDV, dsl	0.000	0.000	0.000
HHDT, dsl	0.0	0.0	0.0

Note: Diesel engines do not have additional start or ROG emissions.
 1 Diurnal/resting losses have to do with the vehicle population on site as it "rests"

Additional Greenhouse Gas Emissions Factors			GHG Global Warming Potential ^{1,2}		Indirect Water Supply GHG Emission		Pacific Gas & Electric Electricity Generation ¹	
Vehicle Type	GHG Emission Factors (grams/mile) ^{1,2}		GHG Global Warming Potential ^{1,2}		Indirect Water Supply GHG Emission		Pacific Gas & Electric Electricity Generation ¹	
	CH ₄	N ₂ O	CO ₂				CO ₂	
MDV & HDD, dsl	0.0051	0.0048	1 GWP		State Water Project/ Central Valley Pro	428 kwh/acre foot ¹	641.345 lbs/MWH	
LDT2, dsl	0.0009	0.0014	CH ₄ :	28 GWP	Local Supply (Groundwater)	906-1,990 kwh/million gallons ²	0.029 lbs/MWH	
MDV & HDD, gas	0.0303	0.032	N ₂ O:	265 GWP	Local Treatment ¹	44 kwh/millions gallons ²	0.00617 lbs/MWH	
LDT2, gas	0.0148	0.0157			Local Delivery	45-956 kwh/million gallons ²	0.000292018 MT/kwh	
LDA, gas	0.0105	0.015			Factor used:	1993 kwh/MG³		Indirect GHG Factor:
			Note: 1 ton (short, US) = 0.90718474 metric ton.		Note: 1 million gallons (MG) = 3.07 acre feet (AF)		Note: 1 Metric Tons (MT) = 2204.62 lbs	
1. GHG Emissions Source: Climate Registry: General Reporting Protocol for the Voluntary Reporting Program V. 2.1, January 2016.			1. Based on 100 Yr GWP from IPCC Fifth Assessment, 2016.		1. Embedded Energy in Water Studies, 2010a: Study 1, Figure 3.4: Dos Amigos Pumping Plant. (p.62-63)		1. California Emissions Estimator Model, CAPCOA 2017	
2. EF based on "Low Emission Vehicles" category for gasoline vehicles and "Moderate" control for diesel run vehicles; this reflects CARB LEV regulations and requirement to replace truck engines with newer 2010 engine by 2023 (EMFAC2014 Volume 3 technical documentation)			2. No climate-carbon feedbacks (CC fb) included		2. Embedded Energy in Water Studies, 2010b: Study 2, Table 4-6: Central Valley energy intensity range for groundwater (main water supply)			
					3. Embedded Energy in Water Studies, 2010b: Study 2, Table 4-6: Lowest Statewide energy intensity value used because no Central Valley specific values, but minimal treatment of water observed in Central Valley agencies			
					4. Embedded Energy in Water Studies, 2010b: Study 2, Table 4-6: Statewide energy intensity values assuming booster pump use on moderate terrain			
					5. Energy intensity (EI) value used for analysis = the average supply EI + minimal water treatment EI + average local delivery EI			

Paved roads - Emission Factor Derivation Table
 $E = [k(sL)^{0.5}(W)^{-0.25}]^2(1-P/4N)$
 where:
 E=particulate emissions factor (lb/VMT)
 k = particle size multiplier
 sL = road surface silt loading (g/m²)
 W = average vehicle weight class (tons)
 P = # of "wet" days with at least 0.01 inch of precipitation
 N = # of days in averaging period (default 365 for annual)

Parameter	Unit	PM10	PM2.5
Mean Vehicle Weight ¹	tons	2.4	2.4
k factor ²	lb/VMT	0.0022	0.00054
Silt Loading, sL ³	g/m ²	0.96	0.96
precipitation, P ⁴	days	45	45
Averaging period, N ⁵	days	365	365
Uncontrolled Emission factor, lb/VMT		0.00502	0.00123

Notes:
 1. Assumption based on the mix of all vehicles (not just project vehicles) driving on paved roads to site. CA Statewide M/VW = 2.4 tons (CARB 7.9, November 2016)
 2. AP-42, Table 13.2-1.1 (EPA, January 2011)
 3. CARB 7.9, Nov 2016: Table 3. SJVAPCD applies two different silt loading values depending on whether roads are urban (0.32) or rural (1.6) because of the high level of agricultural activity in the area. Values were averaged assuming 50% of the route is on highways and 50% through rural area to get to project site.
 4. CARB 7.9, Nov 2016: Table 8. Fresno county receives > 0.01 inches of rain 45 days/year
 5. AP-42 13.2 eqn 2 (EPA, January 2011)

Unpaved roads - Emission Factor Derivation Table
 $E = (k/s^{12})^a * (W/3)^b$
 where:
 E=particulate emissions factor (lb/VMT)
 k, a, b = empirical constants for unpaved surfaces at industrial sites
 s = surface material silt content (%)
 W = average vehicle weight class (tons)

Parameter	Unit	Construction Site		Gravel Road		During Operation Only			
		PM10	PM2.5	PM10	PM2.5	Compacted Service Roads		Gravel Road	
						PM10	PM2.5	PM10	PM2.5
Mean Vehicle Weight ¹	tons	15	15	15	15	11	11	11	11
Constant, k ²	lb/VMT	1.5	0.15	1.5	0.15	1.5	0.15	1.5	0.15
Constant, a ²		0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Constant, b ²		0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Silt content, s ³	%	8.5	8.5	6.4	6.4	8.5	8.5	6.4	6.4
Uncontrolled Emission factor, lb/VMT		2.27	0.227	1.76	0.176	1.97	0.197	1.53	0.153
Control efficiency for watering ⁵	%	0.55	0.55	0.25	0.25	0.25	0.25	0.25	0.25
Controlled Emission factor, E, lb/VMT		1.02	0.102	1.32	0.132	1.48	0.148	1.15	0.115
Control efficiency for dust palliat ⁶	%	0.84	0.84	0.5	0.5	0.5	0.5	0.5	0.5
Controlled Emission factor, E, lb/VMT		0.36	0.04	0.88	0.09	0.99	0.10	0.76	0.076

Notes:
 1. Assumption based on on-site fleet mix, including construction equipment, heavy and light duty trucks (https://www.epa.gov/emission-standards-reference-guide/vehicle-weight-classifications-emission-standards-reference-guide). Operations is based on mix of HDD water trucks & LDHT for employee service
 2. AP-42, Table 13.2.2.2 (worst-case)
 3. Construction based on average silt content of construction sites based on AP-42, Table 13.2.2-1 (construction sites/compacted "Scrapper" road); gravel road based on AP-42, Table 13.2.2-2 (Publicly accessible roads/gravel)
 4. Emissions factors from the Environmental Protection Agency's AP-42, Compilation of Air Pollutant Emissions Factors
 5. MRI, April 2001. Particulate Emission Measurements from Controlled Construction Activities, EPA/600/R-01/031.
 6. Per CARB certification for Soil Sement®

RE Solar Scarlet Project - 400 MW

On-Site Equipment Combustion Emissions ¹

Solar Facility Phase 1 - Site Prep		# of Days in Phase : 81		Max # Employees 412			Avg # Employees 309							MT of CO _{2e}	
Equipment	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	NH ₃ lbs		SO _x lbs
Pickup Truck/ Buggy (LDT2) ³	12	4	78	3,744											
Bulldozer, large	82	7	80	45,920	4,867.87	5,890.12	7,009.73	30,956.43	62,740.16	4,613,111.78	3,055.52	2,811.08	37.65	42.50	2,092.5
Water Truck ²	53	4	80	16,960	875.54	1,059.40	1,260.78	5,637.13	13,256.77	1,808,062.68	504.53	464.17	14.76	16.69	820.1
Grader	2	7	64	896	24.32	28.94	35.02	195.08	198.52	27,412.14	9.83	9.05	0.23	0.35	12.4
Flatbed truck (LHD2) ³	23	4	72	6,624											
Skid Steer	2	7	12	168	1.50	1.81	2.15	31.49	23.97	5,075.84	1.02	0.94	0.04	0.05	2.3
FE Loader	4	7	32	896	15.84	19.17	22.81	215.91	194.72	32,021.82	12.18	11.21	0.26	0.30	14.5
Roller	5	7	70	2,450	51.78	62.66	74.56	853.96	713.77	153,675.42	32.79	30.16	1.25	1.42	69.7
Backhoe	4	7	16	448	7.92	9.58	11.40	107.95	97.36	16,010.91	6.09	5.60	0.13	0.15	7.3
Instrument/Signal Board	12	7	78	6,552	201.99	244.41	290.87	1,231.95	1,148.02	134,619.41	92.37	84.98	1.10	1.24	61.1
Gravel Truck (Dumper) ²	127	4	80	40,640	2,449.50	2,253.05	2,695.53	74,161.25	8,895.11	2,757,582.82	192.27	145.27	33.70	26.64	1,250.8
AVG EXHAUST EMISSIONS PER DAY					104.89	118.14	140.78	1,399.89	1,077.39	117,871.27	48.23	43.98	1.10	1.10	53.47
TOTAL					8,496.26	9,569.15	11,402.86	113,391.15	87,268.40	9,547,572.81	3,906.60	3,562.46	89.12	89.34	4,330.71

Energy Storage Phase 1 - Site Prep		# of Days in Phase : 22		Max # Employees 98			Avg # Employees 74							MT of CO _{2e}	
Equipment	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	NH ₃ lbs		SO _x lbs
Pickup Truck/ Buggy (LDT2) ³	8	4	22	704											
Bulldozer, large	12	7	22	1,848	195.90	237.04	282.10	1,245.81	2,524.91	185,649.62	122.97	113.13	1.52	1.71	84.2
Water Truck ²	72	4	22	6,336	327.09	395.78	471.01	2,105.95	4,952.53	675,464.92	188.48	173.41	5.51	6.24	306.4
Grader	6	7	21	882	23.94	28.49	34.48	192.03	195.41	26,983.82	9.68	8.91	0.23	0.35	12.2
Flatbed truck (LHD2) ³	4	4	18	288											
Skid Steer	1	7	12	84	0.75	0.90	1.08	15.74	11.98	2,537.92	0.51	0.47	0.02	0.02	1.2
FE Loader	4	7	20	560	9.90	11.98	14.26	134.94	121.70	20,013.64	7.61	7.01	0.16	0.18	9.1
Roller	5	7	20	700	14.79	17.90	21.30	243.99	203.93	43,907.26	9.37	8.62	0.36	0.41	19.9
Instrument/Signal Board	8	7	22	1,232	37.98	45.96	54.69	231.65	215.87	25,313.05	17.37	15.98	0.21	0.23	11.5
Gravel Truck (Dumper) ²	104	4	22	9,152	551.62	507.38	607.03	16,700.88	2,003.15	620,998.96	43.30	32.71	7.59	6.00	281.7
AVG EXHAUST EMISSIONS PER DAY					52.82	56.61	67.54	948.68	464.98	72,766.78	18.15	16.37	0.71	0.69	33.01
TOTAL					1,161.98	1,245.43	1,485.94	20,870.99	10,229.49	1,600,869.21	399.29	360.23	15.59	15.14	726.14

Solar Facility Phase 2 - Photovoltaic Array Installation		# of Days in Phase : 282		Max # Employees 678			Avg # Employees 576							MT of CO _{2e}	
Equipment	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	NH ₃ lbs		SO _x lbs
Water Truck ²	8	4	280	8,960	462.55	559.68	666.07	2,978.10	7,003.58	955,202.92	266.54	245.22	7.80	8.82	433.3
Flatbed truck (LHD2) ³	62	4	282	69,936											
Skid Steer	10	7	140	9,800	87.24	105.56	125.62	1,836.73	1,398.22	296,090.44	59.75	54.97	2.42	2.73	134.3
Pile Driver (excavator mount)	7	4	7	196	6.03	7.30	8.69	54.23	67.58	7,764.85	5.01	4.61	0.06	0.07	3.5
Forklift	18	4	4	288	3.91	4.73	5.63	39.41	42.79	5,545.66	3.18	2.93	0.05	0.05	2.5
Trencher	12	4	105	5,040	221.58	268.12	319.08	1,753.30	2,455.91	247,654.16	186.23	171.33	2.02	2.28	112.3
AVG EXHAUST EMISSIONS PER DAY					2.77	3.35	3.99	23.62	38.89	5,362.62	1.85	1.70	0.04	0.05	2.43
TOTAL					781.31	945.39	1,125.09	6,661.77	10,968.07	1,512,258.04	520.70	479.05	12.34	13.96	685.95

Energy Storage Phase 2 - Foundations, Structures and DC Electrical System Installation		# of Days in Phase : 174		Max # Employees 84			Avg # Employees 63							MT of CO _{2e}	
Equipment	Number of Units	Daily Hours	Days in Use	Total Hourly Usage (units*hours per day*days)	HC lbs	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	NH ₃ lbs		SO _x lbs
Pickup Truck/ Buggy (LDT2) ³	5	4	102	2,040											
Water Truck ²	8	4	102	3,264	168.50	203.89	242.64	1,084.88	2,551.30	347,966.78	97.10	89.33	2.84	3.21	157.8
Skid Steer	4	7	102	2,856	25.42	30.76	36.61	535.28	407.48	86,289.22	17.41	16.02	0.70	0.80	39.1
Trencher	3	4	74	888	39.04	47.24	56.22	308.91	432.71	43,634.30	32.81	30.19	0.36	0.40	19.8
Crane	5	4	170	3,400	140.09	169.50	201.72	1,127.16	1,750.98	167,652.17	94.11	86.58	1.37	1.55	76.0
AVG EXHAUST EMISSIONS PER DAY					2.14	2.59	3.09	17.56	29.55	3,710.01	1.39	1.28	0.03	0.03	1.68
TOTAL					373.05	451.39	537.19	3,056.23	5,142.47	645,542.47	241.43	222.12	5.27	5.96	292.81

Solar Facility Phase 3 - Inverters, Substation, and Connection		# of Days in Phase : 121		Max # Employees 140			Avg # Employees 105							MT of CO _{2e}
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HD Truck (worker-lift) (MDV)	1	8	25	200	10.32	12.49	14.87	66.48	156.33	21,321.49	5.95	5.47	0.17	0.20	9.7
HD Truck (Auger) (MDV)	1	8	25	200	10.32	12.49	14.87	66.48	156.33	21,321.49	5.95	5.47	0.17	0.20	9.7
HD Truck (Wire reel) (MDV)	1	8	25	200	10.32	12.49	14.87	66.48	156.33	21,321.49	5.95	5.47	0.17	0.20	9.7
HD Truck (line puller) (MDV)	1	8	25	200	10.32	12.49	14.87	66.48	156.33	21,321.49	5.95	5.47	0.17	0.20	9.7
HD Truck (tensioner) (MDV)	1	8	25	200	10.32	12.49	14.87	66.48	156.33	21,321.49	5.95	5.47	0.17	0.20	9.7
Concrete Truck ³	1	4	1	4	0.21	0.25	0.30	1.33	3.13	426.43	0.12	0.11	0.00	0.00	0.2
AVG EXHAUST EMISSIONS PER DAY					0.41	0.50	0.59	2.65	6.23	849.48	0.24	0.22	0.01	0.01	0.39
TOTAL					51.83	62.71	74.64	333.71	784.78	107,033.90	29.87	27.48	0.87	0.99	48.55

Notes:

1. Equipment list supplied in section 2.0, *Project Description*, by Applicant
 2. Water, dumper, and concrete truck additional emissions during transit operations calculated with onsite mobile emissions
 3. Pickup truck and flatbed truck are included here only as reference for usage hours, emissions are calculated as onsite mobile emissions.
- MT = metric tons

Annual												
Year	HC lbs	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	NH ₃ lbs	SO _x lbs	MT of CO ₂ e	
2020	9,020.33	10,191.71	12,144.24	118,492.88	94,021.53	10,430,639.35	4,219.55	3,849.86	96.51	97.55	4,731.26	
2021	3,201.34	3,724.44	4,435.91	37,001.53	38,459.94	5,373,992.60	1,795.98	1,645.68	46.21	49.94	2,437.60	
Total	12,221.68	13,916.15	16,580.15	155,494.40	132,481.46	15,804,631.95	6,015.52	5,495.54	142.72	147.49	7,168.86	

Max Daily												
Year	HC lbs	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	NH ₃ lbs	SO _x lbs	MT of CO ₂ e	
2020	160.97	178.69	213.01	2,376.18	1,587.09	196,852.59	68.51	62.32	1.86	1.85	89.29	
2021	15.58	18.85	22.44	128.36	211.98	28,097.94	10.41	9.57	0.23	0.26	12.75	
Total Max Daily	160.97	178.69	213.01	2,376.18	1,587.09	196,852.59	68.51	62.32	1.86	1.85	89.29	

RE Solar Scarlet Project - 400 MW
On-site Mobile Emissions (max 10 mph)

Solar Facility Phase 1 - Site Prep				No. Days in Phase: 81												
Vehicle Type	No. Units	Days Operating	Miles Traveled per Unit per Day ⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Water Truck (HHD) ²	53	81	6	25,690	44.86	60.89	191.83	926.02	168,504.46	7.74	4.15	0.86	0.29	0.27	76	
Pickup Truck/ Buggy (LDT2) ²	12	78	6	5,616	4.38	2.13	30.41	2.95	11,905.23	0.66	0.31	0.05	0.18	0.19	5	
Flatbed truck (LHD2) ²	23	72	6	9,936	12.24	13.93	51.48	51.22	25,836.99	3.57	2.20	0.13	0.02	0.03	12	
Dumper/Tender (Gravel Truck - 20 CY) (MHDT) ²	127	80	6	60,960	117.50	141.11	1,543.15	248.65	444,060.00	19.97	8.68	1.77	4.07	4.30	202	
Equipment Deliveries (HHD) ¹	12	22	0.50	127	0.22	0.30	0.94	4.56	829.73	0.04	0.02	0.00	0.00	0.00	0	
Freight Deliveries 5-axle (HHD) ¹	822	1	0.50	411	0.72	0.97	3.07	14.81	2,695.81	0.12	0.07	0.01	0.00	0.00	1	
Freight Deliveries 2 axle (MHDT) ¹	274	1	0.50	137	0.21	0.24	0.50	2.55	603.42	0.07	0.04	0.00	0.00	0.00	0	
Gasoline Passenger Vehicles ³	232	81	0.25	4,693	38.20	5.51	76.22	5.13	9,735.64	0.64	0.35	0.06	0.11	0.16	4	
AVG EMISSIONS PER DAY					2.70	2.78	23.43	15.50	8,199.65	0.41	0.20	0.04	0.06	0.06	3.73	
TOTAL					102,876	180.12	219.57	1,821.38	1,250.76	654,435.65	32.17	15.47	2.84	4.57	4.80	297.48

Energy Storage Phase 1 - Site Prep				No. Days in Phase: 22												
Vehicle Type	No. Units	Days Operating	Miles Traveled per Unit per Day ⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Water Truck (HHD) ²	72	22	6	9,504	16.60	22.53	70.97	342.58	62,338.22	2.86	1.54	0.32	0.11	0.10	28	
Pickup Truck/ Buggy (LDT2) ²	8	22	6	1,056	0.82	0.40	5.72	0.56	2,238.59	0.12	0.06	0.01	0.03	0.04	1	
Flatbed truck (LHD2) ²	4	18	6	432	0.53	0.61	2.24	2.23	1,123.35	0.16	0.10	0.01	0.00	0.00	1	
Dumper/Tender (Gravel Truck - 20 CY) (MHDT) ²	104	22	6	13,728	26.46	31.78	347.51	55.99	100,000.91	4.50	1.95	0.40	0.92	0.97	45	
Equipment Deliveries (HHD) ¹	7	22	0.50	72	0.12	0.17	0.53	2.58	468.98	0.02	0.01	0.00	0.00	0.00	0	
Freight Deliveries 5-axle (HHD) ¹	722	1	0.50	361	0.63	0.86	2.70	13.01	2,367.86	0.11	0.06	0.01	0.00	0.00	1	
Freight Deliveries 2 axle (MHDT) ¹	241	1	0.50	121	0.18	0.21	0.44	2.24	530.75	0.06	0.04	0.00	0.00	0.00	0	
Gasoline Passenger Vehicles ³	56	22	0.25	305	2.48	0.36	4.96	0.33	633.25	0.04	0.02	0.00	0.01	0.01	0	
AVG EMISSIONS PER DAY					2.17	2.59	19.78	19.07	7,713.72	0.36	0.17	0.03	0.05	0.05	3.51	
TOTAL					25,273	45.35	56.55	430.10	419.19	169,068.65	7.83	3.75	0.75	1.07	1.11	76.84

Solar Facility Phase 2 - Photovoltaic Array Installation				No. Days in Phase: 282												
Vehicle Type	No. Units	Days Operating	Miles Traveled per Unit per Day ⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Water Truck (HHD) ²	8	282	6	12,859	22.45	30.48	96.02	463.52	84,345.50	3.87	2.08	0.43	0.14	0.14	38	
Flatbed truck (LHD2) ²	62	282	6	104,904	129.21	147.10	543.57	540.81	272,786.20	37.73	23.24	1.42	0.21	0.32	124	
Equipment Deliveries (HHD) ¹	4	22	0.50	39	0.07	0.09	0.29	1.42	259.02	0.01	0.01	0.00	0.00	0.00	0	
Equipment Returns (HHD) ¹	12	22	0.50	132	0.23	0.31	0.99	4.76	865.81	0.04	0.02	0.00	0.00	0.00	0	
Freight Deliveries 5-axle (HHD) ¹	4178	1	0.50	2,089	3.65	4.95	15.60	75.30	13,702.08	0.63	0.34	0.07	0.02	0.02	6	
Freight Deliveries 2 axle (MHDT) ¹	1393	1	0.50	697	1.07	1.22	2.52	12.95	3,067.78	0.34	0.21	0.02	0.01	0.01	1	
Gasoline Passenger Vehicles ³	432	282	0.25	30,456	247.89	35.74	494.66	33.26	63,181.89	4.15	2.24	0.36	0.71	1.01	29	
AVG EMISSIONS PER DAY					1.43	0.78	4.09	4.01	1,553.93	0.17	0.10	0.01	0.00	0.01	0.71	
TOTAL					120,720	156.68	184.15	658.99	1,098.76	375,026.39	42.63	25.89	1.94	0.39	0.49	170.17

Energy Storage Phase 2 - Foundations, Structures and DC Electrical System				No. Days in Phase: 174												
Vehicle Type	No. Units	Days Operating	Miles Traveled per Unit per Day ⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Water Truck (HHD) ²	5	174	6	4,750	8.29	11.26	35.47	171.23	31,157.30	1.43	0.77	0.16	0.05	0.05	14	
Pickup Truck/ Buggy (LDT2) ²	5	102	6	3,060	2.39	1.16	16.57	1.61	6,486.82	0.36	0.17	0.03	0.10	0.11	3	
Equipment Deliveries (HHD) ¹	1	22	0.50	7	0.01	0.02	0.05	0.25	45.45	0.00	0.00	0.00	0.00	0.00	0	
Equipment Returns (HHD) ¹	7	22	0.50	77	0.13	0.18	0.57	2.78	505.06	0.02	0.01	0.00	0.00	0.00	0	
Freight Deliveries 5-axle (HHD) ¹	654	1	0.50	327	0.57	0.78	2.44	11.79	2,144.84	0.10	0.05	0.01	0.00	0.00	1	
Freight Deliveries 2 axle (MHDT) ¹	218	1	0.50	109	0.17	0.19	0.39	2.03	480.10	0.05	0.03	0.00	0.00	0.00	0	
Gasoline Passenger Vehicles ³	47	174	0.25	2,055	16.73	2.41	33.38	2.24	4,263.94	0.28	0.15	0.02	0.05	0.07	2	
AVG EMISSIONS PER DAY					0.16	0.09	0.51	1.10	259.10	0.01	0.01	0.00	0.00	0.00	0.12	
TOTAL					8,330	11.57	13.58	55.50	189.67	40,819.58	1.97	1.04	0.20	0.16	0.16	18.54

Solar Facility Phase 3 - Inverters, Substation, and Connection				No. Days in Phase: 121											
Vehicle Type	No. Units	Days Operating	Miles Traveled per Unit per Day ⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e
Water Truck (HHD) ²	18	121	6	12,843	22.43	30.44	95.90	462.94	84,238.85	3.87	2.08	0.43	0.14	0.14	38

Vehicle Type	No. Units	Days Operating	Hours Operating	Miles Traveled per Unit per Day ⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e
Flatbed truck (LHD) ²	1	4	6	24	0.03	0.03	0.12	0.12	62.41	0.01	0.01	0.00	0.00	0.00	0.00	0
Concrete Truck (MHDT) ²	21	1	6	126	0.19	0.22	0.46	2.34	554.97	0.06	0.04	0.00	0.00	0.00	0.00	0
Equipment Deliveries (HHD) ¹	4	22	0.50	44	0.08	0.10	0.33	1.59	288.60	0.01	0.01	0.00	0.00	0.00	0.00	0
Equipment Returns (HHD) ¹	8	22	0.50	88	0.15	0.21	0.66	3.17	577.21	0.03	0.01	0.00	0.00	0.00	0.00	0
Freight Deliveries 5-axle (HHD) ¹	93	1	0.50	47	0.08	0.11	0.35	1.68	305.00	0.01	0.01	0.00	0.00	0.00	0.00	0
Freight Deliveries 2 axle (MHDT) ¹	31	1	0.50	16	0.02	0.03	0.06	0.29	68.27	0.01	0.00	0.00	0.00	0.00	0.00	0
Gasoline Passenger Vehicles ³	79	121	0.25	2,382	19.39	2.80	38.69	2.60	4,941.92	0.32	0.18	0.03	0.06	0.08	0.2	
AVG EMISSIONS PER DAY						0.35	0.28	1.13	3.92	752.37	0.04	0.02	0.00	0.00	0.00	0.34
TOTAL					13,187	22.98	31.14	97.87	472.12	86,095.31	4.00	2.15	0.44	0.15	0.14	39.07

Energy Storage Phase 3 - Inverters, Substation, and AC					No. Days in Phase: 146												
Vehicle Type	No. Units	Days Operating	Hours Operating	Miles Traveled per Unit per Day ⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Water Truck (HHD) ²	5	146	6	6	4,730	8.26	11.21	35.32	170.51	31,027.43	1.43	0.76	0.16	0.05	0.05	14	
Concrete Truck (MHDT) ²	1	1	6	6	6	0.01	0.01	0.02	0.11	26.43	0.00	0.00	0.00	0.00	0.00	0	
Equipment Deliveries (HHD) ¹	2	22	0.50	20	0.03	0.05	0.15	0.71	129.87	0.01	0.00	0.00	0.00	0.00	0.00	0	
Equipment Returns (HHD) ¹	3	22	0.50	31	0.05	0.07	0.23	1.11	202.02	0.01	0.00	0.00	0.00	0.00	0.00	0	
Freight Deliveries 5-axle (HHD) ¹	123	1	0.50	62	0.11	0.15	0.46	2.22	403.39	0.02	0.01	0.00	0.00	0.00	0.00	0	
Freight Deliveries 2 axle (MHDT) ¹	41	1	0.50	21	0.03	0.04	0.07	0.38	90.29	0.01	0.01	0.00	0.00	0.00	0.00	0	
Gasoline Passenger Vehicles ³	41	146	0.25	1,478	12.03	1.73	24.01	1.61	3,066.67	0.20	0.11	0.02	0.03	0.05	1		
AVG EMISSIONS PER DAY						0.14	0.09	0.41	1.21	239.36	0.01	0.01	0.00	0.00	0.00	0.11	
TOTAL					4,869	8.50	11.52	36.26	175.05	31,879.43	1.47	0.79	0.16	0.05	0.05	14.47	

Total Onsite Mobile Construction Emissions For Facility						ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e
Solar Facility (PV)						359.79	434.87	2578.24	2821.65	1115557.34	78.79	43.52	5.23	5.11	5.44	506.73
Energy Storage Facility (ES)						65.41	81.65	521.86	783.91	241767.66	11.27	5.58	1.12	1.28	1.33	109.84
Total						425.20	516.52	3,100.10	3,605.56	1,357,325.01	90.06	49.10	6.35	6.38	6.76	616.57

PG&E Improvements					No. Days in Phase: 189													
Vehicle Type	No. Units	Days Operating	Hours Operating	Miles Traveled per Unit per Day ⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e		
PG&E Improvements Phase 1 - Site Work					63	Max # Employees			23	Avg # Employees								15
Water Truck (HHD) ²	1	20	6	6	120	0.21	0.28	0.90	4.33	787.10	0.04	0.02	0.00	0.00	0.00	0		
Concrete Truck (MHDT) ²	1	1	6	6	6	0.01	0.01	0.02	0.11	26.43	0.00	0.00	0.00	0.00	0.00	0		
Equipment Deliveries (HHD) ¹	11	63	0.50	347	0.61	0.82	2.59	12.49	2,272.75	0.10	0.06	0.01	0.00	0.00	0.00	1		
Equipment Returns (HHD) ¹	11	63	0.50	347	0.61	0.82	2.59	12.49	2,272.75	0.10	0.06	0.01	0.00	0.00	0.00	1		
Gasoline Passenger Vehicles ³	12	63	0.25	189	1.54	0.22	3.07	0.21	392.09	0.03	0.01	0.00	0.00	0.00	0.01	0		
AVG EMISSIONS PER DAY						0.05	0.03	0.15	0.47	91.29	0.00	0.00	0.00	0.00	0.00	0.04		
TOTAL					819	2.97	2.16	9.16	29.62	5,751.11	0.27	0.15	0.03	0.01	0.01	2.61		
PG&E Improvements Phase 2 - Electrical					126	Max # Employees			23	Avg # Employees								15
Concrete Truck (MHDT) ²	1	1	6	6	6	0.01	0.01	0.02	0.11	26.43	0.00	0.00	0.00	0.00	0.00	0		
Pickup Truck/ Buggy (LDT) ²	1	25	6	6	150	0.12	0.06	0.81	0.08	317.98	0.02	0.01	0.00	0.00	0.01	0		
Mechanic and Service HD Truck (MDV)	5	25	6	6	750	0.98	0.62	7.52	0.78	2,187.13	0.09	0.04	0.01	0.05	0.05	1		
Equipment Deliveries (HHD) ¹	11	25	0.50	138	0.24	0.33	1.03	4.96	901.88	0.04	0.02	0.00	0.00	0.00	0.00	0		
Equipment Returns (HHD) ¹	11	25	0.50	138	0.24	0.33	1.03	4.96	901.88	0.04	0.02	0.00	0.00	0.00	0.00	0		
Gasoline Passenger Vehicles ³	12	25	0.25	75	0.61	0.09	1.22	0.08	155.59	0.01	0.01	0.00	0.00	0.00	0.00	0		
AVG EMISSIONS PER DAY						0.02	0.01	0.09	0.09	35.64	0.00	0.00	0.00	0.00	0.00	0.02		
TOTAL					1,181	2.20	1.42	11.63	10.96	4,490.89	0.20	0.10	0.02	0.06	0.06	2.05		

Annual												
Year	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
2020	198.93	240.76	1,921.05	1,521.50	716,955.42	35.15	17.02	3.15	4.83	5.07	325.88	
2021	231.44	279.34	1,199.85	2,124.65	650,611.59	55.39	32.32	3.25	1.63	1.77	295.35	
Total	430.37	520.10	3,120.89	3,646.15	1,367,567.01	90.54	49.35	6.40	6.46	6.84	621.22	

Max daily												
Year	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
2020	6.35	6.18	47.44	39.06	17,558.59	0.93	0.47	0.08	0.11	0.12	7.98	
2021	2.11	1.25	6.24	10.34	2,840.40	0.23	0.13	0.01	0.01	0.01	1.29	
Total Max Daily	6.35	6.18	47.44	39.06	17,558.59	0.93	0.47	0.08	0.11	0.12	7.98	

Operational					No. Work days in Year: 260												
Vehicle Type	No. Units	Days Operating	Hours Operating	Annual Hourly Use	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e		

ATVs	4	5	4	80	3.32	3.97	233.00	9.32	4,128.31	0.29	2.17E-01	3.99E-02	-	-	2
Kubota Tractor (50 hp or less)	4	100	8	3,200	132.67	158.72	9,319.95	372.77	165,132.45	11.51	8.70E+00	1.60E+00	-	-	75
Portable Generator	4	60	8	1,920	33.15	39.45	395.76	212.13	38,513.61	3.13	2.88	0.36	-	-	17
Portable water trailer (water buffalo)	10	80	8	6,400	309.00	369.68	20,500.08	273.85	34,554.65	16.66	12.58	0.96	-	-	16
Vehicle Type	No. Units	Days Operating	Miles Traveled per Unit per Day⁴	Total Onsite Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO_x lbs	CO₂ lbs	PM₁₀ lbs	PM_{2.5} lbs	SO_x lbs	CH₄ lbs	N₂O lbs	MT of CO₂e
LDT2 Trucks - O&M	8	130	30	31,200	9.22	8.72	127.14	12.82	64,555.19	3.60	1.70	0.26	1.02	1.08	29
LDT2 Trucks - Water Wash Trucks	15	80	40	48,000	12.74	13.12	191.59	19.37	99,163.28	5.54	2.62	0.40	1.57	1.66	45
Gasoline Passenger Vehicles ³	25	260	0.25	1,609	13.09	1.89	26.13	1.76	3,337.40	0.22	0.12	0.02	0.04	0.05	2
AVG EMISSIONS PER DAY					1.97	2.29	118.44	3.47	1,574.56	0.16	0.11	0.01	0.01	0.01	0.72
ANNUAL TOTAL					513.19	595.55	30,793.64	902.00	409,384.88	40.94	28.81	3.63	2.62	2.79	186.06

Note: 1 lb = 453.59 grams; MT = metric tons

1. Assumes that deliveries will travel minimal distances on-site to reach staging area, which will exist near primary access point to project site.

2. Conservatively assumes that 6 miles is the max round trip distance a unit could travel from main staging area located near West Manning Ave at western end of site to furthest point of site.

3. Workers passenger vehicles are assumed to not be driven on the project site except for accessing the on-site parking lots that will encompass up to 10 acres (per PD) at or near the main access site for the project, thus only 0.25 mile is assumed to account for transit to and in on-site parking lots.

4. Miles traveled per unit per day are based on the following assumptions based on max round trip distance unit could travel from main staging area located near West Manning Ave at western end of site to furthest point of site employee vehicles

RE Solar Scarlet Project - 400 MW

Fugitive Dust Emissions During Construction on Unpaved Roads

Solar Facility Phase 1 - Site Prep				Construction Site						50% Travel on Compacted Roads ⁵					
Number of Days 81				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵	
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor ³	PM _{2.5} lbs/mile factor ³	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
Mobile Construction Equipment (0.5 mph)	532	2.27	0.227	1,207.13	120.71	543.2	54.3	193.1	19.3	1071.1	107.1	622.3	62.2	330.3	33.0
Stationary Construction Equipment (0.25 mph)	16	2.27	0.227	36.30	3.63	16.3	1.6	5.8	0.6	32.2	3.2	18.7	1.9	9.9	1.0
Heavy Duty Diesel Truck (HHD)	26,227	2.27	0.227	59,511.09	5,951.11	26,780.0	2,678.0	9,521.8	952.2	52,804.6	5,280.5	3,067.8	306.77	16,285.4	1,628.5
Medium Duty Trucks (MHDT)	61,097	2.27	0.227	138,631.38	13,863.14	62,384.1	6,238.4	22,181.0	2,218.1	123,008.5	12,300.9	7,146.17	714.62	3,796.9	379.73
Flatbed trucks (LHD2)	9,936	2.27	0.227	22,545.16	2,254.52	10,145.3	1,014.5	3,607.2	360.7	20,004.5	2,000.4	1,162.1	116.22	6,189.6	617.0
Pickup Truck/ Buggy (LDT2)	5,616	2.27	0.227	12,742.91	1,274.29	5,734.3	573.4	2,038.9	203.9	11,306.9	1,130.7	658.7	65.9	348.1	34.8
Gasoline Passenger Vehicles	4,693	2.27	0.227	10,648.45	1,064.85	4,791.8	479.2	1,703.8	170.4	9,448.4	944.8	548.9	54.9	291.4	29.1
Total Pounds Per day				3,028.67	302.87	1,362.90	136.29	484.59	48.46	2,687.36	268.74	1,561.22	156.12	828.81	82.88
Total	108,117			245,322.43	24,532.24	110,395.09	11,039.51	39,251.59	3,925.16	217,676.22	21,767.62	126,458.80	12,645.88	67,133.30	6,713.33

Energy Storage Phase 1 - Site Prep				Construction Site						50% Travel on Compacted Roads ⁵					
Number of Days 22				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵	
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor ¹	PM _{2.5} lbs/mile factor ¹	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
Mobile Construction Equipment (0.5 mph)	322	2.27	0.227	730.63	73.06	328.8	32.9	116.9	11.7	648.3	64.8	376.6	37.7	199.9	20.0
Stationary Construction Equipment (0.25 mph)	0	2.27	0.227	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heavy Duty Diesel Truck (HHD)	9,937	2.27	0.227	22,546.29	2,254.63	10,145.8	1,014.6	3,607.4	360.7	20,005.5	2,000.5	1,162.2	116.22	6,189.9	617.0
Medium Duty Trucks (MHDT)	13,849	2.27	0.227	31,422.77	3,142.28	14,140.2	1,414.0	5,027.6	502.8	27,881.6	2,788.2	1,619.8	161.98	8,598.9	859.9
Flatbed trucks (LHD2)	432	2.27	0.227	980.22	98.02	441.1	44.1	156.8	15.7	869.8	87.0	505.3	50.5	268.2	26.8
Pickup Truck/ Buggy (LDT2)	1,056	2.27	0.227	2,396.10	239.61	1,078.2	107.8	383.4	38.3	2,126.1	212.6	123.5	12.35	65.7	6.5
Gasoline Passenger Vehicles	305	2.27	0.227	692.62	69.26	311.7	31.2	110.8	11.1	614.6	61.5	357.0	35.7	189.5	19.0
Total Pounds Per day				2,671.30	267.13	1,202.09	120.21	427.41	42.74	643.78	64.38	374.00	37.40	198.55	19.85
Total	25,900			58,768.64	5,876.86	28,445.89	2,844.59	9,402.98	940.30	52,145.80	5,214.58	30,294.06	3,029.41	16,082.23	1,608.22

Solar Facility Phase 2 - Photovoltaic Array Installation				Construction Site						50% Travel on Compacted Roads ⁵					
Number of Days 282				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵	
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor ¹	PM _{2.5} lbs/mile factor ¹	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
Mobile Construction Equipment (0.5 mph)	5,044	2.27	0.227	11,445.03	1,144.50	5,150.3	515.0	1,831.2	183.1	10,155.2	1,015.5	5,899.7	590.0	3,132.0	313.2
Stationary Construction Equipment (0.25 mph)	327	2.27	0.227	742.54	74.25	334.1	33.4	118.8	11.9	658.9	65.9	382.8	38.3	202.2	20.3
Heavy Duty Diesel Truck (HHD)	15,120	2.27	0.227	34,307.14	3,430.71	15,438.2	1,543.8	5,489.1	548.9	30,441.0	3,044.1	1,768.6	176.85	9,388.3	938.8
Medium Duty Trucks (MHDT)	697	2.27	0.227	1,580.38	158.04	711.2	71.1	252.3	25.3	1,402.3	140.2	81.4	8.15	43.2	4.32
Flatbed trucks (LHD2)	104,904	2.27	0.227	238,031.11	23,803.11	107,114.0	10,711.4	38,085.0	3,808.5	211,206.6	21,120.7	122,700.3	12,270.0	65,138.0	6,513.8
Pickup Truck/ Buggy (LDT2)	0	2.27	0.227	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gasoline Passenger Vehicles	30,456	2.27	0.227	69,105.81	6,910.58	31,097.6	3,109.8	11,056.9	1,105.7	61,318.0	6,131.8	3,562.7	356.23	1,891.0	189.1
Total Pounds Per day				1,259.62	125.96	566.83	56.68	201.54	20.15	3,891.14	389.11	2,260.55	226.06	1,200.06	120.01
Total	156,547			355,212.01	35,521.20	159,845.41	15,984.54	56,833.92	5,683.39	315,811.98	31,581.20	183,104.68	18,310.47	97,204.95	9,720.49

Energy Storage Phase 2 - Foundations, Structures and DC EI				Construction Site						50% Travel on Compacted Roads ⁵					
Number of Days 174				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵	
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor ¹	PM _{2.5} lbs/mile factor ¹	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
Mobile Construction Equipment (0.5 mph)	1,428	2.27	0.227	3,240.19	324.02	1,458.1	145.8	518.4	51.8	2,875.0	287.5	1,670.3	167.0	886.7	88.7
Stationary Construction Equipment (0.25 mph)	56	2.27	0.227	125.93	12.59	56.7	5.7	20.1	2.0	111.7	11.2	64.9	6.5	34.5	3.4
Heavy Duty Diesel Truck (HHD)	5,161	2.27	0.227	11,710.80	1,171.08	5,269.9	527.0	1,873.7	187.4	10,391.1	1,039.1	6,036.7	603.7	3,204.7	320.5
Medium Duty Trucks (MHDT)	109	2.27	0.227	247.33	24.73	111.3	11.1	39.6	4.0	219.5	21.9	127.5	12.7	67.7	6.8
Flatbed trucks (LHD2)	0	2.27	0.227	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pickup Truck/ Buggy (LDT2)	3,060	2.27	0.227	6,943.25	694.33	3,124.5	312.4	1,110.9	111.1	6,160.8	616.1	357.9	35.79	190.0	19.0
Gasoline Passenger Vehicles	2,055	2.27	0.227	4,663.72	466.37	2,098.7	209.9	746.2	74.6	4,138.2	413.8	240.4	24.0	127.6	12.7
Total Pounds Per day				154.78	15.48	69.65	6.96	24.76	2.48	295.02	29.50	171.39	17.14	90.99	9.10
Total	11,869			26,931.22	2,693.12	12,119.05	1,211.90	4,308.99	430.90	23,896.25	2,389.62	13,882.50	1,388.25	7,369.82	736.98

Solar Facility Phase 3 - Inverters, Substation, and Connector				Construction Site						50% Travel on Compacted Roads ⁵					
Number of Days 121				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵	
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor ¹	PM _{2.5} lbs/mile factor ¹	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
Mobile Construction Equipment (0.5 mph)	665	2.27	0.227	1,508.91	150.89	679.0	67.9	241.4	24.1	1,338.9	133.9	777.8	77.8	412.9	41.3
Stationary Construction Equipment (0.25 mph)	667	2.27	0.227	1,514.02	151.40	681.3	68.1	242.2	24.2	1,343.4	134.3	780.4	78.0	414.3	41.4
Heavy Duty Diesel Truck (HHD)	13,021	2.27	0.227	29,546.14	2,954.61	13,295.8	1,329.6	4,727.4	472.7	26,216.5	2,621.6	15,230.4	1,523.0	8,085.4	808.5
Medium Duty Trucks (MHDT)	142	2.27	0.227	321.07	32.11	144.5	14.4	51.4	5.1	284.9	28.5	165.5	16.6	87.9	8.8
Flatbed trucks (LHD2)	24	2.27	0.227	54.46	5.45	24.5	2.5	8.7	0.9	48.3	4.8	28.1	2.8	14.9	1.5
Pickup Truck/ Buggy (LDT2)	0	2.27	0.227	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gasoline Passenger Vehicles	2,382	2.27	0.227	5,405.27	540.53	2,432.4	243.2	864.8	86.5	4,796.1	479.6	2,786.3	278.6	1,479.2	147.9
Total Pounds Per day				316.94	31.69	142.62	14.26	50.71	5.07	420.10	42.01	244.06	24.41	129.56	12.96
Total	16,901			38,349.86	3,834.99	17,257.44	1,725.74	6,135.98	613.60	34,028.08	3,402.81	19,768.58	1,976.86	10,494.57	1,049.46

Energy Storage Phase 3 - Inverters, Substation, and AC				Construction Site						50% Travel on Compacted Roads ⁵					
Number of Days 146				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵	
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor ¹	PM _{2.5} lbs/mile factor ¹	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
Mobile Construction Equipment (0.5 mph)	448	2.27	0.227	1,016.53	101.65	457.4	45								

Medium Duty Trucks (MHD2)	27	2.27	0.227	60.13	6.01	27.1	2.7	9.6	1.0	53.4	5.3	31.0	3.1	16.5	1.6
Flatbed trucks (LHD2)	0	2.27	0.227	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pickup Truck/ Buggy (LDT2)	0	2.27	0.227	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gasoline Passenger Vehicles	1,478	2.27	0.227	3,354.20	335.42	1509.4	150.9	536.7	53.7	2976.2	297.6	1729.0	172.9	917.9	91.8
Total Pounds Per day				113.32	11.33	50.99	5.10	18.13	1.81	181.24	18.12	105.29	10.53	65.90	5.59
Total	7,292			16,544.69	1,654.47	7,445.11	744.51	2,647.15	264.71	14,680.21	1,468.02	8,528.45	852.85	4,527.51	452.75

				Construction Site						50% Travel on Compacted Roads ⁵						
Total Unpaved Road Dust Emissions from Solar Facility and Energy Storage Construction				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		
Total Vehicle Miles Traveled				PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	
Solar Facility Construction				281,566	638,884.30	63,888.43	287,497.93	28,749.79	102,221.49	10,222.15	566,886.28	56,688.63	329,332.07	32,933.21	174,832.81	17,483.28
Energy Storage Construction				45,061	102,244.54	10,224.45	46,010.04	4,601.00	16,359.13	1,635.91	90,722.26	9,072.23	52,705.02	5,270.50	27,979.96	2,797.96
Total				326,627	741,128.84	74,112.88	333,507.98	33,350.80	118,580.61	11,858.06	657,608.55	65,760.85	382,037.08	38,203.71	202,812.37	20,281.24

				Construction Site						50% Travel on Compacted Roads ⁵						
PG&E Improvements				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		
Number of Days 189				PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	
Total Vehicle Miles Traveled				189												
PM ₁₀ lbs/mile factor ¹																
PM _{2.5} lbs/mile factor ¹																
Vehicle Type				PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	
PG&E Improvements Phase 1 - Site Work				Number of Days 63												
Mobile Construction Equipment (0.5 mph)				180	408.43	40.84	183.8	18.4	65.3	6.5	362.4	36.2	210.5	21.1	111.8	11.2
Stationary Construction Equipment (0.25 mph)				5	10.78	1.08	4.9	0.5	1.7	0.2	9.6	1.0	5.6	0.6	2.9	0.3
Heavy Duty Diesel Truck (HHD)				813	1,844.73	184.47	830.1	83.0	295.2	29.5	1636.8	163.7	950.9	95.1	504.8	50.5
Medium Duty Trucks (MHD2)				6	13.61	1.36	6.1	0.6	2.2	0.2	12.1	1.2	7.0	0.7	3.7	0.4
Gasoline Passenger Vehicles				189	428.85	42.88	193.0	19.3	68.6	6.9	380.5	38.1	221.1	22.1	117.4	11.7
Total Pounds Per day					42.96	4.30	19.33	1.93	6.87	0.69	38.12	3.81	22.14	2.21	11.76	1.18
Total				1,193	2,706.39	270.64	1,217.88	121.79	433.02	43.30	2,401.40	240.14	1,395.09	139.51	740.61	74.06
PG&E Improvements Phase 2 - Electrical Work				Number of Days 126												
Concrete Truck (MHD2)				6	13.61	1.36	6.1	0.6	2.2	0.2	12.1	1.2	7.0	0.7	3.7	0.4
Pickup Truck/ Buggy (LDT2)				150	340.36	34.04	153.2	15.3	54.5	5.4	302.0	30.2	175.4	17.5	93.1	9.3
Mechanic and Service HD Truck (MDV)				750	1,701.78	170.18	765.8	76.6	272.3	27.2	1510.0	151.0	877.2	87.7	465.7	46.6
Equipment Deliveries (HHD)1				138	311.99	31.20	140.4	14.0	49.9	5.0	276.8	27.7	160.8	16.1	85.4	8.5
Equipment Returns (HHD)1				138	311.99	31.20	140.4	14.0	49.9	5.0	276.8	27.7	160.8	16.1	85.4	8.5
Gasoline Passenger Vehicles 3				75	170.18	17.02	76.6	7.7	27.2	2.7	151.0	15.1	87.7	8.8	46.6	4.7
Total Pounds Per day					22.62	2.26	10.18	1.02	3.62	0.36	20.07	2.01	11.66	1.17	6.19	0.62
Total				1,256	2,849.91	284.99	1,282.46	128.25	455.99	45.60	2,528.75	252.87	1,469.07	146.91	779.89	77.99

Annual

Year	No Additional Control ⁴		With Water Control ⁵		With Palliative Control ⁶	
	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
2020	280,891.24	28,089.12	126,401.06	12,640.11	44,942.60	4,494.26
2021	465,793.91	46,579.39	209,607.26	20,960.73	74,527.03	7,452.70
Total	746,685.15	74,668.51	336,008.32	33,600.83	119,469.62	11,946.96

Max Daily

Year	No Additional Control ⁴		With Water Control ⁵		With Palliative Control ⁶	
	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
2020	7,002.55	700.25	3,151.15	315.11	1,120.41	112.04
2021	1,867.27	186.73	840.27	84.03	298.76	29.88
Total Max Daily	7,002.55	700.25	3,151.15	315.11	1,120.41	112.04

				Compacted Dirt Road						100% Travel on Gravel Roads ⁵						
Operational Phase Fugitive Dust Emissions on Unpaved Road				No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		No Additional Control ³		With Water Control ⁴		With Palliative Control ⁵		
Number of Days 260				PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs	
Annual Total				81,100	163,222.03	16,322.20	121,678.07	12,167.81	80,607.67	8,060.77	126,433.95	12,643.40	94,825.46	9,482.55	63,216.98	6,321.70

Notes:

1. Loader, skid-steer, and forklifts assumed to transit an average of 0.5 miles each hour. VMT is estimated by multiplying total hours of operation by 0.5 miles per hour. Mobile equipment that is considered earth moving (i.e. bulldozer, motor grader, and roller) are accounted for separately due to a specific operations.
2. Trencher, pile driver, backhoe, aerial lift, and crane work primarily in place and expected to transit 0.25 mile per day on unpaved roads
3. Uncontrolled emission factors based on silt content of local soil, onsite fleet mix, and typical construction activities from AP-42, Table 13.2.2-2
4. Emission factors are reduced via water control by 55% efficiency per MRI, April 2001. Particulate Emission Measurements from Controlled Construction Activities, EPA/600/R-01/031.
5. Emission factors are reduced via palliative control by 84% efficiency per CARB certification for Soil Cement®
6. Emissions based on assumption of % of activity occurring on gravel road where base uncontrolled emission factors are 1.76 and 0.176 for PM₁₀ and PM_{2.5}, respectively.

Summary of Material Handling/Dirt Pushing and Grading Dust

Solar Facility: Phase 1	Unmitigated				Watering				Additional Mitigation			
	PM10		PM2.5		PM10		PM2.5		PM10		PM2.5	
	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)
Particulates from Dirt Pushing	1596.3	127,707.8	602.0	48,160.7	1596.3	127,707.8	602.0	48,160.7	1067.1	85,369.6	414.2	33,133.9
Particulates from Road Grading	75.6	5161.4	8.2	557.3	29.5	2012.9	3.2	217.3	14.6	998.3	1.3	90.5
Material Handling	14,962	1196,928	2,266	181,249	5,835	466,802	0,884	70,687				
Subtotal	1686.893	134066.040	612.436	48899.267	1631.660	130187.485	606.075	48448.749	1081.739	86367.837	415.498	33224.355
Solar Facility: Phase 3	Daily (lbs/day)		Total (lbs)		Daily (lbs/day)		Total (lbs)		Daily (lbs/day)		Total (lbs)	
Particulates from Dirt Pushing	19.5	77.9	7.3	29.4	19.5	77.9	7.3	29.4	13.0	52.1	5.1	20.2
Particulates from Road Grading	21.6	86.4	2.3	9.3	8.4	33.7	0.9	3.6	4.2	16.7	0.7	1.5

Material Handling	41.063	164.253	9.673	38.694	27.890	111.560	8.251	33.004	17.191	68.762	5.725	21.718
Subtotal												
Storage System: Phase 1	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)
Particulates from Dirt Pushing	233.6	5,139.5	88.1	1,938.2	233.6	5,139.5	88.1	1,938.2	156.2	3,435.6	60.6	1,333.4
Particulates from Road Grading	118.8	2,440.3	12.8	263.5	46.3	951.7	5.0	102.8	23.0	472.0	2.1	42.8
Material Handling	12.252	269.544	1.855	40.817	4.778	105.122	0.724	15.919				
Subtotal	364.640	7849.311	102.779	2242.488	284.713	6196.301	93.824	2056.857	179.137	3907.594	62.692	1376.205
PG&E Improvements: Phase 1	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)	Daily (lbs/day)	Total (lbs)
Particulates from Dirt Pushing	22.2	155.7	8.4	58.7	22.2	155.7	8.4	58.7	14.9	104.1	5.8	40.4
Particulates from Road Grading	24.7	271.5	2.7	29.3	9.6	105.9	1.0	11.4	4.8	52.5	0.4	4.8
Material Handling												
Subtotal	46.929	427.229	11.055	88.047	31.874	261.622	9.430	70.165	19.646	156.619	6.205	45.165

Particulates from Dirt Pushing

	PV Phase 1	PV Phase 3	ES Phase 1	PG&E Improvement
Silt Content % ¹	30	30	30	30
Moisture Content % ²	15	15	15	15
Hours Operating	7	7	7	8
# bulldozers & scrapers:	82	1	12	1
Total Days Operating:	80	4	22	7

PV Project ⁴	Phase 1	Phase 1 With Handling Moisture	Additional Mitigation ⁵	PV Phase 3	Moisture	Additional Mitigation ⁵
TSP Emissions	E = 5.7 * s ^{1.2} (1.2)/M ^{1.3} 819.1 lbs/hour 5733.4 lbs/day 458,673.5 Total lbs Phase 1	819.1 lbs/hour 5733.4 lbs/day 458,673.5 Total lbs Phase 1	563.5 lbs/hour 3944.5 lbs/day 315,560.9 Total lbs	10.0 lbs/hour 69.9 lbs/day 279.7 Total lbs	10.0 lbs/hour 69.9 lbs/day 279.7 Total lbs Phase	6.9 lbs/hour 48.1 lbs/day 192.4 Total lbs
PM-10 Emissions	E = 0.75 * s ^{1.5} (1.5)/M ^{1.4} 228.0 lbs/hour 1596.3 lbs/day 127,707.8 Total lbs Phase 1	228.0 lbs/hour 1596.3 lbs/day 127,707.8 Total lbs Phase 1	152.4 lbs/hour 1067.1 lbs/day 85,369.6 Total lbs	2.8 lbs/hour 19.5 lbs/day 77.9 Total lbs	2.8 lbs/hour 19.5 lbs/day 77.9 Total lbs Phase	1.9 lbs/hour 13.0 lbs/day 52.1 Total lbs
PM-2.5 Emissions	E = 0.105 * 5.7 * s ^{1.2} (1.2)/M ^{1.3} 86.0 lbs/hour 602.0 lbs/day 48,160.7 Total lbs Phase 1	86.0 lbs/hour 602.0 lbs/day 48,160.7 Total lbs Phase 1	59.2 lbs/hour 414.2 lbs/day 33,133.9 Total lbs	1.0 lbs/hour 7.3 lbs/day 29.4 Total lbs	1.0 lbs/hour 7.3 lbs/day 29.4 Total lbs Phase	0.7 lbs/hour 5.1 lbs/day 20.2 Total lbs

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ES Project ⁴	Phase 1	Phase 1 With Handling Moisture	Additional Mitigation ⁵
TSP Emissions	E = 5.7 * s ^{1.2} (1.2)/M ^{1.3} 119.9 lbs/hour 839.0 lbs/day 18,458.8 Total lbs Phase 1	119.9 lbs/hour 839.0 lbs/day 18,458.8 Total lbs Phase 1	82.5 lbs/hour 577.2 lbs/day 12,699.4 Total lbs
PM-10 Emissions	E = 0.75 * s ^{1.5} (1.5)/M ^{1.4} 33.4 lbs/hour 233.6 lbs/day 5,139.5 Total lbs Phase 1	33.4 lbs/hour 233.6 lbs/day 5,139.5 Total lbs Phase 1	22.3 lbs/hour 156.2 lbs/day 3,435.6 Total lbs
PM-2.5 Emissions	E = 0.105 * 5.7 * s ^{1.2} (1.2)/M ^{1.3} 12.6 lbs/hour 88.1 lbs/day 1,938.2 Total lbs Phase 1	12.6 lbs/hour 88.1 lbs/day 1,938.2 Total lbs Phase 1	8.7 lbs/hour 60.6 lbs/day 1,333.4 Total lbs

PG&E Improvements ⁴	Phase 1	Phase 1 With Handling Moisture	Additional Mitigation ⁵
TSP Emissions	E = 5.7 * s ^{1.2} (1.2)/M ^{1.3} 10.0 lbs/hour 79.9 lbs/day 559.4 Total lbs Phase 1	10.0 lbs/hour 79.9 lbs/day 559.4 Total lbs Phase 1	6.9 lbs/hour 55.0 lbs/day 384.8 Total lbs
PM-10 Emissions	E = 0.75 * s ^{1.5} (1.5)/M ^{1.4} 2.8 lbs/hour 22.2 lbs/day 155.7 Total lbs Phase 1	2.8 lbs/hour 22.2 lbs/day 155.7 Total lbs Phase 1	1.9 lbs/hour 14.9 lbs/day 104.1 Total lbs
PM-2.5 Emissions	E = 0.105 * 5.7 * s ^{1.2} (1.2)/M ^{1.3} 1.0 lbs/hour 8.4 lbs/day 58.7 Total lbs Phase 1	1.0 lbs/hour 8.4 lbs/day 58.7 Total lbs Phase 1	0.7 lbs/hour 5.8 lbs/day 40.4 Total lbs

- Notes:
1. Ciervo-Cerini and Panoche-Ciervo-Cerini soils, Web Soil Survey, 2018 (weighted average of silt content based on % of soil type)
2. Assumed typical handling moisture content from watering for dust control. Required to implement during construction per Rule 8021
3. Emission equations per Table 11.9-1, USEPA AP-42 Section 11, July 1998.
4. Additional mitigation includes increasing handling moisture of soil to 20%.

Particulates from Road Grading

	PV Phase 1		mph	Total Controlled ¹	Additional Mitigation ²	PV Phase 3		Total Controlled ¹	Additional Mitigation ²
	Grader	Roller				Grader	Roller		
Travel Speed (S):	7.1	7.1				7.1	7.1		
Hours Operating:	7	7				7	7		
No. of Units:	2	5				1	1		
Total Days Operating:	64	70				4	4		
TSP Emissions	E = 0.04*(S) ^{2.5} 10.7 lbs/hour 75.2 lbs/day 4814.1 Total lbs Phase 1	26.9 lbs/hour 188.1 lbs/day 13163.5 Total lbs Phase 1		14.7 lbs/hour 102.7 lbs/day 7011.3 Total lbs Phase 1	6.1 lbs/hour 42.7 lbs/day 2917.9 Total lbs		5.4 lbs/hour 37.6 lbs/day 150.4 Total lbs	4.2 lbs/hour 29.3 lbs/day 117.3 Total lbs Phase	1.7 lbs/hour 12.2 lbs/day 48.8 Total lbs
PM-10 Emissions	E = 0.6 * 0.051 * (S) ^{2.0} 3.1 lbs/hour 21.6 lbs/day 1382.1 Total lbs Phase 1	7.7 lbs/hour 54.0 lbs/day 3779.2 Total lbs Phase 1		4.2 lbs/hour 29.5 lbs/day 2012.9 Total lbs Phase 1	2.1 lbs/hour 14.6 lbs/day 998.3 Total lbs		1.5 lbs/hour 10.8 lbs/day 43.2 Total lbs	1.2 lbs/hour 8.4 lbs/day 33.7 Total lbs Phase	0.6 lbs/hour 4.2 lbs/day 16.7 Total lbs
PM-2.5 Emissions	E = 0.031*0.04*(S) ^{2.5} 0.3 lbs/hour 2.3 lbs/day 149.2 Total lbs Phase 1	0.8 lbs/hour 5.8 lbs/day 408.1 Total lbs Phase 1		0.5 lbs/hour 3.2 lbs/day 217.3 Total lbs Phase 1	0.2 lbs/hour 1.3 lbs/day 90.5 Total lbs		0.2 lbs/hour 1.2 lbs/day 4.7 Total lbs	0.1 lbs/hour 0.9 lbs/day 3.6 Total lbs Phase	0.1 lbs/hour 0.7 lbs/day 1.5 Total lbs
	ES Phase 1								
	Grader	Roller							

Travel Speed (S):	7.1	7.1	mph		
Hours Operating:	7	7			
No. of Units:	6	5			
Total Days Operating:	21	20	Total Controlled ¹	Additional Mitigation ²	
<i>TSP Emissions</i>	32.2	26.9	23.0	<i>lbs/hour</i>	9.6
$E = 0.04*(S)^{(2.5)}$	225.7	188.1	161.3	<i>lbs/day</i>	67.1
	4738.9	3761.0	3314.9	<i>Total lbs Phase 1</i>	1379.6
<i>PM-10 Emissions</i>	9.3	7.7	6.6	<i>lbs/hour</i>	3.3
$E = 0.6 * 0.051 * (S)^{(2.0)}$	64.8	54.0	46.3	<i>lbs/day</i>	23.0
	1360.5	1079.8	951.7	<i>Total lbs Phase 1</i>	472.0
<i>PM-2.5 Emissions</i>	1.0	0.8	0.7	<i>lbs/hour</i>	0.3
$E = 0.031*0.04*(S)^{(2.5)}$	7.0	5.8	5.0	<i>lbs/day</i>	2.1
	146.9	116.6	102.8	<i>Total lbs Phase 1</i>	42.8

PG&E Improvements Phase 1					
		Grader	Roller		
Travel Speed (S):	7.1	7.1	mph		
Hours Operating:	8	8			
No. of Units:	1	1			
Total Days Operating:	20	2	Total Controlled ¹	Additional Mitigation ²	
<i>TSP Emissions</i>	5.4	5.4	4.2	<i>lbs/hour</i>	1.7
$E = 0.04*(S)^{(2.5)}$	43.0	43.0	33.5	<i>lbs/day</i>	14.0
	859.7	86.0	368.8	<i>Total lbs Phase 1</i>	134.3
<i>PM-10 Emissions</i>	1.5	1.5	1.2	<i>lbs/hour</i>	0.6
$E = 0.6 * 0.051 * (S)^{(2.0)}$	12.3	12.3	9.6	<i>lbs/day</i>	4.8
	246.8	24.7	105.9	<i>Total lbs Phase 1</i>	52.5
<i>PM-2.5 Emissions</i>	0.2	0.2	0.1	<i>lbs/hour</i>	0.1
$E = 0.031*0.04*(S)^{(2.5)}$	1.3	1.3	1.0	<i>lbs/day</i>	0.4
	26.6	2.7	11.4	<i>Total lbs Phase 1</i>	4.8

Notes:
 1. Assumes use of water to control dust reduces dust by 61% based on per 3.2 hour watering interval of general construction; test series 701 reprinted in WRAP Fugitive Dust Handbook, September 2006
 2. Additional mitigation includes decreasing travel speed to 5 mph.

Materials Handling (Gravel Batch Drop) PV Phase 1

Mean Wind Speed (U)¹ 15 mph Average wind speed in Mendota, CA
 Moisture Content² 2.1 % Assumed moisture content based on limestone products (Table 13.2.4-1 of EPA AP-42, Nov. 2006)
 Number of Daily Deliveries 127
 Material per drop 20 cubic yards
 Weight per cubic yard 1.35 tons

Total Days Operating:	80	Total Controlled ¹	
<i>PM-10 Emissions</i>	$E = 0.35 * 0.0032 * (U/5)^{1.3}/(M/2)^{1.4}$	14.962 <i>lbs/day</i>	5.835 <i>lbs/day</i>
		1196.928 <i>Total lbs Phase 1</i>	466.802 <i>Total lbs Phase 1</i>
<i>PM-2.5 Emissions</i>	$E = 0.053 * 0.0032 * (U/5)^{1.3}/(M/2)^{1.4}$	2.266 <i>lbs/day</i>	0.884 <i>lbs/day</i>
		181.249 <i>Total lbs Phase 1</i>	70.687 <i>Total lbs Phase 1</i>

Materials Handling (Gravel Batch Drop) ES Phase 1

Mean Wind Speed (U) 15 mph Average wind speed in Mendota, CA
 Moisture Content 2.1 % Assumed moisture content based on limestone products (Table 13.2.4-1 of EPA AP-42, Nov. 2006)
 Number of Daily Deliveries 104
 Material per drop 20 cubic yards
 Weight per cubic yard 1.35 tons

Total Days Operating:	22	Total Controlled ¹	
<i>PM-10 Emissions</i>	$E = 0.35 * 0.0032 * (U/5)^{1.3}/(M/2)^{1.4}$	12.252 <i>lbs/day</i>	4.778 <i>lbs/day</i>
		269.544 <i>Total lbs Phase 1</i>	105.122 <i>Total lbs</i>
<i>PM-2.5 Emissions</i>	$E = 0.053 * 0.0032 * (U/5)^{1.3}/(M/2)^{1.4}$	1.855 <i>lbs/day</i>	0.724 <i>lbs/day</i>
		40.817 <i>Total lbs Phase 1</i>	15.919 <i>Total lbs</i>

1. Assumes 61% of dust is reduced due to water control

Annual				
	Fugitive Dust From Grading		Mitigated Fugitive Dust From Grading	
Year	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
2020	142,342.58	51,229.80	136,645.41	50,575.77
2021	164.25	38.69	111.56	33.00
Total	142,506.83	51,268.50	136,756.97	50,608.77
Max Daily				
	Fugitive Dust From Grading		Mitigated Fugitive Dust From Grading	
Year	PM ₁₀ lbs	PM _{2.5} lbs	PM ₁₀ lbs	PM _{2.5} lbs
2020	2,098.46	726.27	1,948.25	709.33
2021	41.06	9.67	27.89	8.25
Total Max Daily	2,098.46	726.27	1,948.25	709.33

RE Solar Scarlet Project - 400 MW
On-Road Mobile Emissions (65 mph)¹

Solar Facility Phase 1 - Site Prep																	
Vehicle Type	Trips To Site	Trips from Site	No. of Trips (one-way)	Average Miles per Trip (one-way) ^{3,4,5}	Phase 1 Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Within SJVAPCD																	
Truck, mobilization																	
Water trucks (HHD)	4,282	4,282	8,564	5	42,820	4.87	5.55	22.06	270.44	133,310.55	10.87	4.97	1.44	0.48	0.45	61	
Equipment (HHD)	253	0	253	50	12,650	1.44	1.64	6.52	79.89	39,382.96	3.21	1.47	0.43	0.14	0.13	18	
Heavy Duty Diesel Truck (module and foundation delivery)	822	822	1,644	50	82,200	9.35	10.65	42.35	519.15	255,911.42	20.86	9.54	2.76	0.92	0.87	116	
Heavy Duty Diesel Truck (module and foundation delivery)	274	274	548	50	27,400	3.44	3.91	14.47	98.94	82,978.95	12.27	7.07	0.70	0.31	0.29	29	
Gasoline Passenger Vehicles	18,772	18,772	37,544	50	1,877,175	38.22	55.70	231.27	224.80	1,030,554.12	190.53	78.34	11.46	43.45	62.08	475	
						Total PV Phase 1 Emissions	67.32	77.44	2,397.67	1,193.22	1,522,138.00	237.75	101.40	16.79	45.31	63.82	698.68
	No. of Days: 81					Average Daily Emissions:	0.71	0.96	29.60	14.73	18,791.83	2.94	1.25	0.21	0.56	0.79	8.63
						Average Worst-Case Daily Emissions: ⁶	0.76	1.01	29.82	17.38	20,095.75	3.04	1.30	0.22	0.56	0.79	9.22
						Average Daily Emissions (w/o eqp delivery):	0.69	0.94	29.52	13.74	18,305.62	2.90	1.23	0.20	0.56	0.79	8.40

Energy Storage Phase 1 - Site Prep																	
Vehicle Type	Trips To Site ²	Trips from Site ²	No. of Trips (one-way)	Average Miles per Trip (one-way) ^{3,4,5}	Phase 1 Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Within SJVAPCD																	
Truck, mobilization																	
Water trucks (HHD)	1,584	1,584	3,168	5	15,840	1.80	2.05	8.16	100.04	49,314.32	4.02	1.84	0.53	0.18	0.17	22	
Equipment (HHD)	143	0	143	50	7,150	0.81	0.93	3.68	45.16	22,259.93	1.81	0.83	0.24	0.08	0.08	10	
Heavy Duty Diesel Truck (battery, container and foundation)	722	722	1,444	50	72,200	9.35	10.65	37.20	455.99	224,778.64	18.32	8.38	2.43	0.81	0.76	102	
Heavy Duty Diesel Truck (battery, container and foundation)	241	241	482	50	24,100	3.02	3.44	12.73	87.02	55,393.90	10.79	6.22	0.61	0.27	0.25	25	
Gasoline Passenger Vehicles	1,221	1,221	2,442	50	122,100	2.49	3.62	150.40	14.62	67,031.93	12.39	5.10	0.75	2.83	4.04	31	
						Total ES Phase 2 Emissions	16.34	19.40	212.17	702.84	418,778.72	47.35	22.37	4.56	4.17	5.30	190.64
	No. of Days: 22					Average Daily Emissions:	0.74	0.88	9.64	31.95	19,035.40	2.15	1.02	0.21	0.19	0.24	8.67
						Average Worst-Case Daily Emissions: ⁶	0.74	0.88	9.64	31.95	19,035.40	2.15	1.02	0.21	0.19	0.24	8.67
						Average Daily Emissions (w/o eqp delivery):	0.71	0.84	9.48	29.89	18,023.58	2.07	0.98	0.20	0.19	0.24	8.40

Solar Facility Phase 2 - Photovoltaic Array Installation																	
Vehicle Type	Trips To Site ²	Trips from Site ²	No. of Trips (one-way)	Average Miles per Trip (one-way) ^{3,4,5}	Phase 1 Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Within SJVAPCD																	
Truck, mobilization																	
Water trucks (HHD)	2,141	2,141	4,282	5	21,410	2.44	2.77	11.03	135.22	66,655.27	5.43	2.49	0.72	0.24	0.23	30	
Equipment (HHD)	79	241	320	50	16,000	1.82	2.07	8.24	101.05	49,812.44	4.06	1.86	0.54	0.18	0.17	23	
Heavy Duty Diesel Truck (module, tracker, foundation and inverter delivery)	4,178	4,178	8,356	50	417,800	47.54	54.12	215.26	2,638.70	1,300,727.37	106.04	48.51	14.05	4.70	4.42	591	
Heavy Duty Diesel Truck (module, tracker, foundation and inverter delivery)	1,393	1,393	2,786	50	139,300	17.48	19.90	73.59	503.00	320,181.33	62.39	35.94	3.55	1.57	1.47	145	
Gasoline Passenger Vehicles	121,824	121,824	243,648	50	12,182,400	248.02	361.45	15,006.04	1,458.90	6,688,040.53	1,236.51	508.42	74.39	282.01	402.87	3,086	
						Total PV Phase 2 Emissions	317.30	440.31	15,314.16	4,836.87	8,425,416.95	1,414.43	597.21	93.24	288.69	409.16	3,874.55
	No. of Days: 282					Average Daily Emissions:	1.13	1.56	54.31	17.15	29,877.37	5.02	2.12	0.33	1.02	1.45	13.74
						Average Worst-Case Daily Emissions: ⁷	1.16	1.60	54.46	19.09	30,832.83	5.09	2.15	0.34	1.03	1.45	14.17
						Average Daily Emissions (w/o eqp delivery):	1.12	1.55	54.28	16.79	29,700.73	5.00	2.11	0.33	1.02	1.45	13.66

Energy Storage Phase 2 - Foundations, Structures and DC Electrical System Installation																	
Vehicle Type	Trips To Site ²	Trips from Site ²	No. of Trips (one-way)	Average Miles per Trip (one-way) ^{3,4,5}	Phase 1 Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Within SJVAPCD																	
Truck, mobilization																	
Water trucks (HHD)	792	792	1,584	5	7,920	0.90	1.03	4.08	50.02	24,657.16	2.01	0.92	0.27	0.09	0.08	11	
Equipment (HHD)	14	142	156	50	7,800	0.89	1.01	4.02	49.26	24,283.57	1.98	0.91	0.26	0.09	0.08	11	
Heavy Duty Diesel Truck (battery and container delivery)	654	654	1,308	50	65,400	7.44	8.47	33.70	413.05	203,608.35	16.60	7.59	2.20	0.74	0.69	92	
Heavy Duty Diesel Truck (battery and container delivery)	218	218	436	50	21,800	2.74	3.11	11.52	78.72	50,107.34	9.76	5.62	0.56	0.25	0.23	23	
Gasoline Passenger Vehicles	8,222	8,222	16,443	50	822,150	16.74	24.39	1,012.71	98.46	451,353.80	83.45	34.31	5.02	19.03	27.19	208	
						Total ES Phase 2 Emissions	28.70	38.01	1,066.02	689.50	754,010.22	113.80	49.35	8.30	20.19	28.28	345.67
	No. of Days: 174					Average Daily Emissions:	0.16	0.22	6.13	3.96	4,333.39	0.65	0.28	0.05	0.12	0.16	1.99
						Average Worst-Case Daily Emissions: ⁷	0.18	0.24	6.19	4.80	4,745.73	0.69	0.30	0.05	0.12	0.16	2.17
						Average Daily Emissions (w/o eqp delivery):	0.16	0.21	6.10	3.68	4,193.83	0.64	0.28	0.05	0.12	0.16	1.92

Solar Facility Phase 3 - Inverters, Substation, and Connection																	
Vehicle Type	Trips To Site ²	Trips from Site ²	No. of Trips (one-way)	Average Miles per Trip (one-way) ^{3,4,5}	Phase 1 Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Within SJVAPCD																	
Truck, mobilization																	
Water trucks (HHD)	2,141	2,141	4,282	5	21,410	2.44	2.77	11.03	135.22	66,655.27	5.43	2.49	0.72	0.24	0.23	30	
Equipment (HHD)	68	159	227	50	11,350	1.29	1.47	5.85	71.68	35,335.70	2.88	1.32	0.38	0.13	0.12	16	
Heavy Duty Diesel Truck (inverter delivery)	93	93	186	50	9,300	1.06	1.20	4.79	58.74	28,953.48	2.36	1.08	0.31	0.10	0.10	13	
Heavy Duty Diesel Truck (inverter delivery)	31	31	62	50	3,100	0.39	0.44	1.64	11.19	7,125.36	1.39	0.80	0.08	0.03	0.03	3	
Gasoline Passenger Vehicles	9,529	9,529	19,058	50	952,875	19.40	28.27	1,173.73	114.11	523,120.78	96.72	39.77	5.82	22.06	31.51	241	
						Total PV Phase 3 Emissions	24.57	34.16	1,197.04	390.94	661,190.59	108.78	45.45	7.31	22.57	31.99	304.04
	No. of Days: 121					Average Daily Emissions:	0.20	0.28	9.89	3.23	5,464.39	0.90	0.38	0.06	0.19	0.26	2.51
						Average Worst-Case Daily Emissions: ⁷	0.22	0.30	9.98	4.27	5,975.44	0.94	0.39	0.07	0.19	0.27	2.74
						Average Daily Emissions (after first two months):	0.19	0.27	9.84	2.64	5,172.35	0.88	0.36	0.06	0.19	0.26	2.38

Energy Storage Phase 3 - Inverters, Substation, and AC																	
Vehicle Type	Trips To Site ²	Trips from Site ²	No. of Trips (one-way)	Average Miles per Trip (one-way) ^{3,4,5}	Phase 1 Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
Within SJVAPCD																	
Truck, mobilization																	
Water trucks (HHD)	792	792	1,584	5	7,920	0.90	1.03	4.08	50.02	24,657.16	2.01	0.92	0.27	0.09	0.08	11	
Equipment (HHD)	40	62	102	50	5,100	0.58	0.66	2.63	32.21	15,877.72	1.29	0.59	0.17	0.06	0.05	7	
Heavy Duty Diesel Truck (inverter delivery)	123	123	246	50	12,300	1.40	1.59	6.34	77.68	38,293.31	3.12	1.43	0.41	0.14	0.13	17	
Heavy Duty Diesel Truck (inverter delivery)	41	41	82	50	4,100	0.51	0.59	2.17	14.80	9,423.86	1.84	1.06	0.10	0.05	0.04	4	
Gasoline Passenger Vehicles	5,913	5,913	11,826	50	591,300	12.04	17.54	728.35	70.81	324,618.99	60.02	24.68	3.61	13.69	19.55	150	
						Total ES Phase 3 Emissions	15.43	21.41	743.56	245.53	412,871.03	68.28	28.67	4.57	14.02	19.87	189.84
	No. of Days: 146					Average Daily Emissions:	0.11	0.15	5.09	1.68	2,827.88	0.47	0.20	0.03	0.10	0.14	1.30

Average Worst-Case Daily Emissions: ⁷	0.11	0.16	5.13	2.19	3,079.99	0.49	0.21	0.03	0.10	0.14	1.41
Average Daily Emissions (after first two months):	0.10	0.14	5.07	1.46	2,719.13	0.46	0.19	0.03	0.10	0.14	1.25

Total Diesel Equipment Combustion Emissions												
	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e	
GRAND TOTAL	459.67	630.74	20930.63	8058.90	12194405.51	1990.38	844.46	134.77	394.94	558.41	5603.43	

PG&E Improvements																						
Vehicle Type	Trips to Site ²	Trips from Site ²	No. of Trips (one-way)	Average Miles per Trip (one-way) ^{3,4,5}	Phase 1 Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e						
PG&E Improvements Phase 1 - Site Work																						
Within SJVAPCD																						
Truck, mobilization																						
Concrete truck (MHDT)	63	63	126	50	6,300	0.79	0.90	3.33	22.75	14,480.56	2.82	1.63	0.16	0.07	0.07	7						
Heavy Duty Diesel Truck (material delivery)	693	693	1,386	115	159,390	18.13	20.65	82.12	1,006.66	496,225.31	40.45	18.51	5.36	1.79	1.69	225						
Gasoline Passenger Vehicles	709	709	1,418	50	70,875	1.44	2.10	87.30	8.49	38,909.81	7.19	2.96	0.43	1.64	2.34	18						
Total PG&E Phase 1 Construction Emissions						20.37	23.65	172.75	1,037.89	549,615.69	50.47	23.09	6.95	3.50	4.10	249.84						
No. of Days: 63						<i>Average Daily Emissions:⁸</i>						0.32	0.38	2.74	16.47	8,724.06	0.80	0.37	0.09	0.06	0.07	3.97
PG&E Improvements Phase 2 - Electrical Work																						
Within SJVAPCD																						
Truck, mobilization																						
Concrete truck (MHDT)	126	126	252	50	12,600	1.58	1.80	6.66	45.50	28,961.13	5.64	3.25	0.32	0.14	0.13	13						
Heavy Duty Diesel Truck (material delivery)	1,386	1,386	2,772	115	318,780	36.27	41.29	164.24	2,013.32	992,450.63	80.91	37.01	10.72	3.58	3.37	451						
Gasoline Passenger Vehicles	1,418	1,418	2,835	50	141,750	2.89	4.21	174.60	16.98	77,819.62	14.39	5.92	0.87	3.28	4.69	36						
Total PG&E Phase 2 Construction Emissions						40.74	47.30	345.50	2,075.79	1,099,231.37	100.94	46.18	11.90	7.01	8.19	499.68						
No. of Days: 126						<i>Average Daily Emissions:⁸</i>						0.32	0.38	2.74	16.47	8,724.06	0.80	0.37	0.09	0.06	0.07	3.97

Annual

Year	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e
2020	108.68	142.05	3,706.53	2,988.44	2,885,864.09	410.37	177.51	31.70	70.34	98.05	1,321.68
2021	412.09	559.63	17,742.36	8,184.15	10,957,388.48	1,731.42	736.21	120.92	335.12	472.66	5,031.26
Total	520.78	701.68	21,448.88	11,172.59	13,843,252.57	2,141.79	913.72	152.62	405.45	570.70	6,352.94

Daily

Year	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e
2020	2.98	3.87	96.67	84.89	78,688.03	11.09	4.84	0.86	1.84	2.55	36.02
2021	2.11	2.82	83.36	48.90	56,253.49	8.46	3.61	0.64	1.58	2.22	25.80
Total Max Daily	2.98	3.87	96.67	84.89	78,688.03	11.09	4.84	0.86	1.84	2.55	36.02

Operation																
Vehicle Type	Trips to Site (Daily) ²	Trips from Site (Daily) ²	No. of Daily Trips (one-way)	Average Miles per Trip (one-way) ^{3,4,5}	Phase 1 Vehicle Miles Traveled	ROG lbs	TOG lbs	CO lbs	NO _x lbs	CO ₂ lbs	PM ₁₀ lbs	PM _{2.5} lbs	SO _x lbs	CH ₄ lbs	N ₂ O lbs	MT of CO ₂ e
Water trucks (HHD)	65	65	130	5	650	0.07	0.08	0.33	4.11	2,023.63	0.16	0.08	0.02	0.01	0.01	1
Gasoline Passenger Vehicles	33	33	66	50	3,300	0.07	0.10	4.06	0.40	1,811.67	0.33	0.14	0.02	0.08	0.11	1
Daily Operational Emissions						0.14	0.18	4.40	4.50	3,835.30	0.50	0.21	0.04	0.08	0.12	1.75
<i>Annual Operational Emissions⁹</i>						36.70	47.35	1143.94	1170.10	997179.07	129.98	55.43	10.92	21.76	30.16	456.21

Note: 1 lb = 453.59 grams; MT = metric tons

- On-road emissions use mileage to determine running emissions from associated with vehicles vehicle. Starting and resting emissions are not included here, and are included with on-site emissions.
- Trip data source: Peters Engineering Group, 2018. Traffic Impact Study; Proposed Recurrent Energy Scarlet Solar Project. Appendix T
- All equipment except for water trucks were "delivered" to the site from Fresno area (50 miles). After delivery equipment stays on site.
- Water for construction will be trucked to the site from a well within 5 miles of the site.
- Employee transport to site assumes accounts for 25% carpooling reduction and assumes round trip of 100 miles from surrounding area of Fresno.
- Delivery of equipment takes a total of 22 days. Therefore worst case daily emissions are based on days equipment delivery trucks are on the road in addition to all other on-road vehicle use during the phase.
- Delivery and return of equipment occurs sequentially during phase, each occurring for 22 days. Therefore worst case daily emissions are based on days equipment delivery trucks are on the road (i.e. 44 days) in addition to all other on-road vehicle use during the phase.
- A delivery equipment schedule for the PG&E Switching facility has not been established, therefore only average daily emissions is estimated.
- Annual operation assumes there are 260 operation days/yr. Estimate is conservative as it assumes all employee trips and water truck trips take place every work day, however daily water needs and staffed employees would vary based on maintenance requirements.

RE Solar Scarlet Project - 400 MW

Fugitive Dust Emissions on Paved Roads in Kern County¹

Solar Facility Phase 1 - Site Prep				Number of Days		81
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor	PM _{2.5} lbs/mile factor	PM ₁₀ lbs	PM _{2.5} lbs	
Heavy Duty Diesel Trucks (HHD)	137,670	0.005	0.001	690.79	169.56	
Medium Heavy Duty Trucks (MHDT)	27,400	0.005	0.001	137.49	33.75	
Gasoline Passenger Vehicles (LDA)	1,877,175	0.005	0.001	9,419.18	2,311.98	
Total Pounds Per Day				126.51	31.05	
Total	2,042,245			10,247.46	2,515.29	

Energy Storage Phase 1 - Site Prep				Number of Days		22
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor	PM _{2.5} lbs/mile factor	PM ₁₀ lbs	PM _{2.5} lbs	
Heavy Duty Diesel Trucks (HHD)	95,190	0.005	0.001	477.64	117.24	
Medium Heavy Duty Trucks (MHDT)	24,100	0.005	0.001	120.93	29.68	
Gasoline Passenger Vehicles (LDA)	122,100	0.005	0.001	612.67	150.38	
Total Pounds Per Day				55.06	13.51	
Total	241,390			1,211.23	297.30	

Solar Facility Phase 2 - Photovoltaic Array Installation				Number of Days		282
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor	PM _{2.5} lbs/mile factor	PM ₁₀ lbs	PM _{2.5} lbs	
Heavy Duty Diesel Trucks (HHD)	455,210	0.005	0.001	2,284.13	560.65	
Medium Heavy Duty Trucks (MHDT)	139,300	0.005	0.001	698.97	171.57	
Gasoline Passenger Vehicles (LDA)	12,182,400	0.005	0.001	61,128.17	15,004.19	
Total Pounds Per Day				227.34	55.80	
Total	12,776,910			64,111.27	15,736.40	

Energy Storage Phase 2 - Foundations, Structures and DC Electrical System Installation				Number of Days		174
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor	PM _{2.5} lbs/mile factor	PM ₁₀ lbs	PM _{2.5} lbs	
Heavy Duty Diesel Trucks (HHD)	81,120	0.005	0.001	407.04	99.91	
Medium Heavy Duty Trucks (MHDT)	21,800	0.005	0.001	109.39	26.85	
Gasoline Passenger Vehicles (LDA)	822,150	0.005	0.001	4,125.34	1,012.58	
Total Pounds Per Day				26.68	6.55	
Total	925,070			4,641.77	1,139.34	

Solar Facility Phase 3 - Inverters, Substation, and Connection				Number of Days		121
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor	PM _{2.5} lbs/mile factor	PM ₁₀ lbs	PM _{2.5} lbs	
Heavy Duty Diesel Trucks (HHD)	42,060	0.005	0.001	211.05	51.80	
Medium Heavy Duty Trucks (MHDT)	3,100	0.005	0.001	15.56	3.82	
Gasoline Passenger Vehicles (LDA)	952,875	0.005	0.001	4,781.28	1,173.59	
Total Pounds Per Day				41.39	10.16	
Total	998,035			5,007.88	1,229.21	

Energy Storage Phase 3 - Inverters, Substation, and AC				Number of Days		146
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor	PM _{2.5} lbs/mile factor	PM ₁₀ lbs	PM _{2.5} lbs	
Heavy Duty Diesel Trucks (HHD)	25,320	0.005	0.001	127.05	31.18	
Medium Heavy Duty Trucks (MHDT)	4,100	0.005	0.001	20.57	5.05	
Gasoline Passenger Vehicles (LDA)	591,300	0.005	0.001	2,966.99	728.26	
Total Pounds Per Day				21.33	5.24	
Total	620,720			3,114.61	764.50	

Total Paved Road Dust Emissions from Solar Facility and Energy Storage Construction	Total Vehicle Miles Traveled			PM ₁₀ lbs	PM _{2.5} lbs
	17,604,370			88,334.23	21,682.04

PG&E Improvements				Number of Days		189
Vehicle Type	Total Vehicle Miles Traveled	PM ₁₀ lbs/mile factor	PM _{2.5} lbs/mile factor	PM ₁₀ lbs	PM _{2.5} lbs	
PG&E Improvements Phase 1 - Site Work				Number of Days:		63
Heavy Duty Diesel Trucks (HHD)	159,390	0.005	0.001	799.78	196.31	
Medium Heavy Duty Trucks (MHDT)	6,300	0.005	0.001	31.61	7.76	
Gasoline Passenger Vehicles (LDA)	70,875	0.005	0.001	355.63	87.29	
Total Pounds Per Day				226.69	55.64	
Total	236,565			1,187.02	291.36	
PG&E Improvements Phase 2 - Electrical Work				Number of Days:		126
Heavy Duty Diesel Trucks (HHD)	318,780	0.005	0.001	1,599.56	392.62	
Medium Heavy Duty Trucks (MHDT)	12,600	0.005	0.001	63.22	15.52	
Gasoline Passenger Vehicles (LDA)	141,750	0.005	0.001	711.27	174.58	
Total Pounds Per Day				12.56	3.08	
Total	473,130			2,374.05	582.72	

Annual

Year	PM ₁₀ lbs	PM _{2.5} lbs
2020	16,392.40	4,023.59
2021	75,502.90	18,532.53

Total	91,895.30	22,556.12
Daily		
Year	PM₁₀ lbs	PM_{2.5} lbs
2020	635.61	156.01
2021	309.25	75.91
Toatal Max Daily	635.61	156.01

Operational Phase Fugitive Dust Emissions on Paved Roads				Number of Days		260
Vehicle Type	Total Annual Vehicle Miles Traveled	PM ₁₀ lbs/mile factor	PM _{2.5} lbs/mile factor	PM ₁₀ lbs	PM _{2.5} lbs	
Heavy Duty Diesel Trucks (HHD)	169,000	0.005	0.001	848.00	208.15	
Gasoline Passenger Vehicles (LDA)	858,000	0.005	0.001	4,305.22	1,056.74	
Total Pounds Per Day				14.12	3.47	
Total	1,027,000			5,153.22	1,264.88	

Notes:

1. Emission factor calculation presented in "Emission Factors" tab

**RE Solar Scarlet Project - 400 MW
Decommissioning Emissions**

Off-road Equipment Emission Factors¹

Exhaust Emissions Factors for Equipment in San Joaquin Valley Unified APCD												
Equipment	Fuel Type	Consumption (gallons/hr)	Max HP	ROG lbs/hr	NOx lbs/hr	CO lbs/hr	Sox lbs/hr	PM10 lbs/hr	PM2.5 lbs/hr	CO ₂ lbs/hr	N ₂ O lbs/hr	CH ₄ lbs/hr
Crawler Tractors	Diesel	0.2658	300	0.0253	0.1286	0.2189	0.0009	0.0053	0.0049	101.7264	N/A	N/A
Crushing/Proc. E	Diesel	0.1736	175	0.0175	0.0833	0.4298	0.0007	0.0042	0.0038	73.3576	N/A	N/A
Tractors/Loaders	Diesel	0.1952	175	0.0127	0.0436	0.3611	0.0006	0.0019	0.0018	61.3559	N/A	N/A
Welders (cutting)	Diesel	0.0561	50	0.0101	0.1080	0.1422	0.0002	0.0010	0.0009	20.5733	N/A	N/A
Crane	Diesel	0.0162	300	0.0253	0.1286	0.2189	0.0009	0.0053	0.0049	101.7264	N/A	N/A

Notes:

1. CARB November 2017. OFFROAD2017 - ORION Web Database. Lifetime is anticipated to be 40 yrs (i.e. 2061), however 2050 is last year available via OFFROAD therefore emission factors for diesel operated equipment for Year 2050 were used.

On-Road Mobile Vehicle Emission Factors¹

Vehicle Type	Fuel Consumption (gallons/miles)	Speed	Running Emissions, grams/mile						PM2.5* (g/mile)				GHG	
			ROG	NOx	CO	CO ₂	SOX	Exhaust	Tire Wear	Brake	Exhaust	Tire Wear	Brake	N ₂ O
HHD, dsl	0.020	10	0.429	14.444	2.765	2,592.955	0.014	0.010	0.036	0.061	0.009	0.009	0.026	0.0048
LDT2, gas	0.102	10	0.020	0.040	0.659	574.608	0.002	0.003	0.008	0.037	0.003	0.002	0.016	0.0157
HHD, dsl	0.002	55	0.027	0.333	0.157	1,296.946	0.014	0.004	0.036	0.061	0.004	0.009	0.026	0.005
LDT2, gas	0.002	55	0.003	0.023	0.321	208.679	0.002	0.000	0.008	0.037	0.000	0.002	0.016	0.016
LDA, gas	0.001	55	0.003	0.019	0.242	168.650	0.002	0.000	0.037	0.001	0.000	0.002	0.016	0.015

Start Emissions, grams/trip (all cold start, assumes 60 minutes)

Vehicle Type	ROG	NOx	CO	CO ₂	PM10	PM2.5	SOX
HHD, dsl ²	0.000	0.000	0.000	0.000	0.000	0.000	0
LDT2, gas	0.013	0.017	0.478	51.425	0.001	0.001	0.0005212
LDA, gas	0.008	0.012	0.359	41.460	0.001	0.001	0.0004197

Additional ROG Emissions, grams/vehicle/day

Vehicle Type	g/vehicle/day		
	Diurnal	Hot Soak	Resting Losses
HHD, dsl ²	0.0	0.0	0.0
LDT2, gas	0.163	0.040	0.140
LDA, gas	0.082	0.033	0.069

Notes:

1. Source: San Joaquin Valley APCD Region, EMFAC 2014 Annual Average, Year 2050. Lifetime is anticipated to be 40 yrs (i.e. 2061), however 2050 is last year available via EMFAC therefore emission factors for on-road vehicles for Year 2050 were used.

2. Diesel engines do not have additional ROG emissions.

On-Site Equipment Combustion Emissions

Decommissioning of Solar Facility: Demolition of Solar Panels														
Equipment ¹	Number of Units ¹	Usage (hours/day) ¹	Total Days of Use ²	Total Hourly Usage (units*hours per day*days)	ROG (lbs)	NOx (lbs)	CO (lbs)	SOx (lbs)	PM ₁₀ (lbs)	PM _{2.5} (lbs)	CO ₂ (lbs)	N ₂ O (lbs)	CH ₄ (lbs)	CO _{2e} (metric tons)
Crawler Tractors	10	7	400	28000	707.77	3600.24	6129.25	26.32	147.68	135.87	2848337.88	N/A	N/A	1,292.0
Crushing/Proc. Equipment	15	7	400	42000	736.96	3497.53	18052.81	28.47	174.58	160.61	3081020.01	N/A	N/A	1,397.5
Tractors/Loaders/Backhoes	25	7	240	42000	534.37	1831.38	15164.32	23.81	81.20	74.71	2576946.11	N/A	N/A	1,168.9
Welders (cutting)	40	4	400	64000	649.58	6911.15	9102.23	12.16	65.12	59.91	1316693.26	N/A	N/A	597.2
TOTAL					2628.68	15840.29	48448.61	90.75	468.59	431.10	9822997.26	0.00	0.00	4455.64

On-Site Mobile Emissions

Decommissioning of Solar Facility: Demolition of Solar Panels														
Vehicle Type	Number of Units	Day Operating	Miles Traveled per Unit per Day	Total Onsite Vehicle Miles Traveled	ROG (lbs)	NOx (lbs)	CO (lbs)	SOx (lbs)	PM ₁₀ (lbs)	PM _{2.5} (lbs)	CO ₂ (lbs)	N ₂ O (lbs)	CH ₄ (lbs)	CO _{2e} (metric tons)
Onsite HHD, dsl	6	520	6	18720	17.71	596.12	114.13	0.57	4.40	1.83	107013.19	0.20	0.21	48.6
Onsite LDT2, All	15	520	6	46800	20087.30	1490.30	285.33	1.43	4.91	2.10	267534.67	0.50	0.53	121.4
TOTAL					20105.01	2086.42	399.46	2.00	9.31	3.93	374547.85	0.69	0.74	169.98

Off-Site Mobile Emissions

Decommissioning of Solar Facility: Demolition of Solar Panels														
Vehicle Type	Trips per Day	Day Operating	Miles Traveled per Trip	Total Off-site Vehicle Miles Traveled	ROG (lbs)	NOx (lbs)	CO (lbs)	SOx (lbs)	PM ₁₀ (lbs)	PM _{2.5} (lbs)	CO ₂ (lbs)	N ₂ O (lbs)	CH ₄ (lbs)	CO _{2e} (metric tons)
Offsite HHD, dsl	6	520	100	312000	18.34	229.30	108.29	9.52	69.75	27.12	892098.81	3.30	3.51	405.1
LDA, All	75	520	100	3900000	22.77	167.21	2082.92	16.19	324.82	156.42	1450062.35	128.97	90.28	674.4
TOTAL					41.11	396.52	2191.21	25.71	394.57	183.54	2342161.15	132.27	93.79	1079.48

Onsite Fugitive Dust

Decommissioning of Solar Facility: Demolition of Solar Panels													
Vehicle Type	Total Vehicle Miles Traveled ³	No Additional Control				With Water Control [*]		With Palliative Control					
		PM10 lbs/mile factor ⁴	PM2.5 lbs/mile factor	PM10 lbs	PM2.5 lbs	PM10 lbs	PM2.5 lbs	PM10 lbs	PM2.5 lbs				
[Data for Fugitive Dust emissions is not explicitly provided in the table body]													

Construction Equipment	35,000	2.27	0.227	79,416.31	7,941.63	35737.3	3573.7	12706.6	1270.7
Heavy Duty Diesel Truck	18,720	2.27	0.227	42,476.38	4,247.64	19114.4	1911.4	6796.2	679.6
Light Duty Trucks	46,800	2.27	0.227	106,190.95	10,619.10	47785.9	4778.6	16990.6	1699.1
TOTAL				228,083.65	22,808.36	102,637.64	10,263.76	36,493.38	3,649.34

Solar Facility TOTAL

Emission Type/Source	Emissions (tons)							With Water Control		With Palliative Control	
	ROG	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}	CO _{2e}	PM ₁₀ (tons)	PM _{2.5} (tons)	PM ₁₀ (tons)	PM _{2.5} (tons)
Exhaust	11.4	9.0	0.0	24.4	0.2	0.2	4625.62	0.2	0.2	0.2	0.2
Off-Road Vehicles	0.0	0.2	0.0	1.1	0.2	0.1	1079.48	0.2	0.1	0.2	0.1
Fugitive Dust	-	-	-	-	114.0	11.4	-	51.3	5.1	18.2	1.8
TOTAL	11.4	9.2	0.1	25.5	114.5	11.7	5,705.1	51.8	5.4	18.7	0.0
<i>Emissions per year</i>	<i>5.7</i>	<i>4.6</i>	<i>0.0</i>	<i>12.8</i>	<i>57.2</i>	<i>5.9</i>	<i>2,852.5</i>	<i>25.9</i>	<i>2.7</i>	<i>9.3</i>	<i>0.0</i>

On-Site Equipment Combustion Emissions

Decommissioning of PG&E Switching Station: Removal of bus bars, transformers, batteries, etc.

Equipment ¹	Number of Units ¹	Usage (hours/day) ¹	Total Days of Use ²	Total Hourly Usage (units*hours per day*days)	ROG (lbs)	NO _x (lbs)	CO (lbs)	SO _x (lbs)	PM ₁₀ (lbs)	PM _{2.5} (lbs)	CO ₂ (lbs)	N ₂ O (lbs)	CH ₄ (lbs)	CO _{2e} (metric tons)
Crane	1	6	4	24	0.61	3.09	5.25	0.02	0.13	0.12	2441.43	N/A	N/A	1.1
Crushing/Proc. Equipment	1	7	40	280	4.91	23.32	120.35	0.19	1.16	1.07	20540.13	N/A	N/A	9.3
Tractors/Loaders/Backhoes	1	7	40	280	3.56	12.21	101.10	0.16	0.54	0.50	17179.64	N/A	N/A	7.8
Welders (cutting)	1	4	40	160	1.62	17.28	22.76	0.03	0.16	0.15	3291.73	N/A	N/A	1.5
TOTAL					10.71	55.89	249.46	0.40	1.99	1.84	43452.94	0.00	0.00	19.71

On-Site Mobile Emissions

Decommissioning of PG&E Switching Station: Removal of bus bars, transformers, batteries, etc.

Vehicle Type	Number of Units	Day Operating	Miles Traveled per Unit per Day	Total Onsite Vehicle Miles Traveled	ROG (lbs)	NO _x (lbs)	CO (lbs)	SO _x (lbs)	PM ₁₀ (lbs)	PM _{2.5} (lbs)	CO ₂ (lbs)	N ₂ O (lbs)	CH ₄ (lbs)	CO _{2e} (metric tons)
Onsite HDD, dsl	3	40	0.25	30	0.03	0.96	0.18	0.00	0.01	0.00	171.50	0.00	0.00	0.1
TOTAL					0.03	0.96	0.18	0.00	0.01	0.00	171.50	0.00	0.00	0.08

Off-Site Mobile Emissions

Decommissioning of PG&E Switching Station: Removal of bus bars, transformers, batteries, etc.

Vehicle Type	Number of Units	Day Operating	Miles Traveled per Unit per Day	Total Onsite Vehicle Miles Traveled	ROG (lbs)	NO _x (lbs)	CO (lbs)	SO _x (lbs)	PM ₁₀ (lbs)	PM _{2.5} (lbs)	CO ₂ (lbs)	N ₂ O (lbs)	CH ₄ (lbs)	CO _{2e} (metric tons)
Offsite HHD, dsl	3	40	100	12000	0.71	8.82	4.16	0.37	2.68	1.04	34311.49	0.13	0.13	15.6
LDA, All	23	40	100	92000	0.54	3.94	49.14	0.38	7.66	3.69	34206.60	3.04	2.13	15.9
TOTAL					0.54	3.94	49.14	0.38	7.66	3.69	34206.60	3.04	2.13	31.49

Onsite Fugitive Dust

Decommissioning of PG&E Switching Station: Removal of bus bars, transformers, batteries, etc.

Vehicle Type	Total Vehicle Miles Traveled ³	PM10 lbs/mile factor ⁴	PM2.5 lbs/mile factor	No Additional Control		With Water Control *		With Palliative Control	
				PM10 lbs	PM2.5 lbs	PM10 lbs	PM2.5 lbs	PM10 lbs	PM2.5 lbs
Construction Equipment	152	2.27	0.227	344.89	34.49	155.2	15.5	55.2	5.5
Heavy Duty Diesel Truck	30	2.27	0.227	68.07	6.81	30.6	3.1	10.9	1.1
TOTAL				412.96	41.30	185.83	18.58	66.07	6.61

PG&E TOTAL

Emission Type/Source	Emissions (tons)							With Water Control		With Palliative Control	
	ROG	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}	CO _{2e}	PM ₁₀ (tons)	PM _{2.5} (tons)	PM ₁₀ (tons)	PM _{2.5} (tons)
Exhaust	0.0	0.0	0.0	0.1	0.0	0.0	19.8	0.0	0.0	0.0	0.0
On-Road Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	31.49	0.0	0.0	0.0	0.0
Fugitive Dust	-	-	-	-	114.0	11.4	-	0.1	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.1	0.2	0.0	51.3	0.1	0.0	0.0	0.0
<i>Emissions per year</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>25.6</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>

TOTAL

Emission Type/Source	Emissions (tons)							With Water Control		With Palliative Control	
	ROG	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}	CO _{2e}	PM ₁₀ (tons)	PM _{2.5} (tons)	PM ₁₀ (tons)	PM _{2.5} (tons)
Exhaust	11.4	9.0	0.0	24.5	0.2	0.2	4,645.4	0.2	0.2	0.2	0.2
On-Road Vehicles	0.0	0.2	0.0	1.1	0.2	0.1	1,111.0	0.2	0.1	0.2	0.1
Fugitive Dust	-	-	-	-	114.0	11.4	-	51.4	5.1	18.3	1.8
TOTAL	11.4	9.2	0.1	25.7	114.7	11.7	5,756.4	51.9	5.5	18.7	0.0
<i>Emissions per year</i>	<i>5.7</i>	<i>4.6</i>	<i>0.0</i>	<i>12.8</i>	<i>57.3</i>	<i>5.9</i>	<i>2,878.2</i>	<i>25.9</i>	<i>2.7</i>	<i>9.4</i>	<i>0.0</i>

Notes:

- Types, number of equipment, and hours of use were assumed to be the same as estimated for RE Tranquility Solar Facility as the two Solar facilities are similar in size.
- Decommissioning of Solar Facility will take 2 years (260 working days assumed per year = 520 days); decommissioning of switching stations estimated based on Tranquility decommissioning timeline
- Assumed transit of 0.5 mile per day for construction equipment
- Conservatively assumes untreated soil although per PD all onsite roads will at minimum have been compacted and likely treated with a palliative or gravel.

Solar Facility and Energy Storage Construction Phase Emissions Within SJV Air Basin

Emission Type	Source	Emissions (tons per phase)						With Water Control		With Palliative Control	
		ROG	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}	PM ₁₀ (tons)	PM _{2.5} (tons)	PM ₁₀ (tons)	PM _{2.5} (tons)
Solar Facility Phase 1 - Site Prep											
Exhaust	Off Road Construction Equipment	4.8	43.6	0.045	56.7	2.0	1.8	2.0	1.8	2.0	1.8
	On-Road Vehicles	0.1	1.2	0.0	2.1	0.1	0.1	0.1	0.1	0.1	0.1
Fugitive Dust	Off Road Construction Activity	-	-	-	-	189.7	36.7	120.3	29.7	84.7	26.2
	On-Road Vehicles (resuspended)	-	-	-	-	5.1	1.3	5.1	1.3	5.1	1.3
Subtotal Phase 1		4.9	44.9	0.1	58.8	196.9	39.8	127.5	32.8	91.9	29.3
Energy Storage Phase 1 - Site Prep											
Exhaust	Off Road Construction Equipment	0.6	5.1	0.01	10.4	0.4	0.2	0.4	0.2	0.4	0.2
	On-Road Vehicles	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	33.3	4.1	16.3	2.4	7.8	1.5
	On-Road Vehicles (resuspended)	-	-	-	-	0.6	0.1	0.6	0.1	0.6	0.1
Subtotal Phase 1		0.7	5.3	0.0	10.8	34.3	4.4	17.4	2.7	8.8	1.8
Solar Facility Phase 2 - Photovoltaic Array Installation											
Exhaust	Off Road Construction Equipment	0.5	5.5	0.01	3.3	0.3	0.2	0.3	0.2	0.3	0.2
	On-Road Vehicles	0.2	3.0	0.05	8.0	0.7	0.3	0.7	0.3	0.7	0.3
Fugitive Dust	Off Road Construction Activity	-	-	-	-	177.61	17.8	79.9	8.0	28.4	2.8
	On-Road Vehicles (resuspended)	-	-	-	-	32.06	7.9	32.1	7.9	32.1	7.9
Subtotal Phase 2		0.7	8.5	0.1	11.3	210.7	26.2	113.0	16.4	61.5	11.3
Energy Storage Phase 2 - Foundations, Structures and DC Electrical System Installation											
Exhaust	Off Road Construction Equipment	0.2	2.6	0.0	1.5	0.1	0.1	0.1	0.1	0.1	0.1
	On-Road Vehicles	0.0	0.4	0.0	1.1	0.1	0.0	0.1	0.0	0.1	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	13.5	1.3	6.1	0.6	2.2	0.2
	On-Road Vehicles (resuspended)	-	-	-	-	2.3	0.6	2.3	0.6	2.3	0.6
Subtotal Phase 2		0.2	3.0	0.0	2.6	16.0	2.1	8.6	1.3	4.7	0.9
Solar Facility Phase 3 - Inverters, Substation, and Connection											
Exhaust	Off Road Construction Equipment	0.5	5.6	0.0	3.4	0.3	0.3	0.3	0.3	0.3	0.3
	On-Road Vehicles	0.0	0.4	0.0	0.6	0.1	0.0	0.1	0.0	0.1	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	19.3	1.9	8.7	0.9	3.1	0.3
	On-Road Vehicles (resuspended)	-	-	-	-	2.5	0.6	2.5	0.6	2.5	0.6
Subtotal Phase 3		0.5	6.1	0.0	4.1	22.1	2.8	11.5	1.8	6.0	1.2
Energy Storage Phase 3 - Inverters, Substation, and AC											
Exhaust	Off Road Construction Equipment	0.3	3.2	0.0	2.0	0.2	0.2	0.2	0.2	0.2	0.2
	On-Road Vehicles	0.0	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	8.3	0.8	3.7	0.4	1.3	0.1
	On-Road Vehicles (resuspended)	-	-	-	-	1.6	0.4	1.6	0.4	1.6	0.4
Subtotal Phase 3		0.3	3.4	0.0	2.4	10.0	1.4	5.5	0.9	3.1	0.7
Solar Facility Emissions Construction (All Phases)		7.4	71.2	0.1	90.0	490.0	76.7	283.4	56.0	175.9	45.2
PG&E Improvements Phase 1 - Site Work											
Exhaust	Off Road Construction Equipment	0.02	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Vehicles	0.01	0.53	0.00	0.09	0.03	0.01	0.0	0.0	0.0	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	1.6	0.2	0.7	0.1	0.3	0.1
	On-Road Vehicles (resuspended)	-	-	-	-	0.6	0.1	0.6	0.1	0.6	0.1
Subtotal Phase 1		0.0	0.7	0.0	0.2	2.2	0.3	1.4	0.3	1.0	0.2
PG&E Improvements Phase 2 - Electrical Work											
Exhaust	Off Road Construction Equipment	0.03	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Vehicles	0.02	1.0	0.01	0.2	0.1	0.0	0.1	0.0	0.1	0.0
Fugitive Dust	Off Road Construction Activity	-	-	-	-	1.4	0.1	0.6	0.1	0.2	0.0
	On-Road Vehicles (resuspended)	-	-	-	-	1.2	0.3	1.2	0.3	1.2	0.3
Subtotal Phase 1		0.1	1.4	0.0	0.3	2.7	0.5	1.9	0.4	1.5	0.4
PG&E Improvements Construction		0.1	2.2	0.0	0.6	4.9	0.8	3.3	0.7	2.5	0.6
Project Emissions Construction Total		7.4	73.3	0.2	90.6	494.9	77.5	286.7	56.6	178.4	45.8
Emissions Construction Year 1, tons¹		5.2	49.2	0.1	62.6	218.5	42.7	139.2	34.7	98.5	30.6
SJVAPCD Tons/Yr Threshold		10	10	27	100	15	15	15	15	15	15
Exceed Threshold?		No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Emissions Construction Year 2, tons		2.2	24.1	0.1	28.0	276.3	34.8	147.5	21.9	79.9	15.2
SJVAPCD Tons/Yr Threshold		10	10	27	100	15	15	15	15	15	15
Exceed Threshold?		No	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Total Construction lbs/day (annualized)¹		57.2	564.0	1.2	696.7	3,806.7	596.0	1,134.3	168.7	614.8	116.7
SJVAPCD Lbs/day Threshold		100	100	100	100	200	100	100	100	100	100
Exceed Threshold?		No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

1. Year 1 timing assumes construction start first week of July 1, 2019

Solar Facility and Energy Storage Average Daily Construction Phase Emissions Within SJV Air Basin

Emission Type	Source	Emissions (lbs per day per phase)						With Water Control		With Palliative Control	
		ROG	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
Solar Facility Phase 1 - Site Prep											
Exhaust	Off Road Construction Equipment	118.1	1,077.4	1.1	1,399.9	48.2	44.0	48.2	44.0	48.2	44.0
	On-Road Vehicles	2.9	30.2	0.2	52.1	3.3	1.4	3.3	1.4	3.3	1.4
Fugitive Dust	Off Road Construction Activity	-	-	-	-	4,683.8	906.6	2,970.2	734.4	2,091.8	646.6
	On-Road Vehicles (resuspended)	-	-	-	-	126.5	31.1	126.5	31.1	126.5	31.1
Subtotal Phase 1		121.1	1,107.6	1.35	1,452	4,861.9	983.0	3,148.2	810.9	2,269.9	723.1
Energy Storage Phase 1 - Site Prep											
Exhaust	Off Road Construction Equipment	56.6	465.0	0.7	948.7	36.3	16.4	36.3	16.4	36.3	16.4
	On-Road Vehicles	2.8	20.5	0.0	29.2	2.5	1.2	2.5	1.2	2.5	1.2
Fugitive Dust	Off Road Construction Activity	-	-	-	-	3,028.1	369.1	1,483.7	213.7	709.1	136.2
	On-Road Vehicles (resuspended)	-	-	-	-	55.1	13.5	55.1	13.5	55.1	13.5
Subtotal Phase 1		59.4	485.5	0.7	977.9	3,122.0	400.1	1,577.6	244.8	802.9	167.3
Solar Facility Phase 2 - Photovoltaic Array Installation											
Exhaust	Off Road Construction Equipment	3.4	38.9	0.0	23.6	1.8	1.7	1.8	1.7	1.8	1.7
	On-Road Vehicles	1.7	21.0	0.3	56.6	5.2	2.2	5.2	2.2	5.2	2.2
Fugitive Dust	Off Road Construction Activity	-	-	-	-	1,259.6	126.0	566.8	56.7	201.5	20.2
	On-Road Vehicles (resuspended)	-	-	-	-	227.3	55.8	227.3	55.8	227.3	55.8
Subtotal Phase 2		5.0	59.9	0.4	80.3	1,494.0	185.7	801.2	116.4	435.9	79.9
Energy Storage Phase 2 - Foundations, Structures and DC Electrical System Installation											
Exhaust	Off Road Construction Equipment	2.6	29.6	0.0	17.6	1.4	1.3	1.4	1.3	1.4	1.3
	On-Road Vehicles	0.2	5.1	0.0	12.6	0.7	0.3	0.7	0.3	0.7	0.3
Fugitive Dust	Off Road Construction Activity	-	-	-	-	154.8	15.5	69.6	7.0	24.8	2.5
	On-Road Vehicles (resuspended)	-	-	-	-	26.7	6.5	26.7	6.5	26.7	6.5
Subtotal Phase 2		2.8	34.6	0.1	30.1	183.5	23.6	98.4	15.1	53.5	10.6
Solar Facility Phase 3 - Inverters, Substation, and Connection											
Exhaust	Off Road Construction Equipment	8.3	93.0	0.1	56.5	4.5	4.2	4.5	4.2	4.5	4.2
	On-Road Vehicles	0.4	7.1	0.1	10.7	0.9	0.4	0.9	0.4	0.9	0.4
Fugitive Dust	Off Road Construction Activity	-	-	-	-	318.3	32.0	143.5	14.5	51.6	5.3
	On-Road Vehicles (resuspended)	-	-	-	-	41.4	10.2	41.4	10.2	41.4	10.2
Subtotal Phase 3		8.7	100.2	0.2	67.2	365.1	46.7	190.4	29.2	98.5	20.0
Energy Storage Phase 3 - Inverters, Substation, and AC											
Exhaust	Off Road Construction Equipment	4.1	44.3	0.1	28.1	2.4	2.2	2.4	2.2	2.4	2.2
	On-Road Vehicles	0.2	2.9	0.0	5.3	0.5	0.2	0.5	0.2	0.5	0.2
Fugitive Dust	Off Road Construction Activity	-	-	-	-	113.3	11.3	51.0	5.1	18.1	1.8
	On-Road Vehicles (resuspended)	-	-	-	-	21.3	5.2	21.3	5.2	21.3	5.2
Subtotal Phase 3		4.3	47.1	0.1	33.4	137.6	19.0	75.2	12.8	42.4	9.5
PG&E Improvements Phase 1 - Site Work											
Exhaust	Off Road Construction Equipment	0.6	5.8	0.0	4.0	0.3	0.3	0.3	0.3	0.3	0.3
	On-Road Vehicles	0.4	16.9	0.1	2.9	0.8	0.4	0.8	0.4	0.8	0.4
Fugitive Dust	Off Road Construction Activity	-	-	-	-	49.7	5.7	23.5	3.0	11.0	1.8
	On-Road Vehicles (resuspended)	-	-	-	-	18.8	4.6	18.8	4.6	18.8	4.6
Subtotal Phase 3		1.0	22.8	0.1	6.9	69.7	11.0	43.4	8.3	31.0	7.1
PG&E Improvements Phase 2 - Electrical Work											
Exhaust	Off Road Construction Equipment	0.5	6.2	0.0	2.6	0.2	0.2	0.2	0.2	0.2	0.2
	On-Road Vehicles	0.3	16.6	0.1	2.8	0.8	0.4	0.8	0.4	0.8	0.4
Fugitive Dust	Off Road Construction Activity	-	-	-	-	22.6	2.3	10.2	1.0	3.6	0.4
	On-Road Vehicles (resuspended)	-	-	-	-	18.8	4.6	18.8	4.6	18.8	4.6
Subtotal Phase 3		0.8	22.8	0.1	5.5	42.5	7.5	30.1	6.2	23.5	5.6

Max daily On-site Construction Emissions by Year for Project

Emission Type	Source	Emissions (Max Daily lbs)						With Water Control	
		ROG	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}	PM ₁₀ (lbs)	PM _{2.5} (lbs)
2020									
Exhaust	Off Road Construction Equipment	178.7	1,587.1	1.8	2,376.2	68.5	62.3	68.5	62.3
	On-Site Vehicles	6.4	39.1	0.1	47.4	0.9	0.5	0.9	0.5
Fugitive Dust	On-site Construction Activity	-	-	-	-	9,101	1,427	5,099	1,024
Subtotal		185.0	1,626.2	1.9	2,423.6	9,170.5	1,489.3	5,168.8	1,087.2
SJVAPCD Daily Threshold		100	100	100	100	100	100	100	100
Exceed Threshold?		Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
2021									
Exhaust	Off Road Construction Equipment	18.9	212.0	0.3	128.4	10.4	9.6	10.4	9.6
	On-Site Vehicles	2.1	10.3	0.0	6.2	0.2	0.1	0.2	0.1
Fugitive Dust	On-site Construction Activity	-	-	-	-	1,908	196	868	92

PG&E Improvements Construction Phase Emissions

Emission Type	Source	Emissions (tons per year)						With Water Control		With Palliative Control	
		ROG	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}	PM ₁₀ (tons)	PM _{2.5} (tons)	PM ₁₀ (tons)	PM _{2.5} (tons)
Exhaust	Off Road Construction Equipment	0.0	0.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
	On-Road Vehicles	0.0	1.6	0.0	0.3	0.1	0.0	0.1	0.0	0.1	0.0
Fugitive Dust	Off Road Construction Activity	0.0	0.0	0.0	0.0	3.0	0.3	1.4	0.2	0.6	0.1
	On-Road Vehicles (resuspended)	0.0	0.0	0.0	0.0	1.8	0.4	1.8	0.4	1.8	0.4
Total Switching Facility Construction Emissions		0.1	2.2	0.0	0.6	4.9	0.8	3.3	0.7	2.5	0.6
SJVAPCD Tons/Yr Threshold		10	10	27	100	15	15	15	15	15	15
Exceed Threshold?		No	No	No	No	No	No	No	No	No	No

Note: Numbers may not add because of rounding.

Decommissioning Phase

Emission Type/Source		Emissions (tons)						With Water Control		With Palliative Control	
		ROG	NO _x	SO _x	CO	PM ₁₀	PM _{2.5}	PM ₁₀ (tons)	PM _{2.5} (tons)	PM ₁₀ (tons)	PM _{2.5} (tons)
Exhaust	Off Road Construction Equipment	11.4	9.0	0.0	24.5	0.2	0.2	0.2	0.2	0.2	0.2
	On-Road Vehicles	0.0	0.2	0.0	1.1	0.2	0.1	0.2	0.1	0.2	0.1
Fugitive Dust	Off Road Construction Activity	-	-	-	-	114.2	11.4	51.4	5.1	18.3	1.8
Totals		11.4	9.2	0.1	25.7	114.7	11.7	51.9	5.5	18.7	2.1
Emissions per year		5.7	4.6	0.0	12.8	57.3	5.9	25.9	2.7	9.4	1.1
SJVAPCD Tons/Year Threshold		10	10	27	100	15	15	15	15	15	15
Exceed Threshold?		No	No	No	No	Yes	No	Yes	No	No	No
Total Operations lbs/day (annualized)¹		43.8	35.4	0.2	98.7	441.1	45.1	199.4	21.0	72.0	8.2
SJVAPCD Lbs/day Threshold		100	100	100	100	200	100	100	100	100	100
Exceed Threshold?		No	No	No	No	Yes	No	Yes	No	No	No

1. Annualized at 260 working days per year

2. Switching Facility has negligible fugitive dust as it will be completely paved or graveled.

Solar Facility and Energy Storage Operational Phase¹

Emission Type	Source	Emissions (tons per year)					
		ROG	NO _x	SO _x	CO	PM ₁₀ ²	PM _{2.5} ²
Exhaust	On Road and On Site Vehicles	0.3	1.0	0.007	16.0	0.1	0.0
Fugitive Dust	Maintenance Vehicles	-	-	-	-	34.2	3.8
Total		0.3	1.0	0.0	16.0	34.3	3.8
SJVAPCD Tons/Year Threshold		10	10	27	100	15	15
Exceed Threshold?		No	No	No	No	Yes	No
Total Operations lbs/day (annualized)³		2.1	8.0	0.1	122.8	263.6	29.5

1. The switching facility is remotely operated and would have negligible emissions during the operational phase.

2. Assumes maintenance vehicles are traveling on 100% gravel roads

3. Annualized at 260 working days per year

Construction Ambient Air Quality Assessment Summary

GRP	UTM		Max 1-hr Concentration $\mu\text{g}/\text{m}^3$	Max 1-hr Concentration ppb	Pollutant	Pollutant Id (AERMOD)	Background Concentration (ppb)	Background + Max Modeled concentration (ppb)	CAAQ 1-hr std (ppb)	Exceed CAAQS?	NAAQ 1-hr std (ppb)	Exceed NAAQS?
	East	North										
PROPERTY	740090	4054176	8.318028	4.236995513	ROG	16113 (ozone surrogate)	36.675	40.91199551	90	No	-	N/A
PROPERTY	740090	4054176	91.96421	80.27579202	CO	42101	419.0083333	499.2841254	9000	No	9000	No
PROPERTY	740090	4054176	78.92599	41.94176169	NOx	42603 (NO2 surrogate)	21.25416667	63.19592836	180	No	100	No
PROPERTY	740090	4054176	0.08922412	0.034049161	Sox	42401 (SO2 surrogate)	0.791666667	0.026955586	250	No	75	No
GRP	UTM		Average Concentration $\mu\text{g}/\text{m}^3$	Pollutant	Pollutant Id	Background Concentration	Background + Max Modeled concentration	CAAQ Annual std (ppb)	Exceed CAAQS?	NAAQ Annual std (ppb)	Exceed NAAQS?	
East	North											
PROPERTY	739368.3	4052556	9.730496	PM10	85101 (PM	46.25	55.980496	20	Yes	-	N/A	
PROPERTY	739368.3	4052556	1.429004	PM2.5	88101 (PM:	24.20833333	25.63733733	12	Yes	12	Yes	

- Notes:
1. Only the maximum modeled concentration at the fence line is displayed, however all modeled fence line concentrations (~1,000 modeled points) were evaluated for each criteria pollutant.
 2. Standards for ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide are reported in ppb. Particulate matter is reported in $\mu\text{g}/\text{m}^3$.
 3. Concentrations of criteria pollutants was determined at property line receptors via AERMOD; results are conservative and do not include incorporation of fugitive dust control measures that would be required per Rule VIII.
 4. For ROG, CO, NO_x, and SO_x the max 1-hr concentration at the property line receptors was compared to the 1-hr state and federal standard. For PM₁₀ and PM_{2.5} the period average concentration was compared to the annual state and federal standard.
 5. Background concentration of each pollutant was determined as the average daily concentration during 2018 given the max and min concentration measured. Data was obtained from CARB's Air Quality and Meteorological Information (AQMIS) data base for Fresno County.

Operation Ambient Air Quality Assessment Summary

GRP	UTM		Max 1-hr Concentration µg/m ³	Max 1-hr Concentration ppb	Pollutant	Pollutant Id (AERMOD)	Background Concentration (ppb)	Background + Max Modeled concentration (ppb)	CAAQ 1-hr std (ppb)	Exceed CAAQS?	NAAQ 1-hr std (ppb)	Exceed NAAQS?
	East	North										
PROPERTY	740090	4054176	0.2207206	0.112429556	ROG	16113 (ozone surrogate)	36.675	36.78742956	90	No	-	N/A
PROPERTY	740090	4054176	12.81961	11.19027006	CO	42101	419.0083333	430.1986034	9000	No	9000	No
PROPERTY	740090	4054176	0.8317352	0.441989255	NOx	42603 (NO2 surrogate)	21.25416667	21.69615592	180	No	100	No
PROPERTY	740090	4054176	0.005842189	0.00222946	Sox	42401 (SO2 surrogate)	0.791666667	0.001764989	250	No	75	No
GRP	UTM		Average Concentration µg/m ³	Pollutant	Pollutant Id	Background Concentration	Background + Max Modeled concentration	CAAQ Annual std (ppb)	Exceed CAAQS?	NAAQ Annual std (ppb)	Exceed NAAQS?	
	East	North										
PROPERTY	739368.3	4052556	1.374585	PM10	85101 (PM ₁₀)	46.25	47.624585	20	Yes	-	N/A	
PROPERTY	739368.3	4052556	0.1377272	PM2.5	88101 (PM _{2.5})	24.20833333	24.34606053	12	Yes	12	Yes	

- Notes:
1. Only the maximum modeled concentration at the fence line is displayed, however all modeled fence line concentrations (~1,000 modeled points) were evaluated for each criteria pollutant.
 2. Standards for ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide are reported in ppb. Particulate matter is reported in µg/m³.
 3. Concentrations of criteria pollutants was determined at property line receptors via AERMOD; results are conservative and do not include incorporation of fugitive dust control measures that would be required per Rule VIII.
 4. For ROG, CO, NO_x, and SO_x the max 1-hr concentration at the property line receptors was compared to the 1-hr state and federal standard. For PM₁₀ and PM_{2.5} the period average concentration was compared to the annual state and federal standard.
 5. Background concentration of each pollutant was determined as the average daily concentration during 2018 given the max and min concentration measured. Data was obtained from CARB's Air Quality and Meteorological Information (AQMIS) data base for Fresno County.

Total GHG Emissions From Construction and Decommissioning

Phase	Location/Activity	Source			MT of CO ₂ e
Construction	Solar Facility and Energy	Construction Equipment and On-site Mobile			7,713
		On Road Vehicles			5,603
	Switching Facility	Construction Equipment and On-site Mobile			51
		On Road Vehicles			500
	Electricity Generation	Embedded Energy in Water Consumption ¹	Total AF Used:	360.0	68
Decommissioning	Solar Facility and Energy	Construction Equipment and On-site Mobile			4,626
		On Road Vehicles			1,079
	Switching Facility	Construction Equipment and On-site Mobile			20
		On Road Vehicles			31
Total				19,691	
Amortized				563	

Note: Numbers have been rounded to the nearest metric ton (MT).

1. Per section 2.0, *Project Description*, an estimated 360 acre feet of water will be used during construction for dust suppression purposes associated with grading activities. No grading activities anticipated for decommissioning therefore water consumption for decommissioning activities not included here.

Total GHG Emissions from Operational Activities¹

Source			MT of CO ₂ e	
			Annual	Lifetime
On-site Mobile and Maintenance Equipment			186	6,512
On Road Vehicles			456	15,968
Indirect from Water Use ²	Annual AF Used:	20.0	4	133
Total			646	22,612

Note: that numbers have been rounded to the nearest metric ton.

1. The switching facility is remotely operated and would have negligible emissions during the operational phase.

2. Embedded energy in water consumption estimated from Applicant provided annual water usage

RE Solar Scarlet Project - 400 MW

Displaced Energy Production during 35-year Project life

Annual Energy Production	
Grid Size (MW)	400
Total hrs/year	8760
% Operational time ¹	23%
Operational hours/year	2,015
KWh produced per year	805,920,000
Assumed Heat Rate (Btu/KWh)	10,000
Annual Fuel Equivalent (MMBtu) ²	8,059,200

California Power Mix ³		Annual Fuel Displacement (MMBtu)
Coal ⁴	4.13%	332,845
Large Hydro	14.72%	1,186,314
Natural Gas ⁴	33.67%	2,713,533
Nuclear	9.08%	731,775
Oil	0.01%	806
Other (petroleum coke/waste heat)	0.14%	11,283
Renewables	29.00%	2,337,168
Unspecified sources of Power	9.25%	745,476
Total	100.00%	8,059,200

Annual Pollutant Displacement⁴

Natural Gas Turbine Emissions					
Pollutant	AP-42 Emission Factor (lb/MMBtu) ⁵	Controlled Emission Factor (lb/MMBtu)	Controlled Emissions (lb)	Controlled Emissions (ton)	AP-42 Emission Factor Source Notes ⁵
NO ₂	0.099	0.099	268,640	134.32	Table 3.1-1, lean premix; Assume SCR Control Efficiency
CO	0.015	0.015	40,703	20.35	Table 3.1-1, lean premix; Assume Ox. Cat. Control Efficiency
PM ₁₀	0.0047	0.0047	12,754	6.38	Table 3.1-2a, PM (condensable)
PM _{2.5}	0.0019	0.0019	5,156	2.58	Table 3.1-2a, PM (filterable)
SO ₂	0.0034	0.0034	9,226	4.61	Table 3.1-2a
CO ₂	110	110	298,488,590	149,244.30	Table 3.1-2a

Coal Combustion Emissions					
Pollutant	AP-42 Emission Factor (lb/ton) ⁶	Controlled Emission Factor (lb/ton)	Emissions (lb) ⁷	Emissions (ton)	AP-42 Emission Factor Source Notes ⁶
NO _x	12	12	166422	83.21	Table 1.1-3 pulverized coal, wall fired, bituminous coal NSPS
CO	0.5	0.5	6934	3.47	Table 1.1-3 pulverized coal, wall fired, bituminous coal NSPS
PM ₁₀ ⁸	0.46	0.084	1165	0.58	Table 1.1-4, PC-fired dry bottom wall-fired, scrubber control
PM _{2.5} ⁸	0.12	0.06	832	0.42	Table 1.1-4, PC-fired dry bottom wall-fired, scrubber control
SO ₂ ⁹	2.85	0.57	7905	3.95	Table 1.1-3 pulverized coal, wall fired, bituminous coal NSPS
CO ₂	6040	6040	83765982	41,882.99	Table 1.1-20
Total NMHC	0.06	0.06	832	0.42	Table 1.1-19; assumed all hydrocarbons are reactive
CH ₄	0.04	0.04	555	0.28	Table 1.1-19
N ₂ O	0.03	0.03	416	0.21	Table 1.1-19

Total Displaced Emissions Associated With Direct Combustion		
Pollutant	tons/year ⁸	tons/lifetime (35 years)
ROG (NMHC)	0.42	14.56
NO _x	217.53	7,613.59
CO	23.82	833.65
PM ₁₀	6.96	243.57
PM _{2.5}	2.99	104.79
SO _x	8.57	299.79
CO ₂ E	173,444.81	6,070,568.48

Notes:

1. Operational time is based on annual average solar radiation hours per day per year (5.6) for the project area. Source: National Renewable Energy Laboratories, U.S. Department of Energy
2. The Project is assumed to displace existing power generation equivalent to the current power mix (each year of operation).
3. California Power Mix assumptions are based on data from Total California Electrical System Power (http://www.energyalmanac.ca.gov/electricity/total_system_power.html).
4. Combustion of natural gas and coal for power are of the greatest concern related to the generation of criteria pollutants and GHG emissions, therefore only fuel displacement of natural gas and coal due to electricity production from the Solar Scarlet facility are considered in this assessment.
5. EPA Air Pollution Emission Factors AP-42 Section 3.1, Stationary Gas Turbines (<https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf>)
6. EPA Air Pollution Emission Factors AP-42 Section 1.1, Bituminous and Subbituminous Coal Combustion
7. Coal characteristics used for conversion: Assumed coal heat content = 24 MMBtu/ton
8. Total particulate matter (CPM-TOT) is expressed in terms of coal ash content therefore emission factor is determined by multiplying % ash content of coal (assumed to be 20% herein) by value listed in Table 1.1-4. Organic fraction of particulate matter is 20% of total CPM-TOT (Table 1.1-5) and listed as controlled emission factor.
9. SO_x emission factor calculated by multiplying the weight percent of sulfur (assumed to be 7.5%) by the value listed in Table 1.1-3
10. CO₂E volumes are in metric tons rather than short (US) tons

