

ANTELOPE EXPANSION 3 SOLAR PROJECT UNINCORPORATED LOS ANGELES COUNTY

Draft Initial Study/Mitigated Negative Declaration

Project No: 2018-001031-(5)

Conditional Use Permit No: RPPL2018001536

Environmental Assessment No: RPPL2018001537

County of Los Angeles Department of Regional Planning

320 West Temple Street, Room 1348 | Los Angeles, CA



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LIST OF ACRONYMS AND ABBREVIATIONS

A-weighted decibels (dBA)

Airport Influence Area (AIA)

Alternating Current (AC)

Ambient Air Quality Standards (AAQS)

American Society for Testing and Materials (ASTM)

Antelope Expansion 3 Solar Project (proposed

project)

Antelope Valley Air Quality Management District

(AVAQMD)

Antelope Valley-East Kern (AVEK)

Antelope Valley Groundwater Basin (Basin)

Assembly Bill (AB)

Best Management Practices (BMPs)

California Code of Regulations (CCR)

California Department of Fish and Wildlife (CDFW)

California Department of Water Resources (DWR)

California Division of Occupational Safety and

Health Administration (Cal/OSHA)

California Emissions Estimator Model (CalEEMod)

California Environmental Quality Act (CEQA)

Carbon Dioxide (CO₂)

Carbon Dioxide Equivalent (CO₂e)

Carbon Monoxide (CO)

Community Noise Equivalent Level (CNEL)

Conditional Use Permit (CUP)

Congestion Management Program (CMP)

Direct Current (DC)

Economic Opportunity Area (EOA)

Environmental Site Assessment (ESA)

Farmland Mapping and Monitoring Program

(FMMP)

Federal Emergency Management Agency (FEMA)

Fine Particulate Matter with a Diameter of 2.5

Microns or Less (PM_{2.5})

Generation Tie-line (gen-tie)

Greenhouse Gas (GHG)

Global Warming Potential (GWP)

Hydrofluorocarbons (HFCs)

Inhalable Particulate Matter with a Diameter of 10

Microns or Less (PM₁₀)

Initial Study/Mitigated Negative Declaration

(IS/MND)

Intersection Capacity Utilization (ICU)

Kilovolt (kV)

Level of service (LOS)

Los Angeles County (County)

Los Angeles County Department of Public Works

(LACDPW)

Los Angeles County Department of Regional

Planning (LACDRP)

Los Angeles County Fire Department (LACFD)

Los Angeles County Natural History Museum

(LACM)

Los Angeles County Sheriff's Department (LASD)

Los Angeles County Water District (LACWD)

Los Angeles County Waterworks District No. 40 (the

District)

Low Impact Development (LID)

Megawatt (MW)

Methane (CH₄)

Mineral Resource Zone 3 (MRZ-3)

Mitigation Measure (MM)

Mojave Desert Air Basin (MDAB)

Most Likely Descendant (MLD)

National Pollutant Discharge Elimination System (NPDES)

Native American Heritage Commission (NAHC)

Natural History Museum of Los Angeles County (LACMNH)

Nitrogen Dioxide (NO₂)

Nitrous Oxide (N2O)

Oxides of Nitrogen (NOx)

Ozone (O₃)

Pacific Crest Trail (PCT)

Peak particle velocity inches per second (PPV in/sec)

Perfluorocarbons (PFCs)

Photovoltaic (PV)

Public Resources Code (PRC)

Qualified SWPPP Developer (QSD)

Reactive Organic Gas (ROG)

Recycling and Reuse Plan (RRP)

Regional Water Quality Control Board (RWQCB)

Renewable Energy Portfolio Standards (RPS)

Senate Bill (SB)

Sensitive Environmental Resource Area (SERA)

Significant Ecological Area (SEA)

Southern California Edison (SCE)

sPower (the Applicant)

State Route (SR)

Stormwater Pollution Prevention Plan (SWPPP)

Sulfur Dioxide (SO₂)

Sulfur Hexafluoride (SF₆)

Sulfur Oxides (SOx)

Supervisory Control or Data Acquisition (SCADA)

Traffic Volume per Overall Capacity (V/C)

Tribal Historic and Cultural Preservation (THCP)

U.S. Environmental Protection Agency (USEPA)

U.S. Fish and Wildlife Service (USFWS)

Worker Awareness Education Program (WEAP)

1 INTRODUCTION

1.1 Purpose

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared for the proposed project in accordance with the California Environmental Quality Act (CEQA), California Public Resources Code (PRC) Sections 21000 *et seq.*, Los Angeles County Environmental Review Guidelines, and associated State CEQA Guidelines, California Code of Regulations (CCR) Title 14, Sections 15000 *et seq.* This IS/MND includes a description of the proposed project and surrounding land uses, evaluation of the potential environmental impacts of the project, and recommended mitigation measures to reduce such impacts to a less-than-significant level. In addition to addressing the potential environmental impacts, this IS/MND serves as the primary environmental document for future activities associated with the project, including all discretionary approvals requested or required for project implementation.

Los Angeles County (County) is the lead agency for the project and has the principal responsibility for approving the project. The County has reviewed and revised, as necessary, all submitted drafts and technical studies and has commissioned the preparation of this IS/MND to reflect its own independent judgment, including: (a) reliance on applicable County technical personnel; and (b) review of all technical reports. Data for this IS/MND was obtained from on-site field observations; discussions with affected agencies; review of available technical studies, reports, guidelines, and data; and specialized environmental assessments prepared for the project. The County has the ultimate authority for project approval and adoption of this IS/MND.

sPower Development Company, LLC (sPower) is the project applicant and is proposing the project that is analyzed in this IS/MND.

1.2 **SUMMARY OF FINDINGS**

Section 3 (California Environmental Quality Act Checklist) of this IS/MND discusses the potential environmental impacts of the proposed project and the recommended mitigation program, including mitigation measures that will reduce all potential impacts to levels considered less than significant. According to Section 15370 of the State CEQA Guidelines, "mitigation" includes the following: (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments.

Implementation of the proposed project will result in potentially significant impacts to aesthetics, air quality, biological resources, cultural resources, hazards and hazardous materials, and utilities prior to implementation of mitigation measures. Implementation of the mitigation measures, as detailed in each environmental analysis presented in Section 3 of this IS/MND, will reduce all potentially significant impacts to a less-than-significant level. According to the State CEQA Guidelines, it is appropriate to prepare an MND for the proposed project because, with incorporation of mitigation measures, potentially significant environmental impacts will be eliminated or reduced to a less-than-significant level.

1.3 Public Review Process

The IS/MND has been submitted to potentially affected responsible and trustee agencies and is available for public review online at http://planning.lacounty.gov/case. Hardcopies will be available for review during business hours at the Lancaster Public Library, 601 West Lancaster Boulevard, Lancaster, California, 93534, and at the Los Angeles County Department of Regional Planning, 320 W. Temple Street, 13th Floor (Room 1348), Los Angeles, California 90012. This IS/MND has also been submitted to the State Clearinghouse for review by potentially affected State agencies. This IS/MND will be available for a 30-day public review period in accordance with Section 15073 of the State CEQA Guidelines. A Hearing Examiner public hearing will be held at a date to be determined during the public review period. In reviewing this IS/MND, reviewers should focus on the sufficiency of the document in identifying and analyzing the potential impacts on the environment and ways in which such potentially significant impacts are avoided or mitigated. Comments on the analysis contained herein may be sent to Mr. Anthony M. Curzi via email at acurzi@planning.lacounty.gov, or mailed to the following County address:

Mr. Anthony M. Curzi, Regional Planner
County of Los Angeles
Department of Regional Planning
320 West Temple Street, (Room 1348)
Los Angeles, California 90012

1.4 OUTLINE OF IS/MND

This IS/MND is organized in the following Sections:

- Section 1, Introduction, provides an introduction to the IS/MND process.
- Section 2, Environmental Setting and Project Description, provides a description of the project location, the environmental setting of the project site and vicinity, and the proposed project itself.
- Section 3, California Environmental Quality Act Checklist, provides the potential environmental impacts of the project, including: (a) environmental setting for individual resource topics; (b) analyses of identified environmental impacts; (c) mitigation measures that would mitigate potential significant effects to less than significant; and (d) mandatory findings of significance, in accordance with CEQA requirements.
- Section 4, List of Preparers, provides a list of individuals that assisted in the preparation of the IS/MND.

2 ENVIRONMENTAL SETTING AND PROJECT DESCRIPTION

2.1 SITE LOCATION

The project site is located in unincorporated Los Angeles County within the Antelope Valley portion of the Mojave Desert, near the City of Lancaster (see Figure 1, Regional Vicinity). The project site is bounded by West Avenue H on the south, West Avenue G on the north, 110th Street West on the west, and 107th Street West on the east (see Figure 2, Project Location). The proposed generation-tie (gen-tie) line extends east within a private easement of adjacent parcels 3265-007-030 and 3265-024-003, and connects to the Big Sky North Substation, northeast of the intersection of 100th Street West and Avenue G-8, within the City of Lancaster.

The project is approximately 45 miles north of downtown Los Angeles. Regional access to the project site is provided by the Antelope Valley Freeway (California State Route [SR] 14), exiting at either Avenues D (SR 138), F, or G, then proceeding west along either Avenue, and then north or south along 110th Street West. (see Figure 3, Local Vicinity).

The project site is located in Los Angeles County and designated as RL2 (Rural Land 2) according to the Los Angeles County ("County") Antelope Valley Area Plan: Town & Country ("Area Plan"). The project site is zoned "A-2-2.5" (Heavy Agricultural – 2 ½ Acre Minimum Required Lot Area) on the County Zoning Ordinance as shown in Figure 4, Existing Area Plan and Zoning Designations. Pursuant to the County Code, a ground-mounted utility-scale solar energy facility ("solar facility") is a use in the A-2 Zone requiring a conditional use permit (CUP).

2.2 <u>SITE CHARACTERISTICS</u>

The project site is undeveloped and is located within five identified County Assessor's Parcel Numbers (3265-006-001, 3265-006-002, 3265-007-001, 3265-007-003, and 3265-007-007). The project site is relatively flat, with a maximum elevation of approximately 2,503 feet above mean sea level along 110th Street West and a minimum elevation of approximately 2,464 feet above mean sea level at the Big Sky North Substation on 100th Street West. Roadways to the north and west (West Avenue G and 110th Street West), are paved County roads and roadways to the south and east (West Avenue H and 107th Street West) are unpaved County roads (see Figures 5 through 8).

The project site encompasses approximately 155 acres of previously disturbed agricultural land within the western Antelope Valley in rural, unincorporated Los Angeles County. The project site has no habitable buildings, structures, or development currently. Outside of the disturbed areas, the surrounding landscape is primarily dominated by nonnative grasses such as cheatgrass, red brome, and Russian thistle.

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¹ Los Angeles County. 2015. Antelope Valley Area Plan, Table L-1: Land Use Legend. Available at: http://planning.lacounty.gov/assets/upl/project/tnc draft-20150601.pdf. Accessed on May 22, 2108.

² Los Angeles County. Title 22 Planning and Zoning Division 1. Chapter 22.16 Agricultural, Open Space, Resort and Recreation, and Watershed Zones, Available at: https://library.municode.com/ca/los angeles county/codes/code of ordinances?nodeId=TIT22PLZO DIV1PLZO_CH22.24AGZO_PT3HEAGZO. Accessed on May 22, 2018.

The southernmost portion of the project partially overlaps with a historic ephemeral stream originating from Portal Ridge. As such, portions of the project site are located in Federal Emergency Management Agency (FEMA) Flood Zones A and X. Flood Zone A is designated as an area subject to inundation by the 1% annual chance of flood (i.e., 100-year floodplain). Flood Zone X is designated as an area of minimal flood hazard that is outside the 0.2% annual chance of flood (i.e., 500-year floodplain).

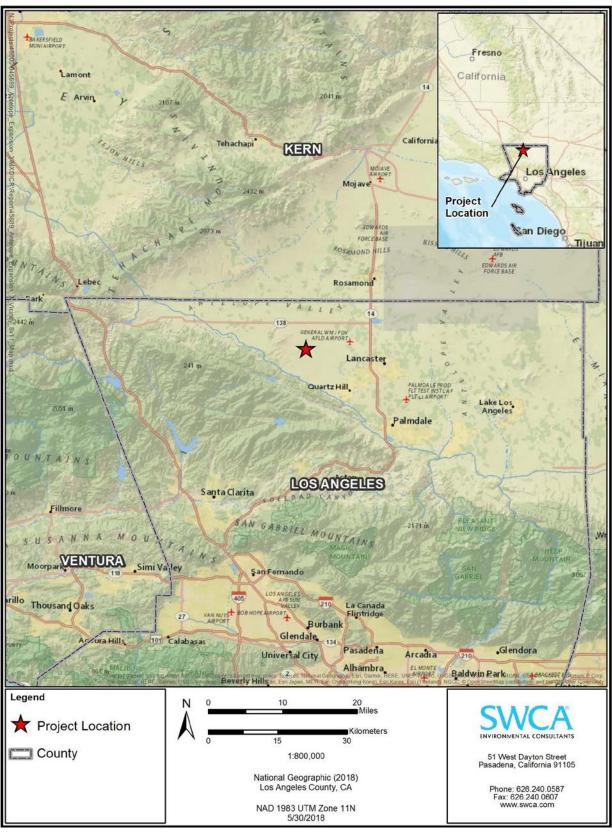


Figure 1. Regional Vicinity.

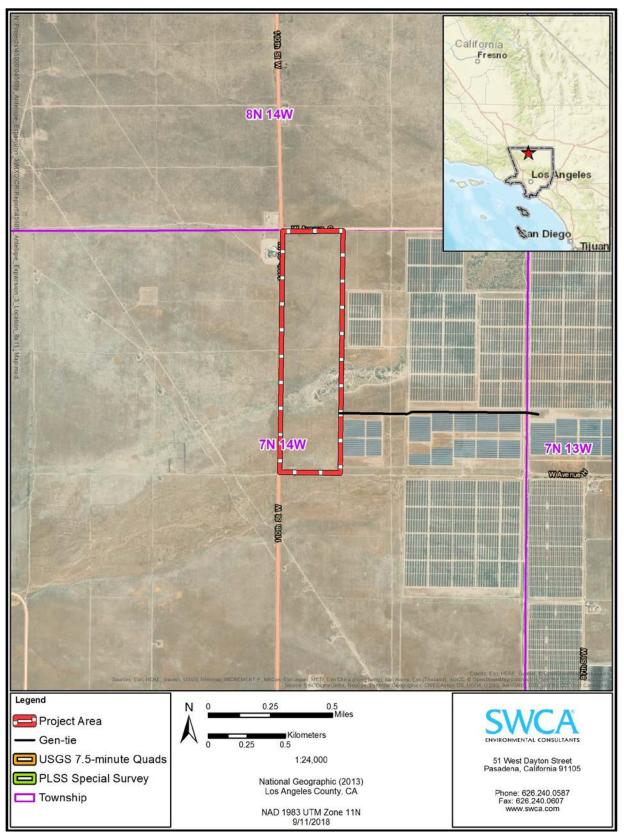


Figure 2. Project Location.

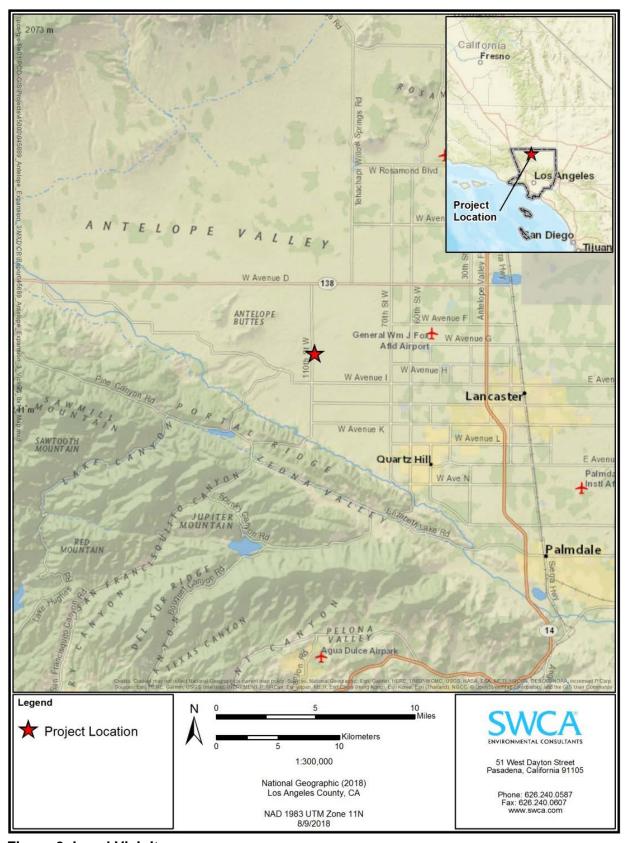


Figure 3. Local Vicinity

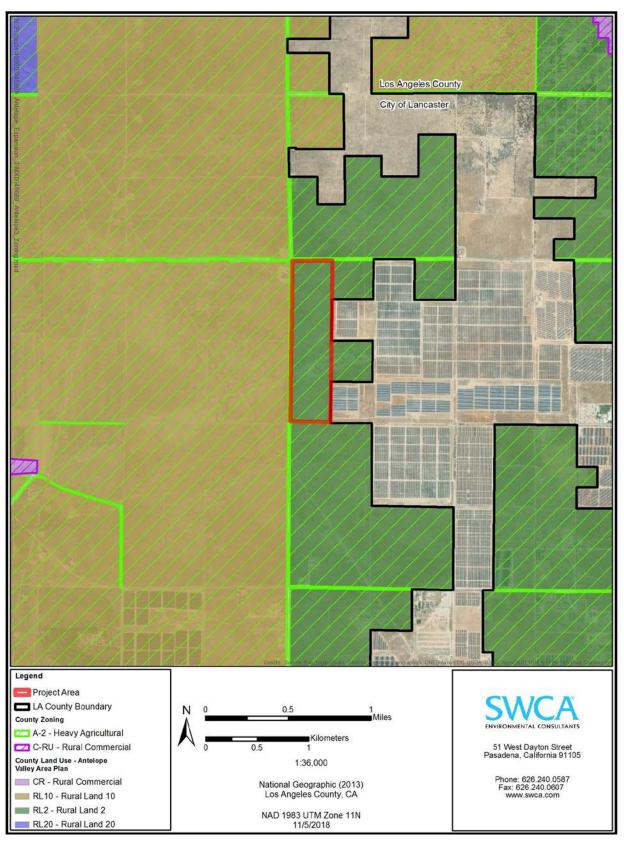


Figure 4. Existing County Zoning and Land Use



Figure 5. Existing Conditions: Northwest Corner, Southeast Facing, View East on West Avenue G, Site Photo.



Figure 6. Existing Conditions: East-Middle, North-Facing, View North Along Eastern Property Line, Site Photo.



Figure 7. Existing Conditions: Southeast Corner, North-Facing, Site Photo.



Figure 8. Existing Conditions: Southwest Corner, East-Facing, View West on Avenue H, Site Photo.

2.3 SURROUNDING LAND USES

Southern California Edison (SCE) owns and operates several transmission, subtransmission, and distribution lines in the project vicinity. Specifically, there is a 69-kilovolt (kV) subtransmission line with a 12 kV underbuild distribution line on the western side of 110th Street West. A 500 kV transmission line runs southeast to northwest, approximately 0.25 mile west of the project site. A 138 kV subtransmission line is located parallel to the project site, approximately 0.2 mile east.

Other operational solar photovoltaic (PV) facilities are located in the immediate vicinity of the project area to the east and to the south. Two existing residences are directly northwest of the project site across 110th Street West. The Del Sur Elementary School is located approximately 1.5 miles east of the project site at the intersection of West Avenue H and 90th Street West.

A planned 90-foot-wide × 7-foot-deep drainage channel could eventually be located south of the project site, across West Avenue H. The future drainage is labeled as "J3" in the City of Lancaster Master Plan of Drainages, and as "Channel 2" in the Los Angeles County Comprehensive Plan of Flood Control and Water Conservation. The drainage does not yet exist and is not part of this project.

2.4 Project Description

The Antelope Expansion 3 Solar Project ("proposed project") involves the construction of a ground-mounted utility-scale solar energy facility ("solar facility") pursuant to Section 22.16.030.D of the County Code of Ordinances ("County Code"). The proposed project will employ PV modules that convert sunlight directly into electrical energy without use of heat transfer fluid or cooling water. The proposed project will have a generating capacity of up to 30 megawatts (MW) of alternating current (AC).

Solar electricity generated by the proposed project will be delivered to a previously approved connector substation (the Big Sky North Substation), located at West Avenue G-8 and 100th Street West, via two side-by-side 34 kV gen-tie lines. Big Sky North Substation is anticipated to be operational in November 2018. The gen-tie lines are scheduled to run through sPower-controlled private easements, extending east from the project site, parallel to West Avenue G-8, for about 0.8 mile to the Big Sky North Substation. Electricity

at the Big Sky North Substation will be stepped up to 230 kV and will ultimately be delivered to the existing SCE Antelope Substation, south of the proposed project.

The project site is approximately 155 acres; however, approximately 8 acres will remain undeveloped due to topographic variability. The facility will generate emission-free electricity during the highest electricity demand time periods. The project will offset approximately 68,295 metric tons of carbon dioxide equivalent annually that will have resulted if an equivalent amount of electricity were produced by fossil fuel-powered generators. The project will operate year-round during daylight hours.

The major components of the proposed project are as follows:

- A **solar field** of north-south rows of PV panels, mounted on either fixed-tilt or single-axis tracking systems on steel support structures.
- An **electrical collection system**. PV modules will be electrically connected into strings, and each string will be funneled by underground electrical conduit to combiner boxes located throughout the solar field power blocks. Cables from the combiner boxes will again be consolidated to feed the direct current (DC) electricity into inverters which convert the DC to AC.
- **Battery storage technology** that uses telecommunication systems and real-time control software to charge and discharge the battery according to power delivery needs.
- A **switchgear area** for the transformer equipment, control building foundation, and oil containment area.
- A **data collection system** to remotely monitor the facility operation and/or remotely control critical components.
- **Civil infrastructure**, such as paved driveways, internal 20-foot-wide access roads, security fencing, landscaping, and two 10,000-gallon water tanks.
- Interconnection **gen-tie lines** installed underground to connect the project to the Big Sky North Substation.

These components are described below and depicted on Figure 9, Site Layout.

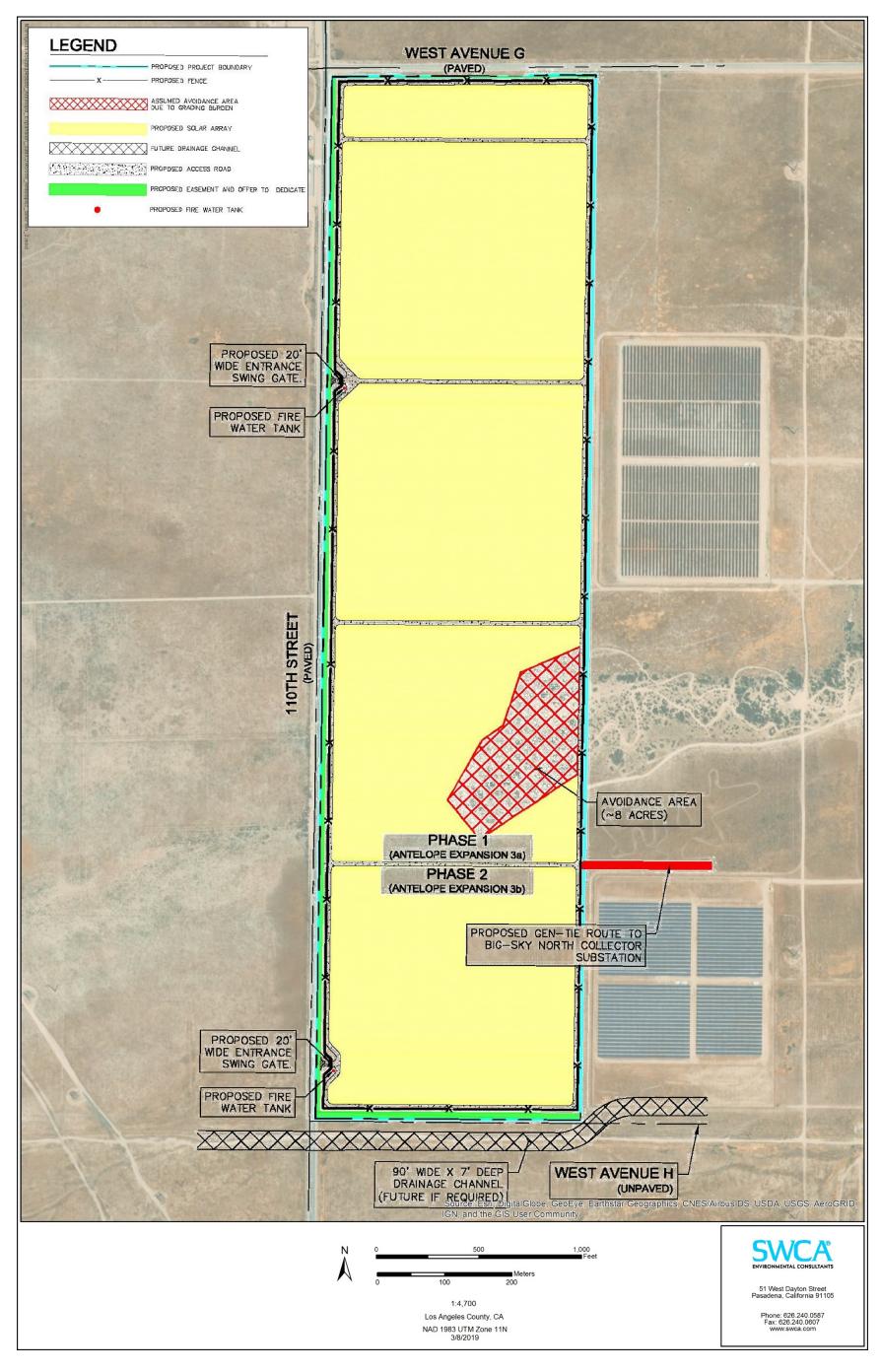


Figure 9. Site Layout.

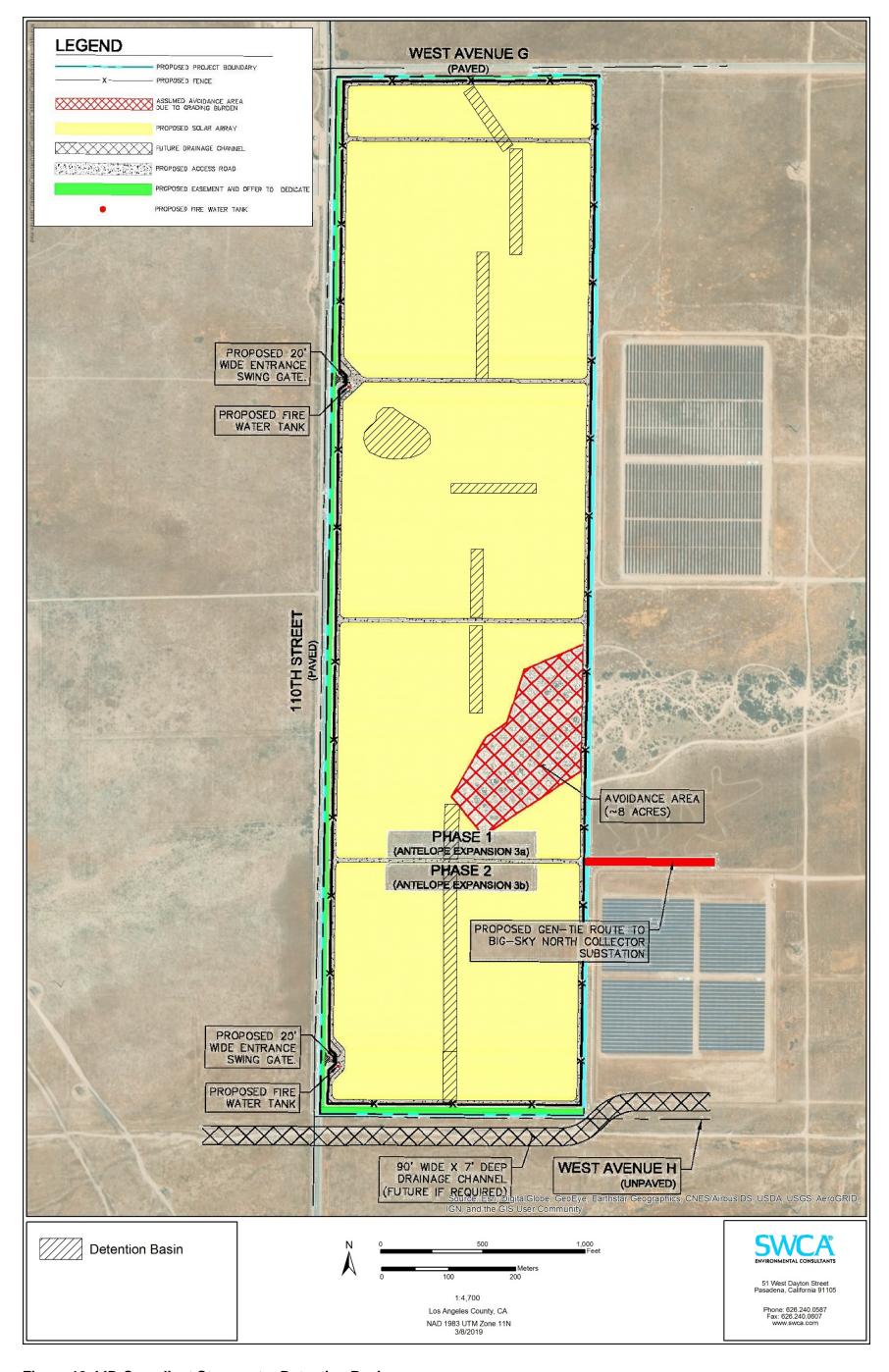


Figure 10. LID-Compliant Stormwater Detention Basins

2.4.1 Solar Field

The project solar field will consist of PV panels mounted on steel support structures. The supports will be configured with a fixed-tilt or pivoting, single-axis tracking system. The assembled PV panels will have a typical height of about 6 feet and a maximum height of approximately 10 feet, depending on the angle of the tracking system (if applicable) as it changes over the course of each day. The PV panels will consist of polycrystalline or thin film panels, which will be arranged in rows with center-to-center spacing of approximately 10 to 25 feet. Fixed-tilt modules will be oriented toward the south and angled at a degree that will optimize solar resource efficiency. Under the tracking configuration, the modules will rotate from east to west over the course of the day. The mounting poles for the panels will be approximately 6 inches in diameter. Modules will be nonreflective and highly absorptive.

2.4.2 <u>Electrical Collection System</u>

The PV panels will be organized into electrical groups referred to as "blocks." Each block consists of PV panels capable of producing about 2 to 4 MW and will include an equipment pad containing one or more inverters and transformers. The inverter-transformer equipment pads will be prefabricated or assembled onsite. Each inverter will be fully enclosed, be pad- or skid-mounted, and stand approximately 95 inches (7 feet, 11 inches) in height. Conductors from the PV panels will be wired together in series, and parallel, and terminate into DC combiner boxes. From the combiner boxes, the cabling will transition underground via buried trenches, feeding into the inverters and associated transformers. The transformers will be approximately 87 inches (7 feet, 3 inches) high, pad-mounted, and enclosed with a switchgear and a junction box.

2.4.3 Battery Storage

Energy storage will include an on-site intelligent battery system. The battery storage technology is a modular and fully enclosed power storage system that uses telecommunication systems and real-time control software to charge and discharge the battery according to power delivery needs. Typical modular energy storage solutions are approximately 102 inches (8 feet, 6 inches) in height and 20 to 40 feet in length. The energy storage solution will be located near inverter stations or near a switchgear. The type will depend on the technology chosen and the needs of the overall system.

2.4.4 Switchgear Area

The switchgear area will be excavated for the transformer equipment, control building foundation, and oil containment area. Reinforced concrete will be used for foundations. Structural components in the switchgear areas will include:

- Transformers, switchgear, and safety systems; and
- Footings and oil containment system for transformers.

The transformer will be approximately 87 inches in height, and will be pad-mounted and enclosed together with switchgear and a junction box. The high-voltage output of the transformer will be combined in series via underground collector cable to the junction box of the transformer in closest proximity. Distances can range from 60 to 700 feet throughout the project site. The collector system cables will be tied at underground junction boxes to the main underground collector cables, composed of a larger gauge wire, to the location

of the generator step-up transformer. The main collector cables will rise into the low-voltage busbar and protection equipment that is enclosed together with the generator step-up transformer. The primary switchgear includes the main circuit breaker and utility metering equipment, and will be enclosed separately and pad-mounted together with the generator step-up transformer. The output of the switchgear be the start of the gen-tie.

2.4.5 Generation-Tie Lines

Two parallel 34 kV gen-tie lines will connect the proposed project to the Big Sky North Substation, located northeast of the intersection of 100th Street West and West Avenue G-8. The gen-tie lines will be located underground and will be approximately 0.8 miles long, across two parallel private easements. Electricity at the Big Sky North Substation will be stepped up to 230 kV and will ultimately be delivered to the existing SCE Antelope Substation, south of the proposed project.

2.4.6 <u>Supervisory Control or Data Acquisition System</u>

A data collection system will be designed to remotely monitor the facility operation and/or remotely control critical components. The fiber optic or other cabling will be installed throughout the solar field to a centrally located Supervisory Control or Data Acquisition (SCADA) system. The SCADA system will also collect meteorological information for the project site.

2.4.7 <u>Civil Infrastructure</u>

2.4.7.1 Driveways and Access Roads

As depicted on Figure 9, Site Layout, the project will contain two access points along 110th Street West, with 24-foot-wide gates at each entrance. Each driveway will provide access for emergency vehicles and for maintenance and operation purposes. There will be two 10,000-gallon water tanks along the driveways, which will be clearly labeled for "Fire Department Use Only." A network access roads (20 feet wide) will also be provided around the perimeter and throughout the project site in compliance with applicable County Fire Department (LACFD) design requirements.

2.4.7.2 Security Fencing

The project site will be surrounded by a 6-foot-tall galvanized chain-link fence topped with 1 foot of three-strand barbed wire for a total fence height of 7 feet. "Warning High Voltage" signs will be placed along the fencing at regular intervals and at each gate pursuant to County and/or State requirements. The fencing will be secured with concrete footings and will have intermittent 12-inch openings along its foot for animal crossings.

2.4.7.3 *Lighting*

Lighting will be installed at each site entrance of the project site for nighttime security purposes and at the switchgear area for maintenance purposes. Any lighting will consist of modern, low-intensity, downward-shielded fixtures that are motion-activated, and will be directed onto the project site. Motion detectors will be set at a sensitivity level that could not be triggered by small animal movement. The proposed project will comply with the County Code Chapter 22.140.510.E, Renewable Energy – Utility-Scale Solar Energy Facilities, in addition to the requirements of the Rural Outdoor Lighting District Ordinance (Ordinance No. 2012-0047).

2.4.7.4 Landscaping

Outside of the security fence, the project site will be surrounded by an approximately 4-foot-high and 10-foot-wide landscaping buffer along the 110th Street West and West Avenue G frontages. The project site will be hydroseeded on all disturbed areas left uncovered as shown on the Landscape Plan with native or non-native plants and grasses after construction of the project to stabilize the project site and promote revegetation. Prior to the application of hydroseed, sPower, the landscaping contractor, and the County will conduct a site walk to determine areas that will require application of the hydroseed mix. A Landscape Plan has been prepared and is subject to review and approval by the County. The landscaping will partially obscure and screen views into the project site. The land east of the project site is occupied by an existing solar development and, the land south of the project site is vacant, containing no residential, agricultural, or uses of any kind. Therefore, landscape buffer will not be necessary along the eastern or southern boundaries of the project site. All shrubs will be manually irrigated three times a week for a 90-day maintenance period or until successfully established. No long-term irrigation infrastructure is proposed; however, the landscaping will be maintained as needed during the life of the project and will be monitored monthly.

2.5 CONSTRUCTION

Project construction will consist of two major phases: (1) site preparation and grading; and (2) PV system installation.

2.5.1 Site Preparation and Grading

Construction of the PV facility will begin with initial clearing and grading (if required) of the staging areas. Access to the project site will be improved to appropriate construction standards. The staging areas will typically include construction offices, a first aid station and other temporary buildings, worker parking, truck loading and unloading facilities, and an area for assembly. Road corridors will be surveyed, cleared, and graded to bring equipment, materials, and workers to the areas under construction. Buried electrical lines, PV array locations, and the locations of other facilities may be flagged and staked to guide construction activities.

The project site will be surrounded by a security fence. A secure controlled main access gate will be located at the entrance. A temporary landscape green fabric will be attached to the chain-link fence during construction.

Best Management Practices (BMPs) such as straw waddles, use of hydroseeding, and wind screening for erosion control during site preparation will be employed.

2.5.1.1 Grading Parameters

The project site is relatively flat, with an approximately 20-foot change in elevation (1-3% slope). Grading and ground disturbance for the project will be minimal and primarily limited to access roads, equipment pads (including inverter-transformer pads and project switchgear), trenching for gen-tie lines, stormwater detention basins, and water tanks. To the greatest extent feasible, sPower will maintain existing vegetation through mowing to a maximum height of six inches. Soil disturbance will be minimized to reduce the

amount of revegetation. For areas requiring significant disturbance, sPower will implement and maintain hydroseeding as soon as possible to establish and stabilize soils.

The trench for the gen-tie line will be approximately 3 feet wide by 4 feet deep and approximately 4,000 feet long. Gen-tie line trenching will require approximately 1,200 cubic yards of balanced cut and fill. An approximate 8-acre area, located on the southeast portion of site, will be avoided and excluded from development due to its dune-like conditions and topographic variability, which will make construction of the solar array unfeasible without significant grading.

The solar arrays will be installed using pile-driving techniques, rather than excavating, to minimize soil disturbance. Any undulations in the terrain will be accounted for by varying the mounting height of the PV panels. This reduced grading will help maintain existing hydrologic features and patterns on the project site. The project will result in approximately 27,800 cubic yards of cut and approximately 27,800 cubic yards of fill, resulting in a balance of estimated earthwork. Grading will be limited to access roads, utility boxes, trenching, and Low Impact Development (LID) features. Thus, no import or export of soils is proposed as part of the project. The existing vegetation in all other areas of the project site will be mowed to a maximum height of 6 inches, per LACFD requirements. Minor trenching will be required to electrically connect all project components and to connect the two gen-tie lines to the Big Sky North Substation.

The proposed project will be required to comply with Antelope Valley Air Quality Management District (AVAQMD) Rule 403, Fugitive Dust, as a standard condition, which requires implementation of a Dust Control Plan. The Dust Control Plan includes strategies such as minimal grading and ground disturbance, and application of soil stabilizers. Dust control, where needed, will be conducted through soil binder, mulch and/or hydro-mulch. The use of water as a dust suppressant will occur only if the soil binder or hydro-mulch is not sufficient to control the dust after the natural vegetation has been mowed. Any movement of dirt would be halted when wind speeds exceed 25 miles per hour. A Dust Control Supervisor will be onsite during all earth moving activities to ensure compliance with the approved Dust Control Plan. The Dust Control Supervisor must have authority to implement additional dust mitigation measures if the situation warrants.

2.5.2 PV System Installation

PV system installation will include earthwork, grading, and landscaping, as well as erection of the PV modules, supports, and associated electrical equipment. System installation will begin with teams installing the mounting and steel pier support structures. This will be followed by installation of module rail assemblies, PV modules, inverters, transformers, and buried electrical cables. The exact design will be finalized pending specific soil conditions. The foundation will include pile-driven H-piles that will be up to 8 feet deep. This will be followed by panel installation and electrical work.

Concrete may be required for the footings and foundations; it will be required for the transformer pads. Concrete will be produced at an off-site location by a local provider and transported to the project site by truck. The enclosures housing the inverters will have either pre-cast steel bases mounted and welded onto driven piles, or pre-cast concrete bases placed onto compacted earthen pads. Final specifications will be determined during detailed design engineering and will meet applicable building codes.

The PV modules require a moderately flat surface for installation. Some earthwork, including grading, fill, compaction, and erosion control cultivation may be required to accommodate the placement of PV arrays, foundations or footings, access roads, and drainage features. Control of erosion during construction will be determined by a California-Qualified Stormwater Pollution Prevention Plan (SWPPP) Developer (QSD).

Landscaping will be installed and watered during the construction of the PV system. Shrubs will be manually watered several times weekly by a water truck with a hose connection. The landscape contractor is responsible for maintaining all plantings until the landscaping is established or for a period of up to 90 days after the completion of construction. The Project Operations and Maintenance team will assume responsibility for plant viability once the plant is fully operational.

Wastes that will be generated during construction may include cardboard, wood pallets, copper wire, scrap steel, common trash, and wood wire spools. sPower does not expect to generate hazardous waste during construction of the proposed project. However, field equipment used during construction will contain various hazardous materials such as hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, and other petroleum-based products contained in construction vehicles.

2.5.3 LID Management

sPower will provide post-construction storm water management with a variety of LID BMPs provided by the County LID Standards Manual that treat post-construction storm water runoff. On-site stormwater detention basins will be installed throughout the site in conformance to existing site topography to the greatest extent feasible, as shown on Figure 10, LID-Compliant Stormwater Detention Basins, for a maximum depth of 18 inches with a maximum slope grade of 4:1. Basins will be designed according to tributary areas and will be connected with pipe or low water crossings to equalize storage, if necessary. Post-development flows and volumes assume a 10 percent impervious surface area across the site, with increases in flows managed by the proposed basins. Basins will be designed for water quality treatment and balancing on-site and off-site drainage. Proposed on-site access roads will remain at existing grade, elevated above the basins.

2.5.4 Construction Schedule

Construction of the proposed project is anticipated to start in or around June 2019 and will last approximately one year, until June 2020. Construction is anticipated to occur up to six days per week. Site preparation and grading will require approximately 60 days, while the PV system installation will last approximately 200 days.

2.5.5 Construction Workforce

The project will generate approximately 200 jobs during the construction phase, including on-site workforce, which will consist of laborers, various skilled trades, supervisory personnel, support personnel, and construction management personnel. For the purposes of analysis, this IS/MND has assumed the worst-case scenario of 200 round-trip worker, equipment, and materials delivery trips (including water trips) during the construction phase of the project. Construction workers, equipment and materials delivery, and water trucks will regionally access the project site from SR 14, West Avenue G, SR 138, and 110th Street West. Construction equipment, vehicles, and materials will all be staged within the project site.

Construction equipment and equipment quantities per day used during the construction phase of the proposed project are displayed in Table 2.5-1, Construction Equipment.

Table 2.5-1. Construction Equipment

Construction Equipment	Quantities (per day)		
Scraper	1		
Excavator	1		
Grader	1		
Off-Highway Truck	2		
Rubber-Tired Truck	2-3		
Skid Steer Loader	2-3		
Bore/Drill Rig	2		
Pile Driver	1		
Forklift	5		
Generator Sets	1		
Tractors/Loaders/Backhoes	3-5		

The project will provide a mobile sanitation facility for workers during the construction period. Potable water will be brought to the project site for drinking and domestic needs. Potable drinking water will be made readily available to individuals working on the project site, either as bottled water or as a sealed drinking water container with single-use cups. Any drinking water container will be maintained in good condition and washed daily (or more frequently if needed) to prevent contamination of the drinking water. Sanitation facilities and potable water will be provided per the California Division of the Occupational Safety and Health Administration (Cal/OSHA) standards and regulations, and will be maintained in a safe and sanitary condition so as not to constitute a public hazard or nuisance. Waste generated by the mobile sanitation facility will be disposed of and treated per County regulations. Since the project is unmanned, mobile sanitation and drinking water facilities will not be required during the operations phase.

2.5.6 Construction Water Use

Approximately 52 acre-feet of water will be required during construction, with actual consumption strongly dependent upon climatic conditions. Construction water needs will be limited to soil conditioning and dust suppression. Potable water will be brought to the project site for drinking and domestic needs.

There are no sources of piped recycled water or piped potable water within one mile of the project site.³ Prior to the start of construction, sPower will conduct a water resource investigation to determine the most economically feasible and sustainable method to supply water for both construction and operational use. The water resource investigation will examine local water supply issues, water quality, and production requirements at the proposed project site. Potential sources of water may include off-site wells, recycled water, or water trucked in from the local municipality. Multiple offsite wells are located within 2 miles of the project site. Private well owners who are party to the groundwater adjudication for the Antelope Valley Groundwater Basin are allotted a yearly production volume and are free to enter into private agreements with potential water users. Such an agreement may be exercised if the water resource investigation determines that an offsite well is the optimal water source for project construction. Use of recycled water is also permitted through the Los Angeles County Sanitation District under its Master Recycling Permit and the City of Lancaster is the local water purveyor under the permit. Recycled water is available from the Lancaster Water Reclamation Plant at a filling station located at Division Street and West Avenue H, approximately 10 miles from the project site. A Recycled Water Use Agreement between the applicant and the City of Lancaster has been executed for use of recycled water at the project site. The agreement grants conditional approval for the use of Sanitation District recycled water and requires monthly reporting of average flow rate and total monthly volume of recycled water used or supplemental water used, maintenance activities associated with the use, and results of monthly BMP or site inspections. Municipal water sources are located throughout the greater project area, with the primary filling sources being fire hydrants located within 4 miles of the project site.

2.6 OPERATION

Upon commissioning, the project will enter the operational phase. For the duration of the operational phase, the project will be monitored remotely, and staff will regularly visit the project site for security, maintenance, and system monitoring. There will be no full-time site personnel on-site during operation. As the project's PV arrays produce electricity passively with minimal moving parts, maintenance requirements will be limited. Any required planned maintenance will be scheduled to avoid peak load periods, and unplanned maintenance will be typically responded to as needed depending on the event. An inventory of spare components will be readily available from a remote warehouse facility.

2.6.1 **Maintenance**

Project maintenance on-site will consist of equipment inspection and replacement. Maintenance will occur during daylight hours, when possible. However, maintenance activities on the PV modules and DC systems will be typically performed at night. Maintenance program elements include the following:

• Managing a group of prequalified maintenance and repair firms who can meet the operational and maintenance needs of the facility throughout its life;

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³ County Code Section 22.140.510(E)(6)(d)(viii)(3) states that renewable energy facilities shall use piped recycled water if it is available from the public right-of-way within one mile from the property at fair market value, suitable for use, and deemed appropriate by a County biologist. If such piped recycled water does not meet all of the facility's water demand, the facility shall use piped potable water to supplement piped recycled water if it is available from the public right-of-way within one mile from the property at fair market value and suitable for use.

- Implementing a responsive, optimized cleaning schedule;
- Responding to plant emergencies and failures in a timely manner;
- Maintaining an inventory of spare parts to ensure timely repairs and consistent plant output;
- Maintaining a log to effectively record and track all maintenance problems; and
- Performing maintenance on the project site as required to clear obstructive ground cover.

2.6.2 Security

To ensure the safety of the public and the facility, the property will be fenced and posted with signage. Security measures will be installed as necessary to deter unauthorized access. Access to the project site will be controlled and gates will be installed at the roads entering the property.

2.6.3 **Operational Water Use**

During the operational phase, solar PV plants require minimal water use. PV panels will require cleaning zero to two times per year to remove dust buildup, grime, bird droppings, and/or soot, typically (but not exclusively) with demineralized water. Water will infiltrate into the ground or evaporate. The annual water consumption for operation of the facility, including periodic PV module washing and landscape maintenance, is expected to be approximately 1.5 acre-feet. The amount of water per year will vary depending on annual rainfall, and wind and dust in the project area. Because solar panels are susceptible to damage and become inefficient with the use of poor-quality water, the purchase of high-quality water or the process of filtering water on-site for operational use may be necessary. As described above in Section 2.5.6, Construction Water Use, sources of water may include off-site wells, recycled water, or water trucked in from the local municipality. A Recycled Water Use Agreement between the applicant and the City of Lancaster has been executed for use of recycled water at the project site.

2.7 <u>DECOMMISSIONING</u>

At the end of the life cycle of the project (approximately 35 years), sPower will decommission and remove the system and its components unless it is determined that the solar energy generation uses shall continue. Upon decommissioning of the project site's solar energy uses, the site could then be converted to other uses in accordance with applicable land use regulations in effect at that time. All decommissioning and restoration activities will adhere to the requirements of the appropriate governing authorities and will be in accordance with all applicable federal, state and County regulations. A collection and recycling program will be executed to dispose of the site materials. Details of proposed decommissioning activities and costs have been prepared and submitted in a Decommissioning Plan to the County.

2.7.1 Equipment Removal and Disposal

All aboveground PV, electrical equipment, and supporting structures will be removed using conventional construction equipment and tractor trailers for hauling from the project site. Electrical equipment of monetary value, such as solar panels, transformers, and inverters, will be resold at future market rates. The majority of the equipment will be transported to an off-site recycling center. Items not able to be recycled will be disposed of in accordance with State and local regulations.

Non-PV/electrical equipment such as the water storage tanks, fencing, and other items will be recycled, if applicable, at the time of decommissioning. Otherwise, these items will be disposed of in accordance with State and local regulations.

2.7.2 Site Restoration

2.7.2.1 Pre-construction Documentation

To adequately restore the project site to its previous condition, pre-construction conditions have been documented by digital photography, included in the Decommissioning Plan. This information will be reviewed before decommissioning demolition documents are prepared and will be included in the submittal of an Existing Conditions Report to the County. Pre-construction documentation will also include descriptions of existing vegetative and soil conditions, as well as existing topography and drainage patterns.

2.7.2.2 Restoration Plan

Prior to site restoration, sPower will evaluate the project site compared to the pre-construction information and provide a Site Restoration Plan. Restoration of the project site will begin following removal of all aboveground equipment. The restoration may consist of de-compaction of the topsoil by disking or tilling and revegetation of the property as necessary. Mass grading is not anticipated since the initial project will not alter topography substantially. Reclamation of project roads to their pre-construction condition may also be included unless the then-existing owner of the site neglects to retain the improved roads for access throughout the site. The developer will provide dust control during site restoration. Landscaping and paved entrances will remain following site restoration. The future use of the land will be determined at the time of decommissioning. Deciding factors will be influenced by County land use and comprehensive plans, and regulations in the future.

2.7.2.3 Restoration Monitoring

After project decommissioning, the developer will coordinate with the County to monitor vegetation and drainage following restoration until permanent vegetation is established. Reseeding, soil stabilization, weed control, and fertilization will be provided by the developer as needed until the project site is stabilized and considered complete by the County. Restoration efforts and monitoring will be continued until the success criteria outlined in the Site Restoration Plan are met. Upon completion of the project site restoration, a Final Restoration Monitoring Report will be submitted to the County documenting the restoration process and results.

2.8 PROJECT OBJECTIVES

The proposed project will meet the increasing demand for electricity generated from clean, renewable technology. Recent legislation enacted in California recognizes the multiple benefits associated with the development of renewable energy resources. These benefits include diversification of energy portfolios, reductions in greenhouse gas (GHG) emissions, and the creation of "green" jobs within the State of California.

Additionally, the proposed project will assist California in the effort to meet the newly mandated Renewable Energy Portfolio Standards (RPS). Senate Bill (SB) 100 establishes RPS targets for California that state that the goal of the program is to achieve 50% renewable resources by 2026, 60% by 2030, and 100% by

2045. The bill requires retail sellers and local publicly owned electric utilities procure at least the minimum quantity of electricity products from eligible renewable energy resources. State government agencies have been directed to take all appropriate actions to implement this target in all regulatory proceedings, including siting, permitting, and procurement for renewable energy power plants and transmission lines. The project qualifies as an eligible renewable energy resource as defined by the California PRC and will help the State meet the objective of increasing renewable energy generation. In addition, the project will contribute much-needed competitive energy during peak power periods to the electrical grid in California.

By providing a new source of renewable energy, the proposed project will reduce air pollution and GHG emissions, which will assist the state in achieving GHG emissions reduction goals including those set forth in the Global Warming Solutions Act, or Assembly Bill (AB) 32. The offset effect of solar power results from the displacement of electrical power production that will otherwise occur at fossil-fueled power plants that necessarily generate GHGs alongside electricity. During its operational life, the proposed project will fully offset its GHG emissions and yield a net GHG benefit toward statewide GHG reduction goals. Specifically, the project will produce approximately 59,806 kilowatt-hours per year, which is equivalent to a 42 metric ton GHG reduction annually.⁴

2.9 REGULATORY APPROVAL

In accordance with Section 15074 of the State CEQA Guidelines, prior to approving the project, the County Regional Planning Commission ("Commission") will consider the proposed MND together with any comments received during the public review process. The Commission will adopt the proposed MND only if it finds that there is no substantial evidence that the project will have a significant effect on the environment.

In accordance with Section 22.16.030.C and Section 22.56 of the County Code, a solar facility is a permitted use within the A-2 (Heavy Agricultural) Zone, with approval of a CUP. Following adoption of the MND and receipt of the CUP, sPower (the Applicant) will obtain a grading permit, building permit, encroachment permit (for driveway aprons), and such other ministerial permits required to construct the proposed project in accordance with all federal, State, and local codes and requirements.

March 2019

⁴ Environmental Protection Agency. 2019. Greenhouse Gas Equivalencies Calculator. Available online at https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator. Accessed on February 1, 2019.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project.									
\boxtimes	Aesthetics	Greenhouse Gas	Emissions	☐ Public Services					
	Agriculture/Forest	Hazards/Hazard	ous Materials	Recreation					
\boxtimes	Air Quality	☐ Hydrology/Wate	er Quality	☐ Transportation/Traffic					
\boxtimes	Biological Resources	Land Use/Plann	ing	Tribal Cultural Resources					
$\overline{\boxtimes}$	Cultural Resources	Mineral Resource	•	Utilities/Services					
	Energy	Noise		Mandatory Findings					
		7 1 1010		of Significance					
	Geology/Soils	Population/Hous	ing	2-8					
DETERMINATION: (To be completed by the Lead Department.)									
On t	he basis of this initial eva	luation:	_						
	I find that the propose	ed project COULD NOT	have a significant	effect on the environment, and a					
	NEGATIVE DECLA	RATION will be prepar	ed.						
\boxtimes	I find that although th	e proposed project coule	d have a significant	effect on the environment, there					
	will not be a significa	nt effect in this case bec	ause revisions in th	e project have been made by or					
	agreed to by the proje	ct proponent. A MITIG	ATED NEGATIVE	E DECLARATION will be					
	prepared.	prepared.							
		1 0	•	the environment, and an					
		IMPACT REPORT is r	*						
				ant impact" or "potentially					
				east one effect 1) has been					
				e 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.								
Ш				effect on the environment,					
because all potentially significant effects (a) have been analyzed adequately in an e									
NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided									
	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.									
AN	THONY CURZ	The ANDROBE COST. COM CURD - E-mainteighavene bessert you DEAR of the Planting Chica Arysto Was of Anglang Patroning Enture Angulas Sin Colleges, Chica Cult 10:144-570.	- N	March 12, 2019					
Sign	nature (Lead Agency Rep	resentative)	 Date						

California Environmental Quality Act Checklist Less-Than-Less-**Potentially** Significant Than-No **Significant** Impact with Significant **Impact Impact** Mitigation **Impact** Incorporated 3.1 **AESTHETICS** Would the project: \boxtimes \Box Have a substantial adverse effect on a scenic vista? \boxtimes Be visible from or obstruct views from a regional riding or hiking trail? \boxtimes Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? \boxtimes d. Substantially degrade the existing visual character or quality of the site and its surroundings because of height, bulk, pattern, scale, character, or other features? \boxtimes Create a new source of substantial shadows, light, or glare which would adversely affect day or nighttime views in the area?

3.1.1 Environmental Setting

The project site is located in a sparsely developed, rural area of north Los Angeles County. On-site vegetation consists mostly of sparse, low-growing, desert scrub. There are no trees (including Joshua trees) of any kind on the project site. The project site is surrounded by other PV solar energy facilities to the east and two residential dwelling units to the northwest of the project site. All other land surrounding the project site is vacant and privately owned. There is existing electrical infrastructure in the area, including overhead telephone and/or cable circuits along 110th Street West and West Avenue G.

According to the California Scenic Highway Mapping System, there are no officially designated or eligible State scenic highways near the project site vicinity, and none of the roads surrounding the project site are identified as scenic corridors (either as Adopted Routes, First Priority Routes, or Second Priority Routes) under the County General Plan (General Plan) and the Area Plan. 5.6.7 There is a Scenic Drive, as designated by the Area Plan, one mile to the south of the project site. It is the intent of the Area Plan to "develop and

⁵ California Department of Transportation (Caltrans). 2011. California Scenic Highway Mapping System. Available at: http://www.dot.ca.gov/hq/LandArch/16 livability/scenic highways/index.htm. Accessed on May 24, 2018.

⁶ Los Angeles County Department of Regional Planning. 2015. Mobility Element General Plan 2035. Available at: http://planning.lacounty.gov/generalplan/generalplan. Accessed on May 24, 2018.

⁷Los Angeles County. 2015. Antelope Valley Area Plan. Available at: http://planning.lacounty.gov/assets/upl/project/tnc_draft-20150601.pdf. Accessed on May 22, 2018.

implement a program for future review of proposed developments within viewsheds of Scenic Drives...." (Area Plan, IMP-6). Such a program has not yet been developed. The area surrounding the project site is a rural environment with few existing land uses that emit ambient light. There are no street or traffic lights in the vicinity of the project site.

3.1.2 **Project Impacts**

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

No Impact. There are no designated or eligible State scenic highways or vistas in the vicinity of the project site and none of the roads surrounding the project site are identified as scenic corridors (either as Adopted Routes, First Priority Routes, or Second Priority Routes) or Scenic Drives under the General or Area Plans or the California Scenic Highway Mapping System. ^{8,9,10} In the absence of designated scenic vistas, the impact of the project on such vistas is less than significant. The proposed solar array will stand approximately 6–8 feet tall and will not degrade or obstruct views of the surrounding mountains and buttes from the vantage points surrounding the project site. As shown on Figure 11, Photo Simulation along 110th Street West, the proposed PV panels would largely be hidden behind the chain-link fence and the proposed landscape buffer. Therefore, there will be a less-than-significant impact to scenic resources and no mitigation is required.

b. Would the project be visible from or obstruct views from a regional riding or hiking trail?

Less-Than-Significant Impact. The Pacific Crest Trail (PCT), the most notable trail in the area, is approximately 20 miles west of the project site, and due to distance and intervening topography, views of the project site from the PCT are very limited, if it is visible at all. ¹¹ The project site is located in an area adjacent to several existing solar facilities and power lines. For these reasons, implementation of the proposed project will not adversely affect the visual experience for recreationists on the PCT.

The County Department of Parks and Recreation has proposed a segment of the California Poppy Trail to be built along the west side of 110th Street West. Currently, this paper trail segment is occupied by the existing road shoulder and an existing power line right-of-way. Due to the existing presence of the power line right of way, implementation of the proposed project will not adversely affect the visual experience for recreationists on the proposed California Poppy Trail.

A Decommissioning Plan will be prepared and submitted to the County for approval prior to the issuance of a CUP and grading permit. The Decommissioning Plan will include plans to ensure the project site is

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⁸ California Department of Transportation (Caltrans). 2011. California Scenic Highway Mapping System. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed May 24, 2018.

⁹ Los Angeles County Department of Regional Planning. 2015. Mobility Element General Plan 2035. Available at: http://planning.lacounty.gov/generalplan/generalplan, Accessed on May 24, 2018.

 $^{^{\}rm 10}$ Los Angeles County. 2015. Antelope Valley Area Plan. Available at:

http://planning.lacounty.gov/assets/upl/project/tnc_draft-20150601.pdf. Accessed on May 22, 2108.

¹¹ Pacific Crest Trail Experience Association. 2018. Map, Available at: https://www.pcta.org/discover-the-trail/maps/. Accessed on May 24, 2018.

Regional Planning

returned to a pre-construction beneficial use upon termination of the project. Therefore, impacts on riding or hiking trails are less than significant and no mitigation is required.

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

No Impact. As previously discussed, there are no designated or eligible State scenic highways or vistas in the vicinity of the project site, and none of the roads surrounding the project site are identified as scenic corridors (either as Adopted Routes, First Priority Routes, or Second Priority Routes) or Scenic Drives under the General or Area Plans. ^{12,13,14} The project site does not contain any trees, rock outcroppings, or other prominent visual features. Therefore, the project will have no impact on scenic resources.

d. Would the project substantially degrade the existing visual character or quality of the site and its surroundings because of height, bulk, pattern, scale, character, or other features?

Less-Than-Significant Impact with Mitigation. While the proposed project will not affect any designated scenic vistas, the project involves the installation of an approximately 155-acre solar array and related appurtenances on currently undeveloped land. Thus, changes in the visual characteristics of the project site will occur. The proposed PV panels will be placed on mounting structures and are anticipated to reach approximately 6 to 10 feet above the ground. If a tracking system is implemented, the top height of the panels will vary slightly throughout the day as the panels rotate to track the movement of the sun across the sky. The tallest components of the project will be higher than eye level and, therefore, the solar facility will obstruct views through the project site for viewers on adjacent roadways.

The lands surrounding the project site are largely open space and sparsely developed with residences and other PV solar facilities. Given the rural nature of the project site, relatively few people are traveling on the roads adjacent to the project site at any given time. The project site is not located near any heavily visited land uses and will not be viewed regularly by the general public. The project and associated fencing will not degrade or obstruct views of the surrounding mountains and buttes from the vantage points surrounding the project site. Nevertheless, the visual change in character of the project site from open space to developed solar facilities will be considerable and significant.

Considering the mix of existing surrounding land uses (i.e., open space, rural development, agriculture, and utility infrastructure), implementation of the project will be generally compatible with the character of the existing surrounding land uses. The utility-related function and aesthetic of the project will not substantially degrade the character of the surrounding area. Pursuant to the County Code, solar energy facilities are a conditionally allowed use in the A-2 Zone, which shows that the County generally considers them to be a compatible use in the area when appropriately designed and conditioned. There are several other PV solar

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¹² California Department of Transportation (Caltrans). 2011. California Scenic Highway Mapping System. Available at: http://www.dot.ca.gov/hq/LandArch/16 livability/scenic highways/index.htm. Accessed on May 24, 2018.

¹³ Los Angeles County. 2015. Antelope Valley Area Plan. Available at: http://planning.lacounty.gov/assets/upl/project/tnc_draft-20150601.pdf. Accessed on May 22, 2018.

¹⁴ Los Angeles County Department of Regional Planning. 2015. Mobility Element General Plan 2035. Available at: http://planning.lacounty.gov/generalplan/generalplan. Accessed on May 24, 2018.

energy facilities directly to the east of the project site. Further, there is existing electrical infrastructure in the area, including overhead electrical circuits along 110th Street West and West Avenue G.

The Applicant of the proposed project has submitted a Landscape Plan to the County for review. The proposed landscaping will provide a visual buffer between the public roadways and the project along the portions of the perimeter fence parallel to 110th Street West and the West Avenue G and the southern boundary. According to the proposal, views into the project site will be obscured and naturalized through the use of the required landscaping along the perimeter fence. The implementation of the landscaping plan will reduce the visual impacts of the on-site solar array to less than significant. The property east of the project site is also a PV solar energy facility and a landscaping buffer will be unnecessary. Finally, the property south of the proposed project is vacant, unused land owned by private individuals and a landscaping buffer will also be unnecessary

As shown on Figure 11, the proposed solar array and associated fencing will not degrade or obstruct views of the surrounding mountains and buttes from the vantage points surrounding the project site. Figure 11 shows the proposed viewshed from the northwest corner of the project site looking east along West Avenue G. The viewshed depicted in Figure 11 illustrates the additional improvements that will occur from implementation of the proposed landscape at maturity, which will reduce impacts to public views of the project site from adjacent areas. The landscaping will be manually irrigated three times a week for a initial 90-day maintenance period or until successfully established, and thereafter will be monitored monthly and maintained as needed during the life of the project. Implementation of Landscape Plan will reduce the visual impacts of the on-site solar array to less than significant. Figure 12 displays the southeast portion of the project site, facing north, which will not be landscaped since it borders other solar facilities to the east.

A Decommissioning Plan for the project has been prepared and will be submitted to the County for approval prior to the issuance of a grading permit. This Decommissioning Plan will ensure that the project site is returned to a beneficial use upon termination of the proposed solar energy generation uses if required. Although there is a 20-year life of the power purchase agreement, it is more likely that the project's solar field will continue to operate for approximately 35 years, which is the useful life of the PV panels. Therefore, any visual impacts created by the project will exist only for the life of the proposed project, and the project site will be restored per the County requirements thereafter.



Figure 11. Proposed Project: Northwest corner of Project Site, Facing East along West Avenue G



Figure 12. Proposed Project: Southeast Corner, Facing North

e. Would the project create a new source of substantial shadows, light or glare which would adversely affect day or nighttime views in the area?

Less-Than-Significant Impact with Mitigation. As previously noted, the project site is located in a rural environment with few existing land uses that emit ambient light. Due to the rural nature of the surrounding area, any additional contribution of night lighting will be considered a significant impact. The proposed project may include lighting at project entrance gates for security and around the main switchgear for occasional nighttime service needs, but nighttime activities are not anticipated during operation of the project. In order to reduce potential impacts associated with the security lighting, Mitigation Measure (MM) AES-2 (see section 3.1.3) requires that any on-site lighting consist of modern, low-intensity, downward-shielded fixtures that are motion activated, and will be directed onto the project site. Since the lights will be motion activated, they will only be occasionally visible by nearby residences when activity in the area

triggers the lights. Motion detectors will be set at a sensitivity level that could not be triggered by small animal movement. In addition, MM AES-1 will require the applicant to submit a Landscape Plan to the County for review. This Landscape Plan shall incorporate (native or non-native) vegetative landscaping periodically spaced, that is suitable to withstand the typical weather and climate conditions near the project site. Irrigation via water trucks will be required until the landscaping is established. The proposed landscaping will provide a visual buffer between the public roadways and the project along the portions of the perimeter fence parallel to 110th Street West and West Avenue G. This measure will reduce the visual impacts of the on-site solar array. Implementation of MM AES-1 and MM AES-2 will reduce impacts from lighting to a less-than-significant level. The project's construction activities are planned to occur during daylight hours.

Although not anticipated, nighttime construction (if any) will be conducted in accordance with appropriate County safety, noise, and other requirements. Increased truck traffic, and the transport of solar arrays and construction materials to the project site will temporarily increase glare conditions during construction. However, this increase in glare will be minimal and temporary. Construction activity will occur on focused areas of the project site as construction progresses and any sources of glare will not be stationary for a prolonged period of time. Additionally, the surface area utilized by construction equipment will be minimal compared to the scale of the project site. Therefore, construction of the proposed project will not create a new source of substantial glare that will affect daytime views in the area. Impacts will be less than significant during the construction period.

During operation, the primary potential for glare will be from the glass surfaces of the PV panels. The PV panels will not be expected to cause significant glare because PV panels are designed to absorb as much sunlight as possible and therefore will have minimal reflectivity. The proposed solar array will consist of flat-plate PV panels, which incorporate anti-reflective and/or diffusion coating technologies that reduce fugitive glare and increase the efficiency of the solar facility. Any glare impacts that will occur will be further reduced by intervening elements in the immediate viewshed, such as the chain-link fence around the perimeter of the project site and the vegetative screening incorporated into the project. The project received a letter from the County Land Use Commission dated April 2018. The letter states that the project lies outside of the Airport Influence Area (AIA). The applicant has also provided a Glare Study prepared by Blue Oak Energy dated May 2018. The report indicates that the site does not pose glare hazards for surrounding potential viewsheds. Therefore, the proposed project will result in less-than-significant impacts related to glare.

A Decommissioning Plan for the project was prepared and will be submitted to the County for approval prior to the issuance of a grading permit. This Decommissioning Plan will ensure that the project site is returned to a beneficial use upon termination of the proposed solar energy generation uses if required. Although there is a 20-year life of the power purchase agreement, it is more likely that the project's solar field will continue to operate for approximately 35 years, which is the useful life of the PV panels.

¹⁵ County of Los Angeles Airport Land Use Commission. 2018. Ground-mounted Utility-Scale Solar Energy Facility Southwest Corner of 110th Street West and West Avenue G, Lancaster, CA, 93536, APNs 3265-006-001 and -002, 3256-007-001031-(5). April 24.

¹⁶ Blue Oak Energy. 2018. Antelope Expansion 3 Solar – Glare Hazard Study. April 21.

Nevertheless, all light and glare impacts discussed above will be eliminated entirely following the decommissioning of the project.

3.1.3 <u>Mitigation Measures</u>

MM AES-1: The project shall incorporate drought tolerant (native or non-native) vegetative landscaping periodically spaced, that is suitable to withstand the typical weather and climate conditions near the project site along the perimeter fence parallel to 110th Street West and West Avenue G. A Landscape Plan shall be prepared by the Applicant and reviewed and approved by the county. The Landscape Plan shall include species of an appropriate growth form (height, density, etc.) to provide shielded views. In connection with landscape installed, irrigation via water trucks will be conducted until the landscaping is established or up to 90 days. Landscaping will be maintained as needed during the life of the project and will be monitored monthly.

MM AES-2: Any lighting that may be installed in specific locations within the project site, as required for nighttime security purposes, shall consist of modern, low-intensity, downward-shielded fixtures that are motion activated, and will be directed onto the project site. Motion detectors shall be set at a sensitivity level that cannot be triggered by small animal movement or vehicular traffic.

Implementation of these mitigation measures will reduce impacts to aesthetics to a less-than-significant level.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.2 AGRICULTURE AND FO	REST RESC	<u>OURCES</u>		
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project, and the Forest Legacy Assessment project, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:					del (1997) g impacts mberland, California luding the est carbon
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Resources Agency, to non-agricultural use?				\boxtimes
b.	Conflict with existing zoning for agricultural use, with a designated Agricultural Opportunity Area, or with 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 in Public Resources Code section 4526), or timberland zoned Timberland Production (as defined in 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?				

3.2.1 Environmental Setting

The project site is located on undeveloped land that has historically been used as agricultural and/or vacant land since 1928 through present day. There are no trees of any kind on the project site. The project site is surrounded by other PV solar energy facilities to the east and two private residences northwest of the project site. Remaining surrounding parcels consist of vacant, previous agricultural land. The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) identifies the project site as "Grazing Land" and the project site does not contain any Prime Farmland, Unique Farmland, or

Farmland of State Importance.¹⁷ No part of the project site is under a Williamson Act contract.¹⁸ The vicinity of the project site is primarily undeveloped land and solar facilities; the nearest active agricultural use is approximately 1.15 miles southwest of the project site.

3.2.2 **Project Impacts**

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The project site is presently a fallow agricultural field and no agricultural use is currently active on the project site. The project site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; therefore, no impact would occur.

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

Less Than Significant. The project site is zoned A-2, as illustrated in the Land Use Map of the County General Plan 2035. Based on historical site photos, the project site was undeveloped from 1928 to 1948 and was used for agriculture from 1948 to 1968. Since 1968, the project site has remained as fallow agricultural lands. The project site does not contain Williamson Act contracted lands. Therefore, the project will not conflict with existing zoning for agricultural use or a Williamson Act contract and will result in a less-than-significant impact.

¹⁷ State of California Department of Conservation. 2018. California Important Farmland Finder. Available at: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed on May 30, 2018.

¹⁸ State of California Department of Conservation. 2017. Williamson Act/Land Conservation Act. Available at: http://www.conservation.ca.gov/dlrp/lca. Accessed on May 30, 2018.

¹⁹ State of California Department of Conservation. 1997. California Agricultural Land Evaluation and Site Assessment Model. Available at: http://www.conservation.ca.gov/dlrp/lesa/Documents/lesamodl.pdf. Accessed on May 30, 2018.

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))?

No Impact. The project site is not zoned for forest land or timberland resources and does not contain any trees. No impacts associated with forest land or timberland would occur with the implementation of the project.

d. Would the project result in the loss of forest land or conversion of forest land to nonforest use?

No Impact. The project site is a fallow agricultural field and contains no forest land. The project will not result in the removal or conversion of forest land; therefore, no impacts will occur.

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?

No Impact. The proposed project will not cause changes in the environment that could indirectly result in the conversion of farmland to non-agricultural uses. The nearest active agricultural use is approximately 1.15 miles southwest of the project site. Adjacent and nearby properties to the east have been previously developed into solar fields and will not be affected by the project. Additionally, no effects associated with an agriculture-urban interface are expected for the current or future agricultural uses of the surrounding area. No impacts associated with this issue will occur with the implementation of the project.

3.2.3 <u>Mitigation Measures</u>

The project is not expected to result in significant impacts to agriculture. No mitigation measures are required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.3 AIR QUA	LITY			
	nere available, the significance criteria establis llution control district may be relied upon to ma				ent or air
Wo	ould the project result in:				
a.	Conflict with or obstruct implementation of applicable air quality plans of the Antelope Valley Air Quality Management District (AVAQMD)?				
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?				
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				
d.	Expose sensitive receptors to substantial pollutant concentrations?				
e.	Create objectionable odors affecting a substantial number of people?				

3.3.1 Environmental Setting

To protect the health and welfare of the populace, federal and State Ambient Air Quality Standards (AAQS) have been established for the following air pollutants: ozone (O_3) , carbon monoxide (CO), nitrogen dioxide (NO_2) , sulfur dioxide (SO_2) , inhalable particulate matter with a diameter of 10 microns or less (PM_{10}) , fine particulate matter with a diameter of 2.5 microns or less $(PM_{2.5})$, and lead. Regions that are not in attainment with the relevant AAQS are required to prepare plans and implement measures that will bring the region into attainment.

The project site lies within the boundaries of the Antelope Valley Air Quality Management District (AVAQMD), an air district within the Mojave Desert Air Basin (MDAB). The U.S. Environmental Protection Agency (USEPA) has designated the AVAQMD as being in Severe-17 Nonattainment for

ambient O_3 concentrations, and the AVAQMD has until 2021 to achieve attainment pursuant to its attainment plan.²⁰ The State has designated the AVAQMD as being in Severe Nonattainment for O_3 .²¹

3.3.2 Project Impacts

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

a. Would the project conflict with or obstruct implementation of applicable air quality plans of the AVAQMD?

No Impact. A project is considered nonconforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable AVAQMD rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. An example of a nonconforming project will be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area relative to the applicable land use plan.²²

As described in Section 3.3.2(b) below, the proposed project will result in construction criteria pollutant emissions below the CEQA significance thresholds established by the AVAQMD, and therefore will not conflict with or delay implementation of any applicable attainment or maintenance plan. The proposed project will not conflict with the applicable land use plan because there will be negligible long-term emissions of criteria pollutants, as described in Section 3.3.2(b) below, and the proposed project will not generate new growth on the project site. Because no impacts will occur, no mitigation is required.

b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less-Than-Significant Impact. The proposed project will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Air quality impacts will include exhaust emissions generated from diesel- and gasoline-powered construction equipment, construction and operational worker commuting, and construction material deliveries, and dust emissions from construction vegetation clearing and grading. Fugitive dust emissions include particulate matter and are a potential concern because the proposed project is in a nonattainment area for PM_{10} and O_3 .

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²⁰ Antelope Valley Air Quality Management District (AVAQMD). 2008. Federal 8-Hour Ozone Attainment Plan – Western Mojave Desert Non-Attainment Area. Available at:

https://avaqmd.ca.gov/files/f1327d674/AV%2008%20Ozone%20Plan%20Final.pdf. Accessed on June 6, 2018.

²¹ U.S. Environmental Protection Agency (USEPA). 2018. Green Book – 8-Hour Ozone (2008) Nonattainment Area Report. Available at: https://www3.epa.gov/airquality/greenbook/hncs.html#CA. Accessed on June 6, 2018.

²² Antelope Valley Air Quality Management District (AVAQMD). 2016. California Environmental Quality Act (CEQA) and Federal Conformity Guidelines. Available at: https://avaqmd.ca.gov/files/e5b34d385/AV%20CEQA%20Guides%202016.pdf. Accessed on June 6, 2018.

Table 3.3-1, Estimated Daily Emissions during Construction, summarizes the AVAQMD's mass emissions thresholds for short-term construction and long-term operational emissions. A project with emission rates below these thresholds is considered to have a less than significant effect on regional air quality throughout the AVAQMD.

Construction

Construction of the proposed project will result in emissions of reactive organic gases (ROGs), oxides of nitrogen (NOx), CO, sulfur oxides (SOx), PM₁₀, and PM_{2.5}. Emissions from construction will result from fuel combustion and exhaust from construction equipment and vehicle traffic (i.e., worker commute and delivery truck trips), grading, and other site work.

Once commenced, construction of the proposed project will require 12 months to complete. Construction activities are anticipated to occur five days per week. Project construction will include two primary phases: site preparation and grading for approximately three months (60 working days), and PV system installation for approximately nine months (200 working days). The California Emissions Estimator Model (CalEEMod) was used to model emissions resulting from construction equipment and worker commuting. The modeled construction equipment and schedule assumptions are provided in Appendix A, Air Quality Impact Study.

Table 3.3-1 provides the results of the emissions calculations for construction. Because the AVAQMD emissions guidelines are also based on an annual pounds per day basis, Table 3.3-1 shows a comparison of annual emissions to thresholds. The proposed project will be required to comply with AVAQMD Rule 403, Fugitive Dust, as a standard condition (MM AQ-1), which requires implementation of a Dust Control Plan. The Dust Control Plan includes strategies such as minimal grading and ground disturbance, and application of soil stabilizers. Therefore, dust control measures are included in the emissions calculations separately. The dust control measures modeled include stabilizing exposed site surfaces and reducing vehicle speeds on unpaved roads.

Table 3.3-1. Estimated Daily Emissions during Construction

	co	NOx	SOx	PM ₁₀	PM _{2.5}	Hydrogen Sulfide (H ₂ S)	Lead
Estimated Emissions (lbs/day*)	13.3	12.3	0.0290	29.9	4.38	-	-
Estimated Emissions with Dust Control Measures	13.3	12.3	0.0290	18.8	2.79	-	-
AVAQMD Threshold of Significance (lbs/day*)	548	137	137	82	65	54	3
Is the Threshold Exceeded?	No	No	No	No	No	No	No

^{*} lbs/day = pounds per day

Source: SWCA, 2018 based on CalEEMod 2016.3.2.

Table 3.3-1 indicates that project-related construction emissions will be less than the AVAQMD's CEQA thresholds and construction impacts will be less than significant. Furthermore, MM AQ-1 will require

additional dust control measures and reduced vehicle speeds, such as minimizing ground disturbance, application of soil stabilization methods such as mulching, and daily record-keeping of site conditions and responsive mitigation measures. It is expected that these additional measures will further reduce PM_{10} emissions. Therefore, with the implementation of MM AQ-1, less-than-significant impacts from the proposed project will be further reduced.

Operations and Maintenance

The proposed project will generate negligible air emissions during operations because the project will require minimal on-site personnel for operations and maintenance. Periodic repairs, equipment cleaning, and site monitoring will be conducted, but no permanent staff will be on-site. Solar PV panels and associated equipment will have an operating life of several decades; therefore, replacement of panels will be very infrequent. The solar panels may be cleaned no more than two times annually, requiring a work crew and light trucks (five or fewer vehicles). General landscape laborers will perform vegetation maintenance to maintain ground cover and to remove unwanted vegetation. Additional water truck trips will be necessary during the first 90 days of operations for irrigation to establish landscaping. Based on these factors, operational traffic associated with the project will be minimal. Table 3.3-2 provides the results of the emissions calculations for operations. Further details regarding the calculations provided in Tables are provided in Appendix A, Air Quality Impact Study.

Table 3.3-2. Estimated Daily Emissions during Operation

	CO	NOx	SOx	PM_{10}	PM _{2.5}	Hydrogen Sulfide (H ₂ S)	Lead
Estimated Emissions (lbs/dav*)	0.016	0.071	0.00016	0.0038	0.0038	-	-
AVAQMD Threshold of Significance (lbs/day*)	548	137	137	82	65	54	3
Is the Threshold Exceeded?	No	No	No	No	No	No	No

^{*} lbs/day = pounds per day

Source: SWCA, 2018 based on CalEEMod 2016.3.2.

As shown in Table 3.3-2, project-related operation-related emissions will be less than the AVAQMD's CEQA thresholds. Furthermore, the project is required to prepare and implement an Active Operation Renewable Energy Dust Control Plan, as outlined in AVAQMD Rule 302, as a standard condition (MM-AQ-2). Therefore, emissions impact from operations under the proposed project will be less than significant.

Decommissioning

As required by the County, a Decommissioning Plan will be prepared and submitted for approval to the County prior to the issuance of a grading permit for the proposed project. It is assumed that decommissioning of the proposed project will require the same construction scenario (e.g., activities, equipment, duration) as the initial development; however, future air quality impacts will be less than those

currently projected due to anticipated advancements in technology and a cleaner-burning construction equipment fleet mix. Therefore, with the implementation of MM AQ-1, future air quality impacts related to decommissioning will also be less than significant.

c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less-Than-Significant Impact. The AVAQMD is a nonattainment area for PM₁₀ and O₃. The proposed project will contribute to O₃ precursors and PM₁₀ pollutants to the area during short-term construction. However, as described in Section 3.3.2(b) above, these emissions will be below the AVAQMD regional thresholds for O₃. Table 3.3-1 indicates that project-related construction emissions will be less than the AVAQMD's CEQA thresholds and construction impacts will be less than significant. Furthermore, MM AQ-1 will require additional dust control measures, such as minimizing ground disturbance, application of soil stabilizers, and daily record-keeping of site conditions including responsive mitigation measures. It is expected that these additional measures will further reduce PM₁₀ emissions, and this impact is less than significant. An Active Operation Renewable Energy Dust Control Plan will also be submitted annually to the AVAQMD for control of operation-related dust-generating activities as described in MM AQ-2. Therefore, with the implementation of MM AQ-1 and MM AQ-2, less-than-significant impacts from the proposed project will be further reduced.

d. Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-Than-Significant Impact with Mitigation. There is a single-family residential property located approximately 100 feet west of the northwest corner of the project site, a second residence located approximately 150 feet northwest of the northwest corner of the project site, and a third residence located approximately 0.43 mile north of the northwest corner of the project site. Other than the foregoing, there are no additional residences, schools, nursing homes, or other sensitive receptors within approximately 0.5 mile of the project site.

Exposure of sensitive receptors is addressed for two situations: CO hotspots and diesel exhaust emissions. A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically at signalized intersections. Because existing traffic volumes in the area are low and the proposed project will not generate significant traffic volumes, it will not create or contribute to a CO hotspot and, therefore, no analysis is necessary.

Construction of the proposed project will result in the generation of diesel PM emissions from the use of on-site, heavy-duty, and off-road diesel equipment that is required for construction activities, and from on-road diesel equipment used to bring materials to and from the project site. The proposed project will utilize relatively few pieces of diesel equipment and the construction period will last approximately 12 months. The exposure to nearby individuals (sensitive receptors) will be less than threshold levels and the impact will be less than significant. No mitigation will be required.

Valley Fever also occurs in the Antelope Valley. 23 Although not a direct air pollutant, Valley Fever (coccidioidomycosis) fungal spore infections develop through inhalation of airborne fungal spores contained in windblown dust, and it is recognized to be endemic in areas with dry, alkaline soil conditions. Grading or other soil-disturbing activities have been known to release the spores into the air, thereby increasing the risk that nearby people could inhale the spores. In order to prevent exacerbating the existing windblown dust issues in the vicinity of the project site, all construction activity for the proposed project (including decommissioning activities) will be conducted under a rigorous Dust Control Plan prepared in accordance with AVAQMD Rule 403. As set forth in MM AQ-1, sPower shall prepare a Dust Control Plan that includes requirements for minimal grading, water application, soil stabilizers, and daily record-keeping of site conditions including responsive mitigation measures. Implementation of MM AQ-1 will prevent the proposed project from substantially increasing windblown dust concentrations compared to background levels and will reduce potential impacts to sensitive receptors to levels less than significant.

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

Less-Than-Significant Impact. The proposed project will not undertake activities that generate odors. Diesel exhaust fumes will be generated by equipment during construction activities, but any such odors will occur for short periods and will dissipate within a short distance from the project site. The odors will not be objectionable because of the relatively small magnitude and short duration, as well as the low number of residents adjacent to the project site. Operation of the proposed project will not cause any objectionable odors. Therefore, project impacts related to odor will be less than significant, and no mitigation is necessary.

3.3.3 Mitigation Measures

MM AQ-1: During construction, sPower shall comply with AVAQMD's Rule 403, Fugitive Dust, by preparing a Dust Control Plan for controlling fugitive dust. The Dust Control Plan shall be subject to the review and approval of AVAQMD and include the following strategies:

- a. Minimal Grading and Ground Disturbance: The proposed project will perform the minimum amount of grading and disturb the minimum amount of existing vegetation to construct the proposed project. Generally, graded areas shall be limited to fire access/service roads, substations, water tanks, inverter, equipment, and switchgear pads, detention basins, and isolated locations where topography may interfere with panel rotation. Clearing and grubbing and removal of vegetation shall be limited to graded areas. Existing vegetation outside of graded areas and under the proposed solar panels will not be removed but may be mowed so as to preserve the root structure.
- b. <u>Construction Scheduling</u>: Grading activities will be temporarily halted and/or project site watering will be increased during wind speeds that exceed 25 miles per hour, or when visible dust plumes have the potential to be transported off of the project site.

²³ County of Los Angeles Department of Public Health, 2018. Frequently Asked Questions (FAQ) – Valley Fever (Coccidioidomycosis). Available at: http://publichealth.lacounty.gov/hea/library/topics/valleyfever/CDCP-ACDC-0037-01.pdf. Accessed on June 6, 2018.

- c. <u>Soil Stockpiles</u>. Stockpiles will be covered with a tarp or watered to ensure that soil will not create dust from wind or work activities.
- d. Water Application: During construction, the proposed project will apply water to control fugitive dust from the project site as necessary and required by the AVAQMD and as specified in the Dust Control Plan. The use of water as a dust suppressant will occur only if the soil binder, mulch or hydro-mulch is not sufficient to control the dust after the natural vegetation has been mowed. Any movement of dirt would be halted when wind speeds exceed 25 miles per hour. A Dust Control Supervisor will be on-site during all earth moving activities to ensure compliance with the approved Dust Control Plan. The Dust Control Supervisor must have authority to implement additional dust mitigation measures if the situation warrants.
- e. <u>Soil Stabilizers/Wood Mulch</u>: Soil binders or wood mulch will be applied as necessary on graded and disturbed areas within the solar PV array areas.
- f. Monitoring: A delegated Dust Control Supervisor will be on-site during all construction activities to ensure compliance with the approved Dust Control Plan. The Dust Control Supervisor will monitor all construction activities for visible dust plumes and will promptly implement additional dust plume reduction measures in the event that such visible dust plumes are observed. Additional measures to be implemented, as necessary, will include increased watering, application of dust palliatives, and/or scaled-back construction activities up to and including temporary work cessation. Compliance will be documented daily and records will be available for the County and AVAQMD, upon request. The Dust Control Supervisor must complete the AVAQMD Fugitive Dust Control Class.
- g. <u>Valley Fever</u>: Construction and operations personnel shall receive training to understand and manage the risks associated with Valley Fever. Training shall include information on the medical aspects associated with Valley Fever, how to recognize symptoms of Valley Fever and ways to minimize exposure. Training sign-in sheets will be documented and records will be available for the County and AVAQMD, upon request. Construction activities will adhere to AVAQMD Dust Control Plan requirements, Rule 403 for Fugitive Dust, and worker health and safety requirements.
- h. <u>High Winds.</u> Any movement of dirt would be halted when wind speeds exceed 25 miles per hour.

MM AQ-2: During operation, sPower shall comply with AVAQMD's Rule 302, Fugitive Dust, by preparing and submitting an Active Operation Renewable Energy Dust Control Plan annually pursuant to the provisions of District Rule 403(D)(1)(j). The plan shall be subject to the review and approval of AVAQMD.

Implementation of these mitigation measures will reduce impacts to air quality to a less-than-significant level.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.4 BIOLOGICAL R	ESOURCES			
Wo	ould 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 (CDFW) or U.S. Fish and Wildlife Service (USFWS)?				
b.	Have a substantial adverse effect on any sensitive natural communities (e.g., riparian habitat, coastal sage scrub, oak woodlands, non-jurisdictional wetlands) identified in local or regional plans, policies, regulations or by CDFW or USFWS?				
c.	Have a substantial adverse effect on federally or state protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, and drainages) or waters of the United States, as defined by Section 404 of the federal Clean Water Act or California Fish & Game Code Section 1600, et seq. through direct removal, filling, hydrological interruption, or other means?				
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?				
e.	Convert oak woodlands (as defined by the state, oak woodlands are oak stands with greater than 10% canopy cover with oaks at least 5 inches in diameter measured at 4.5 feet above mean natural grade) or otherwise contain oak or other unique native trees (juniper, Joshua trees, southern California black walnut, etc.)?				

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
f.	Conflict with any local policies or ordinances protecting biological resources, including Wildflower Reserve Areas (L.A. County Code, Title 12, Ch. 12.36), the Los Angeles County Oak Tree Ordinance (L.A. County Code, Title 22, Ch. 22.174), the Significant Ecological Areas (SEAs) (L.A. County Code, Title 22, Ch. 102), and Sensitive Environmental Resource Areas (SERAs) (L.A. County Code, Title 22, Ch. 22.44)?				
g.	Conflict with the provisions of an adopted state, regional, or local habitat conservation plan?				\boxtimes

3.4.1 Environmental Setting

A Biological Resources Technical Report was prepared for the proposed project, a copy of which is provided in Appendix B. The biological resources study included query and review of local records of species and habitats, aquatic resources, mapped critical habitat, soils, and other resources from the California Natural Diversity Database, U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Department of Agriculture Natural Resources Conservation Service, Environmental Protection Agency, and eBird. A Jurisdictional Delineation Report was prepared to characterize aquatic resources potentially under the jurisdiction of the California Department of Fish and Wildlife, the Regional Water Quality Control Board (Lahontan region), and/or the U.S. Army Corps of Engineers, which is provided in Appendix C.

The Project is located at the western edge of the Mojave Desert, in the Antelope Valley, which contains the largest area of rural lands remaining in Los Angeles County. At its northwest edge, the Antelope Valley is separated from the San Joaquin Valley by the Tehachapi Mountains. To the south and southwest, it is separated from the Los Angeles Basin by the San Gabriel Mountains. The Antelope Valley is bounded to the north by the Tehachapi Mountains along the Garlock Fault, and to the east by isolated buttes. The Antelope Valley is a closed basin; that is, a basin which has no outlet for its surface streams. All precipitation either sinks into the ground or collects in the (usually dry) lake basins in the lowest elevations.

The Antelope Valley is generally known for its natural resources spread out among different areas, such as Joshua trees, intense spring wildflower blooms, grazing lands, and cherry orchards. Many of the lands around the Project were previously used for agriculture, and non-native plants, especially grasses, are prevalent. The Antelope Valley California Poppy Reserve State Natural Reserve and the San Andreas Significant Ecological Area are located approximately two miles to the west of the Project.

The Project site is relatively flat, with a maximum elevation of approximately 2,503 feet above mean sea level (amsl) along 110th Street West and a minimum elevation of approximately 2,464 feet amsl at the Big Sky North Substation on 100th Street West. Other operational solar PV facilities are located in the immediate vicinity of the Project area to the east and along the gen-tie route which extends east through relatively flat private easements adjacent to existing solar facilities.

The Project site consists of long-fallow agricultural fields that are dominated by non-native, invasive grasses. Some native plants are also present, including shrubs, perennials, and herbaceous wildflowers. Two vegetation communities were identified: Cheatgrass Grasslands (*Bromus tectorum* Herbaceous Semi-Natural Alliance) which covered just over 90% of site, and Fourwing Saltbush Scrub (*Atriplex canescens* Shrubland Alliance). Approximately 11 acres were mapped as disturbed/ruderal and developed areas, where no defined vegetation community is present. Additionally, a small section south of West Avenue G-8 within the Fourwing Saltbush Scrub is dune land. Native Wildflower Fields, which are considered sensitive by Los Angeles County, have also been described at the Project within the area mapped as Cheatgrass Grasslands. The soil types within the project site include soils from the Greenfield, Hanford, and Ramona series. The southernmost portion of the Project partially overlaps with a historic ephemeral stream originating from Portal Ridge.

3.4.2 **Project Impacts**

a. Would the project 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 (CDFW) or U.S. Fish and Wildlife Service (USFWS)?

Less than Significant with Mitigation. The Biological Resource Technical Report determined that there is potential habitat for 7 sensitive plant species and 23 special-status wildlife species.

Sensitive Plants

Of the plant species, only Clokey's cryptantha (*Crypantha clokeyi*) has a high potential for occurrence, based on the suitable habitat within the Fourwing Saltbush Scrub. However, development in this area has been avoided. The remaining sensitive plants, including alkali mariposa-lily (*Calochortus striatus*), Peirson's morning-glory (*Calystegia peirsonii*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), Mojave spineflower (*Chorizanthe spinosa*), and spreading navarretia (*Navarretia fossalis*), all have a low potential for occurrence due to the lack of ideal conditions. The implementation of MM BIO-1, MM BIO-2, MM BIO-3, and MM BIO-4 will reduce the impact to any rare plants to less-than-significant.

Silvery Legless Lizard and Coast Horned Lizard

Silvery legless lizard (*Anniella pulchra* ssp., California Department of Fish and Wildlife [CDFW] Species of Special Concern [CSSC], has suitable habitat in the dune lands located south of West Avenue G-8. This species was observed in similar habitat less than 1.5 miles north during a field survey conducted by SWCA Environmental Consultants (SWCA) for a different project in 2017 and 2018. Based on habitat quality in the dune lands, silvery legless lizard has a high potential for occurrence. Coast horned lizard (*Phrynosoma*

blainvillii, CSSC) has not been observed nearby, but has a moderate potential to occur due to the presence of suitable habitat. With the implementation of MM BIO-1, MM BIO-2, MM BIO-3, and MM BIO-5, impacts on silvery legless lizard and coast horned lizard will be reduced to less than significant.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a State Threatened (ST) species known to nest within Antelope Valley. There are three California Natural Diversity Database (CNDDB) records of Swainson's hawk nests, located approximately 1.9–2.9 miles north and southwest of the project site. There are no large trees on site; therefore, there are no suitable nest sites. However, given the proximity of known nest locations, Swainson's hawk is likely to be found foraging on the project site. The implementation of MM BIO-1, MM BIO-2, MM BIO-3, BIO-6, and MM BIO-7 will reduce the impact to less than significant.

Burrowing Owl

Burrowing owl (*Athene cunicularia*, CSSC) has a high potential for occurrence throughout the project site. There is an abundance of rodent burrows, which provide suitable nesting habitat for burrowing owl. There are several CNDDB records of burrowing owl within 5 miles of the project site, including one documented in 2007 on the project site. Several burrowing owl surveys have been conducted within a few miles of the project, including parcels adjacent to the project site, north of West Avenue G. Active burrows have been documented as recently as 2018 and as close as 0.5 miles north of the project site. The implementation of MM BIO-1, MM BIO-2, MM BIO-3, BIO-6, and MM BIO-8 would reduce the impact on burrowing owl to less than significant.

Desert Kit Fox and American Badger

Desert kit fox (*Vulpes macrotis arsipus*, CDFW Special Animal [SA]) and American badger (*Taxidea taxus*, CSSC) are known to occur throughout Antelope Valley. These species are rarely encountered due to their nocturnal habits. Given the quality of habitat, there is a moderate potential for these species to occur. The implementation of MM BIO-1, MM BIO-2, MM BIO-3 and MM BIO-9 would reduce the impact on desert kit fox and American badger to less than significant.

Loggerhead Shrike and Western Meadowlark

Two sensitive bird species, loggerhead shrike (*Lanius ludovicianus*, CSSC), and western meadowlark (*Sturnella neglecta*), were observed during the field survey. Both are locally common, and there is suitable nesting habitat on-site. The implementation of MM BIO-1 MM BIO-2, MM BIO-3 and BIO-6 would reduce the impacts to loggerhead shrike, western meadowlark, and other sensitive species to less than significant.

Non-nesting Birds

Other bird species that have moderate to high potential to occur within the project site include tricolored blackbird (*Agelaius tricolor*; CSSC), golden eagle (*Aquila chrysaetos*, California Fully Protected [CFP]), northern harrier (*Circus hudsonius*, CSSC), and mountain plover (*Charadrius montanus*, CSSC). However, these species are likely to only be utilizing the project site for foraging or as a wintering site. There are no suitable nesting sites for these avian species. Any impact would be reduced with the implementation of MM BIO-1, MM BIO-2, MM BIO-3, and BIO-6, and impacts would be less than significant.

Townsend's Big-eared Bat

Townsend's big-eared bat (*Corynorhinus townsendii*, CSSC) has a moderate potential to occur while foraging in flight over the project site. Since the project site lacks trees, buildings, rocky outcrops, mines, and other prominent landscape features, there are no suitable hibernacula (overwintering sites) or roosting sites for any species of bat. Impacts to Townsend's big-eared bat would be less than significant and no mitigation is required.

All Wildlife

As noted above, several candidate, sensitive, or special-status species have the potential to occur on or near the project site. Due to the low probability of their occurrence, and habitat conditions which are of low quality for most of these species, impacts would be less than significant and no mitigation is required. The implementation of MM BIO-1, MM BIO-2, MM BIO-3, BIO-4, BIO-5, and BIO-6 would further avoid and minimize impacts to all wildlife species present.

b. Would the project have a substantial adverse effect on any sensitive natural communities (e.g., riparian habitat, coastal sage scrub, oak woodlands, nonjurisdictional wetlands) identified in local or regional plans, policies, regulations or by CDFW or USFWS?

Less Than Significant Impact with Mitigation. Native Wildflower Fields were identified at the Project site which the County identifies as a sensitive natural community and locally important resource; the extent of this community was not mapped in 2018. A survey shall be conducted during the spring 2019 blooming period to identify and map Native Wildflower Fields at the Project. No other sensitive natural communities such as riparian habitat, coastal sage scrub, or oak woodlands were identified Four non-jurisdictional features were identified, including one swale, one depression, and two discontinuous ephemeral drainages (refer to the Jurisdictional Delineation Report, Appendix C). However, these features were determined to be non-sensitive natural resources. These features do not meet the criteria to be considered a jurisdictional wetland. The features lacked visible evidence of soil saturation, wetland hydrology, and hydrophytic vegetation, and do not contain any hydric soils. Additionally, flow appears to be captured by the drainage south of West Avenue H and flows to the northeast. The implementation of MM BIO-1, MM BIO-2, MM BIO-3 and MM BIO-10 would reduce the impacts on Native Wildflower Fields to less than significant.

c. Would the project have a substantial adverse effect on federally or state protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, and drainages) or waters of the United States, as defined by Section 404 of the federal Clean Water Act or California Fish & Game Code Section 1600, et seq. through direct removal, filling, hydrological interruption, or other means?

No Impact. As indicated in in the Jurisdictional Delineation Report (Appendix C), the project site does not contain any federally or State-protected wetlands or waters of the United States; therefore, no impact is anticipated.

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?

Less Than Significant Impact. The project site is currently open for wildlife passage, other than the restrictions of the roads bounding the north, south, and west of the project site. There are no terrestrial species in the project area that exhibit stereotyped seasonal migration patterns. Project implementation will include the installation of chain-link fencing around the perimeter of the project site with 50'-wide, 12-inch high, wildlife pass-through openings every 500' on-center. The land north, south, and west of the project site is vacant, consisting of several miles of open space without substantial residential or commercial development. The project site has been previously disturbed due to agricultural practices, which has removed much of the native vegetation. The project site is not located within any migration corridor and there is no indication of concentrated movement through the project site or adjacent lands. The proposed project would not affect regional wildlife movement or interfere substantially with the movement of any native resident in areas surrounding the project site, nor would it impede the use of native wildlife nursery sites. Impacts would be less than significant, and no mitigation is required.

e. Would the project convert oak woodlands (as defined by the state, oak woodlands are oak stands with greater than 10% canopy cover with oaks at least 5 inches in diameter measured at 4.5 feet above mean natural grade) or otherwise contain oak or other unique native trees (juniper, Joshua trees, southern California black walnut, etc.)?

No Impact. There are no oak trees, Joshua trees, or any other unique native trees on the project site; therefore, no impacts are anticipated.

f. Would the project conflict with any local policies or ordinances protecting biological resources, including Wildflower Reserve Areas (L.A. County Code, Title 12, Ch. 12.36), the Los Angeles County Oak Tree Ordinance (L.A. County Code, Title 22, Ch. 22.174, Part 16), the Significant Ecological Areas (L.A. County Code, Title 22, Ch. 102), and Sensitive Environmental Resource Areas (L.A. County Code, Title 22, Ch. 22.44)?

No Impact. The project site is not located within or adjacent to a Wildlife Reserve Area, Significant Ecological Area, or Sensitive Environmental Resource Area and contains no oak trees, Joshua trees, or other unique native trees; therefore, the project would not conflict with any local policies or ordinances protecting biological resources. Therefore, there would be no impact.

g. Would the project conflict with the provisions of an adopted state, regional, or local habitat conservation plan?

No Impact. There is no adopted habitat conservation plan, natural community conservation plan, or other approved State, regional, or local habitat conservation plan applicable to the project site; therefore, no impacts associated with this issue would occur with the implementation of this project.

3.4.3 <u>Mitigation Measures</u>

MM BIO-1: WEAP Training. A worker education and awareness program (WEAP) shall be developed and implemented to train construction workers on sensitive biological resources potentially occurring in

the project area. In the event that no sensitive or special-status species are detected during pre-construction surveys, the WEAP shall consist of providing printed materials (e.g., brochure or pamphlet) to the workers showing habitat information and photographs of potentially occurring sensitive or special-status species. The WEAP materials shall also include information regarding legal punitive consequences should anyone cause harm or injury to the species. The WEAP materials shall be submitted to the County for approval, after which the printed materials will be distributed to each construction worker, with signed acknowledgement of receipt, prior to work.

MM BIO-2: Best Management Practices. BMPs shall be implemented as standard operating procedures during all ground disturbance and construction-related activities to avoid or minimize project impacts on biological resources. These BMPs shall include requirements to:

- Clearly delineate work areas and mark areas to be avoided with flagging and signage;
- Maintain vehicle speed limits of 15 miles per hour in the work area;
- Restrict disturbance to areas analyzed in this IS/MND;
- Perform daily cleanup of trash and excess construction debris;
- Cap all pipes greater than 4 inches in diameter;
- Report and remove any dead or injured wildlife (handling of CESA or ESA listed species is prohibited without a take permit);
- Restrict work to daylight hours unless approved by the County; and
- Prevent wildlife entrapment by covering excavations or constructing escape ramps in trenches.

MM BIO-3: Biological Monitoring. Prior to the commencement of ground disturbance or site mobilization activities, the applicant shall retain a qualified biologist to monitor project construction. Monitoring shall occur during ground disturbance. The qualified biologist shall be present at all times during ground-disturbing activities in all areas of the project immediately adjacent to, or within, habitat that supports populations of listed or special-status species. Any special-status plants shall be flagged for avoidance. Any special-status terrestrial species found within a project impact area shall be relocated by the authorized biologist to suitable habitat outside the impact area.

MM BIO-4: Rare Plants. The Applicant shall retain a qualified plant ecologist/botanist to conduct preconstruction surveys for special-status plant species in all areas subject to ground-disturbing activity, including, but not limited to, solar module footing preparation and construction areas, the gen-tie and communication line route, and areas subject to grading for new access roads. The surveys shall be conducted during the appropriate blooming period(s) by a qualified plant ecologist/botanist according to protocols established by the U.S. Fish and Wildlife Service (USFWS), CDFW, and California Native Plant Society. All listed plant species found shall be marked and avoided. Any populations of special-status plants found during surveys shall be fully described and mapped, and a California Native Plant Society Field Survey Form or written equivalent shall be prepared.

Any populations of special-status plant species identified in the disturbance areas shall be protected by a buffer zone. The buffer zone shall be established around these areas and shall be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of

disturbance, including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands, and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, physical and chemical characteristics of soils) that are identified by the qualified plant ecologist or botanist. The buffer for herbaceous and shrub species shall be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the County. Highly visible flagging shall be placed along the buffer area and remain in good working order during the duration of any construction activities in the area.

Where impacts to listed plants cannot be avoided, the USFWS or CDFW shall be consulted for authorization of take, as appropriate. Additional mitigation measures to protect or restore listed plant species or their habitat, including but not limited to a Salvage Plan that includes seed collection and replanting, may be required by the USFWS or CDFW before impacts are authorized.

If non-listed California Rare Plant Rank 1, 2, 3, or 4 plants cannot be avoided or transplanted to a suitable protected location on-site, and project-related impacts result in the loss of 10% or more of the local population (i.e., occurrences within 0.25 mile of the project impact location), compensatory mitigation shall be required.

To compensate for permanent impacts to special-status plants (including areas located beneath the arrays), habitat (which may include preservation of areas within the undisturbed areas of the project footprint, mitigation lands outside of the main project site, or a combination of both) that is not already public land shall be preserved and managed in perpetuity at a 1:1 mitigation ratio (1 acre preserved for each acre of the plant population impacted). The preserved habitat for a significantly impacted plant species shall be of equal or greater habitat quality to the impacted areas in terms of soil features, extent of disturbance, and vegetation structure, and shall contain verified extant populations, of the same size or greater, of the special-status plants that are impacted. Land identified to mitigate for rare plants may be combined with other offsite mitigation requirements of the proposed project if the compensatory habitat is deemed suitable to support the species requirements.

MM BIO-5: Reptiles. A relocation plan for coast horned lizard and northern California legless lizard shall be developed by a qualified biologist who is familiar with these species. The plan shall detail survey methodology, methods used for capturing and relocating individuals, and indicate areas with high likelihood of occurrence within the impact area based on habitat suitability. The relocation plan shall detail the habitat quality in any proposed relocation sites. Habitat at relocation sites shall be of equal or greater quality to the impact area. The relocation plan shall be submitted to the lead agency for approval at least 60 days prior to ground disturbance. Upon approval of the plan, individuals of these species shall be captured and relocated to similar habitat outside of the impact area.

If feasible, exclusion fencing (e.g. silt fencing) shall be installed prior to the start of ground disturbance and any relocation activities to prevent lizards from moving into construction areas.

MM BIO-6: Nesting Birds. Initial ground disturbance and vegetation removal shall be scheduled outside the nesting bird season (approximately February 1 to September 15) if feasible.

Regional Planning

If construction cannot be scheduled outside of the nesting bird season, a qualified wildlife biologist shall conduct pre-construction surveys of all potential nesting habitat within the project site and a 300-foot buffer, access permitting. Pre-construction surveys for nesting raptors shall cover potential raptor nesting sites within 0.5 mile of the project site. Surveys shall be conducted no more than 14 days prior to construction activities and the surveying biologist must be qualified to determine the status and stage of nesting without causing intrusive disturbance.

If active nests are detected during the pre-construction surveys, a suitable buffer from construction activities (500 feet for raptors [0.5 mile for Swainson's hawk]²⁴, 300 feet for all other species) shall be applied until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged or the nest has failed). A qualified biologist shall check the nest status at least once per week using the least invasive method feasible (e.g. observation with binoculars from a distance). These buffers may be reduced at the discretion of a qualified biologist with sufficient avian experience as long as the nesting birds continue to behave normally and do not show signs of stress caused by construction. If active Swainson's hawk nests are observed during the pre-construction survey, the Applicant shall consult with the resource agencies to determine appropriate actions.

MM BIO-7: Swainson's Hawk. A qualified biologist shall conduct a Swainson's hawk survey prior to construction or grading activities within a five-mile radius of the project area, including the previously-recorded nest sites and other potentially suitable locations. The survey protocol shall follow the guidelines set forth in the Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California with a focus on the identification of active nest sites. However, repeated visits shall not be conducted once a nest has been determined to be active. Swainson's hawk nest data from CDFW may be substituted for the survey. If active Swainson's hawk nests are identified during the surveys within 5 miles of the project, the following actions shall be taken to offset potential impacts.

- No construction activities shall occur within 0.5 mile of the active nests that may result in new disturbances, habitat conversions, or any other project related activity that may cause nest abandonment or forced fledging between March 1 and September 15. Adjustment to an established buffer may be possible with coordination and approval from CDFW. A Swainson's hawk Monitoring and Mitigation Plan shall be prepared in consultation with CDFW detailing measures to avoid and minimize impacts to Swainson's hawk within the project area and vicinity. Land identified to mitigate for Swainson's hawk may be combined with other offsite mitigation requirements of the proposed project if the compensatory habitat is deemed suitable to support the species.
- A mitigation plan shall focus on the acquisition of habitat management (HM) lands. In the event that Swainson's hawk foraging habitat is lost by construction activities, replacement land will be

²⁴ California Energy Commission and California Department of Fish and Game. 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. June 2, 2010. Available online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83991&inline. Accessed on June 5, 2018.

provided based on the quality of the mitigation land relative to the impacted habitat. The ratio of such replacement shall be determined as follows:

- O A ratio of 1 acre of replacement land for each 3 acres of development if the replacement land is superior nesting and foraging habitat, contiguous to occupied nesting and foraging habitat, and is within a designated or proposed Significant Ecological Area (SEA).
- A ratio of 1 acre of replacement land for each 2 acres of development if the replacement land is unoccupied irrigated land, contiguous to occupied habitat, and providing superior quality foraging habitat with trees or other such nesting habitat;
- o A ratio of 1 acre of replacement land for every 1 acre of development if the replacement land provides similar foraging and nesting habitat.

MM BIO-8: Burrowing Owl.

A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct preconstruction surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows no more than 14 days prior to ground-disturbing activities (i.e., vegetation clearance, grading, tilling, trenching, installation of piles, etc.). The survey methodology shall be consistent with the methods outlined in the 2012 *California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation*²⁵ and shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. The surveys may be conducted concurrently with other pre-construction surveys, when the methodologies are compatible. As each burrow is investigated, surveying biologists shall also look for signs of American badger and desert kit fox. Copies of the survey results shall be submitted to California Department of Fish and Wildlife and the Los Angeles County Natural Resources Department.

Occupied burrows shall be avoided if feasible, and a no-activity buffer set up around each occupied burrow as follows:

• Active nest burrow: 250 feet

• Occupied non-nesting burrow: 150 feet

These buffers may be reduced at the discretion of a qualified biologist who has at least one year of burrowing owl survey experience that includes behavioral observations of nesting burrowing owl, as long as the nesting birds continue to behave normally and do not show signs of stress caused by construction.

If avoidance of occupied burrows avoidance is infeasible during the non-breeding season; or during the breeding season (February 1 through August 31) after a qualified biologist has confirmed that either resident owls have not yet begun egg laying or incubation, or that the juveniles are foraging independently and capable of independent survival; a qualified biologist shall implement a passive relocation program in

²⁵ California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game. Sacramento, CA.

accordance with Appendix E1 (Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of the 2012 *California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation*.

If passive relocation is required, a qualified biologist shall prepare a Burrowing Owl Relocation Plan and Mitigation Land Management Plan in accordance with the 2012 *California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation*, for review by California Department of Fish and Wildlife prior to passive relocation activities. The Mitigation Land Management Plan shall include a requirement for the permanent conservation of off-site burrowing owl habitat through a conservation easement, or similar mechanism deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW-approved burrowing owl conservation bank, the project operator may purchase available burrowing owl conservation bank credits.

Land identified to mitigate for passive relocation of burrowing owl may be combined with other offsite mitigation requirements of the proposed project if the compensatory habitat is deemed suitable to support the species. The Mitigation Land Plan may be combined with the mitigation acreage provided for Swainson's hawk. The mitigation acreage will be sufficient to replace lost burrowing owl habitat at a ratio appropriate to the relative suitability and landscape intactness of the Project site compared to the mitigation lands. The majority of the habitat is long-fallow agricultural fields, so better quality habitat may include features such as increased vegetative structure, higher numbers of prey species, less disturbance, and less potential for predation by domestic animals.

Certain types of rodenticides, for example some that contain anti-coagulants, can result in direct or secondary poisoning of birds. Use of these types of rodenticides shall be avoided during project construction and operations.

MM BIO-9: Desert Kit Fox and American Badger. No more than 30 days prior to initiation of construction activities (i.e., mobilization, staging, grading, or construction), the Applicant shall retain a qualified biologist to conduct pre-construction surveys for desert kit fox and American badger. Surveys shall be conducted in areas that contain habitat for these species and shall include all disturbance areas and access roads plus a 300-foot buffer surrounding these areas. The Applicant shall submit documentation providing pre-construction survey results to the County. If dens are detected, each den shall be classified as inactive, potentially active, active non-natal, or active natal. Active dens shall be flagged and project activities within 200 feet (non-natal dens) or 500 feet (natal dens) shall be avoided. Buffers may be modified by the qualified biologist, in coordination with CDFW and with notification to the County. Active natal dens (any den with cubs or pups) shall not be excavated or passively relocated. The cub- or pup-rearing season is generally January 15 through mid-September.

If canine distemper is reported in desert kit fox on the project site or surrounding areas, the Applicant shall coordinate with the County and CDFW to identify appropriate actions prior to continuing implementation of this mitigation measure in respect to desert kit fox. Any observations of a desert kit fox that appears sick or any desert kit fox mortality shall be reported to the County and CDFW within one (1) workday.

MM BIO-10: Native Wildflower Fields. Disturbance of mapped Native Wildflower Fields shall be avoided if feasible, and measures to avoid and minimize impacts shall be included in the WEAP. If avoidance is not feasible the following actions shall be taken to minimize and offset impacts:

- Impacts from grading and heavy equipment shall be avoided where feasible to minimize the removal and compaction of topsoil and preserve the native seedbank. Native Wildflower Fields shall be marked on construction plan maps to facilitate impact minimization, and
- Permanent impacts to Native Wildflower Fields at the Project shall be offset through the acquisition and preservation of lands offsite. Lands appropriate for compensatory mitigation shall consist of vegetation communities with at least 10% cover of native grasses and annual herbs. Vegetation types suitable for use as compensatory mitigation may include habitats dominated by grasses, low herbaceous species, shrubs, or Joshua trees, so long as (1) the canopy is mostly open (less than 33% coverage), and (2) the herbaceous vegetation consists of at least 10% native grasses and/or wildflower species, based on the projected cover during the peak spring blooming period. Examples of vegetation communities that may be suitable as compensatory mitigation are: non-native grasslands, wildflower fields, Joshua Tree Woodlands, Creosote Bush Scrub, or similar open habitats.
- The ratio of compensatory mitigation lands should depend on the quality of the lands available. For compensatory mitigation lands similar in quality to the Project area (i.e dominated by non-native grasses and have extensive past disturbance by agriculture), a ratio of 1 acre of replacement lands for each 3 acres of permanently impacted Native Wildflower Field shall be required. For compensatory mitigation lands with higher proportions of native species and less disturbance, the ratio shall increase, up to 6 acres of replacement lands for every 1 acre impacted at the Project.
- Areas of temporary impacts in Native Wildflower Fields shall be allotted sufficient time to recover and regrow native vegetation following construction. Vegetation management on-site shall consist of mowing, with spot use of herbicides to control shrubs and non-native plants only where necessary.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.5 <u>Cultural Re</u>	ESOURCES			
Wo	ould the project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?				
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?				
C.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				
d.	Disturb any human remains, including those interred outside of dedicated cemeteries?				

3.5.1 Environmental Setting

A Cultural Resources Assessment was prepared for the proposed project, a copy of which is provided in Appendix D. As part of the Cultural Resources Assessment, a cultural resources records search, reconnaissance-level pedestrian field survey, Native American Heritage Commission (NAHC) Sacred Lands File search, and vertebrate paleontological resources assessment were conducted. The findings of the report are summarized in this section; aspects of the Cultural Resources Assessment specific to tribal cultural resources are detailed below under Section 3.18, Tribal Cultural Resources.

In general, the project site has been highly disturbed by former farming activities, and utility and road installations and maintenance. The records search revealed that five previous cultural resource studies have taken place, and nine cultural resources have been recorded within 1.0 mile of the project site. Of the five previous studies, none have assessed portions of the project site, and no cultural resources have been recorded within its boundaries. During the field survey conducted between November 6 and 8, 2017, no cultural resources (including prehistoric or historic period archaeological resources, or historic period architectural resources) were located within the project site boundaries. None of the naturally occurring materials observed during the field survey exhibited evidence of the manufacture or acquisition of prehistoric stone tools or materials.

A paleontological resources records search was requested from the Los Angeles County Natural History Museum (LACM). A response was received from Samuel McLeod, Vertebrate Paleontologist, on November 21, 2017 stating that no vertebrate fossil localities are recorded on the project site and that typically the younger alluvial deposits found on the project site do not contain significant vertebrate fossils.

The closest locality of fossil specimen was recorded in sites over 10 miles to the east with vertebrate fossils having been recovered from sediments of Pleistocene Lake Thompson as shallow as three feet below the ground surface. Lake Thompson included both Rosamond and Rogers dry lake beds and covered portions of the Lancaster West, Lancaster East, Rosamond, Rosamond Lake, Redman, Edwards, Rogers Lake South, and Rogers Lake North 7.5-minute USGS topographic quadrangles. As such these localities only indicate that locally Pleistocene lake deposits contain fossil resources at shallow depths. Pleistocene Lake deposits are not identified near surface at the project site.

3.5.2 Project Impacts

a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?

Less-Than-Significant Impact with Mitigation. No historical resources were identified within the project area through desktop review, field survey, and Native American consultation. Although no historical resources were found within the project area, there is a possibility that ground-disturbing activities related to project construction could uncover previously unknown, buried cultural materials. Therefore, implementation of MM CUL-1 and MM CUL-2, which outlines procedures to be followed in the event of an inadvertent discovery of historical resources, is recommended to reduce this potentially significant impact to a less-than-significant level.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?

Less-Than-Significant Impact with Mitigation. No archaeological resources were identified within the project area through desktop review, archaeological field survey, and Native American consultation. Although no archaeological resources were found within the project area, there is a possibility that ground-disturbing activities related to project construction could uncover previously unknown, buried cultural materials. Therefore, implementation of MM CUL-1 and MM CUL-2 is recommended to reduce this potentially significant impact to a less-than-significant level.

c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-Than-Significant Impact with Mitigation. As previously mentioned, LACM reports there are no known fossil localities within the project site or nearby areas. Although the possibility of discovering fossil resources is considered low, it is possible that significant vertebrate and invertebrate fossils could be encountered during subsurface disturbance. This could result in a significant impact to unique paleontological resources. Therefore, implementation of MM CUL-1, which describes procedures to be followed in the event that paleontological resources are discovered, will reduce this potentially significant impact to a less-than-significant level.

d. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less-Than-Significant Impact with Mitigation. The results of the Cultural Resources Assessment conducted for the proposed project do not suggest that human remains will be present within the project

area. However, project-related ground-disturbing activities have the potential to expose previously unknown human remains, resulting in a potentially significant impact. Implementation of MM CUL-1, MM CUL-2, and MM CUL-3 will ensure that any such impacts will be reduced to a less-than-significant level.

3.5.3 <u>Mitigation Measures</u>

MM CUL-1: Prior to the initiation of construction or ground-disturbing activities, construction personnel shall receive Worker Awareness Education Program (WEAP) training administered by a qualified archaeologist regarding the recognition of possible buried cultural resources. Training shall include information about prehistoric and/or historical artifacts, objects, or features, paleontological resources, and protection of all archaeological and paleontological resources during construction. Training shall inform all construction personnel of the procedures to be followed upon the discovery of cultural or paleontological materials (see MM CUL-2). All personnel shall be instructed that unauthorized removal or collection of artifacts is a violation of State law and unauthorized collection or disturbance of fossils is prohibited. A record of all trained personnel shall be kept on file by the applicant and provided to the County upon request.

MM CUL-2: In the unlikely event that historical, archaeological, or paleontological resources are identified within the project area during ground-disturbing construction activities, a qualified archaeologist or paleontologist (as appropriate) will be called out to assess the significance of the find, and will have the authority to stop or divert the construction excavation as necessary. Prior to construction, a qualified archaeologist and paleontologist will be selected and retained for such an event. Work may proceed in other portions of the project area. A Discovery, Treatment, and Monitoring Plan to mitigate any adverse impacts will be prepared and undertaken, and work may proceed within the project area once evaluation (and mitigation, if necessary) is complete. The treatment plan established for the resource(s) shall be in accordance with Public Resources Code Sections 21083.2(b). Treatment may include archaeological data recovery (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant. The plan will outline the procedure for artifact processing, analysis, and research, and evaluation of the resource(s) for the California Register of Historical Resources, and other documentation and mitigation, including curation of any recovered archaeological materials. The format and content of any subsequent reporting shall follow the California Office of Historic Preservation's Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. Any archaeological resources identified shall be documented on appropriate California Department of Parks and Recreation 523-Series Forms.

MM CUL-3: In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found during ground-disturbing activities, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). Such descendants shall complete their inspection within 48 hours of being granted access to the project area. Documentation of compliance will be maintained on-site and available for review by the County, upon request.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.6 Energ	<u>Y</u>			
Wo	ould the project:				
a.	Conflict with Los Angeles County Green Building Standards Code (L.A. County Code Title 31)?				
b.	Involve the inefficient use of energy resources (see Appendix F of the CEQA Guidelines)?				

3.6.1 Environmental Setting

The proposed project proposes to increase electricity generated from renewable technology by generating up to 30 MW of electrical energy through a series of PV solar panel arrays that convert sunlight into electrical energy without the use of heat transfer fluid or cooling water. The proposed project will deliver the electrical output to the existing regional distribution circuits near the project site.

California policy encourages the development of renewable energy resources to reduce reliance on fossil fuels; to diversify energy portfolios; to reduce greenhouse gas emissions; and to assist creation of "green" jobs within the state of California. The State RPS was established in 2002 under SB 1078 and accelerated in 2006 under SB 107 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010. Subsequent recommendations in California energy policy reports advocated a goal of 33% by 2020, and in 2008, Governor Schwarzenegger signed Executive Order S-14-08 requiring that all retail sellers of electricity shall serve 33% of their load with renewable energy by 2020. SB X1-2 was signed by Governor Brown, Jr., in 2011, setting the RPS target at 33% by 2020. This new RPS applied to all electricity retailers in the State, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities had to adopt the new RPS goals of 20% of retail sales from renewables by the end of 2013, 25% by the end of 2016, and the 33% requirement being met by the end of 2020. Most recently, Governor Brown signed into legislation SB 350 in 2015, which requires retail sellers and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030. The California Public Utilities Commission and the California Energy Commission are jointly responsible for implementing this program.

The proposed project qualifies as an eligible renewable energy resource as defined by the California PRC Section 25740 et seq. and will assist the electric service provider in meeting its RPS requirements.

3.6.2 **Project Impacts**

a. Would the project conflict with Los Angeles County Green Building Standards Code (L.A. County Code Title 31)?

Less-Than-Significant Impact. The County Code (Title 21, Section 21.24.440) requires compliance with applicable requirements of the County Title 22 Green Building standards (Section 22.126.040) and the State Title 24 Green Building Code. These standards are applicable to construction of buildings and are designed to reduce energy consumption, save water and other natural resources, and divert waste from landfills when new buildings are constructed. The proposed project is for renewable energy electricity generation and does not include the construction of habitable buildings. Therefore, the Title 24 Green Building standards are not applicable. The proposed project has been designed to minimize disturbed areas by keeping grading on the project site to a minimum. The proposed project will incorporate landscaping with native or non-native drought-tolerant vegetation approved by the County along portions of the perimeter of the project site. Irrigation via water trucks will be conducted until the landscaping is established, approximately 90 days. Therefore, the proposed project will not conflict with these two ordinances and impacts will be less than significant.

b. Would the project involve the inefficient use of energy resources (see Appendix F of the CEQA Guidelines)?

Less-Than-Significant Impact. The proposed project will generate renewable energy, decreasing California's reliance on fossil fuel energy and increasing its reliance on renewable energy. Both of these items are identified in Attachment F of the State CEQA Guidelines as ways to accomplish the CEQA energy conservation goal.

Non-renewable resources, including fossil fuels (i.e., energy), will be used in the construction of the proposed project. The daily vehicle trips during construction will generally include construction worker trips, and truck trips for equipment deliveries and water for dust suppression. Construction of the proposed solar facility is not unusually wasteful or excessive in terms of construction materials or fossil fuel use due to the lack of demolition and other waste products generated by typical construction projects (e.g., discarded woody debris). In addition, construction of these types of facilities is not energy-intensive, since minimal grading is required for construction, the facilities will be unmanned and will not generate significant operational vehicle trips, and minimal use of water is required for operations. Therefore, the proposed project will not involve the inefficient use of energy resources and impacts will be less than significant.

3.6.3 Mitigation Measures

Project implementation will not result in significant impacts related to energy. Therefore, no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.7 GEOLOGY AN	D SOILS			
Wo	ould the project:				
a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i.	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 active fault trace? Refer to Division of Mines and Geology Special Publication 42.				
ii.	Strong seismic ground shaking?			\boxtimes	
iii.	Seismic-related ground failure, including liquefaction and lateral spreading?				
iv.	Landslides?				\boxtimes
b.	Result in substantial soil erosion or the loss of topsoil?				
c.	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?				
d.	Be located on expansive soil, as defined in Table 181B of the Uniform Building Code (1994), creating substantial risks to life or property?				
e.	Have soils incapable of adequately supporting the use of on-site wastewater treatment systems where sewers are not available for the disposal of wastewater?				
f.	Conflict with Hillside Management Area Ordinance (L.A. County Code, Title 22, Ch. 22.104)?				

3.7.1 Environmental Setting

A Phase I Environmental Site Assessment was prepared for the proposed project, a copy of which is provided in Appendix E. The findings of the report are summarized in this section. Soils on the project site

are composed primarily of well-drained granitic alluvium, including Ramona Coarse Sandy Loam, Ramona Loam, Greenfield Sandy Loam, Hanford Coarse Sandy Loam, and Hanford Sandy Loam. Geologically, the project site is composed of unconsolidated and semi-consolidated Quaternary deposits of alluvium and eolian sands. The estimated depth to first occurrence of groundwater is unknown; however, depth to groundwater at a well located 1.13 miles southwest of the project site was reported at 236.09 feet. The San Andreas Fault is the nearest earthquake fault to the project site, located approximately 4.0 miles south.²⁶

3.7.2 **Project Impacts**

- a. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - i. 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 active fault trace? Refer to Division of Mines and Geology Special Publication 42.

No Impact. There are no known active faults traversing the project site, and the project site is not located within the Alquist-Priolo Earthquake Fault Zone or any other established fault zones. The San Andreas Fault is the nearest earthquake fault to the project site, and is located approximately 4.0 miles south. Thus, the project will not be exposed to fault rupture hazards along the San Andreas Fault, and no impact will occur. No mitigation is required.

ii. Strong seismic ground shaking?

Less-Than-Significant Impact. The primary seismic hazard for the project site, as with most of the southern California region, is the susceptibility to ground shaking due to the presence of major active or potentially active faults in the region. The project will be designed to appropriate seismic standards per the latest California Building Code to minimize damage in the event of an earthquake. Additionally, no project structures are habitable structures and will therefore pose very low risk of loss, injury or death. Complying with the latest California Building Code requirements will reduce project impacts to levels that are less than significant.

iii. Seismic-related ground failure, including liquefaction and lateral spreading?

Less-Than-Significant Impact. Potential secondary seismic effects of strong seismic ground shaking include liquefaction, lateral spreading, and seismically induced settlement/differential compaction. Liquefaction is defined as a loss of strength of saturated, cohesionless soil generally due to seismic shaking. Soil types most susceptible to liquefaction are loose, saturated silty to clean fine sands. Static groundwater depths near the project site are greater than 50 feet. Where groundwater levels are greater than 50 feet deep, it is expected that the surface damage from deeper liquefaction will not occur.²⁷ Since the static groundwater level under the project site is greater than 50 feet deep, the potential for hazards from liquefaction and

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²⁶ California Geological Survey. 2010. Fault activity map of California. Available at: http://maps.conservation.ca.gov/cgs/fam/app/. Accessed on June 4, 2018.

²⁷ California Department of Transportation (Caltrans). 2014. Caltrans Geotechnical Manual. Available at: http://www.dot.ca.gov/hq/esc/geotech/geo manual/page/Liquefaction Evaluation Dec2014r1.pdf. Accessed on June 4, 2018.

subsequent lateral spreading on this site should be negligible. Seismically induced settlement consists of dry dynamic settlement (above groundwater) and liquefaction-induced settlement (below groundwater). During a strong seismic event, seismically induced settlement can occur within loose to moderately dense sandy soil due to reduction in volume during, and shortly after, an earthquake event. Some seismically induced settlement may occur within the on-site younger sandy alluvial soils. Complying with the latest California Building Code requirements will reduce project impacts to levels that are less than significant. Therefore, impacts will be less than significant, and no mitigation is required.

iv. Landslides?

No Impact. No natural or artificial slopes exist on or near the project site. Therefore, the risk of seismically induced landslides is not applicable, and no impact will occur.

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

Less-Than-Significant Impact. Soil erosion and the loss of topsoil could occur during grading and construction of the proposed project. The potential impacts of soil erosion on the project site will be minimized through implementation of a SWPPP in compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Construction Permit. The SWPPP will prescribe temporary BMPs to control wind and water erosion during and shortly after construction of the project. With implementation of BMPs as prescribed in the SWPPP, the impact on soil erosion and the loss of topsoil will be less than significant, and no mitigation measures are required.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-Than-Significant Impact. Project site soils are composed of coarse alluvial sands, sandy clay loams, and sandy loams (Appendix E). Since the static groundwater level near the project site is 236.09 feet, the potential for hazards from liquefaction and subsequent lateral spreading or landslides on this site should be negligible. The region has historically undergone a significant amount of subsidence ranging from greater than 6 feet near the City of Lancaster to 3–4 feet near the project site. Historical and continued depletion of water is expected to result in future land subsidence throughout the Antelope Valley. The annual water consumption for operations of the facility, including periodic PV module washing, is expected to be approximately 1.5 acre-feet, and is not expected to exacerbate existing groundwater depletion or subsequent collapse. Complying with the latest California Building Code requirements will reduce project impacts to levels that are less than significant.

²⁸ U.S. Geological Survey (USGS). 2016. Aquifer-System Compaction: Analyses and Simulations-the Holly Site, Edwards Air Force Base, Antelope Valley, California By Michelle Sneed and Devin L. Galloway U.S. Geological Survey Water-Resources Investigations Report 00-4015. Available at: https://pubs.usgs.gov/wri/2000/wri004015.

d. Would the project be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less-Than-Significant Impact. Expansive soils generally have a significant amount of clay particles which can give up water (shrink) or take on water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. Soils on the project site generally do not contain large amounts of clay and will not exhibit significant shrink or swell. Therefore, impacts of the project development will be less than significant.

e. Would the project have soils incapable of adequately supporting the use of on-site wastewater treatment systems where sewers are not available for the disposal of wastewater?

No Impact. The proposed project will not include toilets, kitchens, or bathrooms that will generate wastewater requiring disposal into the sewer system or a septic tank. Thus, the on-site soils will not pose limitations to septic tanks or alternative waste water disposal systems since none are proposed as part of the project. Therefore, no impact will occur.

f. Would the project conflict with Hillside Management Area Ordinance (L.A. County Code, Title 22, Ch. 22.104)?

No Impact. The project site is flat and is not in or near any hillside area with 25% or greater slope, and therefore not required for development as a Hillside Management Area. No impact will occur.

3.7.3 Mitigation Measures

The project is not expected to result in significant impacts to geology and soils, and no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.8 GREENHOUSE GA	<u>s Emissio</u>	<u>NS</u>		
Wo	ould the project:				
a.	Generate greenhouse gas (GHGs) 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 purpose of reducing the emissions of greenhouse gases?				

3.8.1 Environmental Setting

GHGs, as defined under California's Assembly Bill (AB) 32, include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of each GHG is multiplied by the prevalence of that gas to produce carbon dioxide equivalent (CO₂e). AB 32, the California Global Warming Solutions Act of 2006, recognizes that California is the source of substantial amounts of GHG emissions. In order to avert these consequences, the State legislature passed AB 32 in 2006, which established a State goal of reducing GHG emissions to 1990 levels by the year 2020. In 2016, the legislature passed SB 32, which codifies a 2030 GHG emissions reduction target of 40% below 1990 levels.²⁹ Most recently, Governor Jerry Brown signed SB 100 in September 2018, which set a target of 60 percent renewable electricity by 2030, and 100 percent renewable electricity by 2045.³⁰

The project site is currently undeveloped and does not directly generate GHG emissions due to the absence of on-site water use, energy use, and vehicle trip generation. The AVAQMD's CEQA and Federal Conformity Guidelines established the AVAQMD GHG Significance Threshold of 100,000 tons of CO₂e per year for long-term operational and short-term construction emissions.³¹ A project with emissions rates below this threshold is considered to have a less-than-significant impact on climate change.

²⁹ California Air Resources Board. 2018. AB 32 Scoping Plan (website). Available at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed June 6, 2018.

³⁰ California State Senate. 2018. SB 100, 100% Clean Energy (website). Available at: https://focus.senate.ca.gov/sb100. Accessed on November 5, 2018.

³¹ Antelope Valley Air Quality Management District (AVAQMD). 2016. California Environmental Quality Act and Federal Conformity Guidelines. August 2016. Available at: https://avaqmd.ca.gov/files/e5b34d385/AV%20CEQA%20Guides%202016.pdf. Accessed on June 6, 2018.

3.8.2 Project Impacts

a. Would the project generate greenhouse gas (GHGs) emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-Than-Significant Impact. Pursuant to Section 15064.4 of the State CEQA Guidelines, the treatment of GHG emissions follows a process of quantification of project-related GHG emissions, determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. Using the CalEEMod computer model, it was determined that construction activities for the proposed project will generate approximately 477 metric tons of CO₂e (see Appendix A). This amount is below the AVAQMD threshold of 100,000 tons of CO₂e per year and will be less than significant.

Operational-period emissions will be produced through vehicle travel for panel cleaning, maintenance, irrigation trucks, and security, with estimated emissions of approximately 2.5 metric tons of CO₂e per year. However, during its operational life, the proposed project will fully offset its operational GHG emissions. The offset effect of solar power results from the displacement of electrical power production that will otherwise occur at fossil-fueled power plants that necessarily generate GHGs alongside electricity. The project will offset approximately 68,295 metric tons of carbon dioxide equivalent annually that will have resulted if an equivalent amount of electricity were produced by fossil fuel-powered generators. Subtracting the proposed project's operational GHG emissions yields a net GHG benefit of over 68,292 metric tons of CO₂e per year. Therefore, the proposed project will reduce regional GHG emissions during operations, and GHG impacts are considered beneficial.

A Decommissioning Plan for the proposed project has been prepared and submitted to the County for approval prior to the issuance of a CUP and grading permit. This Decommissioning Plan will ensure that the project site is returned to a pre-construction, beneficial use should termination of the proposed solar energy generation uses be required. The solar field components included in the proposed project will continue to operate for approximately 35 years, which is the useful life of the PV panels. It is assumed that decommissioning of the project site will require the same construction scenario (e.g., activities, equipment, duration) as the initial development of the project site; however, future GHG impacts will be less than those currently projected due to anticipated advancements in technology and a cleaner-burning construction equipment fleet mix. Therefore, future air quality impacts related to decommissioning will also be less than significant.

b. Would the project conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-Than-Significant Impact. The Countywide Energy and Environmental Policy, adopted by the County Board of Supervisors on January 16, 2007, sets forth guidelines and programs for the development and enhancement of energy conservation and environmental programs within County departments. This County Policy consists of the following programs: (a) Energy and Water Efficiency Program; (b) Environmental Stewardship Program; (c) Public Outreach and Education Program; and (d) Sustainable Design Program.

Under the Energy and Water Efficiency Program, the County has set forth the goal of reducing energy (electricity and natural gas) and water consumption in County facilities by 20% by the year 2015. Under

the Environmental Stewardship Program, the County seeks to reduce its environmental footprint, including a reduction in GHGs produced through direct and indirect operations.³²

By providing a new source of renewable energy, the proposed project will reduce air pollution and GHG emissions generated by the burning of fossil fuels and/or the use of water at central power generation plants, and thus, will be consistent with the objectives and programs of the Countywide Energy and Environmental Policy.

The overall goal of AB 32/SB 32 is to reduce GHG emissions. As demonstrated above, the proposed project will result in a net reduction of GHG emissions, consistent with AB 32/SB 32. Therefore, the project will not conflict with the applicable plans or policies to reduce GHG emissions and impacts will be less than significant.

3.8.3 <u>Mitigation Measures</u>

Project implementation will not result in significant impacts related to GHGs. Therefore, no mitigation is required.

³² Los Angeles County. 2018. Green LA County – Regional Energy and Environmental Programs (website). Available at: <a href="http://green.lacounty.gov/wps/portal/green/county?1dmy&page=dept.lac.green.home.county-citydepartments.detail.hidden&urile=wcm%3Apath%3A/green+content/green+site/home/county-city+departments+highlights/7d8d010047250c029ef7deccce11aaf1. Accessed on June 6, 2018.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.9 HAZARDS AND HAZAR	DOUS MAT	ERIALS		
Wo	ould the project:				
a.	Create a significant hazard to the public or the environment through the routine transport, storage, production, use, or disposal of hazardous materials?				
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?				
c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of sensitive land uses?				
d.	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?				
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 within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				
g.	Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?				
h.	Expose people or structures to a significant risk of loss, injury or death involving fires, because the project is located:				

			Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	i.	within a Very High Fire Hazard Severity Zones (Zone 4)?			\boxtimes	
	ii.	within a high fire hazard area with inadequate access?				
	iii.	within an area with inadequate water and pressure to meet fire flow standards?				
	iv.	within proximity to land uses that have the potential for dangerous fire hazard?			\boxtimes	
i.	_	roposed use constitute a dangerous fire hazard?				

3.9.1 Environmental Setting

A Phase I Environmental Site Assessment (ESA) has been prepared for the project site describing the past and current hazardous material on and near the project site, a copy of which is provided in Appendix E. The findings of the report are summarized in this section.

The project site is vacant and does not utilize hazardous materials or generate hazardous wastes. The project site has been utilized as agricultural land, and the agricultural practice of crop production often includes the use of pesticides and/or herbicides. Most currently used agricultural chemicals do not persist for extended periods of time, if applied appropriately. Information that will indicate the extensive use of pesticides or herbicides on the project site was not identified. Indications of pesticide and/or herbicide misuse or vegetative stress on the project site or surrounding property were not observed during the project site reconnaissance.

There are no known hazardous materials, petroleum products, hazardous wastes, or petroleum wastes on the project site. Eight rubber tires were observed on the southeastern portion of the project site. Obvious signs of soil contamination from hazardous materials and petroleum products were not observed on the project site during site reconnaissance performed as part of the ESA. No open hazardous materials release sites were identified within the American Society for Testing and Materials (ASTM)-specified search distances of the project site. The project site is not located in State or Local Responsibility areas designated as Very High or High Fire Hazard Severity Zones.³³

³³ California Department of Forestry and Fire Protection (CAL FIRE). 2007. California Fire Hazard Severity Zone Map Updated Project. Available at: http://frap.fire.ca.gov/webdata/maps/statewide/fhszs_map.pdf. Accessed on June 6, 2018.

3.9.2 Project Impacts

a) Would the project create a significant hazard to the public or the environment through the routine transport, storage, production, use, or disposal of hazardous materials?

Less-Than-Significant Impact. The project will not utilize, store, or produce hazardous materials that will pose a significant hazard to the public. Hazardous waste will not be generated on-site. Construction activities associated with the project will involve the use of common hazardous materials for construction, such as chemical and petroleum-related products for heavy equipment and machinery. Other common hazardous materials that may be used in construction activities include paints, sealants, solvents, detergents, glues, acids, lime, plaster, grease, oils, cleaning agents, and heavy metals from equipment.

Solar panels may include heavy metals such as silver, copper, lead, arsenic, cadmium, selenium that at certain levels may be classified as hazardous wastes.³⁴ Unlike a typical industrial setting, solar panel materials are not readily susceptible to spills or accidental releases. In general, a solar panel must be treated as hazardous waste when they are disconnected or removed from service. Recently passed legislation authorizes the California Department of Toxic Substances Control to adopt regulations to designate used/spent solar panels that are hazardous wastes as universal waste. Until the new regulations are adopted, solar panels that exhibit characteristics of hazardous waste must be managed as hazardous wastes. Like other hazardous wastes, hazardous waste solar panels must be managed according to all applicable hazardous waste laws and regulations, including obtaining an authorization for conducting treatment.

Compliance with existing hazardous material regulations will ensure that the use of common hazardous materials during construction activities and operation of solar panels will be less than significant.

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 or waste into the environment?

Less-Than-Significant Impact. The ESA reveals no evidence of recognized hazardous materials or conditions on-site, except for its former use as agricultural land. Historical agricultural activities on the site may have included the use of herbicides and pesticides; however, these compounds tend to biodegrade over time, and residual concentrations of these chemicals are rarely discovered at levels requiring regulatory action.

During operations, the PV solar panels will require cleaning to remove dust buildup, grime, bird droppings, and/or soot. Solar panels are susceptible to damage and become inefficient with the use of poor-quality water. The water used for the panel cleaning process will not contain any toxic chemicals. Cleaning water will be allowed to infiltrate into the ground or evaporate as it drips off the PV modules.

Therefore, impacts to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials or waste will be less than significant.

³⁴ California Department of Toxic Substances Control. 2018. Solar Panels Information and FAQs (website). Available online at: https://www.dtsc.ca.gov/HazardousWaste/SolarPanels/index.cfm. Accessed on November 5, 2018.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of sensitive land uses?

Less-Than-Significant Impact. Other than two residences located at the northwest corner of the project site, there are no sensitive land uses within 4.0 miles of the project site. As discussed in Section 4.9.2(a) above, the project will not lead to hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste, other than limited use of common hazardous materials during construction in accordance with applicable regulations. Therefore, impacts to nearby sensitive land uses will be less than significant.

d) Would the project be located on a site which is included on a list of hazardous materials 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?

No Impact. The project site is not included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the California Government Code.³⁵ The project will not create a significant hazard to the public or the environment. Therefore, the project will result in no impact associated with hazardous materials sites.

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 or people residing or working in the project area?

No Impact. The nearest airport to the project site is the General William J. Fox Airfield, which is located at least 10.0 miles from the project site. The project will result in no safety hazards for people residing or working in the vicinity of the project site as a result of proximity to an airport. There is no impact and no further analysis is warranted.

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?

No Impact. See discussion in 3.9.2(e) above.

g) Would the project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

No Impact. The project site is located along a disaster route.³⁶ The proposed construction will be staged on-site and will have a short-term impact on circulation. The project will not result in any closures of existing roadways that might have an effect on emergency response or evacuation plans in the vicinity of the project site. Accordingly, implementation of the project will not impair implementation of, or physically

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³⁵ California Environmental Protection Agency (CalEPA). 2018. Department of Toxic Substances Control Envirostor, Hazardous Waste and Substances Site List. Available at: https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES, https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES, https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES, https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST. Accessed on June 6, 2018.

³⁶ Los Angeles County. City of Lancaster. Available at: <u>http://dpw.lacounty.gov/dsg/DisasterRoutes/map/Lancaster.pdf</u>. Accessed on June 6, 2018.

interfere with, an adopted emergency response plan or emergency evacuation plan. No mitigation is required.

- h) Would the project expose people or structures to a significant risk of loss, injury or death involving fires, because the project is located:
 - i) Within a Very High Fire Hazard Severity Zones (Zone 4)?

No Impact. The project site is not in or near areas designated as a Very High or High Fire Hazard Severity Zone.³⁷ Therefore, no impact will occur.

ii) Within a high fire hazard area with inadequate access?

Less-Than-Significant Impact. See discussion in 3.9.2(i) below. The project will include a network of internal access roads which will provide emergency access to remote portions of the project site. Project site access and circulation is subject to LACFD review and approval. Impacts will be less than significant.

iii) Within an area with inadequate water and pressure to meet fire flow standards?

Less-Than-Significant Impact. See discussion in 3.9.2(i) below. Impacts related to fire flow will be less than significant.

iv) Within proximity to land uses that have the potential for dangerous fire hazard?

Less-Than-Significant Impact. See discussion in 3.9.2(i) below. Impacts related to dangerous fire hazards would be less than significant.

i) Does the proposed use constitute a potentially dangerous fire hazard?

Less-Than-Significant Impact. The project site and surrounding area primarily consists of open space with annual grasslands, which remain dry for most of the year and have the potential to burn. Other operational solar PV facilities are located in the immediate vicinity of the project area to the east and to the south. Two existing residences abut the project site at the northwest corner. The Del Sur Elementary School is located approximately 1.5 miles east of the project site at the intersection of West Avenue H and 90th Street West. The introduction of general human activity, including maintenance workers or the driving of combustion engine vehicles, increases the potential risk for dangerous fire hazard. Construction activities, such as welding during installation of PV panels and support structures, could also potentially result in the combustion of native materials.

The project will be required to comply with the County Code's Title 32, Fire Code, which includes various requirements for fire safety and prevention. In compliance with Title 32, vegetation be trimmed to a maximum height of 6 inches within the project site boundaries and cleared to mineral soil for a distance of 50 feet around all electrical transformer vaults or structures. As the project is located in an undeveloped area, there are no fire hydrants or other piped water supplies to the project site. The project will include a network of internal access roads, which will provide emergency access to remote portions of the project site, as well as water tank(s) with a total minimum capacity of 10,000 gallons for use by the LACFD for fire control. Compliance with the County's Fire Code will ensure that impacts related to fire control will be less than significant.

³⁷ California Department of Forestry and Fire Protection (CAL FIRE).2007. California Fire Hazard Severity Zone Map Updated Project. Available at: http://frap.fire.ca.gov/webdata/maps/statewide/fhszs_map.pdf. Accessed on June 6, 2018.

3.9.3 <u>Mitigation Measures</u>

Project implementation will not result in significant impacts related to Hazards and Hazardous Materials. Therefore, no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.10 HYDROLOGY AND W	ATER QUA	<u>ALITY</u>		
Wo	ould the project:				
a.	Violate any water quality standards or waste discharge requirements?				
b.	Significantly 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 which would not support existing land uses or planned uses for which permits have been granted)?				
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 which would result in substantial erosion or siltation on- or off-site?				
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				
e.	Add water features or create conditions in which standing water can accumulate that could increase habitat for mosquitoes and other vectors that transmit diseases such as the West Nile virus and result in increased pesticide use?				
f.	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
g.	Generate construction or post-construction runoff that would violate applicable stormwater NPDES permits or otherwise significantly affect surface water or groundwater quality?				
h.	Conflict with the Los Angeles County Low Impact Development Ordinance (L.A. County Code, Title 12, Ch. 12.84)?				
i.	Result in point or nonpoint source pollutant discharges into State Water Resources Control Board-designated Areas of Special Biological Significance?				
j.	Use on-site wastewater treatment systems in areas with known geological limitations (e.g., high groundwater) or in close proximity to surface water (including, but not limited to, streams, lakes, and drainage courses)?				
k.	Otherwise substantially degrade water quality?				
1.	Place housing within a 100-year flood hazard area as mapped on federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or within a floodway or floodplain?				
m.	Place structures, which would impede or redirect flood flows, within a 100-year flood hazard area, floodway, or floodplain?				
n.	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				
0.	Place structures in areas subject to inundation by seiche, tsunami, or mudflow?				

3.10.1 Environmental Setting

The project site is located in a sparsely developed, rural area of north Los Angeles County. The project site is relatively flat with an approximately 1.5 percent slope, draining to the east, and primarily consists of disturbed/ruderal habitat and non-native grasslands. According to the On-site and Off-site Drainage Report (Appendix F), a portion of the southern half of the project site, south of West Avenue G, is located within

a 100-year floodplain. The southernmost portion of the project partially overlaps with a historic ephemeral stream originating from Portal Ridge. Construction of the East Branch of the California Aqueduct along the base of Portal Ridge has substantially altered the hydrology of the region. Additionally, the hydrology is also altered by local roads, which concentrate sheet flow into roadside ditches.

The project site is located within the Antelope Hydrologic Unit (Hydrologic Unit No. 626.00). The beneficial uses of minor surface waters in this region include municipal and domestic supply (MUN), agricultural supply (AGR), ground water recharge (GWR), water contact recreation (REC-1), noncontact water recreation (REC-2), commercial and sportfishing (COMM), warm freshwater habitat (WARM), cold freshwater habitat (COLD), and wildlife habitat (WILD). The project site overlies the Antelope Valley groundwater basin (Basin No. 6-44), which has been identified for beneficial uses including MUN, AGR, industrial service supply (IND), and FRSH. The project site overlies including MUN, AGR, industrial service supply (IND), and FRSH.

The project does not impact a Floodplain Management Path established pursuant to the Antelope Valley Comprehensive Plan of Flood Control and Water Conservation.

3.10.2 Project Impacts

a. Would the project violate any water quality standards or waste discharge requirements?

Less-Than-Significant Impact. The project is not expected to use any form of wastewater or generate any wastewater or hazardous waste during construction. However, equipment used during construction will contain hazardous materials such as hydraulic oil, diesel fuel, and other products contained within construction vehicles and equipment.

As required by the Clean Water Act and other federal regulations, any construction project that disturbs 1.0 acre or more must obtain an NPDES Construction General Permit and implement a SWPPP.⁴⁰ The purpose of a SWPPP is to identify and implement BMPs to reduce impacts to surface water from contaminated stormwater discharges. Development and implementation of a SWPPP would apply to both the construction and post-construction phases of the project, such as revegetation. Upon construction of the solar facilities, temporary BMPs will be implemented until such a time that vegetation has been restored or permanent BMPs are in place and functioning. Compliance with the implemented SWPPP will reduce any impacts to water quality to less than significant.

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³⁸ Lahontan Regional Water Quality Control Board, 2016. Water Quality Control Plan for the Lahontan Region Chapter 2, Table 2-1. Beneficial Uses of Surface Waters of the Lahontan Region. Available online at: https://www.waterboards.ca.gov/lahontan/water issues/programs/basin plan/docs/ch2 beneficialuses.pdf. Accessed March 7, 2019.

³⁹ Lahontan Regional Water Quality Control Board, 2016. Water Quality Control Plan for the Lahontan Region Chapter 2, Table 2-1. Beneficial Uses for Ground Waters of the Lahontan Region. Available online at: https://www.waterboards.ca.gov/lahontan/water issues/programs/basin plan/docs/ch2 beneficialuses.pdf. Accessed March 7, 2019.

⁴⁰ California Water Boards. 2018. National Pollutant Discharge Elimination System (NPDES) – Wastewater, website. Available at: https://www.waterboards.ca.gov/water_issues/programs/npdes/. Accessed June 2018.

b. Would the project result in significantly depleted 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 which would not support existing land uses or planned uses for which permits have been granted)?

Less-Than-Significant Impact. The project will require minimal amounts of water during its lifespan. Approximately 52 acre-feet of water will be required during construction. Water required for operations use is limited to cleaning the solar PV panels up to two times per year and for irrigating landscaping. The drought-tolerant landscape will be irrigated three times a week for 90 days and as-needed for survival, but no long-term irrigation infrastructure is planned. Monthly landscape maintenance is planned for the life the project. The annual water consumption for operation of the facility is expected to be approximately 1.5 acre-feet.

Potential sources of water may include off-site wells, recycled water, or water trucked in from the local municipality. The City of Lancaster has confirmed that it can supply 52 acre-feet of construction water and 1.5 acre-feet of operational water from the Lancaster Water Reclamation Plant. The applicant may also purchase water from a privately-owned local well owner with adjudicated rights. Well owner production rights have annual volume limits thereby controlling groundwater deficits. Although the Antelope Valley Groundwater Basin has been in overdraft, a recent study estimated annual extractions at 31,528 acre-feet per year, with an estimated total natural recharge of 31,200–59,100 acre-feet per year and a safe yield of 110,000 acre-feet per year. Therefore, even with use of groundwater, the project is unlikely to create an adverse effect on the groundwater resource. Since a modest amount of water use is planned for the operation and maintenance of the project, the project would not significantly deplete groundwater supplies. Additionally, negligible impervious surface will be created as part of the project, resulting in minimal effects to groundwater recharge; therefore, less-than-significant impacts are anticipated.

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 which would result in substantial erosion or siltation on- or off-site?

Less-Than-Significant Impact. No streambeds, rivers, or other aquatic resources were identified on the project site. As stated above, the project site overlaps with a historic ephemeral stream, but the hydrology in the region has been altered by the construction of the East Branch of the California Aqueduct, the local road network, and historic agricultural practices. Due to these activities, the topography on the project site has been flattened and has channelized sheet flow into roadside ditches. The proposed project will result in some grading activities, but will not substantially increase impervious surfaces or alter the existing drainage patterns in a way that will result in substantial erosion or siltation. To account for potential modifications to flow and increases in offsite erosion and siltation, the project will conform to the County's LID Ordinance by having an LID-compliant site plan, including maintaining natural drainage paths and landscape feature to slow and filter runoff; and vegetated stormwater detention basins for onsite infiltration. Therefore, a less-than-significant impact is anticipated.

d. 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, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less-Than-Significant Impact. Grading and ground disturbance for the project will be minimal and primarily limited to access roads, equipment pads (including inverter-transformer pads and project switchgear), and water tanks. The techniques used to install the solar PV panels include pile-driving, which minimizes the need for excavating. The construction of the project will not substantially increase impervious surfaces and as there are no streams or rivers on-site, the grading activities will not substantially increase the rate or amount of surface runoff; however, to account for potential modifications to flow and increases in off-site erosion and siltation, the project will conform to the County's LID Ordinance by having an LID-compliant site plan, therefore, less-than-significant impacts will occur.

e. Add water features or create conditions in which standing water can accumulate that could increase habitat for mosquitoes and other vectors that transmit diseases such as the West Nile virus and result in increased pesticide use?

No Impact. Project construction and operations do not have the potential to increase standing water that could increase mosquito and other vector habitat. Water used for this project will be brought in off-site for cleaning the PV solar panels and for irrigation. Neither of these activities will create areas with standing water; therefore, no impacts will occur.

f. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less-Than-Significant Impact. The grading and ground disturbance planned for the project will be minimal and will follow existing terrain. The On-site and Off-site Drainage Report indicates that increases in imperviousness for the project will be minimal and the project's LID-compliant site plan will provide additional measures to mitigate potential impacts to the existing site drainage patterns; therefore, impacts will be less than significant.

g. Generate construction or post-construction runoff that would violate applicable stormwater NPDES permits or otherwise significantly affect surface water or groundwater quality?

Less-Than-Significant Impact. As previously discussed in Section 3.10.2(a), compliance with the NPDES Construction General Permit and SWPPP will include implementation of BMPs that manage stormwater to reduce the occurrence of pollutants. Development and operation of the project is unlikely to result in a significant increase in the amount of impervious surface; therefore, runoff volumes and velocity levels will be the same as existing conditions. No impact to groundwater quality is anticipated from the proposed project. Impacts from construction or post-construction runoff will be less than significant.

h. Conflict with the Los Angeles County Low Impact Development Ordinance (L.A. County Code, Title 12, Ch. 12.84)?

Less-Than-Significant Impact. The LID standards indicate that development should mimic undeveloped storm water runoff rates and volumes in any storm event, including Capital Floods produced by a 50-year frequency design storm, prevent pollutants of concern from leaving the development site in stormwater, and minimize hydromodification impacts to natural drainage systems. Design of the project, as outlined in Figure 9, Site layout, is consistent with the LID Ordinance; therefore, impacts would be less than significant.

i. Result in point or nonpoint source pollutant discharges into State Water Resources Control Board-designated Areas of Special Biological Significance?

No Impact. The project is not located in a State Water Resources Control Board-designated Area of Special Biological Significance; therefore, no impact will occur.

j. Use on-site wastewater treatment systems in areas with known geological limitations (e.g., high groundwater) or in close proximity to surface water (including, but not limited to, streams, lakes, and drainage courses)?

No Impact. The project would not generate any wastewater and does not include an on-site wastewater facility; therefore, no impact will occur.

k. Would the project otherwise substantially degrade water quality?

Less-Than-Significant Impact. As discussed previously in Section 3.10.2(a), compliance with the NPDES Construction General Permit and SWPPP will include BMPs that manage water quality associated with project construction. The project construction and operation will not substantially degrade water quality; therefore, impacts will be less than significant.

1. Place housing within a 100-year flood hazard area as mapped on federal Flood Hazard Boundaries or Flood Insurance Rate Maps or other flood hazard delineation maps, or within a floodways or floodplains?

No Impact. The project site is located within a 100-year flood hazard area. However, no housing units will be developed on the project site; therefore, no impact will occur.

m. Place structures, which would impede or redirect flood flows, within a 100-year flood hazard area, floodway, or floodplain?

Less-Than-Significant Impact. A portion of the project south of West Avenue G is located within a FEMA Flood Zone A, which is a 100-year floodplain. Planned grading will be minimal and follow the existing terrain, with no substantial cut and fill that could adversely impact the floodplain depth, velocity, or top width. The PV solar panels are planned to be spaced intermittently and will be supported by 6-inch diameter posts with a typical height of approximately 6–8 feet. It is anticipated that the PV solar panels will not pose an obstruction to flow and will have a less-than-significant impact on the existing floodplain.

n. Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No impact. There are no levees or dams within the vicinity of the project site. No impact related to flooding as a result of failure of a levee or dam will occur.

o. Place structures in areas subject to inundation by seiche, tsunami, or mudflow?

No Impact. The project site is located approximately 50 miles north of the nearest coastline and is outside the tsunami inundation areas along the coast. The nearest enclosed body of water is Elizabeth Lake, which is located over 5.0 miles southwest of the project site. Due to the distance of all enclosed bodies of water, no seiche-related flooding is anticipated to occur at the project site. The topography of the project site is relatively level and is not located within or adjacent to any mapped landslide zones; therefore, mudslides are unlikely to occur. No impacts related to seiche, tsunami, or mudflow will occur.

3.10.3 Mitigation Measures

The project is not expected to result in significant impacts to hydrology and water quality. No mitigation measures are required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.11 LAND USE AND	PLANNING	<u> </u>		
W	ould the project:				
a.	Physically divide an established community?				
b.	Be consistent with the applicable County plans for the subject property including, but not limited to, the General Plan, specific plans, local coastal plans, area plans, and community/neighborhood plans?				
c.	Be inconsistent with the County zoning ordinance as applicable to the subject property?				
d.	Conflict with the goals and policies of the General Plan related to Hillside Management Areas or Significant Ecological Areas?				

3.11.1 Environmental Setting

SCE owns and operates several transmission, subtransmission, and distribution lines in the project vicinity. Specifically, there is a 69 kV subtransmission line with a 12 kV underbuild distribution line on the western side of 110th Street West. A 500 kV transmission line runs southeast to northwest, approximately 0.25 mile west of the project site. A 138 kV subtransmission line is located parallel to the project site, approximately 0.2 mile east. Other operational solar PV facilities are located in the immediate vicinity of the project area to the east and to the south. Two existing residences are located directly northwest of the project site across 110th Street West. The Del Sur Elementary School is located approximately 1.5 miles east of the project site at the intersection of West Avenue H and 90th Street West.

A planned 90-foot-wide × 7-foot-deep drainage channel could eventually be located south of the project site, across West Avenue H. The future drainage is labeled as "J3" in the City of Lancaster Master Plan of Drainages, and as "Channel 2" in the Los Angeles Comprehensive Plan of Flood Control and Water Conservation. The drainage does not yet exist and is not part of this project.

The project site is located in Los Angeles County and designated as "Rural Land 2" (RL2-1; 0.5 dwelling unit per acre) per the Area Plan.⁴¹ The project site is zoned "Heavy Agricultural" (A-2-2.5; 2.5-acre

⁴¹ Los Angeles County. 2015. Antelope Valley Area Plan, Table L-1: Land Use Legend. Available at: http://planning.lacounty.gov/assets/upl/project/tnc draft-20150601.pdf. Accessed on May 22, 2018.

Minimum Lot Area) on the Los Angeles County Code. Per the County Code, electric-generating plants are a conditionally permitted use in A-2 zones upon obtaining a CUP.⁴²

3.11.2 Project Impacts

a. Would the project physically divide an established community?

No Impact. The project site is not located within a residential area. Although there are two residences located to the northwest of the project, they are isolated and are not part of an existing established community. The land around the project site is largely vacant or occupied by other PV solar energy facilities. Therefore, the proposed project will not divide an established community, and no impact will occur.

b. Would the project be inconsistent with the applicable County plans for the subject property including, but not limited to, the General Plan, specific plans, local coastal plans, area plans, and community/neighborhood plans?

No Impact. The proposed project will comply with the plan designations and applicable provisions of the County General Plan and associated Area Plan. The project is not located within the boundaries of a Community Standards District. The Area Plan designates the project site as "Rural Land 2" (RL2). The Area Plan Land Use Policy Map places the project site outside an Economic Opportunity Area (EOA). The RL2 designation states that developments within these areas should allow for a balanced mix of residential, commercial, and light industrial uses, while preserving the rural character and ecological resources of the surrounding areas. ⁴³ The proposed project is consistent with the applicable County plans for the project site and will be designed in compliance with applicable regulations and conditions pertaining to renewable facilities; therefore, no impact will occur. The project is also consistent with Area Plan goals that call for the development of renewable energy resources while preserving and protecting the natural and rural environments of the Antelope Valley.

c. Would the project be inconsistent with the County zoning ordinance as applicable to the subject property?

No Impact. Electric-generating plants are a conditionally permitted use in the A-2 Zone. With approval of a CUP for the project site, a solar facility is a permitted use consistent with County zoning ordinances applicable to the project site. Therefore, no impact will occur.

d. Would the project conflict with Hillside Management criteria, Significant Ecological Areas conformance criteria, or other applicable land use criteria?

No Impact. The project is not within the boundaries of a designated Hillside Management Area, Significant Ecological Area, EOA or other applicable land use criteria. Therefore, no impact will occur.

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⁴² Los Angeles County. Title 22 Planning and Zoning Division 1. Chapter 22.16 Agricultural, Open Space, Resort and Recreation, and Watershed Zones, Available at: https://library.municode.com/ca/los angeles county/codes/code of ordinances?nodeId=TIT22PLZO DIV1PLZO_CH22.24AGZO_PT3HEAGZO. Accessed on May 22, 2018.

⁴³ Los Angeles County. 2015. Antelope Valley Area Plan, Table L-1: Land Use Legend, pp. LU-8 and 9,9. Available at: http://planning.lacounty.gov/assets/upl/project/tnc_draft-20150601.pdf. Accessed on May 22, 2018.

3.11.3 <u>Mitigation Measures</u>

Project implementation will not result in significant impacts related to land use and planning. Therefore, no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact		
	3.12 MINERAL RESOURCES						
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?						
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?						

3.12.1 Environmental Setting

A review of maps provided by the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources shows that the project site (including the electrical generation interconnection area) does not contain oil, gas, or geothermal resources,⁴⁴ and there are no wells within or near the project.⁴⁵ Additionally, the County General Plan indicates that there are no Mineral Resource Zones or Oil and Gas Resources within or near project site.⁴⁶ The California Department of Conservation, Division of Mines and Geology indicates that the project is located within the Palmdale Production-Consumption Region (the market area of a mineral commodity), and is classified as a Mineral Resource Zone 3 (MRZ-3), which includes large areas that contain "aggregate resources of unknown significance."

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⁴⁴ California Department of Conservation. 2001. Division of Oil, Gas, and Geothermal Resources, Oil, Gas, and Geothermal Fields in California (map). Available at: ftp://ftp.consrv.ca.gov/pub/oil/maps/Map_S-1.pdf. Accessed on May 21, 2018.

⁴⁵ California Department of Conservation. 2018. Division of Oil, Gas, and Geothermal Resources, Well Finder (interactive map). Available at: https://maps.conservation.ca.gov/doggr/wellfinder/#close. Accessed on May 21, 2018.

⁴⁶ Los Angeles County. 2018. General Plan Update Program—Interactive Map (GP-NET). Available at <a href="http://rpgis.isd.lacounty.gov/Html5Viewer/index.html?configBase=http://rpgis.isd.lacounty.gov/Geocortex/Essentials/REST/sites/GPNET/viewers/GP-NET_HTML5/virtualdirectory/Resources/Config/Default.. Accessed on May 21, 2018.

⁴⁷ California Department of Conservation. 1983. Division of Mines and Geology. Mineral Land Classification and Index to Detailed Zone and Sector Maps for the Saugus-Newhall and Palmdale P-C Regions (map). Available at ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR 143/PartV/Plate 5-1.pdf. Accessed on May 21, 2018.

3.12.2 Project Impacts

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?

No Impact. The project is located in an area designated as an MRZ-3 by the California Department of Conservation, Division of Mines and Geology, ⁴⁸ which includes large areas that contain aggregate mineral resources of unknown significance. As such, the project will not result in an impact to a known mineral resource that would be of value to the region and residents of the state. No impact will occur.

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?

No Impact. Refer to discussion in Section 3.12.2(a), above.

3.12.3 <u>Mitigation Measures</u>

Implementation of the project will not result in significant impacts related to mineral resources. As such, no mitigation will be required.

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⁴⁸ California Department of Conservation (DOC). 1983. Division of Mines and Geology, Mineral Land Classification and Index to Detailed Zone and Sector Maps for the Saugus-Newhall and Palmdale P-C Regions (map). Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR 143/PartV/Plate 5-1.pdf. Accessed on May 21, 2018.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.13 <u>Noisi</u>	<u>E</u>			
Wo	ould the project:				
a.	Exposure of persons to, or generation of, noise levels in excess of standards established in the County General Plan or noise ordinance (Los Angeles County Code, Title 12, Chapter 12.08), 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 in the project vicinity above levels existing without the project, including noise from parking areas?				
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from amplified sound systems?				
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 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 levels?				

3.13.1 Environmental Setting

The project site is located in a rural, unincorporated area near the City of Lancaster within the western Antelope Valley in Los Angeles County. The land to the north, west, and south of the project site is zoned

as Heavy Agriculture and is comprised of vacant lands. ⁴⁹ Lands to the east of the project site (including the electrical gen-tie alignment that extends eastward from the solar facility approximately 0.8 mile through sPower private easements and terminates approximately 450 feet north of the intersection of 100th Street West and West Avenue G) are a mixture of land zoned as Heavy Agriculture and contain existing commercial solar PV fields. The gen-tie lines will be located underground. Minor trenching will be required to electrically connect all project components and to connect the two gen-tie lines to the Big Sky North Substation. Site preparation and grading will require approximately 60 days, while the PV system installation will last approximately 200 days.

Noise-sensitive receptors and land uses are typically associated with residences, or locations where excessive noise could adversely impact the designated use of the land. Noise-sensitive receptors typically include schools and hospitals, and other land uses that house sensitive receptors, or those at high risk of being affected by high noise levels. Nearby sensitive receptors include two residences located near the northwest corner of the project site. One residence is located on the west side of 110th Street West, at a distance of approximately 100 feet from the project site. A second residence is located immediately northwest of the intersection of 110th Street West and West Avenue G, approximately 150 feet from the northwest corner of the project site. There are an additional eight residences between approximately 0.3 and 0.5 mile from the eastern terminus of the electrical gen-tie line (at the Big Sky North Substation). Del Sur Elementary School, which is located at the intersection of West Avenue H and 90th Street West, is approximately 0.7 mile east-southeast of the electrical gen-tie line terminus. There are no other residences, schools, or other sensitive receptors within one mile of the project site.

Background or ambient noise levels in proximity to the project site will be consistent with those associated with rural areas. The dominant noise source in the area will be from traffic along surrounding roads, including 110th Street West, West Avenue G, West Avenue H, and 100th Street West. Additionally, the southern portion of the project site falls within a 60 Community Noise Equivalent Level (CNEL) traffic noise contour associated with 120th Street West, which is a dominant noise source in the area.⁵¹

Per definitions in Section 12.08.390 of the County Code ("Noise Ordinance"), there are no receptor properties within Noise Zone I (noise-sensitive areas), Noise Zone III (commercial properties), or Noise

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⁴⁹ Los Angeles County. 2018. Department of Regional Planning General Plan 2035, General Plan Update Program—Interactive Map (GP-NET). Available at: <a href="http://rpgis.isd.lacounty.gov/Html5Viewer/index.html?configBase=http://rpgis.isd.lacounty.gov/Geocortex/Essentials/REST/sites/GPNET/viewers/GP-NET_HTML5/virtualdirectory/Resources/Config/Default. Accessed on May 21, 2018.

⁵⁰ Los Angeles County. 2015. Department of Regional Planning, General Plan 2035, Chapter 11, Noise Element, p. 192. Available at http://planning.lacounty.gov/generalplan/generalplan. Accessed on May 21, 2018.

⁵¹ Los Angeles County. 2018. Department of Regional Planning General Plan 2035. General Plan Update Program—Interactive Map (GP-NET). Available at <a href="http://rpgis.isd.lacounty.gov/Html5Viewer/index.html?configBase=http://rpgis.isd.lacounty.gov/Geocortex/Essentials/REST/sites/GPNET/viewers/GP-NET_HTML5/virtualdirectory/Resources/Config/Default. Accessed on May 21, 2018.

Zone IV (industrial properties) within or in proximity to the project site.⁵² As described above, there are two Noise Zone II receptors (residential properties) in proximity to the project site (one of the residences is located approximately 100 feet from the northwestern edge of the project site, and the other residence is located approximately 150 feet from the northwest corner of the project site). There are no other sensitive receptors in proximity to the project site.

3.13.2 Project Impacts

a. Would the project result in exposure of persons to, or generation of, noise levels in excess of standards established in the County General Plan or noise ordinance (Los Angeles County Code, Title 12, Chapter 12.08), or applicable standards of other agencies?

Less-Than-Significant Impact with Mitigation. The project will be constructed and operated in compliance with the Noise Ordinance (Section 12.08). The County Noise Ordinance prohibits construction noise disturbance across residential or commercial real-property lines (including demolition work) Monday through Saturday, between the hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays. The County also specifies that the maximum noise levels for non-scheduled, intermittent, short-term operation (less than 10 days) of mobile equipment used in construction cannot exceed 75 A-weighted decibels (dBA) for single-family residential properties.

Noise levels at 50 feet from a point source decrease by approximately 3 dBA over hard/unobstructed surfaces. ⁵³ For point sources with no physical impediments, noise decreases by approximately 6 dBA per doubling of distance over hard surfaces. Noise from project construction will be intermittent, will be of generally short duration, and will arise primarily from the use of heavy, mobile equipment. Measured at 50 feet, noise produced by heavy equipment during project construction will range from approximately 73 dBA to 84 dBA. ⁵⁴

The highest anticipated noise levels from construction equipment during the construction phase of the project will occur during pile-driving operations to set screw piles to a depth of approximately 8 feet below grade. Pile driving could have a maximum noise level of approximately 84 dBA at a distance of 50 feet.⁵⁵ However, pile driving will be intermittent and of short duration for each screw pile during installation. At

⁵² Los Angeles County. Code of Ordinances. Title 12 – Environmental Protection. Chapter 12.08 – Noise Control. Available at:
https://library.municode.com/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT12ENPR_CH12.08
NOCO. Accessed on May 21, 2018.

⁵³ City of Los Angeles. CEQA Thresholds Guide. 2006. Section I.1 Construction Noise, p. I.1-4. Available at: http://www.environmentla.org/programs/Thresholds/Complete%20Threshold%20Guide%202006.pdf. Accessed on May 21, 2018.

⁵⁴ City of Los Angeles. CEQA Thresholds Guide. 2006, Section I.1 Construction Noise, p. I.1-4. Available at: http://www.environmentla.org/programs/Thresholds/Complete%20Threshold%20Guide%202006.pdf. Accessed on May 21, 2018.

⁵⁵ It is assumed that a Vermeer PD10 or equivalent equipment would be used at a typical noise level of approximately 84 dBA at a distance of 50 feet, based on a 105.8 dBA at the operator's ear (4 feet from the noise source). AECOM, 2014. Noise Impact Analysis, Wistaria Ranch Solar Energy Center Project - Imperial County, California, p. 15. Available online at: ftp://ftp.co.imperial.ca.us/icpds/eir/wistaria/appendices/019appf-noise.pdf. Accessed January 16, 2019.

the property line (100 feet from the nearest residence), noise from pile driving will be reduced to between approximately 78 dBA along the northwest edge of the project, and to approximately 45 dBA at the farthest point along the southern edge of the project site (approximately 4,800 feet from the nearest residence). Pile driving in proximity to residences will occur intermittently and for relatively short periods of time for installation of the screw piles.

The operation of heavy equipment during the construction phase of the project will result in temporary, intermittent increases in ambient noise levels in proximity to the project site, which will stop once the construction phase of the project is completed. The noise generated, at approximately 78 DBA, would exceed the County maximum noise level of 75 dBA. The implementation of MM-NO-1 would reduce the noise levels generated and would reduce the impact of temporary construction noise to a less-than-significant level. Additionally, all construction activities will be conducted in compliance with the County Noise Ordinance (Section 12.08), which prohibits noise disturbances across residential and commercial property lines between the hours of 7:00 p.m. and 7:00 a.m., Monday through Saturday, and on Sundays and holidays. Therefore, noise impacts from construction will be less than significant with mitigation.

If it is determined that solar energy generation uses shall no longer continue, the project will be decommissioned at the end of the life of the solar field, approximately 35 years from the date which the solar facility installation is completed and energized. The solar system and its components will be removed, and the project site will be converted to other uses in accordance with applicable land use regulations in effect at the time of decommissioning. Decommissioning and restoration activities will adhere to the requirements of the appropriate governing authorities and will be in accordance with all applicable federal, State, and County regulations, including any ordinances and mitigation requirements in effect at the time of decommissioning. Decommissioning activities will be similar to construction activities used in the installation of the solar facility, but noise impacts will be expected to be lower due to a number of factors, including but not limited to a difference in the type of work required (e.g., removal of solar panel arrays and above ground equipment, restoration of disturbed soil, removal of project roads and paths), work not requiring pile driving, and expected technological advancements in construction vehicles and equipment. As such, project noise impacts during future decommission activities will be less than significant.

b. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less-Than-Significant Impact. Groundborne vibration is measured as the peak particle velocity in inches per second (PPV in/sec). The PPV is typically used to describe potential vibration impacts to buildings. Groundborne vibration generated by heavy equipment attenuates rapidly with distance from the source of the vibration. Therefore, impacts from groundborne vibration will typically occur within short distances from the source. At the property line from the nearest residential dwelling (a distance of approximately 100 feet) to the project site, the groundborne vibration from the use of a vibratory pile driver would be expected

to be approximately 0.11 PPV in/sec.⁵⁶ At a distance of 65 feet (the approximate distance between the project site and the concrete driveway leading to the nearest residence), the groundborne vibration would be expected to be approximately 0.19 PPV in/sec. Also, at a distance of 170 feet (the approximate distance between the project site and the foundation for the residence), the groundborne vibration would be expected to be approximately 0.05 PPV in/sec. The PPV values described above will be less than the value of 0.3 PPV in/sec at which vibration could cause damage to concrete structures.⁵⁷ These PPV values will also be barely perceptible to residents since the human response to transient vibration threshold is between approximately 0.035 PPV in/sec (barely perceptible to humans) and 0.24 PPV in/sec (distinctly perceptible to humans).⁵⁸ As such, this impact will be less than significant, and no mitigation measures will be required.

c. Would the project result in a significant permanent increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from parking areas?

Less-Than-Significant Impact. Any potential operational noise impacts would be attributed to electrical equipment operation, including inverters, battery storage units, and general operation and maintenance activities. Each of the five solar array blocks will have one to three inverters located at the southern edge of the block. Each inverter will be located near an electrical transformer, and will also be located adjacent to a modular battery storage unit. Each inverter and transformer will be fully enclosed and pad mounted; the battery storage will also be fully enclosed. The closest residence, located approximately 100 feet west of the northwest edge of the project site, will be approximately 750 feet from the nearest inverter/transformer and battery storage area (see Figure 9, Site Layout).

Specific manufacturer information for inverters, transformers, and battery storage—including noise levels emitted by the equipment—will be confirmed at a later date. Based on nearby solar array projects of similar size, noise from inverters would be expected to be approximately 33 dBA at a distance of 750 feet, noise from transformers would be expected to be approximately 18 dBA at 750 feet, and noise from battery storage units would be expected to be approximately 41 dBA at 750 feet. Because noise decreases by approximately 6 dBA per doubling of distance over hard surfaces, noise from the inverters, transformers, and battery storage units will be less than significant at the nearest residential property line. PV inverters, transformers, and battery storage units will produce a low level of noise, and the noise will generally be limited to daylight periods power production. Therefore, the impact will be less than significant, and no mitigation will be required.

⁵⁶ California Department of Transportation (Caltrans). 2013. Division of Environmental Analysis, Environmental Engineering, Transportation and Construction Vibration Guidance Manual, Chapter 7.1.2, Equation 10, p. 33. Available at http://www.dot.ca.gov/hq/env/noise/pub/TCVGM Sep13 FINAL.pdf. Accessed on May 21, 2018.

⁵⁷ California Department of Transportation (Caltrans). 2013. Division of Environmental Analysis, Environmental Engineering. Transportation and Construction Vibration Guidance Manual, Chapter 6, Table 10, p. 24. Available at: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed on May 21, 2018

⁵⁸ California Department of Transportation (Caltrans). 2013. Division of Environmental Analysis. Environmental Engineering, Transportation and Construction Vibration Guidance Manual, Chapter 6, Table 6, p. 22. Available at: http://www.dot.ca.gov/hq/env/noise/pub/TCVGM Sep13 FINAL.pdf. Accessed on May 21, 2018.

The solar facility will be operated on an unstaffed basis and monitored remotely, with on-site visitations for the purpose of security, maintenance, and system monitoring. There will be no full-time personnel at the facility. Because the PV arrays produce electricity passively with minimum moving parts, maintenance requirements will be reduced and will consist of equipment inspection and replacement. Operational activities will not result in any significant noise level increases. Therefore, the impact will be less than significant, and no mitigation will be required.

d. Would the project result in a significant temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from amplified sound systems?

Less-Than-Significant Impact. Since the solar facility will be monitored remotely on an unstaffed basis, personnel visitations will be minimal, and will be required only for security, maintenance, and system monitoring purposes. Facility operations could require responding to automated silent alarms based on remotely monitored data and communicating with transmission system operators and other entities involved in facility operations. Project maintenance performed on-site will consist of equipment inspection and replacement and will occur during daylight hours whenever possible. However, maintenance activities on the PV modules and DC systems will typically be performed at night. Maintenance activities will also include cleaning of the facility, responding to plant emergencies, and performing maintenance on the project site as required to clear any obstructive ground cover. The above operations and maintenance activities, which will occur occasionally and intermittently, will not result in a noticeable increase in ambient noise levels. The impact will therefore be less than significant, and mitigation will not be required.

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 expose people residing or working in the project area to excessive noise levels?

No Impact. The General William J. Fox Airfield is located approximately 4.0 miles east-northeast of the Big Sky North Substation and the eastern terminus of the gen-tie line. However, the project will not be located within the area of influence of the airport⁵⁹ and will not conflict with noise compatibility policies contained in the airport's Land Use Compatibility Plan.⁶⁰ The project will not occur within 2.0 miles of a public airport. Therefore, the project will not expose workers to excessive noise levels related to air traffic, and no impact will occur.

f. For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The project site is not located within an airport Land Use Plan, or within 2.0 miles of an airport. There is a private airstrip located approximately 2.5 miles southeast of the Big Sky North Substation (i.e.,

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⁵⁹ Los Angeles County. 2004. Airport Land Use Commission, General William J. Fox Airfield Land Use Compatibility Plan, Chapter 2-Compatibility Polices, Figure 2A, Compatibility Map. Available at http://planning.lacounty.gov/assets/upl/project/aluc_airport-fox.pdf. Accessed on June 1, 2018.

⁶⁰ Los Angeles County. 2004. Airport Land Use Commission. General William J. Fox Airfield Land Use Compatibility Plan. Available at http://planning.lacounty.gov/assets/upl/project/aluc_fox-lucp.pdf. Accessed on June 1, 2018.

from the eastern terminus of the gen-tie line). However, this small private airstrip, comprised of two approximately 2,000-foot dirt runways, is more than 2.0 miles from the project site, and will not be a significant source of noise. Therefore, no impacts will occur.

3.13.3 <u>Mitigation Measures</u>

MM NO-1: Construction Noise Abatement. The construction contractor(s) shall adhere to the following construction noise abatement and avoidance measures:

- Perform the majority of work during weekdays and daytime hours, or as described in Section 12.08
 of the Noise Ordinance. Limit haul deliveries to the same hours specified for operation of
 construction equipment.
- Coordinate noisiest construction equipment use, including pile drivers, during times of day when
 residents are less sensitive to noise. Avoid simultaneous use of noisiest construction equipment,
 including pile drivers, with other equipment.
- Require modern equipment where feasible and perform inspections and maintenance of vehicles
 and construction equipment to ensure equipment is in acceptable working order consistent with
 manufacturers' standards.
- Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards.
- Place all stationary construction equipment as far as feasible from noise-sensitive receptors and directed away from the noise-sensitive receptors where feasible. Locate equipment staging in areas that will create the greatest distance between staging area noise sources and noise-sensitive receptors during all project construction.
- Restrict idling time of diesel engines on-site.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.14 POPULATION AN	D HOUSING	<u>G</u>		
Wo	ould the project:				
a.	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)?				
b.	Displace substantial numbers of existing housing, especially affordable housing, necessitating the construction of replacement housing elsewhere?				
c.	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				
d.	Cumulatively exceed official regional or local population projections?				

3.14.1 Environmental Setting

The project site is vacant and has no habitable buildings, structures, or development at the project site.

3.14.2 Project Impacts

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)?

Less-Than-Significant Impact. The proposed project will not induce substantial population growth. It does not propose any housing or commercial development, nor does it propose any significant extension of roads or infrastructure. No change in the County's population or housing will occur with proposed project implementation. Construction jobs will be short term and are expected to be filled mostly by the existing workforce and sourced from the surrounding communities. During operations, the proposed project will typically be unmanned, apart from periodic on-site personnel visitations for security, maintenance, and system monitoring. These intermittent site visits will not create any permanent or substantial demand for housing, goods, or services in the area and will not induce substantial population growth in the County or surrounding communities. Therefore, impacts to population growth will be less than significant.

b. Would the project displace substantial numbers of existing housing, especially affordable housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project site is vacant. Therefore, the proposed project will not displace existing housing units, households, businesses, or employees. No impacts will occur.

c. Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. See discussion at 3.14.2.b above.

s. Would the project cumulatively exceed official regional or local population projections?

No Impact. The proposed project does not propose any housing or commercial development, nor does it propose any significant extension of roads or infrastructure. No change in the County population or housing will occur with proposed project implementation. Therefore, the proposed project will not materially affect local or regional population.

3.14.3 Mitigation Measures

Proposed project implementation will not result in significant impacts related to population or housing. Therefore, no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact		
	3.15 Public Services						
b.	b. Would the project create capacity or service level problems, or result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:						
i.	Fire protection?			\boxtimes			
ii.	Sheriff protection?			\boxtimes			
iii.	Schools?						
iv.	Parks?						
v.	Libraries?						
vi.	Other public facilities?						

3.15.1 Environmental Setting

The nearest County fire station to the project site is Fire Station 12, located at 8812 W. Avenue E-8, in the City of Lancaster, which is approximately 4.5 miles northeast of the project site.⁶¹ Police protection services for the project site are provided by the County Sheriff's Department (LASD) located at 501 West Lancaster Boulevard, in the City of Lancaster.⁶²

3.15.2 Project Impacts

a. Would the project create capacity or service level problems, or result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i) Fire protection?

Less-Than-Significant Impact. The project will not involve the creation of new habitable structures or new population growth that could generate increased demand for fire protection services. The project has the potential to require fire protection services in the event that any of the equipment or landscaping were to

⁶¹ Los Angeles County Fire Department (LACFD). 2017. Los Angeles County Fire Department - Station 135 website. Available at: https://locator.lacounty.gov/fire/Location/3048351/los-angeles-county-fire-department-station-135. Accessed on May 28, 2018.

⁶² Los Angeles County Sheriff's Department (LACSD). Lancaster Sheriff's Station, website. Available at: http://cityoflancasterca.org/residents/local-resources/sheriff-s-department/l-a-county-sheriff-s-department/. Accessed on May 28 2018.

catch fire. During construction, there will be workers, machinery, construction supplies, and hazardous materials such as hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, and other petroleum-based products contained in construction vehicles on site. There is a possibility that construction activities could accidentally ignite a fire that could require assistance from the LACFD. The nearest fire station (County Fire Station 12) is located approximately 4.5 miles northeast of the project site, and no new or physically altered fire protection facilities will be required to provide fire protection services. ⁶³ Therefore, no impacts will result.

The project CUP Site Plan has been reviewed and approved by the Los Angeles County Fire Department Fire Prevention Division, Land Development Unit for access and water requirements. To safeguard against fire hazards created by the project, building plans will be subject to review and approval by the LACFD; annual inspections of the buildings and premises for compliance and to correct conditions which may cause fire or contribute to its spread will also be required. Compliance with these regulations will ensure that project impacts will remain less than significant.

ii) Sheriff protection?

Less-Than-Significant Impact. The project will not lead to an increase in residential populations at the project site or in nearby communities, and thus will not change the officer-to-population ratio for the area. Operation of the project is largely unmanned and will require limited LASD protection services. The proposed solar facilities will be surrounded by a 6-foot-tall fence with an additional 1–2 feet of three-string barbed wire to prevent unauthorized access or trespassing. Perimeter, motion-activated fence lighting may be installed to provide nighttime security of the solar facility. Patrol services around the solar facility are expected to continue to be provided by the LASD personnel. Therefore, construction and operations of the project will have a less-than-significant impact on sheriff protection services and their staffing or response times.

iii) Schools?

No Impact. The project will not include the development of housing units, nor will it induce population growth. Thus, no impact on capacities, service levels, or performance objectives for schools will be generated by the project. Therefore, no impact will occur.

iv) Parks?

No Impact. The project will not include the development of housing units, nor will it induce population growth. Thus, no impact on capacities, service levels, or performance objectives for parks will be generated by the project. Therefore, no impact will occur.

v) Libraries?

No Impact. The project will not include the development of housing units, nor will it induce population growth. Thus, no impact on capacities, service levels, or performance objectives for libraries will be generated by the project. Therefore, no impact will occur.

⁶³ Los Angeles County. Fire Department. 2017. Available at: https://locator.lacounty.gov/fire/Location/3048905/los-angeles-county-fire-department----station-130. Accessed on June 7, 2018.

vi) Other public facilities?

No Impact. No impact on capacities, service levels, or performance objectives for other public facilities will be generated by the project. Therefore, no impact will occur.

3.15.3 <u>Mitigation Measures</u>

Project implementation will not result in significant impacts related to public services. Therefore, no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.16 <u>Recreat</u>	<u> TION</u>			
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 neighborhood and regional parks or other recreational facilities or require the construction or expansion of such facilities which might have an adverse physical effect on the environment?				
C.	Would the project interfere with regional open space connectivity?				

3.16.1 Environmental Setting

The project site and surrounding areas are not used for recreational purposes. Land uses surrounding the project site include undeveloped land with varying degrees of disturbance due to previous or existing agricultural activities and existing solar facilities. Land adjacent to the project is also former farmland that is currently undeveloped. While some of these areas are open space, they do not currently support any recreational activities.

3.16.2 Project Impacts

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?

No Impact. The project will not directly or indirectly result in housing development or population growth on the project site or in the surrounding communities. With no new households or residents, the project will not increase the demand or use of local parks or regional recreational facilities. Therefore, the project will have no impact on existing parks or create a need for new neighborhood or regional parks.

b) Does the project include neighborhood and regional parks or other recreational facilities or require the construction or expansion of such facilities which might have an adverse physical effect on the environment?

No Impact. See discussion in 3.16.2.a above. The project will not create a need for new neighborhood or regional parks. There will be no impacts.

c) Would the project interfere with regional open space connectivity?

No Impact. The project site is private property and does not contribute to recreational connectivity. While the project will reduce the amount of connected open space by fencing off the project site, due to the vast amount of surrounding open space, the project will not interfere with regional recreational connectivity. The California Poppy Trail is located across from the project site on the west side of 110th Street, and it too, will not be affected by the project. Therefore, there will be no impact.

3.16.3 <u>Mitigation Measures</u>

Project implementation will not result in significant impacts related to recreation. Therefore, no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact			
	3.17 TRANSPORTATION AND TRAFFIC							
Wo	ould 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 (CMP), including, but not limited to, level of service standards and travel demand measures, or other standards established by the CMP 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 to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?							
e.	Result in inadequate emergency access?			\boxtimes				
f.	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?							

3.17.1 Environmental Setting

The project site is located southeast of the intersection of West Avenue G and 110th Street West in unincorporated Los Angeles County, California. Regional access to the project site is provided via the Antelope Valley Freeway (SR 14) from the east or SR 138 from the north (see Figure 2, Project Location). SR 14, which runs in a north-south direction, is located approximately 10.0 miles west of the project site. SR 138 is an undivided two-lane highway corridor that extends approximately 36.0 miles in an east-west

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direction between Interstate 5 and SR 14, and is located 3.0 miles north of the project site. Both State Routes are part of the Highway and Roadway System in the County's Congestion Management Program (CMP). ⁶⁴ While the project site is within the County's jurisdiction, vehicle access to the site requires travel on the City of Lancaster roadway network; thereby, street classifications by the city are also examined.

In 2016, Caltrans completed the Final Environmental Impact Report/Environmental Impact Study for the Northwest State Route 138 Corridor Improvement Project. The improvement project will widen the existing roadway into freeway, expressway, and conventional highway sections along the entire length of the route. The schedule for all Caltrans improvements is anticipated to take approximately 53 months, beginning in April 2022 and ending in August 2026.⁶⁵

It is likely vehicle and equipment delivery to the site will come from SR-14, traveling west on West Avenue G until it meets with 110th Street West. The County designates SR-14 as a Freeway, the highest level of roadway in the planning area, which accommodates regional and interstate travel.⁶⁴ Freeways typically have a minimum 180-foot cross-section and at least four through lanes (two per direction). Freeways have limited access at interchanges and have a typical design capacity of over 2,000 vehicles per hour per lane. Portions of West Avenue G range between two and four lanes, and it is designated as a major arterial roadway by the City of Lancaster, which is defined as a roadway primarily intended to serve through, non-local traffic and provide limited local access.⁶⁶ West Avenue G travels through unincorporated Los Angeles County from 70th Street West to 90th Street West, then through intermittent incorporated areas between 90th Street West and 110th Street West.⁶⁶ While 110th Street West is a two lane, paved County roadway, it is also designated a major arterial roadway by the City of Lancaster.⁶⁷ According to the County Highway Plan Policy Map, all roadways mentioned above have been identified as Existing Major Highways.⁶⁸

Level of service (LOS) is a qualitative indicator used for describing the performance of a roadway segment or intersection operating conditions. It is measured from LOS A (excellent conditions) to LOS F (extreme congestion), with LOS A through D considered to be acceptable. The LOS is based on the intersection

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⁶⁴ Los Angeles County Metropolitan Transportation Authority . 2010. 2010 Congestion Management Program. Los Angeles, CA. October 28, 2010. Available at: http://www.metro.net/projects_studies/cmp/images/CMP_Final_2010.pdf. Accessed June 1, 2018.

⁶⁵ Northwest State Route 138 Corridor Improvement Project FEIR/EIS and Section 4(f) Evaluation, Caltrans 2017. https://www.metro.net/projects/nw138. Accessed June 1, 2018.

⁶⁶ City of Lancaster. 2009. City of Lancaster General Plan 2030. Adopted July 14, 2009. Available at: http://www.cityoflancasterca.org/about-us/departments-services/development-services/planning/general-plan-2030. Accessed June 7, 2018.

⁶⁷ City of Lancaster. 2009. City of Lancaster General Plan 2030 – Final Master Environmental Assessment. April 2009. Available at: http://www.cityoflancasterca.org/about-us/departments-services/development-services/planning/general-plan-2030. Accessed June 7, 2018.

⁶⁸ Los Angeles County Department of Regional Planning (LACDRP). 2015 (October). Los Angeles County General Plan 2035 – October 2015. (Figure 7.3). Adopted. Available at: http://planning.lacounty.gov/assets/upl/project/gp final-general-plan.pdf. Accessed June 1, 2018.

capacity utilization (ICU) methodology value, which is a comparison of the traffic volume to the overall capacity (V/C).⁶⁹

As previously mentioned, all roadways that border the site are designated as Existing Major Highways by LACDRP. The County classifies major highways as roadways intended to accommodate the majority of traffic connecting between cities and communities in the region and the regional freeway system, including key inter-urban roads, non-urban access ways, and recreational roads. Furthermore, these roads have a volume capacity of LOS E, carrying between 49,500 and 54,000 vehicles per day.

In the City of Lancaster, the minimum acceptable LOS used to define roadway segments is LOS D during morning and evening peak periods, which has a capacity of 40,000 and 44,000 vehicles per day.⁷¹ Major arterials (including West Avenue G and 110th Street West) are designated as LOS A, which has a capacity of 8,000 vehicles per lane per day.⁷¹ According to the City of Lancaster General Plan, traffic volume between SR 14 and 100th Street West was estimated between 50 and 1,000 vehicles per lane in 2009.

Trip generation for employees and delivery trucks will vary depending on the phase of construction of the project. But the IS/MND has assumed the worst-case scenario of 200 round-trip worker trips (including worker, equipment, delivery, and water trips) during the construction phase of the project, which will not cause a substantial increase in traffic in relation to the existing traffic load and capacity of the road and freeway system.

3.17.2 Project Impacts

a. Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for 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?

Less-Than-Significant Impact. Trip generation for employees and delivery trucks will vary depending on the phase of construction of the project. The construction activities are expected to be completed in approximately 10–14 months. Construction will generally occur during daylight hours, Monday through Friday. Weekend and non-daylight work hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. Construction activities will be conducted consistent with the County noise regulations regarding hours of construction. The IS/MND has assumed the worst-case

⁶⁹ Federal Highway Administration (FHWA). 2015. Traffic Analysis Toolbox Volume VI: Definition, Interpretation, and Calculation of Traffic Analysis Tools Measures of Effectiveness. Available at: http://ops.fhwa.dot.gov/publications/fhwahop08054/sect4.htm. Accessed June 7, 2018.

⁷⁰ City of Lancaster. 2009. City of Lancaster General Plan 2030 – Final Master Environmental Assessment. April 2009. Available at: http://www.cityoflancasterca.org/about-us/departments-services/development-services/planning/general-plan-2030. Accessed June 7, 2018.

⁷¹ City of Lancaster. 2009. City of Lancaster General Plan 2030. Adopted July 14, 2009. Available at: http://www.cityoflancasterca.org/about-us/departments-services/development-services/planning/general-plan-2030. Accessed June 7, 2018.

scenario of 200 round-trip worker trips (including worker, equipment, delivery, and water trips) during the construction phase of the project. Construction workers, equipment delivery, and water trucks will regionally access the site from SR 14, West Avenue G, and 110th Street West. Construction equipment, vehicles, and materials will all be staged within the project site.

The community surrounding the project area is rural with undeveloped land and, based on a review of the City of Lancaster General Plan and Master Environmental Assessment, West Avenue G is not designated as an emergency evacuation route or as containing any existing or planned transit routes. Other operational solar PV facilities are located in the immediate vicinity of the project area to the east and to the south. This limited amount of construction activity is not expected to cause traffic congestion on area roadways and intersections given that West Avenue G and 110th Street West can accommodate 8,000 vehicles per lane per day, thereby will not with applicable policies.

The County Bicycle Master Plan and the City of Lancaster Master Plan of Trails and Bikeways do not identify existing bike pathways in the vicinity of the project site; however, both plans propose an east-west Class II bike lane on Avenue G, between 110th Street West and 70th Street West, as well as a Class III bike lane that will run north-south along 110th Street West starting from Avenue G southward. Although neither plan specifies when this proposed improvement will occur, temporary construction traffic will not impact bikeways, as vehicle and equipment traffic will adhere to local and regional policies.

Upon commissioning, the project will enter the operational phase. For the duration of the operational phase, the project will be operated on an unstaffed basis and monitored remotely, with regular on-site personnel visitations for security, maintenance, and system monitoring. Project maintenance performed on the site will consist of equipment inspection and replacement. There will be no full-time site personnel on-site during operation, but maintenance will occur during daylight hours, when possible. However, maintenance activities on the PV modules and DC systems will be typically performed at night. Therefore, the operations phase of the project will result in negligible trips and will have a less-than-significant impact on traffic and circulation, and will not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for performance of the circulation system.

If it is determined that solar energy generation uses shall no longer continue, sPower will decommission and remove the system and its components at the end of the life of the project (approximately 35 years) if deemed necessary. The project site could then be converted to other uses in accordance with applicable land use regulations in effect at that time. All decommissioning and restoration activities will adhere to the

⁷² City of Lancaster. 2009. City of Lancaster General Plan 2030 – Final Master Environmental Assessment. April 2009. Available at: http://www.cityoflancasterca.org/about-us/departments-services/development-services/planning/general-plan-2030. Accessed June 7, 2018.

⁷³ City of Lancaster. 2009. City of Lancaster General Plan 2030. Adopted July 14, 2009. Available at: http://www.cityoflancasterca.org/about-us/departments-services/development-services/planning/general-plan-2030. Accessed June 7, 2018.

⁷⁴ Los Angeles County Department of Regional Planning, 2015. Transportation Element General Plan 2035. Available at: https://dpw.lacounty.gov/pdd/bike/masterplan.com. Accessed June 1, 2018.

⁷⁵ City of Lancaster. 2012. City of Lancaster Master Plan of Trails and Bikeways and map of proposed bikeway network. Available at: http://www.cityoflancasterca.org/home/showdocument?id=17362. Accessed June 7, 2018.

requirements of the appropriate governing authorities and will be in accordance with all applicable federal, State, and County regulations.

b. Conflict with an applicable congestion management program (CMP), including, but not limited to, level of service standards and travel demand measures, or other standards established by the CMP for designated roads or highways?

Less-Than-Significant Impact. As previously mentioned, SR 14 and SR 138 are part of the Highway and Roadway System in the CMP, and West Avenue G, West Avenue H, and 110th Street West are designated as Existing Major Highways by the LACDRP, and therefore subject to the provisions of the CMP. These roadways have a volume capacity of LOS D and LOS E during peak hour traffic. The IS/MND has assumed the worst-case scenario of 200 round-trip worker trips. While trip generation during each phase of construction will increase average daily loads, construction-related traffic will be minimal and temporary, and will not diminish LOS designation for roads or highways. Therefore, no conflict with an applicable congestion management program will occur, and traffic congestion will be less than significant.

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 significant safety risks?

No Impact. The project site is not located within an airport land use plan, and the project will not generate or require air transportation. Additionally, the project will not change air traffic levels or change the location of air traffic to cause substantial safety risks or impact air travel in any way. The PV panels and associated equipment will not exceed single-story height. Therefore, no impacts will occur.

d. Would the project significantly increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less-Than-Significant Impact. The project does not include the realignment of any existing road facilities. Construction staging and lay-down areas will be located within the project site boundaries and will not create a potential traffic hazard on public rights-of-way. As discussed above, the limited amount of construction activity for the grading and vehicle trips by the construction crew for delivery of building materials is not expected to cause traffic congestion or insufficient capacity on area roadways and intersections. According to the Master Environmental Assessment, the roadway characteristics for West Avenue G from SR 14 to 100th Street West range from four lanes (SR 14 to 30th Street West) to two lanes (30th Street West to 100th Street), and are designated as LOS A with a capacity of 8,000 vehicles per lane. The project will contain two access points along 110th Street West, with 24-foot-wide gates at each entrance. Each driveway will provide access for emergency vehicles and for maintenance and operation purposes. A network of 20-foot-wide access roads will also be provided around the perimeter and throughout the project site in compliance with applicable LACFD design requirements.

A Decommissioning Plan for the project will be prepared and submitted to the County for approval prior to the issuance of a grading permit. This Decommissioning Plan will ensure that the project site is returned

⁷⁶ City of Lancaster. 2009. City of Lancaster General Plan 2030. Adopted July 14, 2009. Available at http://www.cityoflancasterca.org/about-us/departments-services/development-services/planning/general-plan-2030. Accessed June 7, 2018.

to a beneficial use upon termination of the proposed solar energy generation uses if required. Although there is a 20-year life of the power purchase agreement for the project, it is more likely that the solar field components included in the proposed project will continue to operate for approximately 35 years, which is the useful life of the PV solar panels to be installed. It is assumed that decommissioning of the project site will require the same construction scenario (e.g., activities, equipment, duration) as the initial development of the project site. It is expected that future decommissioning activities would also be expected to comply with the same or equivalent traffic control mitigation requirements. Therefore, future traffic impacts related to decommissioning will be less than significant.

e. Would the project result in inadequate emergency access?

Less-Than-Significant Impact. Based on a review of the City of Lancaster General Plan and Master Environmental Assessment, West Avenue G is not designated as an emergency evacuation route. Construction of the solar installation and on-site infrastructure will not require any roadway or lane closures during either construction or operation that could restrict or impede emergency access. As depicted on Figure 9, Site Layout, the project will contain two access points along 110th Street West, with 24-foot-wide gates at each entrance. Each driveway will provide access for emergency vehicles and for maintenance and operation purposes. A 10,000-gallon water tank will be sited near each of the two driveways, which will be clearly labeled for "Fire Department Use Only." A network of 20-foot-wide access roads will also be provided around the perimeter and throughout the project site in compliance with applicable LACFD design requirements. The internal access roads will be installed according to the County Code prior to operating the facilities and will be maintained in a drivable condition throughout the operation of the project to allow for emergency access. Therefore, no impact on emergency access will occur.

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

No Impact. The project is located in a rural area of Los Angeles County where alternative transportation facilities are not readily available. As previously mentioned, development of the project will utilize the existing road network and will not impact or conflict with bikeways, pedestrian access, transit services, or other modes of alternative transportation. Thus, impacts on, or conflicts with, alternative transportation policies, plans, or programs will be less than significant.

3.17.3 Mitigation Measures

Project implementation will not result in significant impacts related to traffic and transportation. Therefore, no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.18 TRIBAL CULTURAL	L RESOUR	<u>CES</u>		
Would the project cause a substantial adverse change in the significance of a tribal cultural resource defined in 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:					ape 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				
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 5024.1. 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.				

3.18.1 Environmental Setting

A Cultural Resources Assessment has been prepared for the proposed project, a copy of which is provided in Appendix D. A cultural resources records search, reconnaissance-level pedestrian field survey, NAHC Sacred Lands File search, and vertebrate paleontological resources assessment were conducted for the project. The findings of the report regarding tribal cultural resources are summarized in this section.

A Native American consultation in accordance with AB 52 was conducted for the proposed project. The NAHC requested a Sacred Lands File search and Native American contact list was acquired. A response was received from the NAHC on November 15, 2017, stating that a records search of the NAHC Sacred Lands inventory failed to indicate the presence of Native American cultural resources on the project site. In addition, the NAHC provided a list of Native American groups and individuals that may have knowledge of the religious and/or cultural significance of resources that may be on and near the project site. On May 19, 2018, the Tribal Historic and Cultural Preservation (THCP) Department of the Fernandeño Tataviam Band of Mission Indians (FTBMI) sent an email to the LACDRP, which constituted a formal request for tribal consultation under the provisions of CEQA (as amended, 2015) and PRC Section 21080.3.1. On August 27, 2018 the THCP Department for FTBMI provided an email response with further viewpoints on response items and how to improve future tribal consultation. They also recommended inclusion of a more thorough ethnography section in future reports. In summary, FTBMI expressed support of inclusion of the

conditions recommended by the San Manuel Band of Mission Indians. A response to their comments was provided by the applicant in an email dated August 13, 2018.

On May 22, 2018, the San Manuel Band of Mission Indians provided comments in an email stating that the project site was unlikely used for travel by the Serrano people and is of sufficient distance from any sensitive locations such that the San Manuel Band of Mission Indians do not have any concern. The letter included conditions addressing the unanticipated discovery of human remains and Native American cultural resources that are requested to be included as condition of the project permitting. The San Manuel Band of Mission Indians requested copies of the final permitting conditions and to be notified in the event of an unanticipated discovery during project implementation. No further input on the project has been requested and the San Manuel Band of Mission Indians consider consultation to be concluded at this time. An email from the applicant, providing confirmation of receipt of their comments and agreement to include requested conditions, was provided to the tribe on August 12, 2018.

In a letter dated May 23, 2018, the Morongo Band of Mission Indians acknowledged that the project is situated within their traditional use area and requested to be engaged in formal consultation. The letter requests a copy of the cultural resources records search results and that a tribal monitor be present during Phase I field surveys conducted for the project, or if the survey was completed that they receive a copy of the resulting study. Phase I surveys for the project site were conducted prior to AB 52 notification and a copy of the results was provided by the applicant in an email response to the tribe on August 13, 2018.

In general, the project site has been highly disturbed by former farming activities, as well as utility and road installations and maintenance. The records search revealed that five previous cultural resource studies have taken place, and nine cultural resources have been recorded within 1.0 mile of the project site. Of the five previous studies, none have assessed portions of the project site, and no cultural resources have been recorded within its boundaries. During the field survey conducted between November 6 and 8, 2017, no cultural resources (including prehistoric or historic period archaeological resources, or historic period architectural resources) were identified within the project site boundaries. None of the naturally occurring materials observed during the field survey exhibited evidence of the manufacture or acquisition of prehistoric stone tools or materials.

3.18.2 Project Impacts

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in 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 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).

Less-Than-Significant Impact with Mitigation. As previously mentioned, an NAHC search of the Sacred Lands File did not indicate the presence of Native American cultural resources on the project site, and no significant archaeological deposits were found during the records search and field survey. Although the likelihood of encountering archaeological resources on the project site is considered low, ground-disturbing

activities have the potential to reveal buried deposits not observed on the surface. Therefore, implementation of MM CUL-1 through MM CUL-3 (provided in Section 3.5.3) and MM CUL-4 of this IS/MND, which describes procedures to be followed in the event that historical resources including tribal cultural resources are discovered, will reduce this potentially significant impact to a less-than-significant level.

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in 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 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. 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.

Less-Than-Significant Impact with Mitigation. The project will not result in a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074, since no tribal cultural resources were identified within or immediately adjacent to the project site, and the likelihood of discovering in-place resources is low due to historical land disturbance activities. As discussed above, an NAHC search of the Sacred Lands File did not indicate the presence of Native American cultural resources on the project site or within the immediate vicinity, and no significant archaeological deposits were found during the records search and field survey. However, minimal grading and ground disturbance for the project will occur; as such, MM CUL-1 through CUL-4 are provided herein to include procedures to follow should such unknown resources be encountered during construction activities. With the implementation of MM CUL-1 through CUL-4 potentially significant impacts related to tribal cultural resources will be reduced to less than significant.

3.18.3 Mitigation Measures

MM CUL-1 through MM CUL-3, as described in Section 3.5.3, and MM CUL-4 will be incorporated into project construction and will reduce potentially significant impacts to tribal cultural resources to less than significant.

MM CUL-4:

- 1. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code Section 7050.5 and that code enforced for the duration of the project. Documentation of compliance will be maintained on-site and available for review by the County, upon request.
- 2. In the event that Native American cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer or as determined by the qualified archaeologist) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, San Manuel Band of Mission Indians (SMBMI), Morongo Band of

Mission Indians (MBMI), and Fernandeño Tataviam Band of Mission Indians (FTBMI) will be contacted if any such find occurs and be provided information and permitted/invited to perform a site visit when the archaeologist makes his/her assessment, so as to provide Tribal input. If a discovery is made, the qualified archaeologist will provide documentation to the County that SMBMI, MBMI, and FTBMI have been contacted. The archaeologist shall complete an isolate record for the find and submit this document to the applicant and County for dissemination to the SMBMI, MBMI and FTBMI.

- 3. If significant Native American historical resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, a Secretary of Interior-qualified archaeologist shall be retained to develop a cultural resources Discovery, Treatment, and Monitoring Plan, as described in MM CUL-2, the draft of which shall be provided to SMBMI, MBMI and FTBMI for review and comment.
 - a. All in-field investigations, assessments, and/or data recovery enacted pursuant to the finalized plan shall be monitored by a SMBMI, MBMI and FTBMI Participant(s), if available.
 - b. The County and/or applicant shall, in good faith, consult with SMBMI, MBMI and FTBMI on the disposition and treatment of any artifacts or other cultural materials encountered during the project. The applicant shall provide contact information for SMBMI, MBMI, and FTBMI, if necessary.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.19 <u>Utilities and Ser</u>	VICE SYST	<u>'EMS</u>		
Wo	ould the project:				
a.	Exceed wastewater treatment requirements of either the Los Angeles or Lahontan Regional Water Quality Control Boards?				
b.	Create water or wastewater system capacity problems, or result in the in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
c.	Create drainage system capacity problems, 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?				
d.	Have sufficient reliable water supplies available to serve the project demands from existing entitlements and resources, considering existing and projected water demands from other land uses?				
e.	Create energy utility (electricity, natural gas, propane) system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				
g.	Comply with federal, state, and local statutes and regulations related to solid waste?				

3.19.1 Environmental Setting

The project is in the Antelope Valley, which is underlain by the Antelope Valley Groundwater Basin (Basin). The Basin is located in the western Mojave Desert. The Basin (California Department of Water Resources [DWR] Basin No. 6-44) encompasses 1,580 square miles in Los Angeles, Kern, and San

Bernardino Counties.⁷⁷ Approximately two-thirds of the Basin lies in Los Angeles County, with small portions extending into San Bernardino County, and the remainder in southeastern Kern County.⁷⁸ As mentioned above, the project site is undeveloped. There are no water, sewer, or solid waste disposal services at the project site. The project site also does not generate solid waste requiring collection and disposal. The project site is located just outside the service boundaries of the Los Angeles County Waterworks District No. 40 (the District).⁷⁹

3.19.2 Project Impacts

a. Would the project exceed wastewater treatment requirements of either the Los Angeles or Lahontan Regional Water Quality Control Boards (RWQCB)?

Less-Than-Significant Impact. The project will not generate domestic wastewater because no habitable structures, restrooms, bathrooms, toilets, or kitchen facilities will be constructed. The project will provide a mobile sanitation facility for workers during the construction and operations and maintenance periods. Although no significant impacts will result from the use of mobile sanitation facilities, the County Department of Public Health requires the preparation of a mobile sanitation facility plan for sites with no permanent facilities. The mobile sanitation facility will be maintained in a safe and sanitary condition, so as not to constitute a public hazard or nuisance, and will be consistent with the Department of Public Health's "Sanitation Facilities at Remote Worksite Locations." Domestic wastewater will be treated using existing facilities per County regulations. During operations, the mobile sanitation facility will be provided on-site whenever activities are scheduled to take place. Domestic wastewater generated by the mobile sanitation facility will be treated using existing facilities per County regulations. Therefore, no wastewater treatment is required that may exceed Regional Water Quality Control Board (RWQCB) requirements and impacts will be less than significant.

b. Would the project create water or wastewater system capacity problems, 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?

Less-Than-Significant Impact. The estimate of water usage for the project site is approximately 52 acrefeet of water during the construction phase and approximately 1.5 acre-feet annually for PV module washing and landscape irrigation. As required by the County, all water will be trucked to the project site from available commercial water sources acceptable to the County. Water for this project will be obtained from the Lancaster Water Reclamation District at a filling station at Division Street and West Avenue H, approximately 10 miles from the project site. No water or wastewater services or connections to existing facilities are required by the project. There will be no demand for potable water or generation of wastewater as there will be no habitable structures on-site. The project's impacts to water or wastewater system capacity will be less than significant.

⁷⁷ Antelope Valley Watermaster. 2016-2018. History. Available at: https://avwatermaster.net/about-us/history/. Accessed on June 8, 2018.

⁷⁸ Ibid.

⁷⁹ Los Angeles County Waterworks Districts. 2018. Map. Available at: http://dpw.lacounty.gov/wwd/web/Documents/WWD_CO-KEY11x17.pdf. Accessed on June 8, 2018.

c. Would the project create drainage system capacity problems, 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?

Less-Than-Significant Impact. The project will not require construction of a storm drainage system or expansion of an existing storm water drainage or treatment facility. The project will be constructed with appropriate BMPs to ensure that adjacent storm drain facilities are not negatively impacted by the project, and the project will otherwise comply with the County's water quality plan/hydrology requirements. The project's impacts to drainage system capacity will be less than significant.

d. Would the project have sufficient reliable water supplies available to serve the project demands from existing entitlements and resources, considering existing and projected water demands from other land uses?

Less-Than-Significant Impact. As previously mentioned, the project will require minimal water supply during construction activities and for the washing of the PV panels during long-term maintenance. PV panels will require cleaning zero to two times per year to remove dust buildup, grime, bird droppings, and/or soot, typically (but not exclusively) with demineralized water. In addition, outside of the security fence, the project site will be surrounded by an approximately 4-foot-high by 10-foot-wide landscaping buffer along the 110th Street West and West Avenue G frontages. As proposed by the project, disturbed areas of the project site will be re-vegetated after construction with a drought-tolerant native or non-native seed-mix to stabilize the project site and promote revegetation. All shrubs will be manually irrigated via water trucks three times a week for a 90-day maintenance period until the landscaping is established. No long-term irrigation infrastructure is proposed; however, the landscaping will be maintained as needed during the life of the project and will be monitored monthly.

Due to concerns on overdrafting the Basin, the County requires that the Applicant obtain a "will-serve" letter from a water source acceptable to the County, such as: (a) through the District and/or LACWD for water; (b) through a negotiated program between the AVEK and the District; (c) purchasing a new permanent water supply, or contracting with a water bank outside the Basin for the project and transferring those supplies to the AVEK and the District for use in connection with the project; (d) purchasing potable or non-potable water from the City of Lancaster, City of Palmdale, or other city, public agency, public entity, district, or public or private water purveyor authorized to sell water to the project; (e) on-site wells (to the extent permitted); or (f) any other source acceptable to the County. The Applicant has obtained, or prior to CUP approval will obtain, a "will serve" letter for LACWD's water from the District for the project or other water source acceptable to the County. Compliance with these requirements will prevent increased groundwater pumping within the Basin and avoid the need for a permanent demand for water at the project site. Therefore, impacts will be less than significant.

e. Would the project create energy utility (electricity, natural gas, propane) system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less-Than-Significant Impact. The project will not require natural gas or propane; however, it will use minor amounts of electricity for construction and ongoing maintenance operations during the life of the project. This electricity service will be obtained from SCE's facilities adjacent to the project site. Therefore, impacts to energy utility system capacity will be less than significant.

f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less-Than-Significant Impact. The proposed project will result in the generation of minor amounts of construction waste, which will require disposal at the Lancaster Landfill. During construction, soil waste will be screened and separated for use as backfill to the maximum extent possible. Other waste debris generated during construction (bolts, packing waste, damaged photo-voltaic panels) will be hauled offsite for recycling when possible. The County adopted an ordinance, effective March 6, 2005, that requires all construction projects to recycle a portion of the generated construction waste. The ordinance amends Title 20 of the County Code by adding Chapter 20.87 (Construction and Demolition Debris Recycling and Reuse), which requires all construction projects to recycle or reuse a portion of all construction and demolition debris, soil, rock, and gravel removed from a project site unless a lower percentage is approved by the Director of the County Department of Public Works (LACDPW). The project shall comply with the standards that are in effect at the time of the permit issuance. All waste generated during construction of the project will be handled and disposed of in compliance with all applicable federal, State, and local statutes and regulations related to solid waste. Additionally, the Solar Energy Industries Association has developed a national recycling program that includes a national network of preferred recycling partners.

Solid waste generated by employees and other on-site activities during long-term project activities (i.e., panel cleaning and vegetation management) will be minimal. The long-term solid waste stream will not be large enough to require any measurable landfill capacity. The proposed project will comply with federal, state and local statutes on the regulation of solid waste disposal and participate in available solar industry recycling programs. Impacts will be limited and temporary during construction and are considered less than significant.

g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Less-Than-Significant Impact. The proposed project will comply with federal, state and local statutes on the regulation of solid waste disposal.

3.19.3 <u>Mitigation Measures</u>

Project implementation will not result in significant impacts related to utilities and service systems. Therefore, no mitigation is required.

		Potentially Significant Impact	Less-Than- Significant Impact with Mitigation Incorporated	Less- Than- Significant Impact	No Impact
	3.20 MANDATORY FINDINGS	OF SIGNII	FICANCE		
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially 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.	Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?				
c.	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.)				
d.	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				

3.20.1 Environmental Setting

The project site is a fallow agricultural field and does not generate any environmental impacts aside from nuisance dust during high winds.

3.20.2 Project Impacts

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially 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?

Less-Than-Significant Impact with Mitigation. As discussed in Section 3.4 (Biological Resources),

b. Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

Less-Than-Significant Impact. The project will achieve short-term environmental goals related to the creation of renewable energy and the offset of demands for fossil fuels, in support of State and local policy. A Decommissioning Plan for the project has been prepared and submitted to the County for approval prior to the issuance of a grading permit. This Decommissioning Plan will ensure that the project site is returned to a beneficial use upon termination of the proposed solar energy generation uses if required. Although there is a 20-year life of the power purchase agreement for the project, it is more likely that the project solar field will continue to operate for approximately 35 years, which is the useful life of the PV panels to be installed. The Decommissioning Plan will ensure the project site is returned to a beneficial use upon termination of the use of the land as a solar site. Therefore, the project will not result in any negative impacts to long-term environmental goals.

c. 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)?

Less-Than-Significant Impact. Cumulative impacts are an evaluation of the proposed project potential impact combined with other related projects impacts. Related projects are projects that are within the area surrounding the proposed project site that are recently developed, currently in progress or proposed for the future that, when considered with the proposed project, could potentially result in cumulative environmental impacts. There are nine existing solar facilities north, east and south of the proposed solar generating facility and two approved solar projects under construction within approximately 2 miles of the project site.. The first is the San Pablo Raceway A Project, a proposed 100 MW solar facility on 414 acres bounded by West Avenue G and H and 80th and 90th Street West. This project was approved by the City of Lancaster in August of 2018. The other approved project currently under construction is Phase 2 of a 50 MW project on 307 acres. Phase 2 will be the remaining buildout of 20 MW on 124 acres of that project site. This project, approved in 2017 by the City of Lancaster, is bounded by West Avenue G and F, and 95th and 100th Street West.

Based on this assessment, this IS/MND concluded that potential impacts to aesthetics, air quality, biological resources, cultural resources, and tribal cultural resources could be reduced to less than significant after mitigation measures are incorporated, when the project was considered in conjunction with these

cumulative projects. All other issue areas will not result in a significant cumulative impact or require mitigation when the project was considered in conjunction with these cumulative projects.

Aesthetics. In general, the overall visual quality of the cumulative project area has degraded with the addition of several solar energy facilities and electrical transmission lines. While construction activities will include the presence of heavy equipment, views of activities and equipment will be temporary, and the project's incremental contribution to cumulative visual impacts are considered less than significant with the implementation of MM AES-1.

Air Quality. Operation of the proposed project will not result in a substantial increase in air pollutant emissions. It is expected that the other two cumulative solar projects, where all projects will be required to implement AVAQMD measures, will also result in similarly low emission levels after they are built and operating. Therefore, with the implementation of MM AQ-1 and MM AQ-2, the proposed project in combination with the two local cumulative projects will have less-than-significant cumulative air quality impacts during project operation.

Biological Resources. The Biological Resources Technical Report (Appendix B) describes the project site as a fallow agricultural field that primarily consists of non-native and invasive grasses. While the project site may provide foraging grounds, dispersal areas, and refugia to a variety of special-status species, the loss of natural communities within the Antelope Valley has been exacerbated through past agricultural activities, ongoing infrastructure development, urbanization, and the spread of exotic plant species. Solar development currently represents a significant source of habitat loss for many common and special-status species. In addition to the proposed project, there are over nine solar projects within 2.0 miles that are already operational. Two approved, but not yet constructed, solar projects are immediately east of the proposed project.

Implementation of MM BIO-1 through MM BIO-10 will reduce impacts from project construction and operation on biological resources, and will ensure the project complies with local policies addressing biological resources. Impacts to wildlife movement will be less than significant and all other biological resources impacts will be reduced to less than significant with the implementation of mitigation measures.

Cultural Resources. No cultural resources (including prehistoric or historic period archaeological resources, or historic period architectural resources) were identified within the project site boundaries. The proposed project impacts will not contribute to or cause significant cumulative impacts because there are no significant sites within the proposed project area or within the two solar projects to the east. Implementation of MM CUL-1 through MM CUL-4 will reduce potential impacts to cultural and paleontological resources (associated with construction, operation, maintenance, and decommissioning of the proposed project) to less than significant.

Noise. The proposed project is located approximately 0.75 miles (approximately 4,000 feet) west of the nearest cumulative project, which is the Phase 2 development of the site bounded by West Avenue G and F, and 95th and 100th Street West. Noise generated by the operation of equipment during project construction or operation would generally attenuate below the County noise ordinance threshold of 75 dBA within a few hundred feet or less of the noise-generating equipment. There are no locations from which a receptor will experience substantial permanent or temporary noise from both projects simultaneously.

Therefore, no cumulative noise impacts will occur. Adherence to County noise standards and implementation of MM NO-1 will reduce individual noise impacts of the proposed project and other cumulative projects.

Tribal Cultural Resources. No tribal cultural resources have been identified on the project site or within the immediate vicinity. Furthermore, in association with CEQA review, the THCP Department of the Fernandeño Tataviam Band of Mission Indians has been consulted due to concerns that the potential subsurface boundary of some sites that have not been well defined and may extend into the project. The San Manuel Band of Mission Indians and Morongo Band of Mission Indians have been consulted as part of the AB 52 consultation process. The San Manuel Band of Mission Indians requested copies of the final permitting conditions and to be notified in the event of an unanticipated discovery during project implementation. The Morongo Band of Mission Indians requested a copy of the Phase I Cultural Resource Survey and evidence of a records search through the California Historical Resources Information System. This information was provided. In conjunction with AB 52 consultation and implementation of MM CUL-1 through CUL-4, cumulative impacts will be less than significant.

d. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

Less-Than-Significant Impact with Mitigation. Project construction and operation does not have the potential to generate significant adverse impacts on human beings and **no mitigation will be required** for the topical issues related to human health, including hydrology and water quality, noise, or transportation and traffic. However, a **mitigation measure is required** for potential impacts on human health associated with air quality (MM AQ-1 and MM AQ-2).

3.20.3 Mitigation Measures

As described in Sections 3.1 through 3.19, the impacts of the project will be less than significant or will be reduced to less than significant with the implementation of identified mitigation measures. There are no project impacts which remain significant and unavoidable following implementation of mitigation measures. In addition to the identified mitigation measures, the implementation of project design features and County policies, standards, guidelines, and requirements will ensure that there will be no substantial adverse effects on human beings, either directly or indirectly.

4 LIST OF PREPARERS

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Appendix A

Air Quality Impact Study



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Technical Memorandum

To: Carisa Endrizzi-Davis, sPOWER

From: Carlos Ituarte-Villarreal, SWCA

Date: March 19, 2018

Re:

Antelope Expansion 3 Solar Project- Air Quality Impact Assessment

This technical memorandum details an air quality impact assessment and the estimated emissions from the construction and operation of the Antelope Expansion 3 Solar Project located in Los Angeles County, California. The proposed project consists of a 30-megawatt photovoltaic (PV) energy generating facility. The project will be located near the City of Lancaster, in unincorporated Los Angeles County. The project would result in the disturbance of up to approximately 150 acres. The latest version of CalEEMod (Version 2016.3.2; last updated November 9, 2017) was used to estimate construction and operational emissions. Emissions from the proposed project were estimated and compared against their respective impact thresholds.

PROJECT DESCRIPTION

The project will consist of a 30-megawatt (30 MW) photovoltaic (PV) energy generating facility located near the City of Lancaster, in Los Angeles County. A single generation tie-line (gen-tie) of approximately 4,225 feet in length will interconnect with the power grid at the existing Southern California Edison (SCE) Big Sky North Substation.

PROJECT LOCATION

The project will be located in unincorporated Los Angeles County within the Antelope Valley portion of the Mojave Desert. It is bounded by West Avenue H on the south, West Avenue G on the north, 110th Street West on the west, and 100th Street West on the east. The project area will be located within the Antelope Valley Air Quality Management District (AVAQMD).

REGULATORY BACKGROUND

This section summarizes the overall regulatory framework for air quality management and greenhouse gas (GHG) emissions/climate change in California and the region.

Greenhouse Gases (GHG)

Federal

CLEAN AIR ACT

The U.S. Environmental Protection Agency (USEPA) has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the federal Clean Air Act (CAA). On April 17, 2009, USEPA established that CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and SF₆ may contribute to air pollution and may endanger public health and welfare. Reporting regulations that require specific facilities and industries to report their GHG emissions annually under Code of Federal Regulations (CFR) Title 40.

- 40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule. This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons (MT) of CO₂e emissions per year.
- 40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas
 Tailoring Rule. USEPA has mandated that Prevention of Significant Deterioration (PSD) and Title
 V requirements applies to facilities whose stationary source CO₂e emissions exceed 100,000 tons
 per year.

State

EXECUTIVE ORDER S-3-05

State Executive Order S-3-05 established GHG reduction targets for the state of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80% below 1990 levels by 2050.

GLOBAL WARMING SOLUTIONS ACT OF 2006 (AB 32)

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), which provides the framework for reducing GHG emissions in California. This law requires the California Air Resources Board (CARB) to design and implement a scoping plan that

describe emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020.

The scoping plan includes a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program (CARB 2008a).

CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions came into effect in January 2009. CARB issued a Preliminary Draft Staff Proposal titled Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act in October 2008 that included a proposal that non-transportation-related sources with GHG emissions less than 7,000 MT CO2e per should be presumed to have a less-than-significant impact (CARB 2008b).

On December 30, 2009, the California Resources Agency adopted amendments to the CEQA Guidelines to include analysis of GHG emissions in CEQA documents. The amendments became effective on March 18, 2010.

EXECUTIVE ORDER B-30-15

In April 2015, Governor Brown signed Executive Order B-30-15 that added the intermediate target of reducing GHG emissions to 40% below 1990 levels by 2030.

SENATE BILL 32 AND ASSEMBLY BILL 197

On September 8, 2016, Governor Brown signed Senate Bill 32 (SB 32) and Assembly Bill 197 (AB 197), which provides CARB with a statutory basis for expands the scoping plan, requiring California to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030

AB 197 requires CARB to make the annual emissions of GHGs, criteria pollutants, and toxic air contaminants available on its web site for each facility that reports to the state board and air districts. Finally, this bill requires CARB to approve a statewide GHG emissions limit equivalent to the statewide GHG emissions level in 1990 to be achieved by 2020.

Criteria Pollutants

Federal

The federal Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the U.S. Environmental Protection Agency (EPA) has established various regulations to achieve and maintain acceptable air quality, including the adoption of National Ambient Air Quality Standards (NAAQS), mandatory State Implementation Plans (SIPs) or maintenance plan requirements to achieve and maintain NAAQS, and emission standards for both stationary and mobile sources of air pollution. National ambient air quality standards were established in 1970 for six pollutants: carbon monoxide (CO), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead (Pb). These pollutants are commonly referred to as criteria pollutants because they are considered the most prevalent air pollutants known to be hazardous to human health.

EPA designates a region that is meeting the air quality standard for a given pollutant as being in "attainment" for that pollutant; regions not meeting the federal standard are designated as being in "non-attainment" for that pollutant. If a region is designated as non-attainment for a NAAQS, the federal CAA

requires the state to develop a SIP to demonstrate how the standard will be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The CAA Amendments of 1990 directed EPA to set standards for toxic air contaminants and required facilities to sharply reduce emissions.

State

The California Air Resources Board (CARB) is the state agency responsible for California air quality management, including establishment of California Ambient Air Quality Standards (CAAQS), mobile source emission standards, and GHG regulations, as well as oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution. California specifies four additional criteria pollutants: visibility reducing particles (VRP), sulfates, hydrogen sulfide (H_2S), and vinyl chloride.

The Air Toxic "Hot Spots" Information and Assessment Act identifies toxic air contaminant hot spots where emissions from specific sources may expose individuals to an elevated risk of adverse health effects, particularly cancer or reproductive harm. Toxic air contaminants are also referred to as hazardous air pollutants (HAPs). The act requires that a business or other establishment identified as a significant source of toxic emissions provide the affected population with information about health risks posed by the emissions.

Regional

The project is located within the jurisdiction of AVAQMD, which is the regional agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution pursuant to delegated state and federal authority.

AVAQMD created the AVAQMD CEQA and Federal Conformity Guidelines to assist lead agencies, planning consultants, and project proponents in assessing the potential air quality impacts from industrial, residential, and commercial development. This handbook provides information on AVAQMD's thresholds for determining the significance of potential air quality impacts from proposed development and provides recommendations on the level of mitigation necessary to reduce those impacts.

The AVAQMD adopted the Ozone Attainment Plan in 2004 to establish the methods and reduction measures to ensure applicable ozone attainment goals and standards are met for the area. The attainment plan focuses on pollutants including NO_X and VOCs.

The AVAQMD established a program of rules and regulations directed at attainment of state and national air quality standards. All development projects within the AVAQMD are required to comply with existing rules as they apply to each specific project.

Local

The City of Lancaster evaluates air quality impacts of new proposed projects, requires mitigation of potentially significant air quality impacts, and ensures implementation of such mitigation. The City of Lancaster Municipal Code contains provisions relevant to maintaining the quality of air for the area. In addition to the above, the City's General Plan has the following objectives and policies related to air quality.

SIGNIFICANCE CRITERIA

As defined in Section 15002(g) of the CEQA Guidelines, a significant effect on the environment is "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. CEQA allows for significance criteria established by the applicable air pollution control district(s) to be used to assess the impact of a project related to emissions, at the discretion of the CEQA Lead Agency.

The AVAQMD measures the significance of potential air quality impacts based on the thresholds presented in Table 6 – Significant Emission Thresholds of the AVAQMD CEQA and Federal Conformity Guidelines.

A project's air quality impact is considered significant if the project generates construction or operational emissions that exceed the thresholds of significance found in Table 6 – Significant Emission Thresholds of the AVAQMD CEQA and Federal Conformity Guidelines.

METHODOLOGY

Emissions were analyzed using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. CalEEMod was designed in collaboration with the South Coast Air Quality Management District (SCAQMD) and other California air districts to calculate air and GHG emissions associated with land use projects. This software analyzes both construction (short-term) and operational (long-term) emissions by utilizing both project-specific values such as construction schedules and equipment rosters as well as default values for specific geographic areas and typical land use projects.

Emission calculations in this document are based on worst-case estimates of emissions to ensure presentation of a conservative analysis. Emissions estimates are provided in Appendix A.

PROJECT ASSUMPTIONS

The assumptions used for input into the CalEEMod program are discussed below. Assumed mitigation measures input into the model are presented as well:

Antelope Expansion Solar Project – AntEx3

• Project Characteristics

Windspeed: 2.6 m/s
Precipitation: 31 days
Climate zone: 9
Land use: Rural

o Operational Year: 2020

o Utility company: Southern California Edison

• Land Use

o Land Use type: Industrial

o Land use Subtype: General Light Industry

o Unit Amount: 6,534 (1,000 sqft)

Lot Acreage: 150Square feet: 6,534,000

o Population: 0

Construction

o Construction Phases – Used 4 construction phases.

Site preparation

Phase type: Site Preparation
Start date: 06/03/2019
End date: 07/12/2019
Days per week: 5
Total days: 30

Grading

Phase type: Grading
Start date: 07/15/2019
End date: 08/23/2019
Days per week: 5
Total days: 30

Solar Array Installation

Phase type: Building construction

Start date: 08/26/2019
End date: 05/29/2020
Days per week: 5
Total days: 200

•

Off-Road Equipment – The following equipment was assumed (hours/day (hr/day) of operation, horsepower (HP), and load factor (LF) for individual pieces of equipment in parenthesis. CalEEMod program defaults were used for all construction equipment horsepower, and load factors by construction phase

.

Site preparation

Equipment Type	Estimated Number in Use	Estimated Maximum Hours Per Day
Scrapers	1	8
Skid Steer Loaders	1	8
Rubber Tired Dozers	2	8
Tractors/Loaders/Backhoes	2	8

Grading

Equipment Type	Estimated Number in Use	Estimated Maximum Hours Per Day
Excavators	1	8
Graders	1	8
Off-Highway Trucks	1	8
Rubber Tired Dozers	1	8
Skid Steer Loaders	2	8

Solar array Installation

Equipment Type	Estimated Number in Use	Estimated Maximum Hours Per Day
Bore/Drill Rigs	2	4
Forklifts	5	4
Generator Sets	1	8
Skid Steer Loaders	2	8
Tractors/Loaders/Backhoes	3	8

- Dust from Material Movement Total acres graded during grading phase was estimated by CalEEMod as 775 acres.
- Trips and VMT –Defaults were used for all trips and trip distances. A total of 400 workers one-way trips per day was assumed.
- On-road Fugitive Dust An average of up to 0.125 miles of unpaved roads would be traveled by traffic accessing the Project area. All defaults were used for the rest of the parameters.
- o **Demolition** No data was entered.
- o **Architectural Coatings** No data was entered as no architectural coating was assumed for the project.

• Operational Phase

- o **Mobile** All defaults were used. No additional trips are assumed for the project during the operational phase as this is an unmanned facility.
- Area No data was entered as no consumer products or architectural coatings was assumed.
- Energy No energy use was assumed.
- o Water and Wastewater No water usage was assumed for this project.
- o **Solid Waste** No waste is assumed to be generated during the operational phase of the project.
- Vegetation –No additional landscaping aside from clearing of excess vegetation is proposed.

• Mitigation

- o A water exposed area approach is considered with a frequency of 3 times per day to control PM_{10} and $PM_{2.5}$ emissions.
- o Reduced speed to 15 mph on-site.

POTENTIAL IMPACTS

Construction Emissions

Using the CalEEMod model, values for the mitigated maximum construction daily emissions are presented and compared to the CEQA Air Quality Guidelines, Antelope Valley Air Quality Management District (AVAQMD) daily emission thresholds in Table 1.

Table 1. Comparison of Maximum Mitigated Construction Emission Impacts to AVAQMD Thresholds

Pollutan t	Peak Annual Emissions a (tons)	Annual Threshold ^b (tons)	Annual Threshold Exceeded?	Peak Daily Emissions ^a (pounds)	Daily Threshold ^b (pounds)	Daily Threshold Exceeded?
CO_2e	477.14	100,000.00	No	8,603.14	548,000.00	No
CO	2.42	100.00	No	38.13	548.00	No
NO_X	2.25	25.00	No	42.94	137.00	No
VOC	0.31	25.00	No	4.86	137.00	No
SO_X	0.01	25.00	No	0.09	137.00	No
PM_{10}^{c}	3.44	15.00	No	69.34	82.00	No
$PM_{2.5}$ d	0.51	15.00	No	8.80	82.00	No
H_2S	-	10.00	N/A	-	54.00	N/A
Pb	-	0.60	N/A	-	3.00	N/A

^a From CalEEMod Output file

The construction of the project will not cause emissions above any AVAQMD significance thresholds.

Operation and Maintenance Emissions

The proposed project operational emissions would result from employee trips and annual PV panel washing, clearing of excess vegetation, and replacement of broken PV panels and ancillary facilities. Table 2 summarizes modeled emissions that would occur with operation of the proposed project.

When emissions were modeled with the proposed mitigation measures discussed above, AVAQMD thresholds were not exceeded. All operational criteria pollutant emissions would remain below AVAQMD significance thresholds, resulting in a less than significant impact from proposed project operation emissions.

^b From CEQA Air Quality Guidelines, Antelope Valley Air Quality Management District (AVAQMD), 2016.

 $^{^{}c}$ Used total PM $_{10}\,$ emissions.

^dUsed total PM_{2.5} emissions.

Table 2. Comparison of Mitigated Operational Emission Impacts to AVAQMD Thresholds

Pollutan t	Peak Annual Emissions a (tons)	Annual Threshold ^b (tons)	Annual Threshold Exceeded?	Peak Daily Emissions ^a (pounds)	Daily Threshold ^b (pounds)	Daily Threshold Exceeded?
CO_2e	2.47	100,000.00	No	5,183.15	548,000.00	No
СО	0.068	100.00	No	15.99	548.00	No
NO_X	0.013	25.00	No	25.42	137.00	No
VOC	0.007	25.00	No	2.73	137.00	No
SO_X	0.00003	25.00	No	0.05	137.00	No
PM ₁₀ ^c	0.00068	15.00	No	0.93	82.00	No
PM _{2.5} ^d	0.001	15.00	No	0.85	82.00	No
H_2S	-	10.00	N/A	-	54.00	N/A
Pb	-	0.60	N/A	-	3.00	N/A

^a From CalEEMod Output file

^bFrom CEQA Air Quality Guidelines, Antelope Valley Air Quality Management District (AVAQMD), 2016.

 $^{^{}c}$ Used total PM $_{10}\,$ emissions.

^dUsed total PM_{2.5} emissions.

APPENDIX A

Calculations and CalEEMod Files

CalEEMod Version: CalEEMod.2016.3.2 Page 1 of 27 Date: 3/5/2018 12:15 PM

Antelope Expansion Solar Project - Mojave Desert Air Basin, Annual

Antelope Expansion Solar Project Mojave Desert Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	6,534.00	1000sqft	150.00	6,534,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2020
Utility Company	Southern California Edisor	ı			
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Antelope Expansion Solar Project - Mojave Desert Air Basin, Annual

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Project Characteristics -

Land Use - Acres: 150

Construction Phase - Based on construction schedule

Off-road Equipment - Based on equipment roster

Off-road Equipment - Based on equipment roster

Off-road Equipment - Based on equipment roster

Trips and VMT - The traffic associated with panel installation has been estimated at 400 worker and 20 vendor

On-road Fugitive Dust - An average of up to 0.125 miles of unpaved roads would be traveled by traffic accessing the Project area.

Vehicle Trips - Unmanned site

Consumer Products - Use of consumer products is no expected

Area Coating - No architectural coating is expected

Energy Use - No energy use is expected

Water And Wastewater - No water use is expected

Solid Waste - No solid waste will be genrated

Operational Off-Road Equipment - Maintenance activities during Project operations include annual PV panel washing, clearing of excess vegetation, and replacement of broken PV panels and ancillary facilities

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	3267000	0
tblAreaCoating	Area_Nonresidential_Interior	9801000	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	3,100.00	200.00
tblConstructionPhase	NumDays	310.00	30.00
tblConstructionPhase	NumDays	120.00	30.00
tblConstructionPhase	PhaseEndDate	12/10/2032	5/29/2020
tblConstructionPhase	PhaseEndDate	1/22/2021	8/23/2019

Antelope Expansion Solar Project - Mojave Desert Air Basin, Annual

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tblConstructionPhase	PhaseEndDate	11/15/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	1/23/2021	8/26/2019
tblConstructionPhase	PhaseStartDate	11/16/2019	7/15/2019
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.25	0.00
tblEnergyUse	T24NG	13.65	0.00
tblGrading	AcresOfGrading	15.00	775.00
tblGrading	AcresOfGrading	30.00	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	UsageHours	8.00	4.00

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Annual

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tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	1.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	8,102.16	0.00
tblTripsAndVMT	VendorTripNumber	1,071.00	20.00
tblTripsAndVMT	WorkerTripNumber	2,744.00	400.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	1,510,987,500.00	0.00

2.0 Emissions Summary

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2.1 Overall Construction <u>Unmitigated Construction</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year					ton	s/yr							MT	/yr		
2019	0.3142	2.2529	2.4222	5.2800e- 003	5.3499	0.1065	5.4564	0.6991	0.0989	0.7979	0.0000	475.1437	475.1437	0.0799	0.0000	477.1417
2020	0.2273	1.2320	2.0042	4.6700e- 003	5.3537	0.0579	5.4116	0.5800	0.0541	0.6341	0.0000	417.7650	417.7650	0.0531	0.0000	419.0916
Maximum	0.3142	2.2529	2.4222	5.2800e- 003	5.3537	0.1065	5.4564	0.6991	0.0989	0.7979	0.0000	475.1437	475.1437	0.0799	0.0000	477.1417

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year					tor	ns/yr							M	T/yr		
2019	0.3142	2.2529	2.4222	5.2800e- 003	3.2169	0.1065	3.3234	0.4094	0.0989	0.5083	0.0000	475.1434	475.1434	0.0799	0.0000	477.1414
2020	0.2273	1.2320	2.0042	4.6700e- 003	3.3844	0.0579	3.4423	0.3831	0.0541	0.4372	0.0000	417.7648	417.7648	0.0531	0.0000	419.0915
Maximum	0.3142	2.2529	2.4222	5.2800e- 003	3.3844	0.1065	3.4423	0.4094	0.0989	0.5083	0.0000	475.1434	475.1434	0.0799	0.0000	477.1414
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	38.33	0.00	37.75	38.04	0.00	33.98	0.00	0.00	0.00	0.01	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-3-2019	9-2-2019	1.2374	1.2374
2	9-3-2019	12-2-2019	0.9610	0.9610
3	12-3-2019	3-2-2020	0.9059	0.9059
4	3-3-2020	6-2-2020	0.8522	0.8522
		Highest	1.2374	1.2374

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	√yr		
Area	5.6800e- 003	5.6000e- 004	0.0604	0.0000		2.2000e- 004	2.2000e- 004	0.0000	0.1168	0.1168	3.1000e- 004	0.0000	0.1246			
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	1.3300e- 003	0.0127	7.6600e- 003	3.0000e- 005		4.6000e- 004	4.6000e- 004	 	4.3000e- 004	4.3000e- 004	0.0000	2.3315	2.3315	7.5000e- 004	0.0000	2.3503
Waste	ii ii		1 			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water			1 			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.0100e- 003	0.0133	0.0681	3.0000e- 005	0.0000	6.8000e- 004	6.8000e- 004	0.0000	6.5000e- 004	6.5000e- 004	0.0000	2.4482	2.4482	1.0600e- 003	0.0000	2.4749

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	СО	SO2	! Fugi PM		naust M10	PM10 Total	Fugitive PM2.5	Exha PM:		PM2.5 Total	Bio- C	O2 NBi	o- CO2	Total CO2	CH4	N2	0	CO2e
Category						tons/yr										M	Г/уг			
Area	5.6800e- 003	5.6000e- 004	0.0604	0.000	0		000e- 004	2.2000e- 004	! !	2.200		2.2000e- 004	0.000	0.	1168	0.1168	3.1000e 004	0.00	00	0.1246
Energy	0.0000	0.0000	0.0000	0.000	0	0.0	0000	0.0000	1 ! ! !	0.00	000	0.0000	0.000	0.	0000	0.0000	0.0000	0.00	00	0.0000
Mobile	0.0000	0.0000	0.0000	0.000	0.0	0.00	0000	0.0000	0.0000	0.00	000	0.0000	0.000	0.	0000	0.0000	0.0000	0.00	00	0.0000
Offroad	1.3300e- 003	0.0127	7.6600e 003	3.0000		4.6	000e- 004	4.6000e- 004	i 	4.300 00		4.3000e- 004	0.000	00 2.	3315	2.3315	7.5000e 004	- 0.00	00	2.3503
Waste		;				0.0	0000	0.0000	i 	0.00	000	0.0000	0.000	0.	0000	0.0000	0.0000	0.00	00	0.0000
Water		;				0.0	0000	0.0000	i 	0.00	000	0.0000	0.000	0.	0000	0.0000	0.0000	0.00	00	0.0000
Total	7.0100e- 003	0.0133	0.0681	3.0000 005			000e- 004	6.8000e- 004	0.0000	6.500		6.5000e- 004	0.000	00 2.	4482	2.4482	1.0600e 003	0.00	00	2.4749
	ROG		NOx	со	SO2	Fugitive PM10	Exha PN		110 February	igitive PM2.5	Exhau PM2			io- CO2	NBio-0	CO2 Total	CO2	CH4	N20	СО

3.0 Construction Detail

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

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0.00

0.00

0.00

0.00

0.00

Construction Phase

Percent

Reduction

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	7/12/2019	5	30	
2	Grading	Grading	7/15/2019	8/23/2019	5	30	
3	Solar Array Installation	Building Construction	8/26/2019	5/29/2020	5	200	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 775

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural

Coating - sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Skid Steer Loaders	2	8.00	65	0.37
Solar Array Installation	Forklifts	5	4.00	89	0.20
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	1	8.00	187	0.41
Solar Array Installation	Bore/Drill Rigs	2	4.00	221	0.50
Solar Array Installation	Skid Steer Loaders	2	8.00	65	0.37
Solar Array Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Solar Array Installation	Generator Sets		8.00	84	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Solar Array Installation	13	400.00	20.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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3.2 Site Preparation - 2019
Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0583	0.6430	0.3394	6.1000e- 004		0.0307	0.0307		0.0283	0.0283	0.0000	54.5722	54.5722	0.0173	0.0000	55.0038
Total	0.0583	0.6430	0.3394	6.1000e- 004	0.1807	0.0307	0.2114	0.0993	0.0283	0.1276	0.0000	54.5722	54.5722	0.0173	0.0000	55.0038

Unmitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e- 003	1.2800e- 003	0.0115	3.0000e- 005	0.0537	2.0000e- 005	0.0537	5.8200e- 003	2.0000e- 005	5.8400e- 003	0.0000	2.4927	2.4927	9.0000e- 005	0.0000	2.4950
Total	1.4200e- 003	1.2800e- 003	0.0115	3.0000e- 005	0.0537	2.0000e- 005	0.0537	5.8200e- 003	2.0000e- 005	5.8400e- 003	0.0000	2.4927	2.4927	9.0000e- 005	0.0000	2.4950

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3.2 Site Preparation - 2019

<u>Mitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Fugitive Dust	11 11 11				0.0705	0.0000	0.0705	0.0387	0.0000	0.0387	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0583	0.6430	0.3394	6.1000e- 004		0.0307	0.0307		0.0283	0.0283	0.0000	54.5721	54.5721	0.0173	0.0000	55.0038
Total	0.0583	0.6430	0.3394	6.1000e- 004	0.0705	0.0307	0.1012	0.0387	0.0283	0.0670	0.0000	54.5721	54.5721	0.0173	0.0000	55.0038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr									MT/yr						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e- 003	1.2800e- 003	0.0115	3.0000e- 005	0.0340	2.0000e- 005	0.0340	3.8500e- 003	2.0000e- 005	3.8700e- 003	0.0000	2.4927	2.4927	9.0000e- 005	0.0000	2.4950
Total	1.4200e- 003	1.2800e- 003	0.0115	3.0000e- 005	0.0340	2.0000e- 005	0.0340	3.8500e- 003	2.0000e- 005	3.8700e- 003	0.0000	2.4927	2.4927	9.0000e- 005	0.0000	2.4950

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3.3 Grading - 2019
Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust					0.5013	0.0000	0.5013	0.0940	0.0000	0.0940	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0415	0.4622	0.2427	5.7000e- 004		0.0194	0.0194		0.0179	0.0179	0.0000	50.8615	50.8615	0.0161	0.0000	51.2638
Total	0.0415	0.4622	0.2427	5.7000e- 004	0.5013	0.0194	0.5207	0.0940	0.0179	0.1119	0.0000	50.8615	50.8615	0.0161	0.0000	51.2638

Unmitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e- 003	1.2800e- 003	0.0115	3.0000e- 005	0.0537	2.0000e- 005	0.0537	5.8200e- 003	2.0000e- 005	5.8400e- 003	0.0000	2.4927	2.4927	9.0000e- 005	0.0000	2.4950
Total	1.4200e- 003	1.2800e- 003	0.0115	3.0000e- 005	0.0537	2.0000e- 005	0.0537	5.8200e- 003	2.0000e- 005	5.8400e- 003	0.0000	2.4927	2.4927	9.0000e- 005	0.0000	2.4950

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3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Fugitive Dust					0.1955	0.0000	0.1955	0.0367	0.0000	0.0367	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0415	0.4622	0.2427	5.7000e- 004		0.0194	0.0194		0.0179	0.0179	0.0000	50.8614	50.8614	0.0161	0.0000	51.2637
Total	0.0415	0.4622	0.2427	5.7000e- 004	0.1955	0.0194	0.2149	0.0367	0.0179	0.0545	0.0000	50.8614	50.8614	0.0161	0.0000	51.2637

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e- 003	1.2800e- 003	0.0115	3.0000e- 005	0.0340	2.0000e- 005	0.0340	3.8500e- 003	2.0000e- 005	3.8700e- 003	0.0000	2.4927	2.4927	9.0000e- 005	0.0000	2.4950
Total	1.4200e- 003	1.2800e- 003	0.0115	3.0000e- 005	0.0340	2.0000e- 005	0.0340	3.8500e- 003	2.0000e- 005	3.8700e- 003	0.0000	2.4927	2.4927	9.0000e- 005	0.0000	2.4950

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3.4 Solar Array Installation - 2019 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Off-Road	0.0916	0.9341	0.8493	1.5300e- 003		0.0542	0.0542		0.0507	0.0507	0.0000	136.0601	136.0601	0.0365	0.0000	136.9718
Total	0.0916	0.9341	0.8493	1.5300e- 003		0.0542	0.0542		0.0507	0.0507	0.0000	136.0601	136.0601	0.0365	0.0000	136.9718

Unmitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6500e- 003	0.1066	0.0259	2.6000e- 004	0.1690	5.9000e- 004	0.1696	0.0179	5.7000e- 004	0.0185	0.0000	24.8184	24.8184	2.4700e- 003	0.0000	24.8803
Worker	0.1164	0.1045	0.9418	2.2600e- 003	4.3916	1.5400e- 003	4.3931	0.4762	1.4200e- 003	0.4776	0.0000	203.8462	203.8462	7.4400e- 003	0.0000	204.0321
Total	0.1200	0.2111	0.9677	2.5200e- 003	4.5606	2.1300e- 003	4.5627	0.4941	1.9900e- 003	0.4961	0.0000	228.6646	228.6646	9.9100e- 003	0.0000	228.9124

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3.4 Solar Array Installation - 2019 Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
	0.0916	0.9341	0.8493	1.5300e- 003		0.0542	0.0542		0.0507	0.0507	0.0000	136.0599	136.0599	0.0365	0.0000	136.9716
Total	0.0916	0.9341	0.8493	1.5300e- 003		0.0542	0.0542		0.0507	0.0507	0.0000	136.0599	136.0599	0.0365	0.0000	136.9716

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6500e- 003	0.1066	0.0259	2.6000e- 004	0.1056	5.9000e- 004	0.1062	0.0116	5.7000e- 004	0.0121	0.0000	24.8184	24.8184	2.4700e- 003	0.0000	24.8803
Worker	0.1164	0.1045	0.9418	2.2600e- 003	2.7774	1.5400e- 003	2.7789	0.3148	1.4200e- 003	0.3162	0.0000	203.8462	203.8462	7.4400e- 003	0.0000	204.0321
Total	0.1200	0.2111	0.9677	2.5200e- 003	2.8830	2.1300e- 003	2.8851	0.3263	1.9900e- 003	0.3283	0.0000	228.6646	228.6646	9.9100e- 003	0.0000	228.9124

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3.4 Solar Array Installation - 2020 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Off-Road	0.0986	1.0090	0.9912	1.8000e- 003		0.0557	0.0557		0.0521	0.0521	0.0000	157.0340	157.0340	0.0426	0.0000	158.0999
Total	0.0986	1.0090	0.9912	1.8000e- 003		0.0557	0.0557		0.0521	0.0521	0.0000	157.0340	157.0340	0.0426	0.0000	158.0999

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6900e- 003	0.1146	0.0267	3.0000e- 004	0.1984	4.7000e- 004	0.1989	0.0210	4.5000e- 004	0.0215	0.0000	28.8990	28.8990	2.8100e- 003	0.0000	28.9692
Worker	0.1251	0.1085	0.9863	2.5700e- 003	5.1553	1.7500e- 003	5.1571	0.5590	1.6100e- 003	0.5606	0.0000	231.8321	231.8321	7.6200e- 003	0.0000	232.0226
Total	0.1288	0.2230	1.0130	2.8700e- 003	5.3537	2.2200e- 003	5.3560	0.5800	2.0600e- 003	0.5821	0.0000	260.7310	260.7310	0.0104	0.0000	260.9918

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3.4 Solar Array Installation - 2020 Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
	0.0986	1.0090	0.9912	1.8000e- 003		0.0557	0.0557		0.0521	0.0521	0.0000	157.0338	157.0338	0.0426	0.0000	158.0997
Total	0.0986	1.0090	0.9912	1.8000e- 003		0.0557	0.0557		0.0521	0.0521	0.0000	157.0338	157.0338	0.0426	0.0000	158.0997

Mitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6900e- 003	0.1146	0.0267	3.0000e- 004	0.1240	4.7000e- 004	0.1244	0.0136	4.5000e- 004	0.0140	0.0000	28.8990	28.8990	2.8100e- 003	0.0000	28.9692
Worker	0.1251	0.1085	0.9863	2.5700e- 003	3.2604	1.7500e- 003	3.2622	0.3695	1.6100e- 003	0.3711	0.0000	231.8321	231.8321	7.6200e- 003	0.0000	232.0226
Total	0.1288	0.2230	1.0130	2.8700e- 003	3.3844	2.2200e- 003	3.3866	0.3831	2.0600e- 003	0.3851	0.0000	260.7310	260.7310	0.0104	0.0000	260.9918

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr					MT	/yr				
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Avei	rage Daily Trip Ra	ate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.533720	0.036539	0.171303	0.112547	0.020259	0.005751	0.010148	0.095159	0.001607	0.002105	0.008722	0.000887	0.001253

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated			1			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.2 Energy by Land Use - NaturalGas <u>Unmitigated</u>

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					ton	s/yr							MT	/yr		
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					ton	s/yr							MT	/yr		
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity <u>Unmitigated</u>

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		MT	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		MT	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
	5.6800e- 003	5.6000e- 004	0.0604	0.0000		2.2000e- 004	2.2000e- 004		2.2000e- 004	2.2000e- 004	0.0000	0.1168	0.1168	3.1000e- 004	0.0000	0.1246
	5.6800e- 003	5.6000e- 004	0.0604	0.0000		2.2000e- 004	2.2000e- 004		2.2000e- 004	2.2000e- 004	0.0000	0.1168	0.1168	3.1000e- 004	0.0000	0.1246

6.2 Area by SubCategory Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					ton	s/yr							MT	√yr		
Architectural Coating	0.0000					0.0000	0.0000	i i	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.6800e- 003	5.6000e- 004	0.0604	0.0000		2.2000e- 004	2.2000e- 004	1 1 1	2.2000e- 004	2.2000e- 004	0.0000	0.1168	0.1168	3.1000e- 004	0.0000	0.1246
Total	5.6800e- 003	5.6000e- 004	0.0604	0.0000		2.2000e- 004	2.2000e- 004		2.2000e- 004	2.2000e- 004	0.0000	0.1168	0.1168	3.1000e- 004	0.0000	0.1246

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6.2 Area by SubCategory Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					ton	s/yr							МТ	/yr		
Architectural Coating	0.0000					0.0000	0.0000	i i	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.6800e- 003	5.6000e- 004	0.0604	0.0000		2.2000e- 004	2.2000e- 004	1 1 1 1	2.2000e- 004	2.2000e- 004	0.0000	0.1168	0.1168	3.1000e- 004	0.0000	0.1246
Total	5.6800e- 003	5.6000e- 004	0.0604	0.0000		2.2000e- 004	2.2000e- 004		2.2000e- 004	2.2000e- 004	0.0000	0.1168	0.1168	3.1000e- 004	0.0000	0.1246

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category		MT	⁻ /yr	
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use <u>Unmitigated</u>

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		MT	-/yr	
General Light Industry	0/0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		MT	-/yr	
General Light Industry	0/0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Antelope Expansion Solar Project - Mojave Desert Air Basin, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
		МТ	-/yr	
Willigatod	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	4	8.00	1	402	0.38	Diesel

Antelope Expansion Solar Project - Mojave Desert Air Basin, Annual

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type					ton	s/yr							MT	/yr		
- I i i i i i i i i i i i i i i i i i i	1.3300e- 003	0.0127	7.6600e- 003	3.0000e- 005		4.6000e- 004	4.6000e- 004		4.3000e- 004	4.3000e- 004	0.0000	2.3315	2.3315	7.5000e- 004	0.0000	2.3503
Total	1.3300e- 003	0.0127	7.6600e- 003	3.0000e- 005		4.6000e- 004	4.6000e- 004		4.3000e- 004	4.3000e- 004	0.0000	2.3315	2.3315	7.5000e- 004	0.0000	2.3503

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
-----------------------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type Number

11.0 Vegetation

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

Antelope Expansion Solar Project Mojave Desert Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	6,534.00	1000sqft	150.00	6,534,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2020
Utility Company	Southern California Ediso	on			
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

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Project Characteristics -

Land Use - Acres: 150

Construction Phase - Based on construction schedule

Off-road Equipment - Based on equipment roster

Off-road Equipment - Based on equipment roster

Off-road Equipment - Based on equipment roster

Trips and VMT - The traffic associated with panel installation has been estimated at 400 worker and 20 vendor

On-road Fugitive Dust - An average of up to 0.125 miles of unpaved roads would be traveled by traffic accessing the Project area.

Vehicle Trips - Unmanned site

Consumer Products - Use of consumer products is no expected

Area Coating - No architectural coating is expected

Energy Use - No energy use is expected

Water And Wastewater - No water use is expected

Solid Waste - No solid waste will be genrated

Operational Off-Road Equipment - Maintenance activities during Project operations include annual PV panel washing, clearing of excess vegetation, and replacement of broken PV panels and ancillary facilities

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	3267000	0
tblAreaCoating	Area_Nonresidential_Interior	9801000	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	3,100.00	200.00
tblConstructionPhase	NumDays	310.00	30.00
tblConstructionPhase	NumDays	120.00	30.00
tblConstructionPhase	PhaseEndDate	12/10/2032	5/29/2020
tblConstructionPhase	PhaseEndDate	1/22/2021	8/23/2019

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tblConstructionPhase	PhaseEndDate	11/15/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	1/23/2021	8/26/2019
tblConstructionPhase	PhaseStartDate	11/16/2019	7/15/2019
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.25	0.00
tblEnergyUse	T24NG	13.65	0.00
tblGrading	AcresOfGrading	15.00	775.00
tblGrading	AcresOfGrading	30.00	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	UsageHours	8.00	4.00

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

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tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	1.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	8,102.16	0.00
tblTripsAndVMT	VendorTripNumber	1,071.00	20.00
tblTripsAndVMT	WorkerTripNumber	2,744.00	400.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	1,510,987,500.00	0.00

2.0 Emissions Summary

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year					lb/d	day							lb/d	day		
2019	4.8607	42.9436	38.1324	0.0864	107.9677	2.0484	109.1927	11.6353	1.8845	12.7808	0.0000	8,575.433 9	8,575.433 9	1.2753	0.0000	8,603.135 1
2020	4.4536	22.6355	35.9000	0.0848	107.9677	1.0719	109.0396	11.6353	1.0022	12.6374	0.0000	8,367.904 2	8,367.904 2	1.0810	0.0000	8,394.928 1
Maximum	4.8607	42.9436	38.1324	0.0864	107.9677	2.0484	109.1927	11.6353	1.8845	12.7808	0.0000	8,575.433 9	8,575.433 9	1.2753	0.0000	8,603.135 1

Mitigated Construction

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year					lb/	/day							lb.	/day		
2019	4.8607	42.9436	38.1324	0.0864	68.1139	2.0484	69.3388	7.6499	1.8845	8.7954	0.0000	8,575.433 9	8,575.433 9	1.2753	0.0000	8,603.135 1
2020	4.4536	22.6355	35.9000	0.0848	68.1139	1.0719	69.1857	7.6499	1.0022	8.6520	0.0000	8,367.904 2	8,367.904 2	1.0810	0.0000	8,394.928 1
Maximum	4.8607	42.9436	38.1324	0.0864	68.1139	2.0484	69.3388	7.6499	1.8845	8.7954	0.0000	8,575.433 9	8,575.433 9	1.2753	0.0000	8,603.135 1
	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	36.91	0.00	36.52	34.25	0.00	31.36	0.00	0.00	0.00	0.00	0.00	0.00

Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

2.2 Overall Operational Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Area	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Offroad	2.6657	25.4174	15.3166	0.0531		0.9261	0.9261		0.8520	0.8520		5,140.060 4	5,140.060 4	1.6624		5,181.620 4
Total	2.7289	25.4236	15.9880	0.0531	0.0000	0.9285	0.9285	0.0000	0.8544	0.8544		5,141.490 4	5,141.490 4	1.6662	0.0000	5,183.146 3

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Area	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Offroad	2.6657	25.4174	15.3166	0.0531		0.9261	0.9261		0.8520	0.8520		5,140.060 4	5,140.060 4	1.6624		5,181.620 4
Total	2.7289	25.4236	15.9880	0.0531	0.0000	0.9285	0.9285	0.0000	0.8544	0.8544		5,141.490 4	5,141.490 4	1.6662	0.0000	5,183.146 3

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	7/12/2019	5	30	
2	Grading	Grading	7/15/2019	8/23/2019	5	30	
3	Solar Array Installation	Building Construction	8/26/2019	5/29/2020	5	200	

Acres of Grading (Site Preparation Phase): 0

Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

Acres of Grading (Grading Phase): 775

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Skid Steer Loaders	2	8.00	65	0.37
Solar Array Installation	Forklifts	5	4.00	89	0.20
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	1	8.00	187	0.41
Solar Array Installation	Bore/Drill Rigs	2	4.00	221	0.50
Solar Array Installation	Skid Steer Loaders	2	8.00	65	0.37
Solar Array Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Solar Array Installation	Generator Sets	1	8.00	84	0.74

Trips and VMT

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Solar Array Installation	13	400.00	20.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	3.8846	42.8640	22.6251	0.0405	 	2.0472	2.0472		1.8834	1.8834		4,010.367 9	4,010.367 9	1.2688	i i	4,042.088 8
Total	3.8846	42.8640	22.6251	0.0405	12.0442	2.0472	14.0913	6.6205	1.8834	8.5038		4,010.367 9	4,010.367 9	1.2688		4,042.088 8

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

3.2 Site Preparation - 2019

<u>Unmitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1045	0.0796	0.7151	1.7900e- 003	3.8986	1.2500e- 003	3.8998	0.4205	1.1500e- 003	0.4216		177.6676	177.6676	6.4100e- 003		177.8280
Total	0.1045	0.0796	0.7151	1.7900e- 003	3.8986	1.2500e- 003	3.8998	0.4205	1.1500e- 003	0.4216		177.6676	177.6676	6.4100e- 003		177.8280

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Fugitive Dust	11 11 11				4.6972	0.0000	4.6972	2.5820	0.0000	2.5820			0.0000			0.0000
Off-Road	3.8846	42.8640	22.6251	0.0405		2.0472	2.0472	 	1.8834	1.8834	0.0000	4,010.367 9	4,010.367 9	1.2688	 	4,042.088 8
Total	3.8846	42.8640	22.6251	0.0405	4.6972	2.0472	6.7444	2.5820	1.8834	4.4654	0.0000	4,010.367 9	4,010.367 9	1.2688		4,042.088 8

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

3.2 Site Preparation - 2019

<u>Mitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1045	0.0796	0.7151	1.7900e- 003	2.4605	1.2500e- 003	2.4618	0.2767	1.1500e- 003	0.2778		177.6676	177.6676	6.4100e- 003		177.8280
Total	0.1045	0.0796	0.7151	1.7900e- 003	2.4605	1.2500e- 003	2.4618	0.2767	1.1500e- 003	0.2778		177.6676	177.6676	6.4100e- 003		177.8280

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	day		
Fugitive Dust					33.4184	0.0000	33.4184	6.2684	0.0000	6.2684			0.0000			0.0000
Off-Road	2.7647	30.8145	16.1824	0.0378	 	1.2952	1.2952		1.1916	1.1916		3,737.676 7	3,737.676 7	1.1826	 	3,767.240 8
Total	2.7647	30.8145	16.1824	0.0378	33.4184	1.2952	34.7136	6.2684	1.1916	7.4600		3,737.676 7	3,737.676 7	1.1826		3,767.240 8

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

3.3 Grading - 2019
Unmitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	 	0.0000
Worker	0.1045	0.0796	0.7151	1.7900e- 003	3.8986	1.2500e- 003	3.8998	0.4205	1.1500e- 003	0.4216		177.6676	177.6676	6.4100e- 003	 	177.8280
Total	0.1045	0.0796	0.7151	1.7900e- 003	3.8986	1.2500e- 003	3.8998	0.4205	1.1500e- 003	0.4216		177.6676	177.6676	6.4100e- 003		177.8280

Mitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	day		
Fugitive Dust					13.0332	0.0000	13.0332	2.4447	0.0000	2.4447			0.0000			0.0000
Off-Road	2.7647	30.8145	16.1824	0.0378		1.2952	1.2952	 	1.1916	1.1916	0.0000	3,737.676 7	3,737.676 7	1.1826		3,767.240 8
Total	2.7647	30.8145	16.1824	0.0378	13.0332	1.2952	14.3284	2.4447	1.1916	3.6363	0.0000	3,737.676 7	3,737.676 7	1.1826		3,767.240 8

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1045	0.0796	0.7151	1.7900e- 003	2.4605	1.2500e- 003	2.4618	0.2767	1.1500e- 003	0.2778		177.6676	177.6676	6.4100e- 003		177.8280
Total	0.1045	0.0796	0.7151	1.7900e- 003	2.4605	1.2500e- 003	2.4618	0.2767	1.1500e- 003	0.2778		177.6676	177.6676	6.4100e- 003		177.8280

3.4 Solar Array Installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Off-Road	1.9909	20.3056	18.4639	0.0332		1.1785	1.1785		1.1023	1.1023		3,260.446 5	3,260.446 5	0.8739		3,282.294 4
Total	1.9909	20.3056	18.4639	0.0332		1.1785	1.1785		1.1023	1.1023		3,260.446 5	3,260.446 5	0.8739		3,282.294 4

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

3.4 Solar Array Installation - 2019 <u>Unmitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0821	2.2653	0.6000	5.5300e- 003	4.0062	0.0130	4.0192	0.4226	0.0124	0.4351		577.1838	577.1838	0.0631	 	578.7615
Worker	2.7878	2.1237	19.0685	0.0476	103.9616	0.0334	103.9950	11.2127	0.0308	11.2435		4,737.803 6	4,737.803 6	0.1710	 	4,742.079 3
Total	2.8699	4.3890	19.6685	0.0531	107.9677	0.0464	108.0142	11.6353	0.0432	11.6785		5,314.987 4	5,314.987 4	0.2341		5,320.840 8

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Off-Road	1.9909	20.3056	18.4639	0.0332		1.1785	1.1785		1.1023	1.1023	0.0000	3,260.446 5	3,260.446 5	0.8739		3,282.294 4
Total	1.9909	20.3056	18.4639	0.0332		1.1785	1.1785		1.1023	1.1023	0.0000	3,260.446 5	3,260.446 5	0.8739		3,282.294 4

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

3.4 Solar Array Installation - 2019 Mitigated Construction Off-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0821	2.2653	0.6000	5.5300e- 003	2.4997	0.0130	2.5127	0.2720	0.0124	0.2844		577.1838	577.1838	0.0631	,	578.7615
Worker	2.7878	2.1237	19.0685	0.0476	65.6142	0.0334	65.6476	7.3779	0.0308	7.4087		4,737.803 6	4,737.803 6	0.1710	,	4,742.079 3
Total	2.8699	4.3890	19.6685	0.0531	68.1139	0.0464	68.1603	7.6499	0.0432	7.6931		5,314.987 4	5,314.987 4	0.2341		5,320.840 8

3.4 Solar Array Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Off-Road	1.8249	18.6848	18.3562	0.0333		1.0307	1.0307		0.9640	0.9640		3,205.561 5	3,205.561 5	0.8703		3,227.319 6
Total	1.8249	18.6848	18.3562	0.0333		1.0307	1.0307		0.9640	0.9640		3,205.561 5	3,205.561 5	0.8703		3,227.319 6

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Winter

3.4 Solar Array Installation - 2020 Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	lay							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0710	2.0741	0.5299	5.4800e- 003	4.0062	8.7600e- 003	4.0149	0.4226	8.3800e- 003	0.4310		572.4298	572.4298	0.0611		573.9581
Worker	2.5577	1.8765	17.0140	0.0461	103.9616	0.0324	103.9940	11.2127	0.0298	11.2425		4,589.912 9	4,589.912 9	0.1495		4,593.650 4
Total	2.6286	3.9507	17.5439	0.0516	107.9677	0.0411	108.0089	11.6353	0.0382	11.6735		5,162.342 7	5,162.342 7	0.2106		5,167.608 5

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Off-Road	1.8249	18.6848	18.3562	0.0333		1.0307	1.0307		0.9640	0.9640	0.0000	3,205.561 5	3,205.561 5	0.8703		3,227.319 6
Total	1.8249	18.6848	18.3562	0.0333		1.0307	1.0307		0.9640	0.9640	0.0000	3,205.561 5	3,205.561 5	0.8703		3,227.319 6

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3.4 Solar Array Installation - 2020 Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0710	2.0741	0.5299	5.4800e- 003	2.4997	8.7600e- 003	2.5084	0.2720	8.3800e- 003	0.2803		572.4298	572.4298	0.0611		573.9581
Worker	2.5577	1.8765	17.0140	0.0461	65.6142	0.0324	65.6466	7.3779	0.0298	7.4078		4,589.912 9	4,589.912 9	0.1495		4,593.650 4
Total	2.6286	3.9507	17.5439	0.0516	68.1139	0.0411	68.1550	7.6499	0.0382	7.6881		5,162.342 7	5,162.342 7	0.2106		5,167.608 5

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Avei	rage Daily Trip Ra	ate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	МН
General Light Industry	0.533720	0.036539	0.171303	0.112547	0.020259	0.005751	0.010148	0.095159	0.001607	0.002105	0.008722	0.000887	0.001253

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	day		
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas Unmitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/d	day							lb/d	lay		
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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5.2 Energy by Land Use - NaturalGas Mitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/d	day							lb/c	day		
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Mitigated	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Unmitigated	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003	i i i	2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259

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6.2 Area by SubCategory <u>Unmitigated</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	day		
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Total	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259

Mitigated

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	SubCategory Ib/day						lb/d	lay								
	0.0000		 			0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003	 	2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Total	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259

7.0 Water Detail

7.1 Mitigation Measures Water

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8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	4	8.00	1	402	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type					lb/d	day							lb/d	day		
Off-Highway Trucks	2.6657	25.4174	15.3166	0.0531		0.9261	0.9261	1 1 1	0.8520	0.8520		5,140.060 4	5,140.060 4	1.6624		5,181.620 4
Total	2.6657	25.4174	15.3166	0.0531		0.9261	0.9261		0.8520	0.8520		5,140.060 4	5,140.060 4	1.6624		5,181.620 4

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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Antelope Expansion Solar Project Mojave Desert Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	6,534.00	1000sqft	150.00	6,534,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2020
Utility Company	Southern California Ediso	on			
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

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Project Characteristics -

Land Use - Acres: 150

Construction Phase - Based on construction schedule

Off-road Equipment - Based on equipment roster

Off-road Equipment - Based on equipment roster

Off-road Equipment - Based on equipment roster

Trips and VMT - The traffic associated with panel installation has been estimated at 400 worker and 20 vendor

On-road Fugitive Dust - An average of up to 0.125 miles of unpaved roads would be traveled by traffic accessing the Project area.

Vehicle Trips - Unmanned site

Consumer Products - Use of consumer products is no expected

Area Coating - No architectural coating is expected

Energy Use - No energy use is expected

Water And Wastewater - No water use is expected

Solid Waste - No solid waste will be genrated

Operational Off-Road Equipment - Maintenance activities during Project operations include annual PV panel washing, clearing of excess vegetation, and replacement of broken PV panels and ancillary facilities

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	3267000	0
tblAreaCoating	Area_Nonresidential_Interior	9801000	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	3,100.00	200.00
tblConstructionPhase	NumDays	310.00	30.00
tblConstructionPhase	NumDays	120.00	30.00
tblConstructionPhase	PhaseEndDate	12/10/2032	5/29/2020
tblConstructionPhase	PhaseEndDate	1/22/2021	8/23/2019

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tblConstructionPhase	PhaseEndDate	11/15/2019	7/12/2019
tblConstructionPhase	PhaseStartDate	1/23/2021	8/26/2019
tblConstructionPhase	PhaseStartDate	11/16/2019	7/15/2019
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.25	0.00
tblEnergyUse	T24NG	13.65	0.00
tblGrading	AcresOfGrading	15.00	775.00
tblGrading	AcresOfGrading	30.00	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Scrapers
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoe
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoe
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	UsageHours	8.00	4.00

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tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	HaulingPercentPave	100.00	99.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOnRoadDust	WorkerPercentPave	100.00	99.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	1.00
tblOperationalOffRoadEquipment	OperLoadFactor	0.38	0.38
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	8,102.16	0.00
tblTripsAndVMT	VendorTripNumber	1,071.00	20.00
tblTripsAndVMT	WorkerTripNumber	2,744.00	400.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	1,510,987,500.00	0.00

2.0 Emissions Summary

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2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year					lb/d	day							lb/d	day		
2019	4.9377	42.9411	43.2784	0.0933	107.9677	2.0484	109.1925	11.6353	1.8845	12.7807	0.0000	9,260.544 1	9,260.544 1	1.2764	0.0000	9,288.843 4
2020	4.5167	22.6131	40.5398	0.0915	107.9677	1.0718	109.0395	11.6353	1.0021	12.6373	0.0000	9,032.890 0	9,032.890 0	1.1011	0.0000	9,060.418 5
Maximum	4.9377	42.9411	43.2784	0.0933	107.9677	2.0484	109.1925	11.6353	1.8845	12.7807	0.0000	9,260.544 1	9,260.544 1	1.2764	0.0000	9,288.843 4

Mitigated Construction

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year					lb/	'day							lb	/day		
2019	4.9377	42.9411	43.2784	0.0933	68.1139	2.0484	69.3387	7.6499	1.8845	8.7953	0.0000	9,260.544 1	9,260.544 1	1.2764	0.0000	9,288.843 4
2020	4.5167	22.6131	40.5398	0.0915	68.1139	1.0718	69.1857	7.6499	1.0021	8.6520	0.0000	9,032.890 0	9,032.890 0	1.1011	0.0000	9,060.418 5
Maximum	4.9377	42.9411	43.2784	0.0933	68.1139	2.0484	69.3387	7.6499	1.8845	8.7953	0.0000	9,260.544 1	9,260.544 1	1.2764	0.0000	9,288.843 4
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	36.91	0.00	36.52	34.25	0.00	31.36	0.00	0.00	0.00	0.00	0.00	0.00

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2.2 Overall Operational Unmitigated Operational

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Area	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003	1	1.5259
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Offroad	2.6657	25.4174	15.3166	0.0531		0.9261	0.9261		0.8520	0.8520		5,140.060 4	5,140.060 4	1.6624		5,181.620 4
Total	2.7289	25.4236	15.9880	0.0531	0.0000	0.9285	0.9285	0.0000	0.8544	0.8544		5,141.490 4	5,141.490 4	1.6662	0.0000	5,183.146 3

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Area	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Offroad	2.6657	25.4174	15.3166	0.0531		0.9261	0.9261		0.8520	0.8520		5,140.060 4	5,140.060 4	1.6624		5,181.620 4
Total	2.7289	25.4236	15.9880	0.0531	0.0000	0.9285	0.9285	0.0000	0.8544	0.8544		5,141.490 4	5,141.490 4	1.6662	0.0000	5,183.146 3

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/3/2019	7/12/2019	5	30	
2	Grading	Grading	7/15/2019	8/23/2019	5	30	
3	Solar Array Installation	Building Construction	8/26/2019	5/29/2020	5	200	

Acres of Grading (Site Preparation Phase): 0

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Acres of Grading (Grading Phase): 775

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	8.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Skid Steer Loaders	2	8.00	65	0.37
Solar Array Installation	Forklifts	5	4.00	89	0.20
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Graders	1	8.00	187	0.41
Solar Array Installation	Bore/Drill Rigs	2	4.00	221	0.50
Solar Array Installation	Skid Steer Loaders	2	8.00	65	0.37
Solar Array Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Solar Array Installation	Generator Sets	1	8.00	84	0.74

Trips and VMT

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Solar Array Installation	13	400.00	20.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	3.8846	42.8640	22.6251	0.0405	i I	2.0472	2.0472		1.8834	1.8834		4,010.367 9	4,010.367 9	1.2688	 	4,042.088 8
Total	3.8846	42.8640	22.6251	0.0405	12.0442	2.0472	14.0913	6.6205	1.8834	8.5038		4,010.367 9	4,010.367 9	1.2688		4,042.088 8

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3.2 Site Preparation - 2019

<u>Unmitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1076	0.0772	0.9113	2.0300e- 003	3.8986	1.2500e- 003	3.8998	0.4205	1.1500e- 003	0.4216		202.2247	202.2247	7.5700e- 003		202.4140
Total	0.1076	0.0772	0.9113	2.0300e- 003	3.8986	1.2500e- 003	3.8998	0.4205	1.1500e- 003	0.4216		202.2247	202.2247	7.5700e- 003		202.4140

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Fugitive Dust					4.6972	0.0000	4.6972	2.5820	0.0000	2.5820		i i	0.0000			0.0000
Off-Road	3.8846	42.8640	22.6251	0.0405		2.0472	2.0472	i i	1.8834	1.8834	0.0000	4,010.367 9	4,010.367 9	1.2688	 	4,042.088 8
Total	3.8846	42.8640	22.6251	0.0405	4.6972	2.0472	6.7444	2.5820	1.8834	4.4654	0.0000	4,010.367 9	4,010.367 9	1.2688		4,042.088 8

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

3.2 Site Preparation - 2019

<u>Mitigated Construction Off-Site</u>

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	 	0.0000
Worker	0.1076	0.0772	0.9113	2.0300e- 003	2.4605	1.2500e- 003	2.4618	0.2767	1.1500e- 003	0.2778		202.2247	202.2247	7.5700e- 003	 	202.4140
Total	0.1076	0.0772	0.9113	2.0300e- 003	2.4605	1.2500e- 003	2.4618	0.2767	1.1500e- 003	0.2778		202.2247	202.2247	7.5700e- 003		202.4140

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Fugitive Dust					33.4184	0.0000	33.4184	6.2684	0.0000	6.2684			0.0000			0.0000
Off-Road	2.7647	30.8145	16.1824	0.0378	 	1.2952	1.2952		1.1916	1.1916		3,737.676 7	3,737.676 7	1.1826	 	3,767.240 8
Total	2.7647	30.8145	16.1824	0.0378	33.4184	1.2952	34.7136	6.2684	1.1916	7.4600		3,737.676 7	3,737.676 7	1.1826		3,767.240 8

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

3.3 Grading - 2019
Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1076	0.0772	0.9113	2.0300e- 003	3.8986	1.2500e- 003	3.8998	0.4205	1.1500e- 003	0.4216		202.2247	202.2247	7.5700e- 003		202.4140
Total	0.1076	0.0772	0.9113	2.0300e- 003	3.8986	1.2500e- 003	3.8998	0.4205	1.1500e- 003	0.4216		202.2247	202.2247	7.5700e- 003		202.4140

Mitigated Construction On-Site

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Fugitive Dust					13.0332	0.0000	13.0332	2.4447	0.0000	2.4447			0.0000			0.0000
Off-Road	2.7647	30.8145	16.1824	0.0378		1.2952	1.2952	 	1.1916	1.1916	0.0000	3,737.676 7	3,737.676 7	1.1826		3,767.240 8
Total	2.7647	30.8145	16.1824	0.0378	13.0332	1.2952	14.3284	2.4447	1.1916	3.6363	0.0000	3,737.676 7	3,737.676 7	1.1826		3,767.240 8

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1076	0.0772	0.9113	2.0300e- 003	2.4605	1.2500e- 003	2.4618	0.2767	1.1500e- 003	0.2778		202.2247	202.2247	7.5700e- 003		202.4140
Total	0.1076	0.0772	0.9113	2.0300e- 003	2.4605	1.2500e- 003	2.4618	0.2767	1.1500e- 003	0.2778		202.2247	202.2247	7.5700e- 003		202.4140

3.4 Solar Array Installation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Off-Road	1.9909	20.3056	18.4639	0.0332		1.1785	1.1785		1.1023	1.1023		3,260.446 5	3,260.446 5	0.8739		3,282.294 4
Total	1.9909	20.3056	18.4639	0.0332		1.1785	1.1785		1.1023	1.1023		3,260.446 5	3,260.446 5	0.8739		3,282.294 4

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

3.4 Solar Array Installation - 2019 <u>Unmitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0777	2.2955	0.5142	5.8100e- 003	4.0062	0.0129	4.0190	0.4226	0.0123	0.4349		607.4378	607.4378	0.0562	 	608.8429
Worker	2.8692	2.0581	24.3003	0.0542	103.9616	0.0334	103.9950	11.2127	0.0308	11.2435		5,392.659 9	5,392.659 9	0.2019	 	5,397.706 1
Total	2.9469	4.3536	24.8145	0.0600	107.9677	0.0463	108.0140	11.6353	0.0431	11.6784		6,000.097 6	6,000.097 6	0.2581		6,006.549 0

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
- Cil rioda	1.9909	20.3056	18.4639	0.0332		1.1785	1.1785		1.1023	1.1023	0.0000	3,260.446 5	3,260.446 5	0.8739		3,282.294 4
Total	1.9909	20.3056	18.4639	0.0332		1.1785	1.1785		1.1023	1.1023	0.0000	3,260.446 5	3,260.446 5	0.8739		3,282.294 4

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3.4 Solar Array Installation - 2019 Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0777	2.2955	0.5142	5.8100e- 003	2.4997	0.0129	2.5125	0.2720	0.0123	0.2843		607.4378	607.4378	0.0562		608.8429
Worker	2.8692	2.0581	24.3003	0.0542	65.6142	0.0334	65.6476	7.3779	0.0308	7.4087		5,392.659 9	5,392.659 9	0.2019		5,397.706 1
Total	2.9469	4.3536	24.8145	0.0600	68.1139	0.0463	68.1602	7.6499	0.0431	7.6930		6,000.097 6	6,000.097 6	0.2581		6,006.549 0

3.4 Solar Array Installation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Off-Road	1.8249	18.6848	18.3562	0.0333		1.0307	1.0307		0.9640	0.9640		3,205.561 5	3,205.561 5	0.8703		3,227.319 6
Total	1.8249	18.6848	18.3562	0.0333		1.0307	1.0307		0.9640	0.9640		3,205.561 5	3,205.561 5	0.8703		3,227.319 6

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3.4 Solar Array Installation - 2020 Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0668	2.1078	0.4481	5.7700e- 003	4.0062	8.6700e- 003	4.0148	0.4226	8.2900e- 003	0.4309		602.5853	602.5853	0.0543	 	603.9417
Worker	2.6250	1.8206	21.7356	0.0525	103.9616	0.0324	103.9940	11.2127	0.0298	11.2425		5,224.743 2	5,224.743 2	0.1766	 	5,229.157 3
Total	2.6918	3.9283	22.1837	0.0583	107.9677	0.0411	108.0088	11.6353	0.0381	11.6734		5,827.328 5	5,827.328 5	0.2308		5,833.099 0

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
- Cil rioda	1.8249	18.6848	18.3562	0.0333		1.0307	1.0307		0.9640	0.9640	0.0000	3,205.561 5	3,205.561 5	0.8703		3,227.319 6
Total	1.8249	18.6848	18.3562	0.0333		1.0307	1.0307		0.9640	0.9640	0.0000	3,205.561 5	3,205.561 5	0.8703		3,227.319 6

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3.4 Solar Array Installation - 2020 Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0668	2.1078	0.4481	5.7700e- 003	2.4997	8.6700e- 003	2.5083	0.2720	8.2900e- 003	0.2802		602.5853	602.5853	0.0543	 	603.9417
Worker	2.6250	1.8206	21.7356	0.0525	65.6142	0.0324	65.6466	7.3779	0.0298	7.4078		5,224.743 2	5,224.743 2	0.1766	 	5,229.157 3
Total	2.6918	3.9283	22.1837	0.0583	68.1139	0.0411	68.1549	7.6499	0.0381	7.6880		5,827.328 5	5,827.328 5	0.2308		5,833.099 0

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Avei	rage Daily Trip Ra	ate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.533720	0.036539	0.171303	0.112547	0.020259	0.005751	0.010148	0.095159	0.001607	0.002105	0.008722	0.000887	0.001253

5.0 Energy Detail

Historical Energy Use: N

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas <u>Unmitigated</u>

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/d	day							lb/c	lay		
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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5.2 Energy by Land Use - NaturalGas Mitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/d	day							lb/c	day		
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		
Mitigated	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Unmitigated	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259

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6.2 Area by SubCategory <u>Unmitigated</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	day		
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003	1 	2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Total	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259

Mitigated

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	day		
Architectural Coating	0.0000		 			0.0000	0.0000		0.0000	0.0000			0.0000	 		0.0000
Landscaping	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003	 	2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259
Total	0.0632	6.2000e- 003	0.6714	5.0000e- 005		2.4100e- 003	2.4100e- 003		2.4100e- 003	2.4100e- 003		1.4300	1.4300	3.8300e- 003		1.5259

7.0 Water Detail

7.1 Mitigation Measures Water

Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

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8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Off-Highway Trucks	4	8.00	1	402	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type					lb/d	day							lb/d	lay		
Off-Highway Trucks	2.6657	25.4174	15.3166	0.0531		0.9261	0.9261		0.8520	0.8520		5,140.060 4	5,140.060 4	1.6624		5,181.620 4
Total	2.6657	25.4174	15.3166	0.0531		0.9261	0.9261		0.8520	0.8520		5,140.060 4	5,140.060 4	1.6624		5,181.620 4

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

_						
Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

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Antelope Expansion Solar Project - Mojave Desert Air Basin, Summer

User Defined Equipment

Equipment Type	Number
Equipment Type	r tamboi

11.0 Vegetation

Antelope Expansion Solar Project

Mojave Desert Air Basin, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	СО	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar Array Installation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Bore/Drill Rigs	Diesel	No Change	0	2	No Change	0.00
Excavators	Diesel	No Change	0	1	No Change	0.00
Skid Steer Loaders	Diesel	No Change	0	5	No Change	0.00
Off-Highway Trucks	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	5	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	3	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	5	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Scrapers	Diesel	No Change	0	1	No Change	0.00

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Equipment Type	ROG	NOx	СО	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e		
	Unmitigated tons/yr							Unmitigated mt/yr						
L														
Bore/Drill Rigs	Bore/Drill Rigs 2.78400E-002 3.60020E-001 2.07440E-001 9.40000E-004 1.03000E-002 9.47000						0.00000E+000	8.32646E+001	8.32646E+001	2.66600E-002	0.00000E+000	8.39311E+001		
Excavators	3.91000E-003	4.02300E-002	4.89500E-002	8.00000E-005	1.94000E-003	1.78000E-003	0.00000E+000	6.95528E+000	6.95528E+000	2.20000E-003	0.00000E+000	7.01029E+000		
Forklifts	3.78400E-002	3.39420E-001	2.96670E-001	3.80000E-004	2.57700E-002	2.37100E-002	0.00000E+000	3.39160E+001	3.39160E+001	1.08600E-002	0.00000E+000	3.41875E+001		
Generator Sets	4.19700E-002	3.61630E-001	3.71360E-001	6.60000E-004	2.09900E-002	2.09900E-002	0.00000E+000	5.65208E+001	5.65208E+001	3.37000E-003	0.00000E+000	5.66049E+001		
Graders	7.30000E-003	9.86900E-002	2.75700E-002	1.00000E-004	3.17000E-003	2.91000E-003	0.00000E+000	8.94884E+000	8.94884E+000	2.83000E-003	0.00000E+000	9.01962E+000		
Off-Highway Trucks	1.07000E-002	1.08380E-001	6.02500E-002	2.00000E-004	3.94000E-003	3.63000E-003	0.00000E+000	1.78843E+001	1.78843E+001	5.66000E-003	0.00000E+000	1.80258E+001		
Rubber Tired Dozers	5.10600E-002	5.43350E-001	1.92780E-001	3.80000E-004	2.64900E-002	2.43700E-002	0.00000E+000	3.45132E+001	3.45132E+001	1.09200E-002	0.00000E+000	3.47862E+001		
Scrapers	1.59800E-002	1.93710E-001	1.20920E-001	2.30000E-004	7.59000E-003	6.98000E-003	0.00000E+000	2.04091E+001	2.04091E+001	6.46000E-003	0.00000E+000	2.05706E+001		
Skid Steer Loaders	2.02200E-002	2.69070E-001	3.40580E-001	5.10000E-004	1.20400E-002	1.10700E-002	0.00000E+000	4.50419E+001	4.50419E+001	1.43900E-002	0.00000E+000	4.54016E+001		
Tractors/Loaders/ Backhoes	7.30500E-002	7.33710E-001	7.56160E-001	1.02000E-003	4.77800E-002	4.39600E-002	0.00000E+000	9.10737E+001	9.10737E+001	2.91300E-002	0.00000E+000	9.18018E+001		

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	500		00				D: 000	ND: OOG	.		1100	200		
Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e		
	Mitigated tons/yr							Mitigated mt/yr						
Bore/Drill Rigs	Bore/Drill Rigs 2.78400E-002 3.60020E-001 2.07440E-001 9.40000E-004 1.03000E-002 9.47000E						0.00000E+000	8.32645E+001	8.32645E+001	2.66600E-002	0.00000E+000	8.39310E+001		
Excavators	3.91000E-003	4.02300E-002	4.89500E-002	8.00000E-005	1.94000E-003	1.78000E-003	0.00000E+000	6.95527E+000	6.95527E+000	2.20000E-003	0.00000E+000	7.01029E+000		
Forklifts	3.78400E-002	3.39420E-001	2.96670E-001	3.80000E-004	2.57700E-002	2.37100E-002	0.00000E+000	3.39160E+001	3.39160E+001	1.08600E-002	0.00000E+000	3.41874E+001		
Generator Sets	4.19700E-002	3.61630E-001	3.71360E-001	6.60000E-004	2.09900E-002	2.09900E-002	0.00000E+000	5.65207E+001	5.65207E+001	3.37000E-003	0.00000E+000	5.66048E+001		
Graders	7.30000E-003	9.86900E-002	2.75700E-002	1.00000E-004	3.17000E-003	2.91000E-003	0.00000E+000	8.94883E+000	8.94883E+000	2.83000E-003	0.00000E+000	9.01961E+000		
Off-Highway Trucks	1.07000E-002	1.08380E-001	6.02500E-002	2.00000E-004	3.94000E-003	3.63000E-003	0.00000E+000	1.78843E+001	1.78843E+001	5.66000E-003	0.00000E+000	1.80257E+001		
Rubber Tired Dozers	5.10600E-002	5.43350E-001	1.92780E-001	3.80000E-004	2.64900E-002	2.43700E-002	0.00000E+000	3.45132E+001	3.45132E+001	1.09200E-002	0.00000E+000	3.47861E+001		
Scrapers	1.59800E-002	1.93710E-001	1.20920E-001	2.30000E-004	7.59000E-003	6.98000E-003	0.00000E+000	2.04091E+001	2.04091E+001	6.46000E-003	0.00000E+000	2.05705E+001		
Skid Steer Loaders	2.02200E-002	2.69070E-001	3.40580E-001	5.10000E-004	1.20400E-002	1.10700E-002	0.00000E+000	4.50418E+001	4.50418E+001	1.43900E-002	0.00000E+000	4.54015E+001		
Tractors/Loaders/Ba ckhoes	7.30500E-002	7.33710E-001	7.56160E-001	1.02000E-003	4.77800E-002	4.39600E-002	0.00000E+000	9.10736E+001	9.10736E+001	2.91300E-002	0.00000E+000	9.18017E+001		

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Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
					Pe	rcent Reduction						
Bore/Drill Rigs	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20099E-006	1.20099E-006	0.00000E+000	0.00000E+000	1.19145E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.43776E-006	1.43776E-006	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17938E-006	1.17938E-006	0.00000E+000	0.00000E+000	1.17002E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.23848E-006	1.23848E-006	0.00000E+000	0.00000E+000	1.23664E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.11746E-006	1.11746E-006	0.00000E+000	0.00000E+000	1.10869E-006
Off-Highway Trucks	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.11830E-006	1.11830E-006	0.00000E+000	0.00000E+000	1.10952E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.15898E-006	1.15898E-006	0.00000E+000	0.00000E+000	1.14988E-006
Scrapers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	9.79954E-007	9.79954E-007	0.00000E+000	0.00000E+000	9.72263E-007
Skid Steer Loaders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.33209E-006	1.33209E-006	0.00000E+000	0.00000E+000	1.10128E-006
Tractors/Loaders/Ba ckhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.09801E-006	1.09801E-006	0.00000E+000	0.00000E+000	1.19823E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	y	0.00	PM2.5 Reduction	0.00		
Yes	Water Exposed Area	PM10 Reduction	61.00	PM2.5 Reduction		Frequency (per day)	3.00
No		Moisture Content %	-	Vehicle Speed (mph)	15.00		
No	Clean Paved Road	% PM Reduction	0.00				

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		Unm	Unmitigated Mitigated			Percent Reduction		
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5	
Grading	Fugitive Dust	0.50	0.09	0.20	0.04	0.61	0.61	
Grading	Roads	0.05	0.01	0.03	0.00	0.37	0.34	
Site Preparation	Fugitive Dust	0.18	0.10	0.07	0.04	0.61	0.61	
Site Preparation	Roads	0.05	0.01	0.03	0.00	0.37	0.34	
Solar Array Installation	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	
Solar Array Installation	Roads	9.91	1.07	6.27	0.71	0.37	0.34	

Operational Percent Reduction Summary

Category	ROG	NOx	co	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Percent Reduction											
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

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Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	-0.01	0.13		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network	14 14 14	;=	j 	
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No	Neighborhood Enhancements	Provide Traffic Calming Measures	\ \ }		<u> </u>	<u> </u>
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			1
No	Parking Policy Pricing	Limit Parking Supply	0.00		\ \ !	
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			·
No	Transit Improvements	Increase Transit Frequency	0.00			·
	Transit Improvements	Transit Improvements Subtotal	0.00			
	 	Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				

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No	Commute	Transit Subsidy		
No	Commute	Implement Employee Parking "Cash Out"		
No	Commute	Workplace Parking Charge		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	
No	Commute	Market Commute Trip Reduction Option	0.00	
No	Commute	Employee Vanpool/Shuttle	0.00	2.00
No	Commute	Provide Ride Sharing Program		
	Commute	Commute Subtotal	0.00	
No	School Trip	Implement School Bus Program	0.00	
		Total VMT Reduction	0.00	:

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	250.00
No	Use Low VOC Paint (Residential Exterior)	250.00
No	Use Low VOC Paint (Non-residential Interior)	250.00
No	Use Low VOC Paint (Non-residential Exterior)	250.00
No	Use Low VOC Paint (Parking)	250.00
No	% Electric Lawnmower	
No	% Electric Leafblower	

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70 Eloutio Charlouv	No	% Electric Chainsaw	
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Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher	! !	30.00
DishWasher		15.00
Fan	 	50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water	!	,
No	Use Grey Water	!	,
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	, , , , , , , , , , , , , , , , , , ,
No	Install low-flow Toilet	20.00	, , , , , , , , , , , , , , , , , , ,
No	Install low-flow Shower	20.00	
No	Turf Reduction		

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No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Appendix B

Biological Resources Technical Report



BIOLOGICAL RESOURCES TECHNICAL REPORT FOR THE ANTELOPE EXPANSION 3 SOLAR PROJECT, LOS ANGELES COUNTY, CALIFORNIA

MARCH 2019

PREPARED FOR

sPower 5000 East Spring Street, Suite 130 Long Beach, CA 90815

PREPARED BY

SWCA Environmental Consultants

BIOLOGICAL RESOURCES TECHNICAL REPORT FOR THE ANTELOPE EXPANSION 3 SOLAR PROJECT, LOS ANGELES COUNTY, CALIFORNIA

Prepared for

sPower

5000 East Spring Street, Suite 130 Long Beach, CA 90815 Attn: Carisa Endrizzi-Davis

SWCA Environmental Consultants

51 West Dayton Street Pasadena, CA 91105 (626) 240-0587 www.swca.com

SWCA Project No. 045689

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List of Abbreviations, Acronyms, and Initialisms

amsl above mean sea level
Area Plan Antelope Valley Area Plan
BLM Bureau of Land Management

C/NR Conservation and Natural Resources Element
CDFG California Department of Fish and Game
CDFW California Department of Fish and Wildlife

CDNPA California Desert Native Plants Act
CEQA California Environmental Quality Act
CESA California Endangered Species Act

CFR Code of Federal Regulations

CNDDB California Natural Diversity Database
CNPS California Native Plant Society
COS Conservation and Open Space
CRPR California Rare Plant Rank

CWA Clean Water Act

EPA United States Environmental Protection Agency

ESA Endangered Species Act

FR Federal Register gen-tie generation tie-line

GPS global positioning system

LSAA Lake and Streambed Alteration Agreement

MBTA Migratory Bird Treaty Act

MCV Manual of California Vegetation, Second Edition

mph miles per hour

NEPA National Environmental Policy Act NMFS National Marine Fisheries Service

NPPA Native Plant Protection Act

NRCS Natural Resources Conservation Service

NWI National Wetlands Inventory NWP Nationwide Permit Program OHWM Ordinary High Water Mark

OHV off-highway vehicle

Project Antelope Expansion 3 Solar Project

PV photovoltaic

REO Renewable Energy Ordinance

RWQCB Regional Water Quality Control Board

SEA Significant Ecological Area SCE Southern California Edison sPower Sustainable Power Group

SWANCC Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers

SWCA Environmental Consultants

TNW traditional navigable waters

USACE United States Army Corps of Engineers

USC United States Code

USDA United States Department of Agriculture USFWS United States Fish and Wildlife Service

USGS United States Geological Survey WDR Waste Discharge Requirements

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1 INTRODUCTION

This Biological Resources Technical Report was prepared by SWCA Environmental Consultants (SWCA) in support of the Antelope Expansion 3 Solar Project (Project). SWCA was retained by sPower Sustainable Power Group (sPower) to conduct field and desktop studies to provide the technical basis for the assessment of potential impacts to biological resources that may result from implementation of the Project. In addition to a description of the existing conditions, this report also describes how biological resources may be affected by the construction, operation, and maintenance of the Project. This report may be used to support the environmental documentation and evaluation of the Project pursuant to the California Environmental Quality Act (CEQA). It provides the substantial evidence upon which the required evaluation of feasibility, environmental analysis, and findings of fact in relation to biological resources can be made.

1.1 Project Description

The Project will consist of a 30-megawatt (30 MW) capacity photovoltaic (PV) solar energy generating facility located on approximately 148 acres in and adjacent to the City of Lancaster, in Los Angeles County. A single generation tie-line (gen-tie) of approximately 4,225 feet in length will interconnect with the power grid at the existing Southern California Edison (SCE) Big Sky North Substation.

1.2 Project Location

The main Project area, consisting of the solar arrays and fencing, is located in unincorporated Los Angeles County within the Antelope Valley portion of the Mojave Desert (Figure 1). The main Project area is bounded by West Avenue H on the south, West Avenue G on the north, 110th Street West on the west, and 100th Street West on the east. Parcels that make up the Project are situated within Section 1 of Township 7 North and Range 14 West (San Bernardino Meridian) found on the U.S. Geological Survey (USGS) Del Sur 7.5-minute quadrangle (Figure 2). The main Project area, which includes the solar arrays and infrastructure, encompasses approximately 148 acres and is located entirely within unincorporated Los Angeles County (Figure 3). The gen-tie extends east within a private easement of adjacent parcels 3265-007-030 and 3265-024-003 and connects to the Big Sky North Substation on 100th Street West within the City of Lancaster.

1.3 Site Characteristics

The Project site is relatively flat, with a maximum elevation of approximately 2,503 feet above mean sea level (amsl) along 110th Street West and a minimum elevation of approximately 2,464 feet amsl at the Big Sky North Substation on 100th Street West. Other operational solar PV facilities are located in the immediate vicinity of the main Project area to the east and along the gen-tie route. The gen-tie route extends east through relatively flat private easements adjacent to existing solar generation facilities. Outside of the developed and disturbed areas, the surrounding landscape is primarily dominated by cheatgrass (*Bromus tectorum*) and red brome (*B. rubens*). The Project site includes a small area of sandy, alkaline, dune-like habitat containing native shrubs, including fourwing saltbush (*Atriplex canescens*) and Cooper's boxthorn (*Lycium cooperi*). The Project has been refined to avoid development of this area (Kimley-Horn and Associates, Inc. 2018). The southernmost portion of the Project partially overlaps with a historic ephemeral stream originating from Portal Ridge.

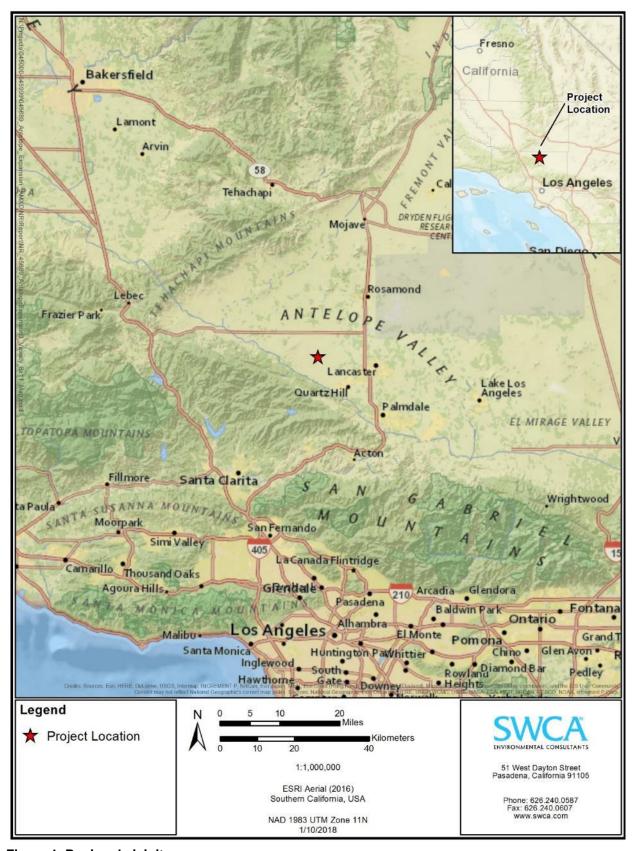


Figure 1. Regional vicinity map.

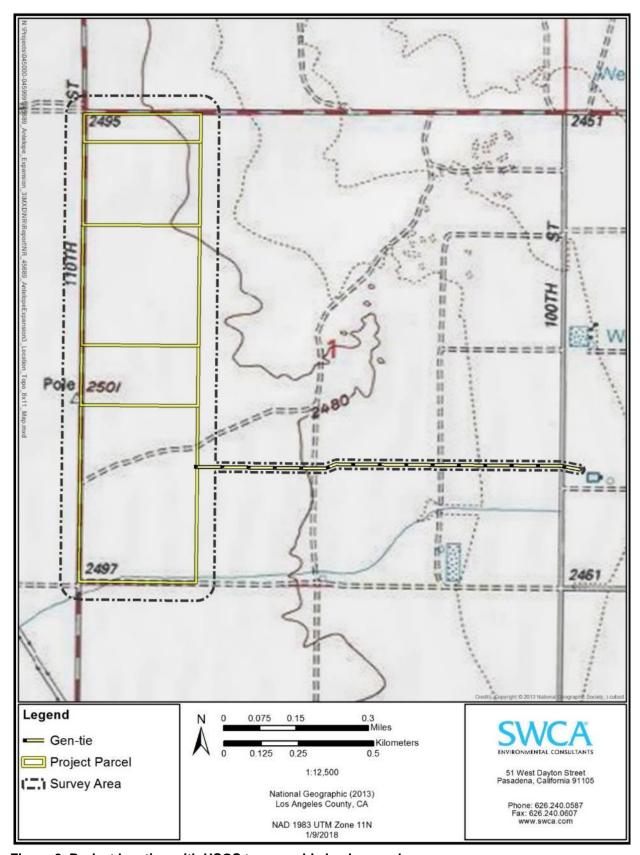


Figure 2. Project location with USGS topographic background.

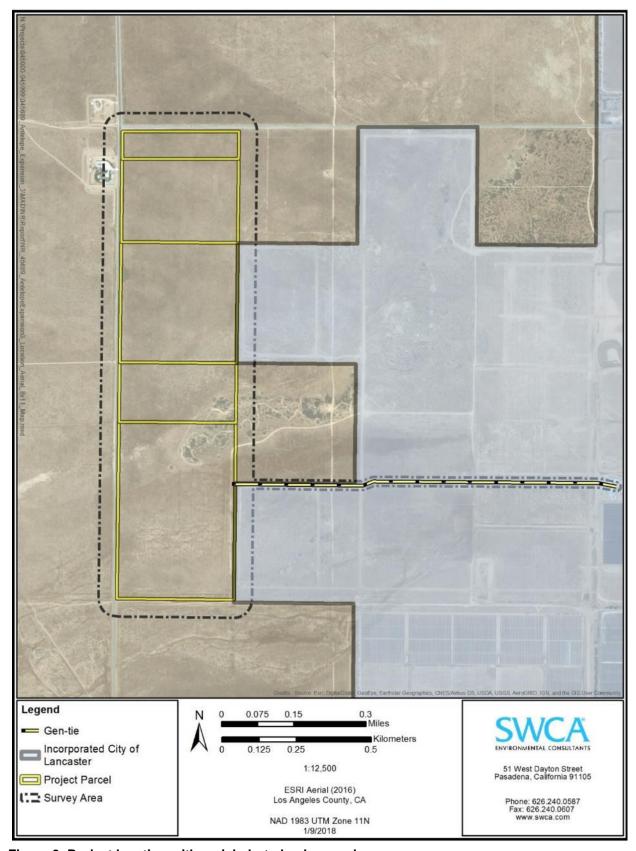


Figure 3. Project location with aerial photo background.

1.4 Geographic Information

The Project is located in a region of the Mojave Desert known as the Antelope Valley. The Project is located in unincorporated Los Angeles County, shares a border with parts of the western portion of the City of Lancaster, and is approximately 1.5 miles southwest of Antelope Acres, an unincorporated community of Los Angeles County. This region contains the largest area of rural lands remaining in Los Angeles County; however, locally the undeveloped areas are largely disturbed and dominated by non-native species. The Antelope Valley is generally known for its natural resources, such as Joshua trees, intense wildflower blooms, grazing lands, and cherry orchards. The Antelope Valley is located in the westernmost part of the Mojave Desert, and is approximately 3,000 square miles in area (see Figure 1). On the northwest end, the Antelope Valley is separated from the San Joaquin Valley by the Tehachapi Mountains. On the south and southwest ends, it is separated from the Los Angeles Basin by the San Gabriel Mountains. The Antelope Valley is bounded to the north by the Tehachapi Mountains along the Garlock Fault, and to the east by isolated buttes. The Antelope Valley is a closed basin; that is, a basin which has no outlet for its surface streams. All precipitation either sinks into the ground or collects in the (usually dry) lake basins in the lowest elevations.

1.5 Regional Climate and Weather

The Mojave Desert is characterized by hot summer temperatures (average daily highs above 100 degrees Fahrenheit [°F]) and low annual precipitation (approximately 5 inches). Daily temperature ranges of 40°F can occur, with lows in the winter below or near freezing. Precipitation extremes are also common, with variations of 80 percent (%) in annual precipitation and occasional high-volume storm events. Summer thunderstorms can drop more precipitation on a site in one event than the mean yearly precipitation for that location. High winds can occur, with peak wind velocities above 50 miles per hour (mph) not being uncommon, and winds of 100 mph occurring yearly (Bureau of Land Management [BLM] 2005).

Deserts in general are defined by their low levels of precipitation, and the Mojave's latitude and location east and north of large mountains results in very low rainfall within the desert. The mountains on the western and southern boundaries of the desert result in a rain shadow effect on the desert side of the mountains where precipitation is far less than on the coastal side. In summer the western edge of the Mojave Desert is heavily influenced by the dry southwest airflows, resulting in the typically very dry weather. The eastern Mojave Desert experiences a more continental influence, resulting in monsoon weather patterns (BLM 2005).

2 REGULATORY ENVIRONMENT

This report characterizes the biological resources that would potentially be affected by construction, operation, and maintenance of the Project. In addition, land modifications required to accommodate the Project constitute a Project pursuant to CEQA. On-site natural resources or those with a high probability of occurring at the Project may require mitigation for impacts that would, or could, result from Project development. Mitigation requirements are based on federal, state, and local laws, regulations, and policies relating to plants and wildlife, migratory and nesting birds, environmental quality, and lake or streambed alteration. The following discussion reviews these policies and how they pertain to any tasks implemented under the Project.

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The U.S. Congress passed the Endangered Species Act (ESA) in 1973 to protect endangered species and species threatened with extinction (federally listed species). The ESA operates in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

Section 9 of the ESA prohibits the "take" of endangered or threatened wildlife species. The legal definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 United States Code USC 1532 [19]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] 17.3). Harassment is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR 17.3). Actions that result in take can result in civil or criminal penalties.

The ESA authorizes the U.S. Fish and Wildlife Service (USFWS) to issue permits under Sections 7 and 10 of that act. Section 7 mandates that all federal agencies consult with the USFWS for terrestrial species and/or National Marine Fisheries Service (NMFS) for marine species to ensure that federal agency actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. Any anticipated adverse effects require preparation of a biological assessment to determine potential effects of the Project on listed species and critical habitat. If the Project adversely affects a listed species or its habitat, the USFWS or NMFS prepares a Biological Opinion. The Biological Opinion may recommend "reasonable and prudent alternatives" to the Project to avoid jeopardizing or adversely modifying habitat including "take" limits.

The ESA defines critical habitat as habitat deemed essential to the survival of a federally listed species. The ESA requires the federal government to designate "critical habitat" for any species it lists under the ESA. Under Section 7, all federal agencies must ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its designated critical habitat. These complementary requirements apply only to federal agency actions, and the latter only to specifically designated habitat. A critical habitat designation does not set up a preserve or refuge, and applies only when federal funding, permits, or projects are involved (i.e., a federal nexus). Critical habitat requirements do not apply to activities on private land that do not involve a federal nexus.

Section 10 of the ESA includes provisions to authorize take that is incidental to, but not the purpose of, activities that are otherwise lawful. Under Section 10(a)(1)(B), USFWS may issue permits (incidental

take permits) for take of ESA-listed species if the take is incidental and does not jeopardize the survival and recovery of the species. To obtain an incidental take permit, an applicant must submit a habitat conservation plan outlining steps to minimize and mitigate permitted take impacts to listed species.

2.1.2 Clean Water Act

The federal Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) regulate discharge of dredged or fill material into traditional navigable waters (TNW) of the United States under Section 404 of the CWA. The general definition of navigable waters of the U.S. includes those waters of the U.S. that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used or have been used in the past, or may be susceptible to use, to transport interstate or foreign commerce. "Discharges of fill material" are defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and subaqueous utility lines (33 CFR 328.2(f)). Additionally, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge will comply with applicable effluent limitations and water quality standards. Jurisdictional waters of the U.S. include jurisdictional wetlands as well as all other waters of the U.S. such as creeks, ponds, and intermittent drainages. Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987). The majority of jurisdictional wetlands in the United States meet three wetland assessment criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. Jurisdictional waters of the U.S. can also be defined by exhibiting a defined bed and bank and ordinary high water mark (OHWM). Jurisdictional waters of the U.S. are subject to Section 404 of the CWA and are regulated by the USACE.

USACE authorizes certain fill activities under the Section 404 Nationwide Permit (NWP) Program. NWP 51 covers land-based renewable energy generation facilities that result in fill placement into waters of the U.S. NWPs do not authorize activities that are likely to jeopardize the existence of a threatened or endangered species or that may affect properties listed or eligible for listing in the National Register of Historic Places (56 Federal Register [FR] 59,134, November 22, 1991). In addition to conditions outlined under each NWP, project-specific conditions may be required by the USACE as part of the Section 404 permitting process.

Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA (33 CFR § 328.3(a)(8), added by 58 FR 45,035, August 25, 1993).

On January 9, 2001, the U.S. Supreme Court issued a decision in *Solid Waste Agency of Northern Cook County* v. *U.S. Army Corps of Engineers*, 531 U.S. 159 (SWANCC) that held that the language of the CWA cannot be interpreted as conferring authority for the federal government to regulate "isolated, intrastate, and non-navigable waters" merely because migratory birds may frequent them. The Court emphasized the states' responsibility for regulating such waters.

In response to the Court's decisions in *Rapanos* v. *United States* and *Carabell* v. *United States*, the USACE and the EPA issued joint guidance regarding the USACE's jurisdiction over waters of the U.S. under the CWA. The guidance summarizes the Supreme Court's findings and provides instruction on how and when the USACE should apply the "significant nexus" test in its jurisdictional determinations. This test determines whether a waterway is substantially connected to a TNW tributary and thus falls within the USACE's jurisdiction. The guidance provides the factors and summarizes the significant nexus test as an assessment of "the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters." Flow characteristics include the volume, duration, and frequency of the flow. Additionally, ecological factors should be included, such as the shared hydrological and biological characteristics between a tributary and an adjacent wetland.

The Antelope Valley Watershed is a closed basin situated within the western Mojave Desert, with a system of dry lakes as the central watershed terminus. Rosamond, Buckhorn, and Rogers Lakes and their tributaries (Antelope Valley Watershed) function as an isolated intrastate watershed system, which lacks the presence of a TNW. Moreover, Rosamond, Buckhorn, and Rogers Lakes and all tributaries to them are not (a)(3) waters as defined by 33 CFR 328.3, as they do not meet criterion (a)(3)(iii), because surface waters are not used for industrial or other commercial purposes by interstate commerce industries. The USACE has concluded that all tributaries to Rosamond, Buckhorn, and Rogers Lakes, and the lakes themselves, (i.e., the Antelope Valley Watershed, excluding Lake Palmdale and its tributaries) are non-jurisdictional waters of the U.S. under SWANCC, because Antelope Valley waters are not tributaries to either a TNW or an (a)(3) water, and Rosamond, Buckhorn, and Rogers Lakes are not (a)(3) waters themselves. The USACE makes such a watershed conclusion because the Antelope Valley Watershed is an isolated, intrastate watershed without any surface water related commerce (USACE 2013).

2.1.3 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), first enacted in 1918, prohibits any person, unless permitted by regulations, to

...pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatsoever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention ... for the protection of migratory birds ... or any part, nest, or egg of any such bird. (16 United States Code (USC) 703)

The list of migratory birds includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the act and excluded all non-native species. The statute was extended in 1974 to include parts of birds, as well as eggs and nests. Thus, it is illegal under MBTA to directly kill, or destroy a nest of, nearly any native bird species, not just endangered species.

2.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668–668c), enacted in 1940, and amended several times since, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles (*Haliaeetus leucocephalus*), including their parts, nests, or eggs. In 1962, Congress amended the act to cover golden eagles (*Aquila chrysaetos*).

The act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

On November 10, 2009, the USFWS implemented new rules under the existing Bald and Golden Eagle Act, requiring all activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity to receive permits from the USFWS.

Under USFWS rules (16 USC § 22.3; 72 FR 31,132, June 5, 2007), "disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

2.2 State Regulations

2.2.1 California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA), which prohibits the "taking" of listed species except as otherwise provided in state law. Section 86 of the Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Under certain circumstances, the CESA applies these take prohibitions to species petitioned for listing (state candidates). Pursuant to the requirements of the CESA, state lead agencies (as defined under CEQA Public Resources Code Section 21067) are required to consult with the CDFW to ensure that any action or Project is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat. Additionally, the CDFW encourages informal consultation on any proposed Project that may impact a candidate species. The CESA requires the CDFW to maintain a list of threatened and endangered species. The CDFW also maintains a list of candidates for listing under the CESA, and of species of special concern (or watch list species).

2.2.2 Fully Protected Species

The California Fish and Game Code provides protection from take for a variety of species, referred to as fully protected species. Section 5050 lists protected amphibians and reptiles, and Section 3515 prohibits take of fully protected fish species. Eggs and nests of fully protected birds are under Section 3511. Migratory nongame birds are protected under Section 3800, and mammals are protected under Section 4700. Except for take related to scientific research, all take of fully protected species is prohibited.

2.2.3 Nesting Birds and Raptors

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 provides protection for all birds of prey, including their eggs and nests.

2.2.4 Migratory Bird Protection

Take or possession of any migratory non-game bird as designated in the MBTA is prohibited by Section 3513 of the Fish and Game Code.

2.2.5 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (Fish and Game Code Section 1900-1913) directed the California Department of Fish and Game (now known as CDFW) to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare," and protect endangered and rare plants from take. The NPPA thus includes measures to preserve, protect, and enhance rare and endangered native plants.

CESA has largely superseded NPPA for all plants designated as endangered by the NPPA. The NPPA nevertheless provides limitations on take of rare and endangered species as follows: "...no person will import into this state, or take, possess, or sell within this State" any rare or endangered native plant, except in compliance with provisions of the CESA. Individual land owners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material.

2.2.6 California Desert Native Plants Act

The California Desert Native Plants Act (CDNPA) protects non-listed California desert native plants from unlawful harvesting on public and private lands in the counties of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego (California Food and Agriculture Code, Sections 80001-80006, Division 23). A number of desert plants are protected under this act, including all species in the agave and cactus families. Harvest, transport, sale, or possession of specific native desert plants is prohibited unless a person has a valid permit, or wood receipt, and the required tags and seals. The fee for the permit to remove any of these plants will not be less than \$1 per plant, except for Joshua trees (*Yucca brevifolia*), which will not be less than \$2 per plant.

2.2.7 California Fish and Game Code (Sections 1601-1607)

These sections prohibit alteration of any lake or streambed under CDFW jurisdiction, including intermittent and seasonal channels and many artificial channels, without execution of a Lake and Streambed Alteration Agreement (LSAA) through the CDFW. This applies to any channel modifications that would be required to meet drainage, transportation, or flood control objectives of the Project.

2.2.8 California Porter-Cologne Water Quality Act

The Regional Water Quality Control Board (RWQCB) regulates discharge of waste in any region that could affect the waters of the State under the California Porter-Cologne Water Quality Act. Under the Porter-Cologne Act, a Report of Waste Discharge must be submitted prior to discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State (California Water Code Section 13260). The RWQCB would then issue a Notice of Applicability of Waste Discharge Requirements (WDRs) or a waiver of WDRs. Waters of the State are defined as any surface water or groundwater, including saline waters that are within the boundaries of the state (California Codes: Public Resource Code Section 71200). This differs from the CWA definition of waters of the U.S. by its inclusion of groundwater and waters outside the OHWM in its jurisdiction.

2.2.9 California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted in 1970 and applies to discretionary actions directly undertaken, financed or permitted by State or local government lead agencies. CEQA requires that a project's effects on environmental resources must be analyzed and assessed using criteria determined by the lead agency. CEQA defines a rare species in a broader sense than the definitions of threatened, endangered, or California species of concern. Under this definition, the CDFW can request additional consideration of species not otherwise protected.

2.2.9.1 CEQA SIGNIFICANCE CRITERIA

Section 15064.7 of the CEQA guidelines encourages local agencies to develop and publish the thresholds that the agency will use in determining the significance of environmental effects caused by projects or actions under its review. Appendix G of the CEQA guidelines provides thresholds to evaluate impacts that would normally be considered significant. Based upon these guidelines, impacts to biological resources would normally be considered significant if the project:

- Has 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 CDFW or USFWS;
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the CDFW or USFWS;
- Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites; or
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree
 preservation policy or ordinance, or conflicts with the provisions of an adopted habitat conservation
 plan, natural community conservation plan, or other approved local, regional, or state habitat
 conservation plan.

An evaluation of whether an impact to biological resources would be significant must consider both the resource itself and how that resource fits into a regional or local context. Significant impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. The evaluation of impacts considers direct impacts, indirect impacts, cumulative impacts, as well as temporary and permanent impacts.

2.3 Local Regulations

2.3.1 Los Angeles County

2.3.1.1 LOS ANGELES COUNTY GENERAL PLAN 2035

The purpose of the Los Angeles County General Plan 2035 (General Plan) is to provide the policy framework and establish the long-term vision for the unincorporated areas within the Los Angeles

County. It establishes goals, policies, and programs to promote healthy, livable, and sustainable communities. The Conservation and Natural Resources Element (C/NR) of the General Plan includes policies related to biological resources. The purpose of the C/NR is to provide guidance on the long-term conservation of natural resources and open space areas. The following conservation areas are addressed in the C/NR: open space, biological, local water, agricultural, mineral, energy, scenic, and historical, cultural and paleontological resources. Policies that relate to biological resources for the Project are listed below:

Goal C/NR 3: Permanent, sustainable preservation of genetically and physically diverse biological resources and ecological systems including: habitat linkages, forests, coastal zone, riparian habitats, streambeds, wetlands, woodlands, alpine habitat, chaparral, shrublands, and Significant Ecological Areas (SEA).

Topic: Protection of Biological Resources

- Policy C/NR 3.1: Conserve and enhance the ecological function of diverse natural habitats and biological resources.
- Policy C/NR 3.2: Create and administer innovative County programs incentivizing the permanent dedication f SEAs and other important biological resources as open space areas.
- Policy C/NR 3.3: Restore upland communities and significant riparian resources, such as degraded streams, rivers, and wetlands to maintain ecological function acknowledging the importance of incrementally restoring ecosystem values when complete restoration is not feasible.
- Policy C/NR 3.5: Ensure compatibility of development in the National Forests in conjunction with the U.S. Forest Service Land and Resource Management Plan.
- Policy C/NR 3.6: Assist state and federal agencies and other agencies, as appropriate, with the preservation of special status species and their associated habitat and wildlife movement corridors through the administration of the SEAs and other programs.
- Policy C/NR 3.7: Participate in inter-jurisdictional collaborative strategies that protect biological resources.

Topic: Site Sensitive Design

- Policy C/NR 3.8: Discourage development in areas with identified significant biological resources, such as SEAs.
- Policy C/NR 3.9: Consider the following in the design of a project that is located within an SEA, to the greatest extent feasible:
 - o Preservation of biologically valuable habitats, species, wildlife corridors and linkages;
 - o Protection of sensitive resources on the site within open space;
 - Protection of water sources from hydromodification in order to maintain the ecological function of riparian habitats;
 - O Placement of the development in the least biologically sensitive areas on the site (prioritize the preservation or avoidance of the most sensitive biological resources onsite);
 - Design required open spaces to retain contiguous undisturbed open space that preserves the most sensitive biological resources onsite and/or serves to maintain regional connectivity;
 - Maintenance of watershed connectivity by capturing, treating, retaining, and/or infiltrating storm water flows on site; and

- Consideration of the continuity of onsite open space with adjacent open space in project design.
- Policy C/NR 3.10: Require environmentally superior mitigation for unavoidable impacts on biologically sensitive areas, and permanently preserve mitigation sites.
- Policy C/NR 3.11: Discourage development in riparian habitats, streambeds, wetlands, and other native woodlands in order to maintain and support their preservation in a natural state, unaltered by grading, fill, or diversion activities.

Goal C/NR 4: Conserved and sustainably managed woodlands.

Topic: Woodland Preservation

• Policy C/NR 4.1: Preserve and restore oak woodlands and other native woodlands that are conserved in perpetuity with a goal of no net loss of existing woodlands.

2.3.1.2 ANTELOPE VALLEY AREA PLAN

The Antelope Valley Area Plan (Area Plan) was developed for the Antelope Valley area of Los Angeles County and was approved by the Los Angeles County Regional Planning Commission and adopted by the Board of Supervisors (Los Angeles County Department of Regional Planning 2015). The purpose of the Antelope Valley Area Plan is to provide a guide for the development of policies in support of the communities' vision. The Area Plan was adopted in June 2015 and the following elements: land use, mobility, conservation and open space, public safety, services and facilities, and economic development. The Conservation and Open Space Element (COS) includes policies related to biological resources. The purpose of the conservation element is to utilize and preserve the natural resources and landscape in order to ensure their existence in the future. Such resources include land, animals, plants, water, air, minerals, views, and energy. Policies that relate to biological resources around the Project are listed below:

Goal COS 4: Sensitive habitats and species are protected to promote biodiversity.

- Policy COS 4.1: Direct the majority of the unincorporated Antelope Valley's future growth to rural town centers and economic opportunity areas, minimizing the potential for habitat loss and negative impacts in Significant Ecological Areas.
- Policy COS 4.2: Limit the amount of potential development in Significant Ecological Areas, including the Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map of this Area Plan.
- Policy COS 4.3: Require new development in Significant Ecological Areas to comply with applicable Zoning Code requirements, ensuring that development occurs on the most environmentally suitable portions of the land.
- Policy COS 4.4: Require new development in Significant Ecological Areas, to consider the following in design of the project, to the greatest extent feasible:
 - o Preservation of biologically valuable habitats, species, wildlife corridors and linkages;
 - o Protection of sensitive resources on the site within open space;
 - Protection of water sources from hydromodification in order to maintain the ecological function of riparian habitats;
 - O Placement of development in the least biologically sensitive areas on the site, prioritizing the preservation or avoidance of the most sensitive biological resources onsite;

- Design of required open spaces to retain contiguous undisturbed open space that preserves the most sensitive biological resources onsite and/or serves to maintain connectivity;
- Maintenance of watershed connectivity by capturing, treating, retaining and/or infiltrating storm water flows on site; and
- Consideration of the continuity of onsite open space with adjacent open space in project design.
- Policy COS 4.5: Subject to local, state or federal laws, require new development to provide adequate buffers from preserves, sanctuaries, habitat areas, wildlife corridors, State Parks, and National Forest lands, except within Economic Opportunity Areas.
- Policy COS 4.6: Encourage connections between natural open space areas to allow for wildlife movement.
- Policy COS 4.7: Restrict fencing in wildlife corridors. Where fencing is necessary for privacy or safety, require appropriate development standards that maximize opportunities for wildlife movement.
- Policy COS 4.8: Ensure ongoing habitat preservation by coordinating with the California Department of Fish and Game to obtain the latest information regarding threatened and endangered species.
- Policy COS 4.9: Ensure water bodies are well-maintained to protect habitat areas and provide water to local species.
- Policy COS 4.10: Restrict development that would reduce the size of water bodies, minimizing the potential for loss of habitat and water supply.

2.3.1.3 RENEWABLE ENERGY ORDINANCE

The Renewable Energy Ordinance (REO) provides comprehensive regulation for ground-mounted utility-scale solar facilities in order to minimize environmental and community impacts. The REO was adopted by the Los Angeles County Board of Supervisors on December 13, 2016, and went into effect on January 12, 2017. The REO updates the County's planning and zoning code (Title 22) for the review and permitting of solar and wind energy projects. The goals of the REO include:

- 1. Incentivizing small-scale and structure-mounted projects through a streamlined review process, thereby reducing dependence on ground-mounted utility-scale projects; and
- 2. Regulating ground-mounted utility-scale projects to better address community concerns and minimize environmental impacts

Section 22.52.1620 describes the regulations for Utility-Scale Solar Energy Facilities, which pertains to this project. Section 22.52.1605 pertains to biological and ecological resources, specifically:

E. Prohibition. The following shall be prohibited:

1. Ground-mounted utility-scale solar energy facilities within adopted Significant Ecological Areas designated in the General Plan and Economic Opportunity Areas designated by the Antelope Valley Area Plan.

3 METHODS

Information on the Project's existing conditions was compiled from existing literature and available data on biological resources in the vicinity. Field surveys were also conducted to assess potential habitat value for special status species, and assess on-site conditions.

3.1 Database and Literature Reviews

Species occurrences from the CDFW California Natural Diversity Database (CNDDB) RareFind 5 and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants were queried for data relevant to the Project (CDFW 2017a, CNPS 2017). The data search centered on the USGS 7.5-minute Del Sur quadrangle, which encompasses the Project and gen-tie routes, and also served as the center of a nine-quadrangle query within both the CNDDB and CNPS databases to determine which special status plant and wildlife species required analysis at the Project. In addition to the Del Sur quadrangle, the query included the Fairmont Butte, Little Buttes, Green Valley, Lake Hughes, Lancaster West, Ritter Ridge, Rosamond, and Sleepy Valley quadrangles. Additional resources used in this review to identify and map sensitive resources included the following:

- Special Animals Including California Species of Special Concern (CDFW 2017b).
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2017c).
- Hierarchical List of Natural Communities with Holland Types (CDFW 2010a).
- eBird's web-based bird database (eBird 2017).
- USFWS web-based Wetland Mapper (USFWS 2017).
- EPA My Waters Mapper Google Earth plugin, available at https://www.epa.gov/waterdata
- California Soils Resource Lab's Soil Web Google Earth interface (California Soil Resources Lab 2010);
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2017).
- Los Angeles County Sensitive Bird Species (Los Angeles Audubon Society [Audubon] 2009)

3.2 Field Surveys

The first habitat assessment survey was conducted on December 13, 2017 by SWCA biologists Alex Beakes and Justin Fowler. The purpose of the survey was to document biological diversity and the integrity of natural resources. Special attention was focused on determining the possibility that species designated as rare, or which are afforded special legislative protection, occur at the Project site. A second habitat assessment survey was conducted on June 15, 2018 by SWCA biologists Par Singhaseni and Ryan Myers to document any site changes and any additional species that would not have been present or identifiable in December such as annual plants and breeding migratory birds. All plants and wildlife observed were recorded, and representative photographs of the site were taken (Appendices A, B, and C).

The Project was accessible by vehicle and surveyed by foot. Wildlife observations were made directly and aided by the use of binoculars or through sign including tracks, scat, and remains. The December 13 survey was conducted under light cloud cover (approximately 20%) with winds of 10 miles per hour (mph) and temperatures that averaged approximately 65°F. Conditions during the June 15 survey were sunny, with temperatures ranging from 68°F to 86°F, and wind speeds between 15 to 20 mph.

Prior to the site visit, desktop research was conducted to help guide the biologists in their field survey. During the site visit, all observed flora and fauna were noted. Taxonomic conventions for flora followed *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et. al. 2012).

3.2.1 Jurisdictional Delineation

The delineation of waters of the State and CDFW jurisdictional areas on the Project site was completed by conducting a pre-survey literature review and field survey by Mr. Beakes. The literature review was used to guide the field survey and to locate areas of potential jurisdictional waters.

Mr. Beakes conducted a survey on December 20, 2017 to determine the structure and composition of onsite hydrology, vegetation, and soils for the Project. Potential jurisdictional water features at the Project were mapped using a Geode handheld global positioning system (GPS) unit in combination with a Samsung Galaxy tablet with Arc Collector software, then used ESRI ArcGIS 10 to compile the data into a database for future analysis. Plants that could not be identified in the field were collected and later identified using *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012). Historically mapped features in the National Wetlands Inventory (NWI) were visited in the field for verification.

3.2.2 Vegetation and Habitat Mapping

Vegetation and habitat mapping were conducted through desktop research and field verification during the field survey. Vegetation communities were classified using *A Manual of California Vegetation* (MCV) (CNPS 2009). Sensitive natural communities are also mapped when encountered. Sensitive communities are defined by CDFW as those "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of Projects" (CDFW 2010). In addition, Native Wildflower Fields as defined by the Los Angeles County Department of Regional Planning were assessed.

3.2.3 Assessment of Special-status Species Potential

Special-status species are plants and animals in one or more of the following categories:

- Species listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the Federal Register [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under ESA (67 Federal Register 40657, June 13, 2002).
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations [CCR] 670.5).
- Species that meet the definitions of rare or endangered under the CEQA (State CEQA Guidelines Section 15380).
- Plants listed as rare under the California Native Plant Protection Act (California Department of Fish and Game (CDFG) Code Section 1900 et seq.).
- Plants with California Rare Plant Rank (CRPR) 1 or 2, which are considered by the CNPS to be "rare, threatened, or endangered in California" (CNPS Lists 1B and 2).

- Plants with CRPR 3, which are "plants about which more information is needed" to determine whether they are rare, or CRPR 4, which are "plants of limited distribution." CRPR 3 and 4 plants are considered sensitive by Los Angeles County.
- Animal species of special concern as listed by the CDFW (2017a).
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).
- Animals listed on the California Special Animals List such as Species of Special Concern, Fully Protected, and for invertebrates, all species regardless of the reason for inclusion.
- Birds on the Los Angeles County Sensitive Bird Species list (Audubon 2009).

Potential for occurrence of special-status species within the Project site and the immediate vicinity was assessed following the database searches and field survey. During the assessment, each species was assigned to one of the categories listed below. The presence of bird species was distinguished further into those that 1) nest at the Project, 2) forage at the Project, and/or 3) occur at the Project only as transients during migratory flights or other dispersal events. Because birds are highly mobile, only those with active nests at the site are likely to be directly impacted (i.e., injured, killed, or causing nest failure) due to construction.

- Present: Species is known to occur at the Project, based on recent (within 20 years) CNDDB or other records, and there is suitable habitat present at the Project, or the species was observed at the Project during the field survey.
- <u>High Potential</u>: Species is known to occur at the Project (based on recent [within 20 years] CNDDB or other records or based on professional expertise specific to the area or species), and there is suitable habitat at the Project that makes the probability of the species occurring there high. Alternatively, there is suitable habitat at the Project and within the known range of the species.
- Moderate Potential: Species is known to occur at the Project (based on non-historic [within 40 years] CNDDB or other records or based on professional expertise specific to the area or species), and there is moderate quality habitat at the Project that makes the probability of the species occurring there moderate. Alternatively, there is moderate quality habitat in the part of the Survey Area that falls within the known range of the species.
- Low Potential: Species is known to occur at the Project; however, there is only poor quality or marginal habitat at the Project, and the probability of the species occurring is low.
- Absent: There is no suitable habitat for the species at the Project, or the area is located outside the known range of the species. Alternatively, a species was surveyed for during the appropriate season with unequivocal negative results for species occurrence.

4 RESULTS

The following section describes the current environmental conditions and biological resources at the Project.

4.1 Regional Setting

The Project is located in northern Los Angeles County, in the western portion of the Antelope Valley near the transition of the southern border of the Mojave Desert and the northeastern foothills of the San Liebre Mountains, which is part of the San Gabriel Range. Though varied floristic influences exist in the Antelope Valley and surrounding foothills, this region has been subject to historic land uses such as farming, grazing, recreation, water diversion (i.e., the California Aqueduct), and infrastructure development (i.e., the construction of residential and commercial properties, military land uses including Edwards Air Force Base, Interstate 14, and Highway 138). Current land use in the western Antelope Valley has expanded to include development of renewable energy projects, transmission and utility line corridors, increased housing, and off-highway vehicle (OHV) use. Much of the area is open, consisting of abandoned agricultural fields that are now dominated by non-native grasses and a minority of non-native plants.

4.2 Local Setting

Desert plant communities in the vicinity of the Project have been subject to a variety of manmade disturbances including agriculture, housing developments, transmission and utility line construction, and solar energy development. The main Project area is primarily characterized by fallow agricultural fields that consist of previously-disturbed non-native grasslands and small habitat fragments of native shrubs, grasses, and wildflowers. Anthropogenic influences in the area include paved and dirt roads, off-road vehicle tracks, utility scale solar arrays, and several residences. Most of the site was classified as Cheatgrass grasslands, and is dominated by non-native vegetation such as red brome (*Bromus madritensis* ssp. *rubens*), cheatgrass, and Russian thistle (*Salsola tragus*). The southern portion of the Project site also consisted of sandy hummocks containing Cooper's boxthorn and fourwing saltbush. Within the Project site, the hummocks contained the highest diversity of plants and wildlife. Several common wildlife species observed on site included common raven (*Corvus corax*), black-tailed jackrabbit (*Lepus californicus*), horned lark (*Eremophila alpestris*), and western meadowlark (*Sturnella neglecta*).

4.3 Local and Regional Conservation Plans

There are no state or local parks, designated wildlife corridors or conservation areas, Los Angeles County Significant Ecological Areas (SEAs), or Los Angeles County Sensitive Environmental Resource Areas that overlap the main Project area or gen-tie options. Similarly, there is no USFWS designated critical habitat or Habitat Conservation Plan, and no CDFW Natural Community Conservation Plan at or adjacent to the main Project area. The nearest relevant areas are the San Andreas SEA and the Antelope Valley California Poppy Reserve State Natural Reserve approximately 2 miles to the west.

4.4 Jurisdictional Waters and Wetlands

A jurisdictional delineation was conducted at the Project to identify any waters or other hydrological features and riparian habitat potentially subject to the jurisdiction of USACE, RWQCB, and/or CDFW.

The field delineation was conducted by SWCA biologists on December 13 and 20, 2017; full details are provided in a separate jurisdictional delineation report.

No portions of the Project were found to support hydrophytic vegetation, show evidence of wetland hydrology, or contain hydric soils; therefore, no wetlands were documented at the Project. Water moves through much of the Project site via sheet flow and produces erosional features, such as bed, banks, and OHWMs. Many of the historical drainages within the Project site have been removed due to the on-site agricultural practices and nearby residential homes. Additionally, construction of the east branch of the California Aqueduct along the base of Portal Ridge (located south-southwest of the Project) has substantially altered the overall hydrology of the region, cutting off the inputs into many streams below the aqueduct and concentrating flows in selected areas. Using a combination of vegetation mapping, bed/bank delineation, and field observations, it was determined that no areas meet the federal or state definition of jurisdictional wetlands. All of the potentially jurisdictional features were located near the edges of the parcels at the Project (Figure 4).

4.5 Vegetation Communities

Vegetation at the Project consists of primarily non-native, invasive grass species. Compared to the original habitat conditions prior to agricultural conversion, much of the Project can be considered poorto-moderate with highly disturbed areas in the grasslands. Native plants are present, and annual herbs and grasses may be profuse in spring. The dominant species observed in the Project site was cheatgrass. Small sections within the grasslands contained *Stipa speciosa*, a native grass, and native wildflowers, such as common goldfields (*Lasthenia gracilis*); however, cover of these species was too low at the time of SWCA's surveys to meet the definitions of any native-dominated vegetation alliances defined in the MCV. A small portion of the eastern Project area consisted of sand dunes and was relatively intact shrubland. Shrub cover in this area was primarily fourwing saltbush and Cooper's boxthorn. This area is be excluded from development per the CUP Site Plan (March 2018).

Two vegetation communities defined in the MCV were mapped by SWCA biologists within the main Project area, including Fourwing Saltbush Scrub (*Atriplex canescens* Shrubland Alliance) and Cheatgrass Grasslands (*Bromus tectorum* Herbaceous Semi-Natural Alliance)(Table 1, Figure 5; CNPS 2019). In addition to the vegetation types, disturbed/ruderal and developed cover types were mapped. Each of these classifications is described further below.

Table 1. Vegetation and Cover Types at the Project, Manual of California Vegetation Classification

Approximate Acres of Vegetation Communities and Cover Type at the Project				
Cheatgrass Grassland	Fourwing Saltbush Scrub	Disturbed/ Ruderal	Developed	
136.8	8.5	7.8	3.2	

Sensitive vegetation communities are defined by CDFW as those "...communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of Projects" (CDFW 2010a). The literature review and vegetation mapping determined that no CDFW-defined sensitive natural communities are present at the Project.

Native Wildflower Fields, which are considered sensitive by Los Angeles County, have also been described at the Project within the area mapped by SWCA as Cheatgrass Grassland. Los Angeles County

staff reported observing Native Wildflower Fields on April 25, 2018 which met the County's criterion of representing at least 10% relative cover of native grassland or annual herbaceous plants (personal

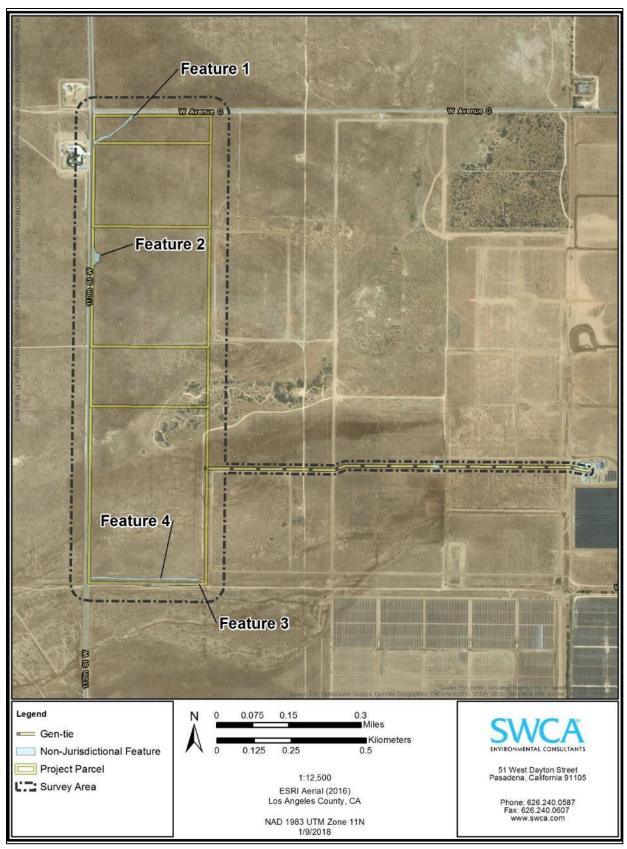


Figure 4. Hydrological features identified at the Project.

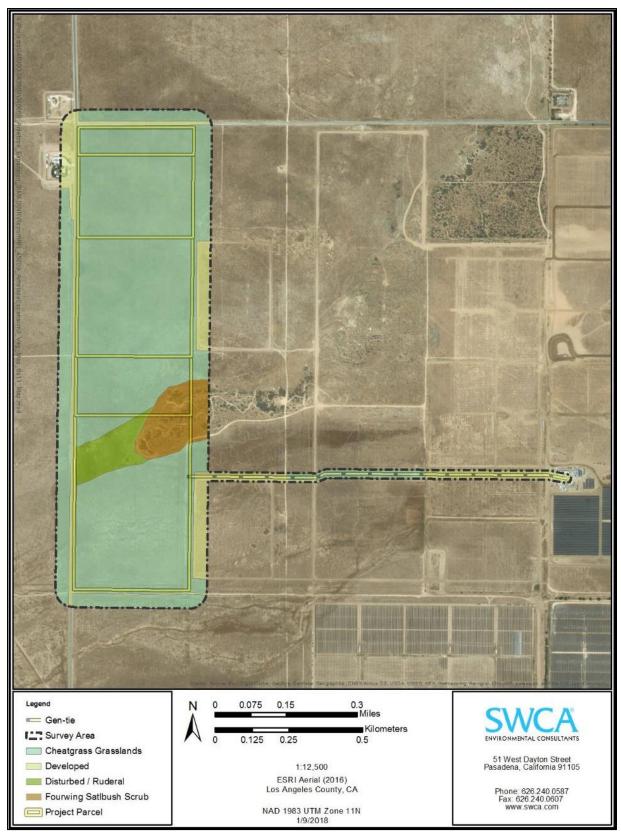


Figure 5. Vegetation communities and land cover at the Project. The Four Wing Saltbush Scrub dunes area will be excluded from development

communication, email from Anthony Curzi, Los Angeles County Department of Regional Planning, to Carisa Endrizzi-Davis, sPower, December 13, 2018). Common goldfields was the predominant native wildflower species present.

4.5.1 Cheatgrass Grassland (Bromus tectorum Herbaceous Semi-Natural Alliance)

Cheatgrass Grassland is an annual grassland that typically occurs in formerly disturbed habitats such as abandoned fields, eroded areas, and overgrazed rangeland. It is commonly codominant with other non-native species and may contain emergent shrubs. It is a highly invasive, especially in the western United States.

In some parts of the main Project area south of West Avenue G-8, the Cheatgrass Grassland was occasionally interspersed with patches of native vegetation that were too small to meet the minimum mapping unit size of 0.25 acre. These small patches included desert needlegrass (*Stipa speciosa*) as a dominant species. Additionally, common goldfields was observed in patches throughout the Cheatgrass Grasslands. The most common emergent species included common goldfields, Russian thistle (nonnative), red brome and turkey mullein (*Croton setiger*).

4.5.2 Fourwing Saltbush Scrub (Atriplex canescens Shrubland Alliance)

Fourwing Saltbush Scrub is a native shrubland that is often associated with alkaline soils. Dominant species within this vegetation community are both native and non-natives including Cooper's boxthorn, allscale (*Atriplex polycarpa*), and Russian thistle. This community was found in a dune land in the eastern portion of the main Project area where chenopods (plants in the Chenopodiaceae family) and other alkaline-associated and sandy substrate-associated plant species were found. Evidence of wildlife activity at the Project was highest in the dune lands portion of this community. The tracks of several nocturnal mammals were observed, including desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit, kangaroo rat (*Dipodomys* sp.), and pocket mouse (*Perognathus* sp.). Other signs of wildlife include coyote (*Canis latrans*) scat and several burrow complexes within the hummocks. The larger burrows may potentially be occupied by burrowing owl, desert kit fox (*Vulpes macrotis arsipus*), American badger (*Taxidea taxus*), coyote, or lagomorphs (rabbits and hares).

4.5.3 Disturbed/Ruderal

Disturbed/Ruderal areas are characterized by modified soils and are usually dominated by non-native species or native species associated with disturbance; the dominant species in the disturbed/ruderal areas was Russian thistle. Areas mapped as Disturbed/Ruderal did not meet definition of any vegetation alliance described in the MCV, and are classified as such because their primary characteristic is their lack of naturally functioning vegetation communities and substantial anthropogenic disturbance. This cover type is not a natural community. Despite the level of disturbance in this area, several signs of wildlife were observed. These included several kangaroo rat burrows, larger burrows and dune relics similar to those found in the Fourwing Saltbush Scrub.

4.5.4 Developed

This cover type is used to describe areas occupied by existing structures or infrastructure (i.e. houses, existing solar facilities, and roads). Vegetation in these areas is dominated by weedy annuals or

ornamental species that may or may not have been intentionally planted. Developed lands are a common land cover within the gen-tie routes. This cover type is not a natural community.

4.5.5 Native Wildflower Fields

The Los Angeles County Department of Regional Planning identifies Native Wildflower Fields as a locally important resource, defined as follows:

...a native grassland or wildflower field is one where native grassland or annual herbaceous plants comprise 10% or more of the total relative cover. Relative cover is defined as the cover of a particular species, or group of species, as a percentage of total plant cover of a given area. In the case of species occurring in patches rather than being evenly distributed across the landscape, the whole area should be delineated as that vegetation type if the patches of native species comprise 10% or more of the total area, rather than delineating patches individually and saying they don't meet a minimum mapping unit (personal communication, email from Anthony Curzi, Los Angeles County Department of Regional Planning, to Carisa Endrizzi-Davis, sPower, December 13, 2018).

This definition is similar to the Wildflower Field (element code 42300) natural community described in the Holland classification system (Holland 1986). Holland's description of Wildflower Fields does not include any quantitative rules for identifying the natural community:

<u>Description:</u> An amorphous grab bag of herb-dominated types noted for conspicuous annual wildflower displays. Dominance varies from site to site and from year to year at a particular site. <u>Site Factors:</u> Usually on fairly poor sites (droughty, low in nutrients), associated with Grasslands or Oak Woodlands on surrounding, more productive sites.

<u>Characteristic Species:</u> Eschscholtzia californica, Navarretia leptalea [formerly Gilia bicolor], Layia platyglossa, Lupinus bicolor, Castilleja [formerly Orthocarpus] attenuatus, C. exserta [formerly O. purpurascens].

<u>Distribution:</u> Valleys and foothills of the Californian Floristic Province except the north coast (too wet) and desert (too dry) regions. Below about 2,000 feet in the north, 4,000-5,000 feet in the south.

The Holland system was used by CDFW prior to the adoption of vegetation alliances and associations described in the first edition of the MCV, which are consistent with the National Vegetation Classification Standards hierarchy (Federal Geographic Data Committee 2008; Sawyer, Keeler-Wolf and Evens 1995). Vegetation alliances and associations have been added to the MCV as they are identified and mapped throughout the state. The Holland system is still used by CDFW in areas where the vegetation has not been classified according to state standards (CDFW 2019).

Los Angeles County Department of Regional Planning considers Native Wildflower Fields a sensitive natural community and a locally important resource. The extent of the Native Wildflower Fields at the Project was not mapped in 2018; SWCA will conduct a survey during the 2019 spring blooming period to identify and map Native Wildflower Fields.

4.6 Wildlife Movement and Migratory Corridors

There are no known studies or widespread analyses that have been conducted within or adjacent to the Project. The Essential Habitat Connectivity Project has not mapped any migratory corridors near the Project or in the Antelope Valley (Spencer et al. 2010). Migratory birds may utilize the Project for breeding, nesting, and foraging, or at a minimum, as transient rest sites during migration flights. Desert

kit fox, American badger, and coyote likely use the Project and surrounding lands in search of prey, water, and cover when moving across the valley floor. This region of the Antelope Valley has been highly fragmented by man-made barriers, including fenced solar facilities, private property, residential housing, and agricultural lands. These barriers inhibit the movement of some species that have limited home ranges or low dispersal ability from moving through the Project, but may also reduce the movement and mobility of some wide-ranging species such as American badger, desert kit fox, and coyote. While these species do move across large areas, they do not exhibit seasonal or stereotyped migration in the same manner as migratory birds, ungulates, or anadromous and catadromous fish. Some of the utility-scale solar facilities in the Antelope Valley utilize fencing with wildlife gates to prevent wildlife from being trapped in the facilities and facilitate the movement of mobile species through the properties.

4.7 Special Status Plants

The record search identified a total of 25 special status plant taxa that have been documented within the nine-quadrangle database search area around the Project (Table 2). There are no records of special status plants within the Project site itself in either the CNDDB or the CNPS Rare Plant Inventory. Seven (7) special status plants were determined to have a low, moderate, or high potential to occur; each of these is discussed in detail below. A habitat assessment of the main Project area and gen-tie options was conducted in December 2017 and June 2018, and all identifiable plants were recorded (Appendix A). No special status plants were identified as a result of the survey; however, the lack of observations does not affect the potential for a species to occur. The timing of the surveys was not ideal to detect blooming annuals, including several of the species listed below. During the June 2018 survey, vegetation in the grasslands was extremely short, likely blown away during the frequent windy conditions in the preceding weeks. However, it is important to note the purpose of the survey was to assess the composition and condition of habitats at the Project rather than to determine the presence or absence of each species of interest.

Table 2. Habitat Assessments for Special Status Plants

Species	Status ¹	General Habitat	Blooming Period	Potential for Occurrence
Androsace elongata ssp. acuta California androsace	4.2	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland, 490–4,280 feet.	March–June	Absent. There is marginal suitable habitat, but the Project site is outside of the known range for this species.
Astragalus hornii var. hornii Horn's milk-vetch	1B.1	Meadows and seeps, playas, 197–2,789 feet.	May-October	Absent. There is no suitable habitat at the Project.
Astragalus preussii var. laxiflorus Lancaster milk-vetch	1B.1	Chenopod scrub, desert wash, 2,379 feet. Only known recent occurrence is near Edwards AFB.	March–May	Absent. There is marginal suitable habitat, but the Project is outside of the known range for this species.
Calochortus catalinae Catalina mariposa lily	4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland, 45–2,295 feet.	(Feb.) March– June	Absent. The Project is outside of the known range for this species and there is no suitable habitat.
Calochortus clavatus var. gracilis Slender mariposa lily	1B.2	Chaparral, coastal scrub, valley and foothill grasslands, 1,050–3,281 feet.	March-June	Absent. There is no suitable habitat and the Project is out of the known range for this species.

Species	Status ¹	General Habitat	Blooming Period	Potential for Occurrence
Calochortus palmeri var. palmeri Palmer's mariposa lily	1B.2	Meadows and seeps, chaparral, lower montane coniferous forest. Vernally moist places in yellow-pine forest, chaparral. 1,591-8,202 feet.	April–July	Absent. The Project is outside of the known range for this species and there is no suitable habitat.
Calochortus striatus Alkali mariposa lily	1B.2	Alkaline meadows, moist creosote-bush scrub, 2,625–4,593 feet.	April–June	Low. There is suitable habitat present within the Project. A large cluster of observations was recorded in 2016 approximately 4.7 miles northeast of the Project.
Calystegia peirsonii Peirson's morning-glory	4.2	Chaparral, coastal scrub, chenopod scrub, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Often in disturbed areas or along roadsides or in grassy, open areas, 98–4,921 feet.	April–June	Low. Marginal suitable habitat within the Project. The nearest records are approximately 4.1 miles west (1976) and 6.8 miles southeast (2008) of the Project.
Canbya candida White pygmy-poppy	4.2	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Gravelly, sandy, granitic places. 1,969–4,790 feet.	Mar–June	Absent. Habitat is marginally suitable within the Project. However, the Project is outside of the known range.
Castilleja plagiotoma Mojave paintbrush	4.3	Great Basin scrub (alluvial), Joshua tree woodland, Lower montane coniferous forest, Pinyon and juniper woodland, 900–4,005 feet.	April–June	Absent. There is no suitable habitat within the Project.
Chorizanthe parryi var. fernandina San Fernando Valley spineflower	FC, SE, 1B.1	Coastal scrub, valley and foothill grassland, 492–4,003 feet.	April–July	Low. There is poor quality suitable habitat within the Project; records of this species are from 1931, approximately 3.6 miles southwest the Project.
Chorizanthe parryi var. parryi Parry's spineflower	1B.1	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland, 131–5,594 feet.	April–June	Low. There is poor quality suitable habitat within the Project; records of this species are from 1902, approximately 10 miles east of the Project.
Chorizanthe spinosa Mojave spineflower	4.2	Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, Playas, sometimes alkaline, 15–4,265 feet.	March–July	Moderate. There is suitable habitat within the Project site. The nearest records are approximately 2.5 miles northwest (1900) and 5 miles west (1988) of the Project.
Chorizanthe xanti var. leucotheca White-bracted spineflower	1B.2	Creosote bush scrub, pinyon- juniper woodland. Sandy or gravelly soil, 984–3,937 feet.	April–June	Absent. There is no suitable habitat within the Project and outside of the known range for this species.
Cryptantha clokeyi Clokey's cryptantha	1B.2	Creosote bush scrub, Mojavean desert scrub, 2,789– 4,478 feet.	April	High: Suitable habitat present in the Project. Recent records of this species from 2004 are approximately 2.4 miles west of the Project.
Delphinium parryi ssp. Purpureum Mt. Pinos larkspur	4.3	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland, 3,280–8,530 feet.	May–June	Absent. No suitable habitat within the Project. The Project is outside of known range for this species.

Species	Status ¹	General Habitat	Blooming Period	Potential for Occurrence
Eriastrum rosamondense Rosamond eriastrum	1B.1	Chenopod scrub, vernal pool, 2,297–2,346 feet.	April–July	Absent. There is no suitable habitat within the Project.
Goodmania luteola Golden goodmania	4.2	Mojavean desert scrub, Meadows and seeps, Playas, Valley and foothill grassland, alkaline or clay, 65–7,220 feet.	April–August	Absent. There is no suitable habitat within the Project.
Lepechinia fragrans Fragrant pitcher sage	4.2	Chaparral, known in the Santa Monica Mountains, 65–4,300 feet.	March–August	Absent. There is no suitable habitat within the Project. The Project is outside of the known range for this species
Lepechinia rossii Ross' pitcher sage	1B.2	Chaparral, 1,000–2,592 feet.	May- September	Absent. There is no suitable habitat within the Project.
Loeflingia squarrosa var. artemisiarum Sagebrush loeflingia	2B.2	Great Basin scrub, desert dunes, 2,297–3,937 feet.	April–May	Absent. There is no suitable habita within the Project.
Navarretia fossalis Spreading navarretia	FT, 1B.1	Alkali playa, chenopod scrub, marsh and swamp, vernal pools, wetland, 98–2,083 feet.	April–June	Low. There is poor quality suitable habitat within the Project. Recent occurrence (2011) of this species is approximately 5.5 miles east.
Opuntia basilaris var. brachyclada Short-joint beavertail	1B.2	Chaparral, Joshua tree woodland, 1,394–5,905 feet.	April–June	Absent. There is no suitable habitat within the Project.
<i>Perideridia pringlei</i> Adobe yampah	4.3	Chaparral, Cismontane woodland, Coastal scrub, Pinyon and juniper woodland, serpentinite, often clay, 980– 5,905 feet.	April–June (July)	Absent. There is no suitable habita within the Project.
Sidalcea neomexicana Salt spring checkerbloom	2B.2	Creosote bush scrub, chaparral, yellow pine forest, coastal sage scrub, alkali sink, wetland, 49–5,020 feet.	March-June	Absent. There is no suitable habitat within the Project.
¹ Federal Ranking: FC = candidate for federal ES FT = Federally threatened	A listing	State Ranking: SE = State endangered, CRPR = California Rare Plant Rai		alauthara

1B: Rare, threatened, or endangered in California and elsewhere

2: Rare, threatened, or endangered in California, but more common elsewhere

3: More information needed (Review List)

4: Limited distribution (Watch List)

0.1: Seriously threatened in California

0.2: Fairly threatened in California

0.3: Not very threatened in California

4.7.1 Alkali Mariposa Lily

Alkali mariposa lily (Calochortus striatus) is a perennial bulbiferous herb that flowers between April and June. This species has a CRPR of 1B.2, meaning that it is rare, threatened, or endangered in its entire range, and is fairly threatened in California. Alkali mariposa lily typically occurs at elevations between 2,625 and 4,593 feet amsl. However, a large cluster of individuals has been documented along West Avenue D between 70th Street West and 20th Street West at elevations as low as 2,400 feet amsl, which suggests that the elevation range of this species described in CNDDB should be expanded. Threats to this species include urbanization, grazing, trampling, road construction, and hydrological alterations and other water diversions that result in the lowering of the water table. It is also potentially threatened by horticultural collecting. Habitat at the Project site is generally low quality, but there is potential for this species to occur in the Fourwing Saltbush Scrub and near the drainages mapped as part of the

jurisdictional delineation. The nearest record of occurrence is approximately 4.6 miles northeast of the Project.

4.7.2 Peirson's Morning-glory

Peirson's morning-glory (*Calystegia peirsonii*) is a CRPR List 4.2 rhizomatous perennial herb that flowers between April and June. The 4.2 rank means that this species has a limited or infrequent distribution and is moderately threatened in California. Peirson's morning-glory typically occurs at elevations between 98 and 4,921 feet amsl in a wide range of habitats including; chaparral, chenopod scrub, cismontane woodland, coastal scrub, lower montane forest, and valley and foothill grasslands. Threats to this species include grazing and development and potentially powerline construction. The Cheatgrass Grassland and Fourwing-Saltbush Scrub provide low quality suitable habitat for this species. The nearest records of Peirson's morning-glory is approximately 4.1 miles west (1976) and 6.8 miles southeast (2008) of the Project.

4.7.3 San Fernando Valley Spineflower

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) is a candidate for listing under the Federal ESA, is state listed as endangered under CESA, and has a CRPR List 1B.1. It is an annual herb that flowers between April and June. The 1B.1 rank means that this species is rare, threatened, or endangered across its entire range, and is seriously threatened in California. San Fernando Valley spineflower is known to occur on sandy soils within coastal scrub, and valley and foothill grassland at elevations between 492 and 4,003 feet amsl. This species was rediscovered in 1999 and is now known from only three occurrences. Most historical habitat is now heavily urbanized and is seriously threatened by development and competition from non-native plants. There is poor quality habitat at the Project site, therefore the potential for San Fernando Valley spineflower to occur at the Project is low. The nearest record is 3.6 miles to the southwest of the Project in the foothills of the San Gabriel Mountains, but it was mapped in 1931. The next closest records are over 20 miles away, and are well within the San Gabriel/San Liebre Mountains.

4.7.4 Parry's Spineflower

Parry's spineflower (*Chorizanthe parryi* var. *parryi*) is a CRPR List 1B.1 annual herb that flowers between April and June. The 1B.1 rank means that this species is rare, threatened, or endangered across its entire range, and is seriously threatened in California. Parry's spineflower occurs within sandy or rocky openings within coastal scrub, chaparral, cismontane woodland and valley and foothill grassland at elevations between 131 and 5,594 feet amsl. Threats include altered flood regime, development, mining, competition from non-native plants, and vehicles. The potential for Parry's spineflower to occur at the Project is low: while there is suitable habitat on site, the only record nearby is approximately 4.5 miles southeast, but this record is from 1896. The next closest record, mapped in 1995, is over 10 miles south of the Project.

4.7.5 Mojave Spineflower

Mojave spineflower (*Chorizanthe spinosa*) is a CRPR List 4.2 annual herb that flowers between March and July. The 4.2 rank means that this species has a limited or infrequent distribution range-wide and is moderately threatened in California. Mojave spineflower occurs within chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and playas at elevations between 15 and 4,265 feet amsl. Threats to this species include vehicles, road maintenance, development, illegal dumping, and potentially solar development. The potential for Mojave spineflower to occur at the Project is moderate. There is suitable

habitat on site within the Fourwing Saltbush Scrub. The nearest record of Mojave spineflower is from 1900, approximately 2.5 miles west of the Project. A more recent observation of this species was found in 1988, approximately 5 miles west of the Project.

4.7.6 Clokey's Cryptantha

Clokey's cryptantha (*Cryptantha clokeyi*) is a CRPR List 1B.2 annual herb that blooms in April. This species occurs in Mojavean desert scrub at elevations up to 2,789 feet amsl. This species is threatened by military activities and alteration of fire regimes. The 1B.2 rank means that this species is rare, threatened, or endangered in its entire range, and is fairly threatened in California. The potential for Clokey's cryptantha to occur at the Project site is high: there is suitable habitat on site, and an extant population approximately 2.4 miles to the west. Other records indicate that this species has also been found approximately 3.1 miles south of the Project.

4.7.7 Spreading Navarretia

Spreading navarretia (*Navarretia fossalis*) is a federally threatened and CRPR List 1B.1 annual herb that is native to California and Baja California; this species blooms between April and June. The 1B.1 rank means that this species is rare, threatened, or endangered across its entire range, and is seriously threatened in California. Spreading navarretia occurs in chenopod scrub, freshwater wetlands, and wetland riparian communities. It typically occurs in freshwater marshes or vernal pool habitats at elevations between 98 to 2,083 feet amsl. This species is threatened by urbanization, agriculture, road construction, grazing, flood control, non-native plants, illegal dumping, foot traffic, and vehicles. The main Project area contains small sections of poor quality habitat that may be suitable for this species. This species was observed in 2011 approximately 5.5 miles east of the Project site. The potential for this species to occur is low.

4.8 Special Status Wildlife

Based on the results of the literature and database review, 38 species of wildlife were found to have local occurrences within the nine-quadrangle records search area. One additional species, desert kit fox, is protected under the Fish and Game Code as a fur-bearing mammal although it is not tracked in the CNDDB and is generally widespread in the Mojave Desert. These 38 species were evaluated for their potential to occur at the Project, based on considerations of local records, habitat conditions, and environmental requirements (Table 3). After this assessment, 23 species were considered to have the potential to occur at the Project. Of these, loggerhead shrike (*Lanius ludovicianus*) and western meadowlark (*Sturnella neglecta*) were observed during the field surveys (Appendix B). Other species may be utilizing the Project site, but may not have been present or observable due to the season, windy conditions, or nocturnal habits of the species. Each of these 23 species is discussed in detail below.

Table 3. Habitat Assessments for Special Status Wildlife at the Project

Scientific Name	Status ¹	Habitat Type	Occurrence Potential
INVERTEBRATES			
Crotch bumble bee Bombus crotchii	SA	Coastal California to Sierra-Cascade crest, and to Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	Low. Potential food plants are present in the Project. Local records are from 1976 or earlier.

Scientific Name	Status ¹	Habitat Type	Occurrence Potential
Quino checkerspot butterfly Euphydryas editha quino	FE	Sunny openings within chaparral & coastal sage shrublands in parts of Riverside & San Diego counties. Hills and mesas near the coast. Need high densities of food plants <i>Plantago erecta, P. insularis</i> , and <i>Orthocarpus purpurescens</i> .	Absent. Habitat and food genera not present in the Project.
FISH			
Unarmored threespine stickleback Gasterosteus aculeatus williamsoni	FE, SE, CFP	Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams. Cool (< 24°C), clear water with abundant vegetation.	Absent. No suitable habitat is present in the Project.
AMPHIBIANS			
California red-legged frog Rana draytonii	FT, CSSC	Lowlands & foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Absent. No suitable habitat is present in the Project.
REPTILES			
Northern California legless lizard Anniella pulchra.	CSSC	Sandy or loose loamy soils under sparse vegetation; soil moisture is essential; prefer soils with high moisture content.	High. The nearest CNDDB record is located 4 miles northeast of the Project site. A recent SWCA survey in 2017 recorded the presence of the species 1.4 miles north of the Project site. The dune lands on the southern half of the Project site provide suitable habitat.
California glossy snake Arizona elegans occidentalis	CSSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular Ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Absent. No suitable habitat is present. California glossy snake occurs in the foothills but is replaced on the floor of the Antelope Valley by the Mohave glossy snake (<i>Arizona elegans candida</i>).
Western pond turtle Actinemys marmorata	CSSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Absent. No suitable habitat is present in the Project.
Desert tortoise Gopherus agassizii	FT, ST	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Requires friable soil for burrow and nest construction. Creosote bush habitat with annual wildflower blooms preferred.	Absent. No suitable habitat is present in the Project.
Coast horned lizard Phrynosoma blainvillii	CSSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, & abundant supply of ants & other insects.	Moderate. Limited moderate quality suitable habitat is present within the dune lands. The nearest record, from 2008, is approximately 4.3 miles to the south.
Two-striped gartersnake Thamnophis hammondii	CSSC	Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Absent. No suitable habitat is present in the Project.

Scientific Name	Status ¹	Habitat Type	Occurrence Potential
BIRDS			
Tricolored blackbird Agelaius tricolor	SC, CSSC, SBS	Highly colonial species; requires open water, protected nesting substrate, and foraging areas with insect prey within a few kilometers of colony, mostly within 5 kilometers.	Moderate (foraging), Absent (nesting). Suitable habitat for foraging is present; no nesting habitat is present. The nearest recent record (2011) is 4.7 miles to the west and is considered an active colony.
Southern California rufous- crowned sparrow Aimophila ruficeps canescens	WL, SBS	Resident in Southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	Absent. No suitable habitat is present in the Project.
Golden eagle Aquila chrysaetos	CFP, SBS	Forages in open grasslands, desert scrub and agricultural fields. Nests on ledges on cliff faces, rock outcrops and occasionally in large trees.	High (foraging), Absent (nesting). Suitable habitat for wintering and foraging eagles is present. No nesting habitat is present. There is a 1986 eBird record less than 0.5 miles north of the Project.
Bell's sage sparrow Artemisiospiza belli belli	SBS	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yards apart.	Absent. No suitable habitat is present within the Project.
Burrowing owl Athene cunicularia	CSSC, SBS	Open, dry perennial or annual grasslands, deserts, and scrublands characterized by low-growing vegetation; subterranean nester, dependent upon burrowing mammals, particularly California ground squirrels.	High. There are recent records (2008) of this species within the immediate vicinity of the Project site. An old burrow was observed at the Project site. In 2018, SWCA documented an active burrow 0.4 miles north of the Project.
Ferruginous hawk Buteo regalis	SBS	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	High (wintering), Absent (nesting). There are several CNDDB and eBird records of wintering individuals within the vicinity of the Project.
Swainson's hawk Buteo swainsoni	ST, SBS	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	High (foraging), Absent (nesting). Trees suitable for nesting are absent from the Projec site. Numerous local records within one mile of Project. Observed by SWCA during migration less than 0.5 miles north in April 2018.
Northern harrier Circus hudsonius	CSSC, SBS	Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienegas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	High (wintering), Absent (nesting). Species was observed 1.75 miles north during a field survey in November 2017 for a different project, however there is no suitable nesting habitat at the Project site.
Mountain plover Charadrius montanus	CSSC, SBS	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	High (wintering), Absent (nesting). Some habitat suitable for wintering birds is present, recent local records (2011) of wintering birds found 0.5 mile west Project is outside this migratory species' breeding range, but is within the wintering range.

Scientific Name	Status ¹	Habitat Type	Occurrence Potential
Merlin Falco columbarius	SBS	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches. Clumps of trees or windbreaks are required for roosting in open country.	Moderate (wintering), Absent (nesting). Species observed during a SWCA field survey 2.5 miles north of the Project site. There are no trees within the Project site for roosting. Project site is outside of breeding range.
Prairie falcon <i>Falco mexicanu</i> s	SBS	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	High (foraging), Absent (nesting). Nesting location information is not available in CNDDB. Several local records in eBird within the vicinity.
Greater roadrunner Geococcyx californianus	SBS	A year-round resident of arid open country with scattered shrubs. Inhabits steep foothill canyons, desert woodland, and coastal sage scrub. Nests in thorny shrubs, small trees, or cacti 1-3 meters above ground.	High. Habitat is suitable within Project site. Species observed 0.25 miles west of the Project along West Avenue H.
Bald eagle Haliaeetus leucocephalus	SE, CFP, SBS	Nests on large trees in the vicinity of large lakes, reservoirs and rivers. Wintering birds are most often found near large concentrations of waterfowl or fish.	Absent. There is no suitable habitat at the Project. Nearest record is approximately 5 miles west, at Elizabeth Lake.
Scott's oriole Icterus parisorum	SBS	Inhabits areas throughout the southwest that contain larger plants such as Joshua trees. Found in eastern Antelope Valley in larger tracts of Joshua tree and pinyon-juniper woodland.	Absent. Habitat is not present within the Project site. Species not tracked in CNDDB. The nearest eBird observations are confined to areas with Joshua trees, all of which are greater than 10 miles away.
Loggerhead shrike Lanius ludovicianus	CSSC, SBS	Broken woodland, savannah, pinyon-juniper woodland, Joshua tree woodland, riparian woodland, desert oases, scrub, and washes; prefers open country for hunting with perches for scanning and fairly dense shrubs and brush for nesting.	Present. Species was observed at the Project site during the December and June field surveys.
Long-billed curlew Numenius americanus	SBS	Breeds in upland shortgrass prairies and wet meadows in northeastern California. Habitats on gravelly soils and gently rolling terrain are favored over others.	High (wintering), Absent (nesting). Habitat suitable for wintering. Out of known breeding range. Multiple eBird observations within 1 mile. Observed by SWCA March 2018, less than 0.5 miles north of the Project site.
White-faced ibis Plegadis chihi	SBS	Shallow freshwater marsh. Dense tule thickets for nesting, interspersed with areas of shallow water for foraging. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	Absent. No suitable habitat within the vicinity of the Project site.
Vesper sparrow Poecetes gramieus	SBS	A ground dwelling species that inhabits grasslands, open valleys, and arid steppes. Wintering resident in southern California. Sensitive to development, rarely found along wildland-suburban interface.	Low (wintering), Absent (nesting). Habitat within the northern portion of the Project site is suitable. Several records found throughout Antelope Valley.
Mountain bluebird Sialia currucoides	SBS	Overwinters Colorado, New Mexico, Texas, and California. Typical wintering habitat includes flat grasslands with few scattered trees and bushes, meadows, and agricultural areas.	High (wintering), Absent (breeding). Wintering habitat is suitable. Several observations within the vicinity in eBird. Observed by SWCA in March 2018 less than 0.5 miles north of the Project site.

Scientific Name	Status ¹	Habitat Type	Occurrence Potential
Western meadowlark Sturnella neglecta	SBS	Inhabits grasslands year-round throughout California. Nests in pasture, prairie, or other grassland habitats, often in shallow depressions.	Present. Active nest observed by Los Angeles County personnel during April 2018 survey.
Le Conte's thrasher Toxostoma lecontei	SBS	Desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats.	Absent. Nearest record is approximately 10 miles north of the Project site. Habitat within and surrounding the Project lacks a high density of native desert scrub.
Least Bell's vireo Vireo bellii pusillus	FE, SE, SBS	Summer resident of southern California in low riparian habitats in vicinity of water or dry river bottoms; found at elevations below 2,000 feet; nests placed along margins of bushes or on twigs projecting into pathways, usually in willow, mesquite, and mulefat.	Absent. No suitable habitat is present in the Project.
MAMMALS			
Townsend's big-eared bat Corynorhinus townsendii	CSSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts mainly in caves and mines, has been reported to use buildings, bridges, trees. Roosting sites limiting. Extremely sensitive to human disturbance.	Moderate (foraging only). Habitat at the Project site is suitable for foraging; there is no roosting habitat present. Records within 10 miles are over 50 years old.
Southern grasshopper mouse Onychomys torridus ramona	CSSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions & orthopteran insects.	Low. Limited habitat is present in the scrub habitats at the Project site. The only nearby record is approximately 14.2 miles south and is from 1930.
Tehachapi pocket mouse Perognathus alticolus inexpectatus	CSSC	Arid annual grassland & desert shrub communities, but also found in fallow grain fields & in Russian thistle. Burrows for cover & nesting. Aestivates and hibernates during extreme weather. Forages on open ground & under shrubs.	Low. Habitat at the Project site is suitable, however, the closest record (1938) is 5.4 miles southwest.
Desert kit fox Vulpes macrotis arsipus	SA	Desert scrub, washes, and arid grasslands	High. Habitat at the Project site is suitable. Species not tracked in any public databases. SWCA observed this species approximately 0.4 miles north of the Project site in April 2018.
American badger Taxidea taxus	CSSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	High. Habitat at the Project site is suitable, and within the species' range. Several potential burrows are located within the Project site. The most recent record is from 1988 and 8.3 miles southwest of the Project site.
Mohave ground squirrel Xerospermophilus mohavensis	ST	Open desert scrub, alkali scrub & Joshua tree woodland. Also feeds in annual grasslands. Restricted to Mojave Desert. Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows.	Absent. Generally considered extirpated in the Antelope Valley west of SR 14. Nearest record, 10 miles to the east and east of SR 14, is from 1984.
¹ Federal Special Statuses: FE = Federally Endangered FT = Federally Threatened	State Special Statuses: SE= State Endangered SC = State Candidate for Endangered Listing ST = State Threatened CFP = California Fully Protected SA = CDFW Special Animal CSSC = California Species of Special Concern SBS = Los Angeles County Sensitive Bird Species		

4.8.1 Invertebrates

4.8.1.1 CROTCH BUMBLE BEE

The crotch bumble bee (*Bombus crotchii*) occurs primarily in Southern California, and was historically common in the Central Valley. In addition to the Central Valley this species is also known to occur in the westernmost edge of the Mojave Desert. The crotch bumble bee inhabits open grassland and scrub habitats. Known food plants include members of the following genera: *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia* (poppies), and *Eriogonum* (buckwheats). Crotch bumble bee is included on the CDFW list of Special Animals, but does not have any formal state or federal protections (CDFW 2017b). This species has been extirpated from most of its known range, due to the intensification of agriculture and urbanization, among other factors.

Suitable food genera were observed during surveys; additional food plants may be present and detectable in spring, however local records of this species are from 1976 or earlier. The potential for crotch bumble bee to occur is low.

4.8.2 Reptiles

4.8.2.1 NORTHERN CALIFORNIA LEGLESS LIZARD

The northern California legless lizard (*Anniella pulchra*), a CDFW species of special concern, occurs in sandy habitats within coastal dunes, valley-foothill areas, chaparral, coastal scrub, and sometimes anthropogenically-modified habitats. It requires the presence of some soil moisture or moist refuges. All legless lizards spend the majority of their time underground, and are therefore difficult to detect. Recent genetic data indicates that the northern California legless lizard is comprised of five different subspecies. (Papenfuss and Parham 2013). The occurrences within Antelope Valley were previously listed as the *A. pulchra pulchra*, subspecies, but the current subspecies has yet to be determined.

Habitats at the Project contain generally dry soils that will provide few moist refuges for this species. However, the areas mapped as Disturbed/Ruderal and the Fourwing Saltbush Scrub have sandy substrates and enough vegetation that may provide suitable refugia for this species. Northern California legless lizard was not detected during the field surveys in December 2017 or June 2018. However, the species was detected during by SWCA biologists approximately 1.4 miles north of the Project site. Northern California legless lizard is considered to have a high potential to occur.

4.8.2.2 COAST HORNED LIZARD

The coast horned lizard (*Phrynosoma blainvillii*), a CDFW species of special concern, occurs in a wide range of habitats in California, including valley-foothill hardwood, conifer, and riparian habitats, pine-cypress, juniper, and annual grasslands. This species is considered to be an ant-eating specialist, primarily feeding on native harvester ants (*Pogonomyrmex* spp.), but has been known to feed on other arthropods. This species is thought to be in decline due to agricultural and urban development, habitat fragmentation, collection, and the introduction of the Argentine ant (*Linepithema humile*) which has displaced native ant species (Suarez and Case 2002). In the Antelope Valley the coast horned lizard may be found near the foothills and margins, whereas the desert horned lizard (*P. platyrhinos*) is more typical of the hotter and drier valley floor.

The Fourwing Saltbush Scrub and roadsides that have shelter nearby within the Project provides suitable habitat for this species. Additionally, several colonies of native ants were observed throughout the Project site during the June 2018 surveys, which would provide the appropriate prey base for this species. The

nearest recent CNDDB record is approximately 4.3 miles to the south. The potential for coast horned lizard to occur is moderate.

4.8.3 Birds

4.8.3.1 TRICOLORED BLACKBIRD

Tricolored blackbird (*Agelaius tricolor*) is a CDFW Species of Special Concern, a candidate for listing under CESA, and is a Los Angeles County sensitive bird species. It is virtually endemic to California, with small breeding colonies also occurring in Oregon, Washington, Nevada, and Baja California (Shuford and Gardali 2008). Adults breed in colonies of up to 300,000 individuals, forming the largest breeding colonies of any North American landbird. Natural nesting habitats for tricolored blackbirds are always located near open water, and include freshwater marshes and the canopy of riparian trees. With much of this habitat converted to human use, tricolored blackbirds in California nested most frequently in rice-growing areas, and more recently in silage fields. Threats to the species are primarily habitat conversion and harvesting of agricultural fields where colonies are located. Harvesting at colony sites destroys nests, eggs, and nestlings, causing reproductive failure for the breeding season. In winter, tricolored blackbirds join flocks of mixed blackbird species, foraging in grasslands, agricultural fields, dairies, feedlots, and other open areas with low vegetation. Nesting birds can forage several kilometers from the nesting colony, with most foraging trips occurring within 5 kilometers (3.1 miles), but trips up to 13 kilometers (8.1 miles) have been recorded.

The nearest CNDDB records of tricolored blackbird is a breeding colony located 4.7 miles to the west of the Project. No tricolored blackbirds were observed during the field surveys. However, given the distance to the closest known breeding colony, this species has a moderate potential to forage in the Project site. There is no suitable nesting habitat for this species in the Project site.

4.8.3.2 GOLDEN EAGLE

The golden eagle (*Aquila chrysaetos*) is a CDFW fully protected species, listed as endangered under CESA, and is a Los Angeles County sensitive bird species; it is also protected pursuant to the federal Bald and Golden Eagle Protection Act. This species has an extremely large global range that includes much of North America, Eurasia, and parts of northern Africa. The golden eagle is an uncommon but widespread resident in California, and is known to nest in the Tehachapi Mountains and occasionally on its southern foothills. Territories regularly span 2 to 10 miles, depending on the availability of prey, nest sites, and wind resources. Breeding adults in desert settings may range up to 10 miles from the nest while foraging. Golden eagles nest on cliffs, rock outcrops, or in large trees, none of which are present at the Project property. Foraging golden eagles require large amounts of open space for hunting, such as grasslands, deserts, and savannahs. The entire Project property provides suitable habitat and may support a suitable prey base. Mid-sized mammals such as rabbits and marmots are preferred as prey, but prey may be as small as ground squirrels, or as large as deer (rarely), and golden eagles will consume carrion when it is available. The Project property supports some small to moderate-sized mammalian prey species, including black-tailed jackrabbits (*Lepus californicus*), desert cottontail, and California ground squirrel (*Spermophilus beecheyi*).

No golden eagles were observed by SWCA biologists during any of the field surveys, and there is no suitable habitat for nesting within several miles. Golden eagles are expected to forage in the area, particularly outside of breeding season. There are several observations of golden eagle scattered throughout Antelope Valley, most of which are concentrated near the foothills. Because there is a lack of cliffs, rock outcrops, and large trees, there is no suitable nesting habitat in or near the Project site.

4.8.3.3 BURROWING OWL

The burrowing owl (*Athene cunicularia*) is listed as a Species of Special Concern by CDFW and as a Los Angeles County sensitive bird species. It occurs in a wide range of mostly open habitats in California, including grasslands, shrub-steppe, deserts, pastures, and agricultural areas. The migratory movements of this species are not well understood. Breeding populations from the northern range of the species are apparently migratory, though southern California populations are probably year-round residents (Thomsen 1971). Seasonal movements also occur in some parts of the southern range. Increases in winter population sizes within southern California are probably the result of immigration of owls from more northerly areas (Coulombe 1971). Male burrowing owls that reside year-round in southern California may overwinter in burrows within nesting areas, which allows them to retain possession of their burrows and territories, and to maintain the burrows (Johnsgard 2002).

Suitable habitat for burrowing owl includes short vegetation and, in the breeding season, the presence of small mammal burrows. The California range of this species extends from Redding south to San Diego, east through the Mojave Desert and west to San Francisco and Monterey. The key characteristics of suitable habitat are moderately low and sparse vegetation, a prey base of small mammals during nesting, and burrows or similar sites for shelter. This species occurs at low densities in the Antelope Valley, where it is present in both the breeding and non-breeding seasons, as recorded in the CNDDB. CDFW considers burrows occupied within the last three years to be occupied for the purposes of documenting burrowing owls at a project and evaluating potential impacts (CDFW 2012). A CNDDB record from 2009 overlaps the Project site in the Fourwing Saltbush Scrub, the burrow or one very nearby was observed during the June 2018 survey. The status of the burrow was unoccupied, and it was overgrown with vegetation. Several potential burrows and abundant rodent activity were also observed in this area during the December 2017 and June 2018 field surveys, but no recent signs of burrowing owl were observed. Additionally, an active nest burrow was documented approximately 0.4 miles north by SWCA in 2018. This species has a high potential to forage and nest in the Project site.

4.8.3.4 FERRUGINOUS HAWK

The ferruginous hawk (*Buteo regalis*) is listed as a Los Angeles County sensitive bird species. It is the largest hawk species in North America and inhabits grasslands, shrub-steppes, and deserts. This species breeds in the interior regions of North America and overwinters in the south. In southern California, including Antelope Valley, ferruginous hawk is a winter resident. These hawks feed on a relatively small number of prey species, typically ground squirrels and lagomorphs.

There are multiple CNDDB records and eBird observations of ferruginous hawk within 0.5 miles west of the Project site, the nearest CNDDB record is located along 110th Street West 0.25 miles south of the Project. Given the proximity of the records and the high levels of lagomorph activity in the Fourwing Saltbush Scrub and dune lands, ferruginous hawk has a high potential for occurrence during winter.

4.8.3.5 SWAINSON'S HAWK

The Swainson's hawk (*Buteo swainsoni*) is listed as threatened under CESA, and is a Los Angeles County sensitive bird species. Swainson's hawk is known to nest in small numbers in the Antelope Valley. The local population in the Antelope Valley has been well studied, and most nest sites are known and used repeatedly over several years (Bloom 1980). This species forages in open habitats with little topographic relief, and in California is generally found in association with agricultural fields, where prey (small mammals such as gophers and mice) are numerous.

The CNDDB includes several records of Swainson's hawk nests within 10 miles of the Project, and three nest sites (occurrence numbers 1767, 1776, and 2698) within a 5-mile radius. The closest record (1776), approximately 1.6 miles north of the Project, was examined by SWCA biologists in 2018, and was found to be no longer suitable for use. The nest had fallen apart and out of the tree. Swainson's hawk is expected to forage in the Project site on occasion, particularly during migration. Numerous migrating Swainson's hawks were observed approximately 0.5 miles to the north by SWCA biologists in April 2018. The potential for Swainson's hawk to occur is high during the migration period. However, Swainson's hawk would not nest in the Project site because there are no trees present on site.

4.8.3.6 NORTHERN HARRIER

The northern harrier (*Circus hudsonius*) is as a CDFW species of special concern, and is a Los Angeles County sensitive bird species. This migratory species is found in large, undisturbed tracts of wetlands and grasslands from the Arctic tundra to grassland prairies. Northern harriers are known to occur year-round in some parts of California and occasionally breed after the wet season in the Antelope Valley. Their nests are on the ground in patches of dense, undisturbed vegetation. This species forages in open habitats with low vegetation and primarily feeds on small animals including voles, mice, rats, waterbirds, and songbirds.

There are no CNDDB records of northern harrier within the Antelope Valley, however, there are numerous records of local observations in eBird during the nonbreeding season and a few records found during the breeding season. In addition, a northern harrier was observed foraging during multiple 2017 and 2018 SWCA field surveys within a 5-mile radius. Northern harrier is considered to have a high potential to forage within the Project site. However, there is no suitable nesting habitat present.

4.8.3.7 MOUNTAIN PLOVER

Mountain plover (*Charadrius montanus*) is a CDFW Species of Special Concern, and is a Los Angeles County sensitive bird species. As a winter visitor to California, this species does not have the potential to nest at the proposed Project property. Mountain plovers occur in flat open habitats that have no or very low vegetation, such as short-grass prairie and agricultural fields, where these inconspicuous small birds blend in with the soil of their usual foraging areas.

There are records of wintering mountain plover within 1 mile of the Project site in fields to the west of 110th Street West (eBird and CNDDB). Habitat in the Project site is marginally suitable, but the recent records are immediately adjacent to the Project which suggests that this species has a high potential to occur during the non-breeding season.

4.8.3.8 MERLIN

Merlin (*Falco columbarius*) is a CDFW Watch List species, and is a Los Angeles County sensitive bird species. It is found in a wide range of habitats including, estuaries, open woodlands, savannahs, and at the edges of ranges and grasslands. It is a small, stocky falcon that preys on small birds. There are three North American subspecies of merlin: black (*F. c. suckleyi*), taiga (*F. c. columbarius*), and prairie (*F. c. richardsonii*). Southern California is outside of the breeding range for merlin, but is part of the wintering range for the species. In the Antelope Valley, merlins are a relatively uncommon winter resident, when present they can be observed perching on power poles and trees.

The nearest CNDDB records of merlin are from 2011 and 1998 approximately 6 miles northwest and northeast of the Project site, but there are numerous eBird observations of the taiga and prairie subspecies

within 1 mile of the Project. Merlin has a moderate potential to forage onsite during winter, but would not be found roosting onsite due to the lack of trees.

4.8.3.9 PRAIRIE FALCON

Prairie falcon (*Falco mexicanus*) is listed as a Los Angeles County sensitive bird species. Prairie falcon inhabits dry, open habitat where cliffs are present for nesting. The primary prey species are mammals, such as ground squirrels, and small birds including horned lark and western meadowlark. Prairie falcon is a year-round resident throughout much of California and is frequently observed within the Antelope Valley. Most nests are on cliffs, but nests have also been recorded on trees, power line structures, buildings, mine highwalls, caves, and quarry walls.

The nearest CNDDB records for this species are from 1977 and 1980 and are located in the Tehachapi and Liebre mountains where there is suitable nesting habitat. The exact nest locations are not available in CNDDB due to the sensitivity of the species. According to the Los Angeles Audubon Society, there were 10 known breeding pairs in Los Angeles County in 2009 (Audubon 2009). Although there is no nesting habitat available at the Project, there is ample foraging habitat. There are numerous eBird observations of prairie falcon within 1 mile of the Project, several of which are located on the western side of 110th Street West. Prairie falcon has a high potential for foraging on-site.

4.8.3.10 GREATER ROADRUNNER

Greater roadrunner (*Geococcyx californianus*) is a Los Angeles County sensitive bird species that is a year-round resident of the American southwest. It is typically found in arid, open country with scattered shrubs, but can be found in steep foothill canyons, desert woodlands, and coastal sage scrub. The greater roadrunner is a large species of cuckoo with a long tail, neck, and legs. This species spends the majority of its life on the ground and can run upwards of 20 miles per hour. They have limited flying abilities, but can make short, infrequent flights between shrubs or manmade structures. Greater roadrunners are opportunistic omnivores and frequently feed on arthropods, reptiles, small birds and their eggs, carrion, and plant material, such as fruits and seeds. This species typically nests in thorny shrubs, small trees, or cacti located near open or grassy areas.

Greater roadrunner is not tracked through CNDDB as it does not have any federal or state special status designations. The Los Angeles County Audubon Society considers greater roadrunner to be a sensitive species due to the decline in available habitat from urbanization (Audubon 2009). It is common in the Antelope Valley and has been documented within the main Project area in eBird and during field surveys by SWCA. Although no greater roadrunners were documented in the Project site during the December 2017 and June 2018 surveys, there is a high potential for nesting on site. Additionally, one individual was observed during the June 2018 survey on West Avenue H, approximately 0.25 miles east of the Project site. Greater roadrunner is considered present.

4.8.3.11 LOGGERHEAD SHRIKE

Loggerhead shrike (*Lanius ludovicianus*) is listed as a CDFW Species of Special Concern, and is a Los Angeles County sensitive bird species. This species occurs in areas with widely-spaced shrubs or low trees, such as scrub lands, steppes, deserts, savannahs, prairies, agricultural lands, and sometimes suburban areas. Loggerhead shrike is a permanent resident in the Antelope Valley. Prey taken includes large insects, lizards, small mammals, birds, and carrion. It requires open areas for hunting, and shrubs or low trees for perches and nest sites.

The Project site includes suitable habitat for this species, and two individuals were observed during the field survey, therefore loggerhead shrike is considered present. Suitable nesting habitat is present in the Fourwing Saltbush Scrub.

4.8.3.12 LONG-BILLED CURLEW

Long-billed curlew (*Numenius americanus*) is listed as a Los Angeles County sensitive bird species. This species is the largest shorebird in North America and is distinguished by its long, curved bill. Long-billed curlews breed in short-grass and mixed-grass habitats in the Great Plains and Great Basin. During the winter months, they inhabit coastal and inland regions of the California, Texas, Louisiana, and Florida. This species is a winter resident of Antelope Valley. Often in pastureland and irrigated alfalfa fields. The increase in urbanization and the decline of agriculture in the region may potentially cause the decline of this species.

There are no CNDDB records of long-billed curlews in the Antelope Valley; however, there are numerous observations in eBird, some of which are within the vicinity of the Project. Long-billed curlews were observed less than 0.5 miles north of the Project site by SWCA biologists in April 2018. The Project site has suitable habitat for wintering birds within the Cheatgrass Grasslands, but is not within the breeding range of the species. Long-billed curlew has a high potential for occurrence during the winter and the migration period.

4.8.3.13 VESPER SPARROW

Vesper sparrow (*Poecetes gramineus*), which is a Los Angeles County sensitive bird species, is a ground dwelling sparrow that inhabits grasslands, open valleys, and arid steppes. It is a common sparrow throughout North America, but has been declining due to habitat loss and fragmentation. This species is sensitive to development; it rarely occurs in habitat fragments near development (Audubon 2009). In Antelope Valley, vesper sparrows are a frequently observed winter resident.

There are no CNDDB records of this species because it is not considered a federal or state special status species. However, it is considered a sensitive bird species by the Los Angeles County Audubon Society. There are several eBird records within 1 mile of the Project, most of which are west of 110th Street West. The Cheatgrass Grasslands throughout the Project site is suitable non-breeding habitat for vesper sparrow. However, given that the immediate Project vicinity is highly fragmented by solar infrastructure and private residences, vesper sparrow has at most a low potential to occur during the wintering season, and is considered absent during the nesting season.

4.8.3.14 MOUNTAIN BLUEBIRD

Mountain bluebird (*Sialia currucoides*) is listed as a Los Angeles County Sensitive Bird Species. The breeding range of this species is at high elevations throughout the Rocky Mountains, eastern Alaska, Canada, and New Mexico. It overwinters at lower elevations in parts of Colorado, New Mexico, Texas, and California. Typical wintering habitat includes flat grasslands with few scattered shrubs and trees, meadows, and agricultural areas. Mountain bluebirds are a winter resident in the Antelope Valley, often found foraging in grasslands and agricultural fields.

There are no CNDDB records of this species because it is not considered a federal or state special status species. There are many eBird observations, several of which are within the vicinity of the Project site. Additionally, flocks of mountain bluebirds were observed regularly between 0.5 and 2.5 miles north of the Project site by SWCA biologists in March 2018. Mountain bluebird is considered to have a high potential to occur during the non-breeding season, and would be absent during the nesting season.

4.8.3.15 WESTERN MEADOWLARK

Western meadowlark (*Sturnella neglecta*) is listed as a Los Angeles County Sensitive Bird Species. These birds are a mostly brown, medium sized bird with bright yellow underparts and a distinct black V on its breast. This species typically forages on the ground by walking or running and tends to have short flight patterns similar to quail and grouse. Western meadowlark is found throughout western North America in grassland habitats. It is very commonly found year-round throughout Antelope Valley and other parts of southern California. Western meadowlark nest within pastures and prairies, rarely in cultivated fields. Their nests are constructed at ground level in shallow depressions, and are very well concealed.

CNDDB does not track western meadowlark because it does not have any federal or state special status designation. The Los Angeles Audubon Society considers western meadowlark as a sensitive species due to the conversion of agricultural land to urban space (Audubon 2009). There are many observations of this species within the vicinity of the Project in eBird. SWCA biologists have regularly observed these birds during field surveys in the area, and it is considered Present.

4.8.4 Mammals

4.8.4.1 TOWNSEND'S BIG-EARED BAT

Townsend's big-eared bat (*Corynorhinus townsendii*) is a CDFW Species of Special Concern. This species occurs throughout most of California, albeit with a patchy distribution. It is closely tied to caves and cave-like roost sites, which can include hollow trees and mines, and sometimes buildings or water diversion tunnels. Townsend's big-eared bat is sensitive to disturbance while roosting, and the main threats to the species are likely human impacts to roosts. In the Mojave Desert, it is mostly dependent on mining infrastructure for roost sites.

Habitat at the Project site is suitable for foraging, but there is no potential roosting habitat for this species. All records for this species within 10 miles are over 50 years old. This species has a moderate potential to occur while foraging, and no potential to roost at the Project site.

4.8.4.2 SOUTHERN GRASSHOPPER MOUSE

The southern grasshopper mouse (*Onychomys torridus ramona*), a CDFW Species of Special Concern, occurs in desert areas, especially scrub habitats with friable soils for digging. It occurs in relatively low densities, likely due to high territoriality and large home ranges. There is a 1930 record of a southern grasshopper mouse 14.2 miles south of the Project. There is low quality potential habitat in the Fourwing Saltbush Scrub at the Project, and this species has a low potential to occur.

4.8.4.3 TEHACHAPI POCKET MOUSE

The Tehachapi pocket mouse (*Perognathus alticolus inexpectatus*) is a CDFW Species of Special Concern. This species occurs in native and non-native grasslands, Joshua tree woodland, pinyon-juniper woodland, yellow pine woodland, oak savannah, chaparral, coastal sage communities, rangeland, and fallow grain fields. The Tehachapi pocket mouse constructs burrows in loose sandy soil, but its ecology is generally poorly known. Potential threats to this species include cattle grazing, wind-generated electricity, roads, mining, and urbanization. The most recent CNDDB record of the Tehachapi pocket mouse is from 1981 and is 5.4 miles to the west of the Project. The species is listed as possibly extirpated in this location and therefore has a low potential to occur at the Project site.

4.8.4.4 DESERT KIT FOX

Desert kit fox is afforded protection from take under California Fish and Game Code sections 460 and 4000-4003. Much of the Mojave Desert provides habitat for this species, although its population status and trends are unclear. The CNDDB does not maintain records for this species, so no location records are available for reference, although it is regularly encountered in the Antelope Valley. Desert kit fox can be found in a wide range of habitat types, including desert scrub, washes, and arid grasslands. In the western Mojave, desert kit fox dens are frequently located on west- and northwest-facing slopes on friable soils with an absence of stones, caliche, or hardpan. Kit foxes use multiple dens, and switch dens frequently throughout the year. Breeding typically occurs in December and January, and pups have usually left the natal den by May.

The entirety of the Project site is suitable habitat for desert kit fox. No kit fox signs were observed during the survey at the Project site, but several burrows were documented in the Fourwing Saltbush Scrub and dune lands which have the potential to support kit fox. Kit fox have been observed in the larger vicinity: an SWCA biologist observed a desert kit fox resting in a concrete standpipe approximately 0.4 miles to the north in April 2018. Habitat at the Project is similar to the habitat where the desert kit fox was observed; this species has a high potential to occur.

4.8.4.5 AMERICAN BADGER

American badger, a CDFW Species of Special Concern, is generally found in open areas, including open woodlands, desert scrub, and grasslands. Agricultural fields are also suitable if there is a small-mammal prey base. The entirety of the Project site constitutes potential habitat for this species, which is widespread but uncommon throughout North America. Badger dens are distinctive due to their size and the presence of claw marks on the sides created when the den was dug. Badgers are often controlled by farmers because their dens and diggings pose a hazard to livestock.

The entire Project site is suitable habitat for this species, but the most recent record of this species was recorded in 1988, approximately 8.3 miles to the west. Several burrows were documented during the June 2018 field survey that could be dig sites where American badger had been foraging. This species has a high potential to occur.

5 POTENTIAL IMPACTS AND RECOMMENDATIONS

This section describes the anticipated direct and indirect impacts to biological resources at the Project site that may result from implementation of the Project. This analysis was based on the results of the biological resources surveys conducted at the site, information from literature and database resources, and the proposed Project design and layout. The Project has been refined since its initial conception to avoid development of virtually all the Fourwing Saltbush Scrub vegetation community, where biological resources are concentrated.

One impact of development at the Project site would be the direct removal of on-site plant communities and the wildlife for which they provide habitat. Additionally, there is a potential for indirect impacts to the biotic resources remaining on-site after a project's completion. An example is night lighting, which could alter the habits of nocturnal wildlife in the vicinity of a proposed facility. Likewise, vegetation communities and wildlife near the Project may be adversely affected by impacts such as deposition of dust on vegetation, and subsidized predators in the area could be attracted to trash produced by a project's construction or maintenance. Under CEQA, a mitigation plan would need to be developed to avoid, minimize, and mitigate for the implementation of a proposed project. As the lead agency responsible for authorizing Project implementation, Los Angeles County is responsible for ensuring that the measures for avoiding, minimizing, and reducing impacts to nesting raptors are sufficient and compliant with applicable CEQA, CESA, and other applicable state, federal, and local regulations.

If impacts to certain types of sensitive biological resources (e.g., threatened or endangered species, jurisdictional waters) would occur, permits from the applicable regulatory agencies may be required. Preconstruction surveys would minimize impacts to sensitive wildlife that can be avoided or translocated offsite. Potential impacts that may result from Project implementation and recommended measures pertinent to specific resources types are discussed below.

5.1 Natural Communities and Jurisdictional Waters

Vegetation communities mapped by SWCA at the Project did not include any alliances or associations considered sensitive by CDFW. However, an unspecified acreage of Native Wildflower Fields was identified at the Project. The County considers this a sensitive natural community and locally important resource (personal communication, email from Anthony Curzi, Los Angeles County Department of Regional Planning, to Carisa Endrizzi-Davis, sPower, December 13, 2018). The Native Wildflower Fields at the Project are a resilient community and disturbance adapted: the entire Project site was extensively disturbed by past agricultural uses, and the Native Wildflower Fields represent species that either persisted in the seedbank or dispersed onto the site from neighboring areas. SWCA will conduct a survey during the spring 2019 blooming period to identify and map Native Wildflower Fields at the Project

Disturbance of mapped Native Wildflower Fields should be avoided if feasible, and measures to avoid and minimize impacts should be included in the Worker Education and Awareness Program (WEAP). If avoidance is not feasible the following actions should be taken to minimize and offset impacts:

- Impacts from grading and heavy equipment should be avoided where feasible to minimize the removal and compaction of topsoil and preserve the native seedbank. Native Wildflower Fields should be marked on construction plan maps to facilitate impact minimization, and
- Permanent impacts to Native Wildflower Fields at the Project should be offset through the
 acquisition and preservation of lands offsite. Lands appropriate for compensatory mitigation
 should consist of vegetation communities with at least 10% cover of native grasses and annual
 herbs. Vegetation types suitable for use as compensatory mitigation may include habitats

dominated by grasses, low herbaceous species, shrubs, or Joshua trees, so long as the canopy is mostly open (less than 33% coverage), and the herbaceous vegetation consists of at least 10% native grasses and/or wildflower species, based on the projected cover during the peak spring blooming period. Examples of vegetation communities that may be suitable as compensatory mitigation are: non-native grasslands, wildflower fields, Joshua Tree Woodlands, Creosote Bush Scrub, or similar open habitats.

- The ratio of compensatory mitigation lands should depend on the quality of the lands available. For compensatory mitigation lands similar in quality to the Project area (i.e dominated by non-native grasses and have extensive past disturbance by agriculture), a ratio of 1 acre of replacement lands for each 3 acres of permanently impacted Native Wildflower Field should be applied. For compensatory mitigation lands with higher proportions of native species and less disturbance, the ratio should increase, up to 6 acres of replacement lands for every 1 acre impacted at the Project.
- Areas of temporary impacts in Native Wildflower Fields should be allotted sufficient time to recover and regrow native vegetation following construction. Vegetation management on-site should consist of mowing, with spot use of herbicides to control shrubs and non-native plants only where necessary.

No jurisdictional aquatic resources were identified by SWCA biologists at the Project site during the jurisdictional delineation. If CDFW and/or the RWQCB take jurisdiction over the drainages within the Project Site, an LSAA from CDFW and WDR Notice of Applicability from the RWQCB may be required. The USACE has concluded that the entire Antelope Valley is not subject to its jurisdiction under the CWA, therefore CWA Sections 404 and 401 permits would not be required.

5.2 Special Status Plants

Seven species of special status plants were determined to have the potential to occur at the Project. Of these species, only Clokey's cryptantha was determined to have a high potential to occur. The determinations were based on an evaluation of local occurrence records, habitat conditions, elevation, and other factors. Relatively few plants flower in December, especially annuals. Conditions during the survey were good, but did not coincide with the flowering periods of most of the special status plants that could potentially occur.

A rare plant survey should be conducted in April to determine the presence or absence of rare plants in the Project site. An April survey would be properly timed to capture the blooming period of all rare plants with potential to occur. All listed plant species found should be marked and avoided. Any populations of special-status plants found during surveys should be fully described and mapped, and a California Native Plant Society Field Survey Form or written equivalent should be prepared.

Any populations of special-status plant species identified in the disturbance areas should be protected by a buffer zone. The buffer zone should be established around these areas and should be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance, including human trampling, erosion, and dust. The size of the buffer depends upon the proposed use of the immediately adjacent lands, and includes consideration of the plant's ecological requirements (e.g., sunlight, moisture, shade tolerance, physical and chemical characteristics of soils) that are identified by the qualified plant ecologist or botanist. The buffer for herbaceous and shrub species should be, at minimum, 50 feet from the perimeter of the population or the individual. A smaller buffer may be established, provided there are adequate measures in place to avoid the take of the species, with the approval of the County. Highly visible flagging should be placed along the buffer area and remain in good working order during the duration of any construction activities in the area.

Where impacts to listed plants cannot be avoided, the USFWS or CDFW should be consulted for authorization of take, as appropriate. Additional mitigation measures to protect or restore listed plant species or their habitat, including but not limited to a Salvage Plan including seed collection and replanting, may be required by the USFWS or CDFW before impacts are authorized.

If non-listed CRPR 1, 2, 3, or 4 plants cannot be avoided, and project-related impacts result in the loss of 10% or more of the local population (i.e., occurrences within 0.25 mile of the project impact location), compensatory mitigation should be required.

To compensate for permanent impacts to special-status plants (including areas located beneath the arrays), habitat (which may include preservation of areas within the undisturbed areas of the project footprint, mitigation lands outside of the main project site, or a combination of both) that is not already public land should be preserved and managed in perpetuity at a 1:1 mitigation ratio (1 acre preserved for each acre of the plant population impacted). The preserved habitat for a significantly impacted plant species should be of equal or greater habitat quality to the impacted areas in terms of soil features, extent of disturbance, and vegetation structure, and should contain verified extant populations, of the same size or greater, of the special-status plants that are impacted.

5.3 Special Status Wildlife

Based on the assessment of local occurrence records, habitat conditions, elevation, and other factors, a total of 23 species of special status wildlife were determined to have the potential to occur at the Project. Two were confirmed to be present; the loggerhead Shrike, and western meadowlark.

In addition, several species of wildlife were not observed during the surveys, but have the potential to occur:

- Crotch bumble bee
- Northern California legless lizard
- Coast horned lizard
- Tricolored blackbird (foraging only)
- Golden eagle (foraging only)
- Burrowing owl
- Ferruginous hawk (wintering only)
- Swainson's hawk (foraging only)
- Northern harrier (foraging only)
- Mountain plover (wintering only)
- Merlin (wintering only)

- Prairie falcon (foraging only)
- Greater roadrunner
- Long-billed curlew (wintering only)
- Vesper sparrow (wintering only)
- Mountain bluebird (wintering only)
- Townsend's big-eared bat (foraging only)
- Southern grasshopper mouse
- Tehachapi pocket mouse
- Desert kit fox
- American badger

5.3.1 Swainson's Hawk

Swainson's hawk is afforded protections under CESA, and suitable foraging habitat is present at the Project. No suitable nesting habitat is present since there are no trees, however suitable nesting habitat is present off-site. The closest known nest sites are approximately 2 miles to the southwest and 3 miles to the north. These nests were last documented to be in use in 2010 and 2011, respectively which is well out

of the five-year range CDFW considers a Swainson's hawk nest to be active. Therefore, direct impacts to this species are not expected.

A qualified biologist should conduct a Swainson's Hawk preconstruction survey prior to construction or grading activities within a five-mile radius of the Project, including the previously-recorded nest sites and other potentially suitable locations. The survey protocol should follow the guidelines set forth in the *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California* (CDFW 2010). If active Swainson's hawk nests are detected during preconstruction surveys within 5 miles of the project, the following actions should be taken to offset potential impacts.

No construction activities should occur within 0.5 mile of the active nests that may result in new disturbances, habitat conversions, or any other project related activity that may cause nest abandonment or forced fledging between March 1 and September 15. Adjustment to an established buffer may be possible with coordination and approval from CDFW. A Swainson's hawk Monitoring and Mitigation Plan should be prepared in consultation with CDFW detailing measures to avoid and minimize impacts to Swainson's hawk at the Project and vicinity.

The mitigation plan should focus on acquiring habitat management lands. In the event that Swainson's hawk foraging habitat is lost by construction activities, replacement land would be provided based on the quality of the mitigation land relative to the impacted habitat. The ratio of such replacement should be determined as follows:

- A ratio of one acre of replacement land for each 3 acres of development if the replacement land is superior nesting and foraging habitat contiguous to occupied nesting and foraging habitat, and is within a designated or proposed Significant Ecological Area (SEA).
- A ratio of one acre of replacement land for each 2 acres of development if the replacement land is unoccupied irrigated land, contiguous to occupied habitat and providing superior quality foraging habitat with trees or other such nesting habitat;
- A ratio of 1 acre of replacement land for each acre of development if the replacement land provides similar foraging and nesting habitat.

5.3.2 Burrowing Owl

The Project consists of suitable habitat for nesting and overwintering burrowing owls. There is one CNDDB record of burrowing owl nesting within the Project boundary in the Fourwing Saltbush Scrub south of the West Avenue G-8. Several burrows identified in the dunes are suitable potential burrowing owl burrows.

A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) should conduct preconstruction surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows no more than 14 days prior to ground-disturbing activities (i.e., vegetation clearance, grading, tilling, trenching, installation of piles, etc.). The survey methodology should be consistent with the methods outlined in the 2012 California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation and should consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. The surveys may be conducted concurrently with other pre-construction surveys if the methodologies are compatible. As each burrow is investigated, surveying biologists should also look for signs of American badger and desert kit fox. Copies of the survey results should be submitted to California Department of Fish and Wildlife and the County.

Occupied burrows shall be avoided if feasible, and a no-activity buffer set up around each occupied burrow as follows:

• Active nest burrow: 250 feet

• Occupied non-nesting burrow: 150 feet

These buffers may be reduced at the discretion of a qualified biologist with at least one year of burrowing owl survey experience that includes behavioral observations of nesting burrowing owl, as long as the nesting birds continue to behave normally and do not show signs of stress caused by construction.

If burrow avoidance is infeasible during the non-breeding season or during the breeding season (February 1 through August 31) after a qualified biologist has confirmed that either resident owls have not yet begun egg laying or incubation, or that the juveniles are foraging independently and capable of independent survival, a qualified biologist should implement a passive relocation program in accordance with Appendix E1 (i.e., Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of the 2012 California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation.

If passive relocation is required, a qualified biologist should prepare a Burrowing Owl Relocation Plan and Mitigation Land Management Plan in accordance with the 2012 California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation, for review by California Department of Fish and Wildlife prior to passive relocation activities. The Mitigation Land Management Plan should include a requirement for the permanent conservation of off-site burrowing owl habitat through a conservation easement, or similar mechanism deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW-approved burrowing owl conservation bank, the project operator may purchase available burrowing owl conservation bank credits. Land identified to mitigate for passive relocation of burrowing owl may be combined with other offsite mitigation requirements of the proposed project if the compensatory habitat is deemed suitable to support the species.

In addition, the Mitigation Land Plan may be combined with the mitigation acreage provided for Swainson's hawk. The mitigation acreage would be sufficient to replace lost burrowing owl habitat, given that the replacement habitat would be similar to or better than the lost burrowing owl habitat within the Project. Considering that the majority of the habitat is long-fallow agricultural fields, better quality habitat may include features such as increased vegetative structure, higher numbers of prey species, less disturbance, and less potential for predation by domestic animals.

Certain types of rodenticides, for example some that contain anti-coagulants, can result in direct or secondary poisoning of birds. Use of these types of rodenticides shall be avoided during project construction and operations.

5.3.3 Nesting Raptors

The Project supports suitable foraging habitat for several species of raptors, but lacks nesting habitat for those species that nest in trees. Raptors that nest in trees in the Antelope Valley, and which therefore have the potential to nest around the periphery of the Project include: red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and Swainson's hawk. Due to the lack of nesting habitat, these species are not expected to nest within the Project footprint. Red-tailed hawk and Swainson's hawk have both been recorded nesting in the Project vicinity. Active raptor nests near the Project and gen-tie routes may be directly impacted by construction, because these species are sensitive to human activity and disturbance, especially when nesting. Indirect impacts such as loss of foraging habitat would also occur.

Nesting season for most raptors lasts from February 1 until July 31, and for Swainson's hawks the local nesting season is March 1 through September 15.

Whenever feasible, any Project activities that disturb vegetation should occur outside of the breeding season. Should construction occur during breeding season, construction should be avoided within 0.5 mile of active Swainson's hawk nests, and within 500 feet of active nests for other raptors. Identification of active nests during the breeding season may require pre-construction surveys. At the discretion of a qualified biologist with significant experience working with raptors, visual barriers, lighting, noise, and/or dust restrictions may allow for reduction of the construction avoidance buffers. If take of Swainson's hawks would occur, permitting through CESA would be required.

5.3.4 Nesting Birds

Special status birds that have the potential to nest in the Project site include loggerhead shrike, greater roadrunner, and western meadowlark. Whenever feasible, any Project activities that disturb vegetation should occur outside of the breeding season. If construction of the Project is scheduled to commence during the non-nesting season (approximately September 1 to January 31), pre-construction surveys or additional measures with regard to nesting birds and other raptors may not be required. If construction is scheduled during the nesting season (approximately February 1 to August 31), a qualified wildlife biologist should conduct pre-construction surveys of all potential nesting habitat within the study area, and within a 300-foot buffer to avoid impacts to nesting birds. Surveys should be conducted no more than 14 days prior to construction activities. The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. Active nests should be avoided and monitored, and the qualified biologists should have authority to stop all Project work should it be determined that a nest is being impacted by Project activities.

5.3.5 Wintering and Non-nesting Birds

The grasslands within the Project area are part of the larger regional habitat consisting of open grasslands and former agricultural fields used by wintering raptors such as ferruginous hawk, golden eagle, and northern harrier, and by migrant songbirds like mountain bluebird (*Sialia currucoides*) and vesper sparrow (*Pooecetes graminues*)(National Audubon Society 2013). Most or all of these species may occur at the Project site, although they were not observed during surveys. Special status birds that may occur at the Project site while foraging, but do not have the potential to nest at the site include tricolored blackbird, golden eagle, ferruginous hawk, northern harrier, mountain plover, merlin, prairie falcon, long-billed curlew, vesper sparrow, and mountain bluebird. Birds that do not have the potential to nest at the Project are not anticipated to be directly impacted by the Project. Because of their mobility, birds generally move out of harm's way and would not be injured or killed during grading, construction, or Project operations. Implementation of the Project would reduce foraging habitat for these species, and specific measures for these species are not required to avoid direct impacts.

5.3.6 Reptiles

Two special status reptiles have the potential to occur within the Project site, northern California legless lizard and coast horned lizard. These two species have low mobility, meaning they do not travel far distances and are likely to remain in the same area throughout their lives. Both species are most likely to occur in the Fourwing Saltbush Scrub and dune lands south of West Avenue G-8. A relocation plan for coast horned lizard and northern California legless lizard should be developed by a qualified biologist who is familiar with these species. The plan should detail survey methodology, methods used for capturing and relocating individuals, and indicate areas with high likelihood of occurrence within the

impact area based on habitat suitability. The relocation plan should detail the habitat quality in any proposed relocation sites. Habitat at relocation sites should be of equal or greater quality to the impact area. The relocation plan should be submitted to the lead agency for approval at least 60 days prior to ground disturbance. Upon approval of the plan, individuals of these species should be captured and relocated to similar habitat outside of the impact area.

If feasible, exclusion fencing (e.g. silt fencing) should be installed prior to the start of ground disturbance and any relocation activities to prevent lizards from moving into construction areas

5.3.7 Desert Kit Fox and American Badger

Neither desert kit fox nor American badger has been directly observed at the Project site. There is no protocol survey required for these species. Instead, measures to ensure they are not directly impacted during construction are typically implemented. Because several potential desert kit fox and American badger burrows were identified during the field surveys, focused pre-construction surveys for the presence of desert kit fox or American badger should be conducted. These targeted surveys should be conducted by a qualified biologist with species-specific experience no more than 30 days prior to commencement of construction activities.

Surveys should be conducted in areas that contain habitat for these species and should include all disturbance areas and access roads plus a 300-foot buffer surrounding these areas, access permitting. The Applicant should submit documentation providing pre-construction survey results to the County. If dens are detected, each den should be classified as inactive, potentially active, active non-natal, or active natal. Active dens should be flagged and project activities within 200 feet (non-natal dens) or 500 feet (natal dens) should be avoided. Buffers may be modified by the qualified biologist, in coordination with CDFW and with notification to the County. Active natal dens (any den with cubs or pups) should not be excavated or passively relocated. The cub- or pup-rearing season is generally January 15 through mid-September.

If canine distemper is reported in desert kit fox on the project site or surrounding areas, the Applicant should coordinate with the County and CDFW to identify appropriate actions prior to continuing implementation of this mitigation measure in respect to desert kit fox. Any observations of a desert kit fox that appears sick or any desert kit fox mortality should be reported to the County and CDFW within 1 workday.

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APPENDIX A.

Floral Compendium

Scientific Name	Common Name
ANGIOSPERMS (EUDICOTS)	
APOCYNACEAE	DOGBANE FAMILY
Asclepias californica	California milkweed
ASTERACEAE	SUNFLOWER FAMILY
Ambrosia acanthicarpa	annual bur-sage
Corethrogyne filaginifolia	common sandaster
Ericameria nauseosa var. mohavensis	Mojave rabbitbush
Helianthus annuus	common sunflower
Heterotheca sessiflora ssp. echioides	bristly golden-aster
Lactuca serriola*	prickly lettuce
Lasthenia gracilis	common goldfields
Lessingia glandulifera var. glandulifera	valley lessingia
Stephanomeria pauciflora	wire lettuce
Stephanomeria exigua ssp. exigua	small wreath-plant
Stephanomeria virgata [†]	twiggy wreathplant
BORAGINACEAE	BORAGE FAMILY
Amsinckia tessellata	devil's lettuce
BRASSICACEAE	MUSTARD FAMILY
Sisymbrium altissimum*	tumble mustard
CHENOPODIACEAE	GOOSEFOOT FAMILY
Atriplex canescens	four-wing saltbush
Atriplex polycarpa	allscale
Salsola tragus*	Russian thistle
EUPHORBIACEAE	SPURGE FAMILY
Croton setiger	turkey-mullein
Euphorbia albomarginata	rattlesnake weed
FABACEAE	LEGUME FAMILY
Lupinus sp.†	lupine
GERANIACEAE	GERANIUM FAMILY
Erodium cicutarium*	red-stemmed filaree
LAMIACEAE	MINT FAMILY
Trichostemma lanceolatum	vinegar weed
MALVACEAE	MALLOW FAMILY
Eremalche exilis [†]	mallow
ONAGRACEAE	EVENING PRIMROSE FAMILY
Chylismia claviformis subsp. aurantiaca	pinnate leaved primrose
PAPAVERACEAE	POPPY FAMILY
Eschscholzia californica [†]	California poppy

Scientific Name	Common Name
POLEMONIACEAE	PHLOX FAMILY
Allophyllum giliodes [†]	dense false gilia
Gilia tricolor ssp. diffusa [†]	bird's eye gilia
POLYGONACEAE	BUCKWHEAT FAMILY
Eriogonum angulosum	angled buckwheat
Eriogonum roseum	wand buckwheat
Eriogonum baileyi var. baileyi	Bailey's buckwheat
Eriogonum sp.	buckwheat
SOLANACEAE	NIGHTSHADE FAMILY
Lycium cooperi	Cooper's boxthorn
ANGIOSPERMS (MONOCOTS)	
POACEAE	GRASS FAMILY
Bromus diandrus*	ripgut brome
Bromus madritensis ssp. rubens*	red brome
Bromus tectorum*	cheat grass
Schismus barbatus*	Mediterranean schismus
Stipa speciosa	desert needlegrass

^{*}Non-Native Species
†Observed by Los Angeles County during site visit

APPENDIX B.

Observed and Expected Wildlife Compendium

Scientific Name	Common Name	
CLASS REPTILIA	REPTILES	
PHRYNOSOMATIDAE	ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS	
Uta stansburiana	side-blotched lizard	
TEIIDAE	WHIPTAIL LIZARDS	
Aspidocelis tigris tigris	Great Basin whiptail	
CROTALIDAE	PIT VIPERS	
Crotalus scutulatus [†]	Mohave rattlesnake	
CLASS AVES	BIRDS	
ACCIPITRIDAE	HAWKS, KITES, EAGLES	
Buteo jamaicensis	red-tailed hawk	
Buteo swainsoni [†]	Swainson's hawk	
Circus hudonius [†]	northern harrier	
COLUMBIDAE	PIGEONS & DOVES	
Zenaida macroura [†]	mourning dove	
CORVIDAE	JAYS AND CROWS	
Corvus corax	common raven	
CUCULIDAE	CUCKOOS & ROADRUNNERS	
Geococcyx californicus	greater roadrunner	
TURDIDAE	THRUSHES	
Sialia mexicana	western bluebird	
Sialia currucoides [†]	mountain bluebird	
MIMIDAE	MOCKINGBIRDS & THRASHERS	
Oreoscopes montanus [†]	sage thrasher	
LANIIDAE	SHRIKES	
Lanius Iudovicianus	loggerhead shrike	
EMBERIZIDAE	EMBERIZIDS	
Passerculus sandwichensis	savannah sparrow	
Zonotrichia leucophrys [†]	white-crowned sparrow	
FALCONIDAE	FALCONS	
Falco sparverius	American kestrel	
FRINGILLIDAE	FINCHES	
Haemorhous mexicanus	house finch	
ICTERIDAE	BLACKBIRDS	
Sturnella neglecta	western meadowlark	
ALAULIDAE	LARKS	
Eremophila alpestris	horned lark	
STRIGIDAE	TRUE OWLS	

Scientific Name	Common Name
Athene cunicularia*	burrowing owl
CLASS MAMMALIA	MAMMALS
CANIDAE	WOLVES & FOXES
Canis latrans*	coyote
HETEROMYIDAE	POCKET MOUSE AND KANGAROO RAT
Dipodomys sp.*	kangaroo rat
Perognathus sp. or Chaetodipus sp.*	pocket mouse
LEPORIDAE	HARES AND RABBITS
Lepus californicus	black-tailed jackrabbit
Sylvilagus audubonii*	desert cottontail
MUSTELIDAE	MUSTELIDS
Taxidea taxus*	American badger

^{*}Observed potential burrow, scat, or other sign.
† Expected observations based on observations from other field surveys within the vicinity

APPENDIX C.

Representative Photographs



Photo 1. View to the east from the western edge of the Project; Cheatgrass Grassland. Photographed on December 13, 2017.



Photo 2. View to the north towards the Fourwing Saltbush Scrub. Photographed on December 13, 2017

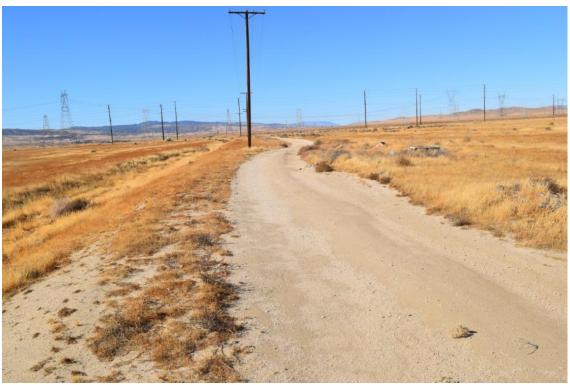


Photo 3. The road is mapped as developed and the drainage on the left is mapped as Cheatgrass Grassland. Photographed on December 13, 2017.



Photo 4. Site conditions as of June 15, 2018, view to the southeast at the corner of West Avenue G and 110^{th} Street West.



Photo 5. Site conditions as of June 15, 2018, view to the east from 110th Street West. Dune lands with Fourwing Saltbush Scrub are visible in the distance.



Photo 6. Lagomorph tracks in the dune lands south of West Avenue G-8. Photographed on June 15, 2018.



Photo 7. Unoccupied burrowing owl burrow (CNDDB record) in the dune lands south of West Avenue G-8. Photographed on June 15, 2018.



Photo 8. Example of a burrow found in the dune lands south of West Avenue G-8. Photographed on June 15, 2018.

Appendix C

Jurisdictional Delineation



EXISTING CONDITIONS JURISDICTIONAL DELINEATION REPORT FOR THE ANTELOPE EXPANSION 3 SOLAR PROJECT, LOS ANGELES COUNTY, CALIFORNIA

MARCH 2018

PREPARED FOR

sPower

5000 East Spring Street, Suite 130 Long Beach, CA 98015

PREPARED BY

SWCA Environmental Consultants

EXISTING CONDITIONS JURISDICTIONAL DELINEATION REPORT FOR THE ANTELOPE EXPANSION 3 SOLAR PROJECT, LOS ANGELES COUNTY, CALIFORNIA

Prepared for

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SWCA Project No. 45689

March 2018

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Appendices

Appendix A. Photo Compendium

	Existina	Conditions	Jurisdictional	Delineation	Report
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1 INTRODUCTION

sPOWER – Sustainable Power Group (sPower) retained SWCA Environmental Consultants (SWCA) to conduct a jurisdictional waters study and delineation in support of the Antelope Expansion 3 Solar Project (Project) located in Los Angeles County, California. The purpose of conducting a jurisdictional delineation on the Project site was to determine the location and extent of the areas, if any, that meet the definition of waters of the U.S., waters of the State, or lakes, streams, or riparian habitat subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW). The collected data will be used to determine which jurisdictional regulations apply and to calculate potential Project impacts to jurisdictional waters and habitat.

1.1 Project Description

The Project will consist of a 30-megawatt (30 MW) photovoltaic (PV) energy generating facility located near the City of Lancaster, in Los Angeles County. A single generation tie-line (gen-tie) of approximately 4,225 feet in length will interconnect with the power grid at the existing Southern California Edison (SCE) Big Sky North Substation.

1.2 Project Location

The main Project area, consisting of the solar arrays and fencing, is located in unincorporated Los Angeles County within the Antelope Valley portion of the Mojave Desert (Figure 1). It is bounded by West Avenue H on the south, West Avenue G on the north, 110th Street West on the west, and 105th Street West on the east (Figure 2). Parcels that make up the Project are situated within Section 1 of Township 7 North and Range 14 West (San Bernardino Meridian) found on the U.S. Geological Survey (USGS) Del Sur 7.5-minute quadrangle (Figure 2). The main Project area, which includes the solar arrays and infrastructure that will be enclosed in fencing, encompasses approximately 148 acres (Figure 3). The gen-tie extends approximately 4,225 feet along an unimproved road and connects to the Big Sky North Substation on 100th Street West within the City of Lancaster.

1.3 Site Characteristics

The Project site is relatively flat, with a maximum elevation of approximately 2,503 feet above mean sea level (amsl) in the western edge of the gen-tie at the intersection of West Avenue H and 110th Street West and a minimum elevation of approximately 2,464 feet amsl at the Big Sky North Substation on 100th Street West. Other operational solar PV facilities are located in the immediate vicinity of the Project area to the east and along the gen-tie route to the south. The gen-tie route traverses relatively flat, undeveloped open space and along existing dirt roads and solar generation facilities. Outside of the developed and disturbed areas, the surrounding landscape is primarily dominated by cheatgrass (*Bromus tectorum*) and red brome (*B. rubens*). The southern half of the project site includes a portion of sandy, alkaline habitats primarily consisting of native fourwing saltbush (*Atriplex canescens*) and boxthorn (*Lycium* sp.). The southernmost portion of the project partially overlaps with a historic ephemeral stream originating from Portal Ridge.

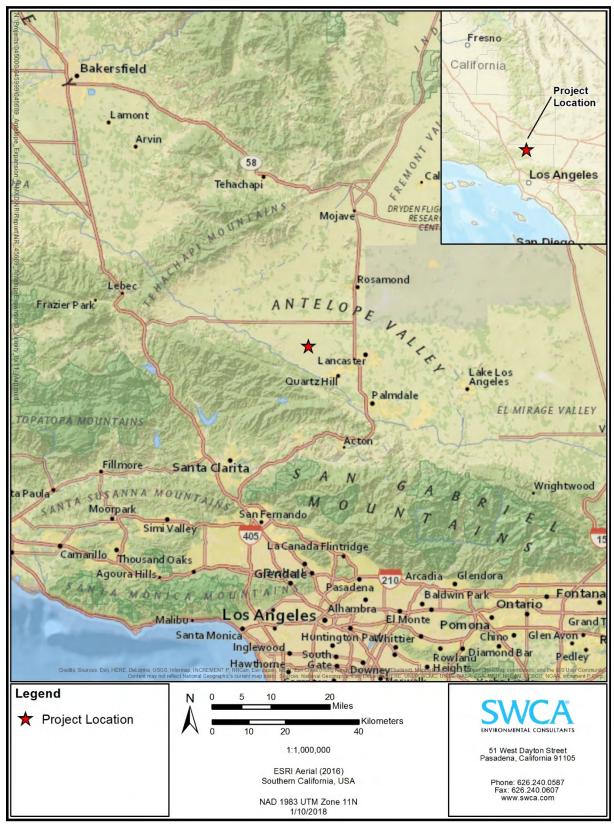


Figure 1. Regional vicinity map.

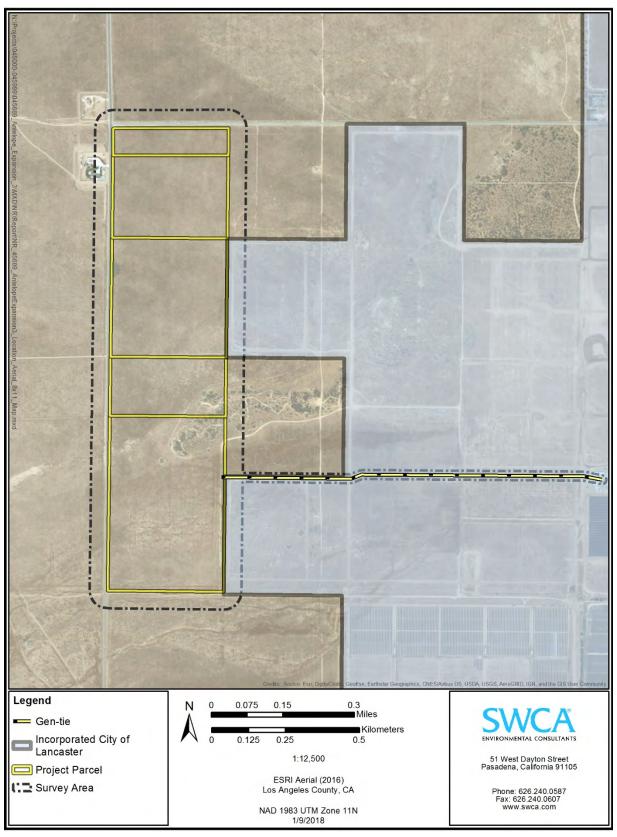


Figure 2. Project location map with aerial background.

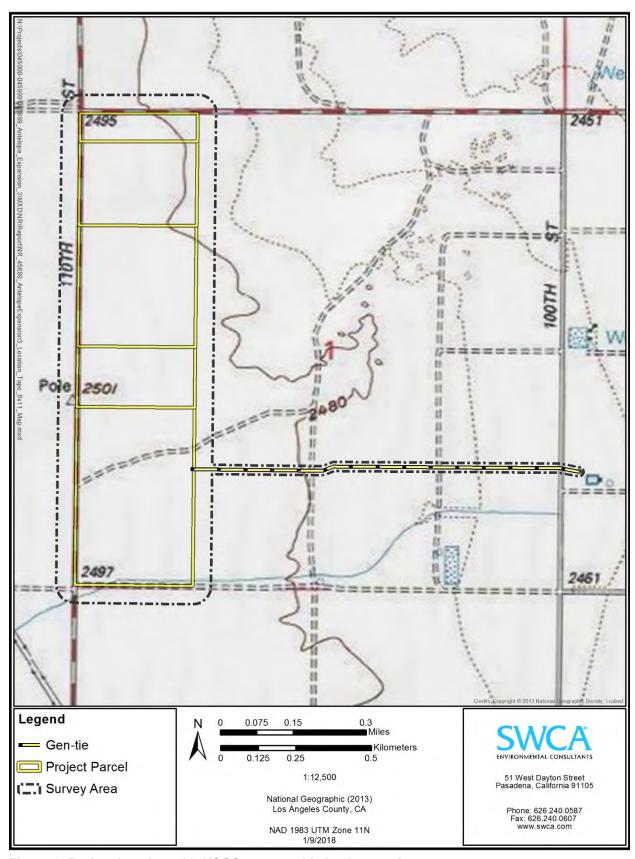


Figure 3. Project location with USGS topographic background.

1.4 Geographical Information

The Project is located in a region of the Mojave Desert known as the Antelope Valley. The Project is located in unincorporated Los Angeles County and shares a border with the western portion of the City of Lancaster and approximately 1.5 miles southwest of Antelope Acres, an unincorporated community of Los Angeles County. This region contains the largest remaining undisturbed natural and rural lands left in Los Angeles County; however, locally the undeveloped areas are largely disturbed and dominated by nonnative species. The Antelope Valley is generally known for its natural resources, such as Joshua trees (*Yucca brevifolia*), intense wildflower blooms, grazing lands, and cherry orchards. The Antelope Valley is located in the westernmost part of the Mojave Desert, and is approximately 3,000 square miles in area (see Figure 1). On the northwest, the Antelope Valley is separated from the San Joaquin Valley by the Tehachapi Mountains. On the south and southwest, it is separated from the Los Angeles Basin by the San Gabriel Mountains. The Antelope Valley is bounded to the north by the Tehachapi Mountains along the Garlock Fault, and to the east by isolated buttes. The Antelope Valley is a closed basin; that is, a basin which has no outlet for its surface streams. All precipitation either sinks into the ground or collects in the (usually dry) lake basins in the lowest elevations.

1.5 Regional Climate and Weather

The Mojave Desert is characterized by hot summer temperatures (average daily highs above 100 degrees Fahrenheit [°F]) and low annual precipitation (approximately 5 inches). Daily temperatures ranges of 40°F can occur, with lows in the winter below or near freezing temperature. Precipitation extremes are also common, with variations of 80 percent in annual precipitation and occasional high-intensity storm events. Summer thunderstorms can drop more precipitation on a site in one event than the mean yearly precipitation for that location. High winds can occur, with peak wind velocities above 50 miles per hour (mph) not being uncommon and winds of 100 mph occurring yearly (Bureau of Land Management [BLM] 2005).

Deserts in general are defined by the low rainfall they experience, and the Mojave's latitude and location east and north of large mountains results in very low rainfall within the desert. The mountains on the western and southern boundaries of the desert result in a rain shadow effect on the desert side of the mountains where precipitation is far less than on the coastal side. Weather patterns and their resulting precipitation follow the seasonal patterns and variations. During the summer the western edge of the Mojave Desert is heavily influenced by the dry southwest airflows resulting in the typically very dry weather. The influence of the southwest winds diminishes toward the eastern Mojave Desert and this portion experiences a more continental influence resulting in monsoon weather patterns (BLM 2005).

2 REGULATORY OVERVIEW

Activities within inland streams, wetlands, and riparian areas in California are regulated by agencies at the federal, state, and regional levels. At the federal level, the U.S. Army Corps of Engineers (USACE) Regulatory Program regulates activities within wetlands and waters of the U.S. pursuant to Section 404 of the federal Clean Water Act (CWA). At the state level, the CDFW regulates activities within the bed, bank, and associated habitat of a stream under the Fish and Game Code §§ 1600–1616. At the regional level, the California Regional Water Quality Control Board regulates discharge into waters of the U.S. under Section 401 of the federal CWA and waters of the State under the California Porter-Cologne Water Quality Act.

2.1 Clean Water Act – Section 404

Under provisions of the CWA, the USACE administers the day-to-day activities required by Section 404. These include the individual permit decisions, jurisdictional determinations, developing policy and guidance, and enforcing provisions of Section 404. Waters of the U.S. are defined in section 33 Code of Federal Regulations (CFR) 328.3, implementing the CWA, as follows:

328.3 - Definitions.

For the purpose of this regulation these terms are defined as follows:

- (a) The term waters of the United States means:
- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide:
- (2) All interstate waters including interstate wetlands;
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
 - (i) which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - (ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (iii) which are used or could be used for industrial purpose by industries in interstate commerce.
- (4) All impoundments of waters otherwise defined as waters of the United States under the definition;
- (5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;
- (6) The territorial seas;
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.
- (8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

2.1.1 Supreme Court Decisions

2.1.1.1 SOLID WASTE AGENCY OF NORTH COOK COUNTY

On January 9, 2001, the Supreme Court of the United States issued a decision on Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, 531 U.S. 159 (SWANCC) with respect

to whether the USACE could assert jurisdiction over isolated waters. The *SWANCC* ruling stated that the USACE does not have jurisdiction over "non-navigable, isolated, intrastate" waters.

2.1.1.2 RAPANOS/CARABELL

In 2006, the Supreme Court addressed the jurisdictional scope of Section 404 of the CWA, specifically the term "the waters of the U.S.," in their consolidated decision in *Rapanos v. U.S.* and in *Carabell v. U.S.* (hereafter referred to as *Rapanos*), the purpose of which was to provide guidance on determining what constitutes a "water of the U.S."

The following is taken from the Jurisdictional Determination Form Instructional Guidebook (USACE 2007):

The *Rapanos* decision provides two new analytical standards for determining whether water bodies that are not traditional navigable waters (TNWs), including wetlands adjacent to those non-TNWs, are subject to CWA jurisdiction:

- 1) if the water body is relatively permanent, or if the water body is a wetland that directly abuts (e.g., the wetland is not separated from the tributary by uplands, a berm, dike, or similar feature) a relatively permanent water body (RPW), or
- 2) if a water body, in combination with all wetlands adjacent to that water body, has a significant nexus with TNWs.

CWA jurisdiction over TNWs and their adjacent wetlands was not in question in *Rapanos*, and, therefore, was not affected by the *Rapanos* decision. In addition, at least five of the Justices in *Rapanos* agreed that CWA jurisdiction exists over all TNWs and over all wetlands adjacent to TNWs. As a consequence of the U.S. Supreme Court decision in *Rapanos*, the U.S. Environmental Protection Agency (EPA) and the USACE in coordination with the Office of Management and Budget (OMB) and the President's Council on Environmental Quality (CEQ), developed the *Memorandum Regarding CWA Jurisdiction Following Rapanos v. United States*. This guidance requires the application of the two new standards described above, as well as a greater level of documentation, to support an agency jurisdictional determination (JD) for a particular water body. Furthermore, this guidance required the USACE and EPA to develop a revised JD form to be used by field staff for documenting assertion or declination of CWA jurisdiction.

The Memo states that the agencies will assert jurisdiction over the following categories of water bodies:

- TNWs;
- all wetlands adjacent to TNWs;
- non-navigable tributaries of TNWs that are relatively permanent (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally); and
- wetlands that directly abut such tributaries.

In addition, the agencies will assert jurisdiction over every water body that is not an RPW if that water body is determined (on the basis of a fact-specific analysis) to have a significant nexus with a TNW. The classes of water bodies that are subject to CWA jurisdiction only if a significant nexus is demonstrated are:

- non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally;
- wetlands adjacent to such tributaries; and
- wetlands adjacent to, but that do not directly abut a relatively permanent, non-navigable tributary.

A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological, integrity of a TNW. Principal considerations when evaluating significant nexus include the volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus the hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands.

2.1.1.3 DEFINING THE SCOPE OF WATERS PROTECTED UNDER THE CLEAN WATER ACT

On June 29, 2015 the EPA and the USACE published (79 Fed. Reg. 76 (21 April 2014) a rule (Clean Water Rule) defining the scope of waters protected under the CWA, in light of the U.S. Supreme Court cases in *SWANCC* and *Rapanos*. The new rule will enhance protection for the nation's public health and aquatic resources, and increase CWA program predictability and consistency by increasing clarity as to the scope of "waters of the United States" protected under the CWA.

The final rule has been issued, but is on stay nationwide pending resolution of several lawsuits. In March 2017 the Trump administration has announced its intention to review the rule and either revise or rescind it.

In this final rule, the agencies clarify the definition of "waters of the United States" to include eight categories of jurisdictional waters. Three types of jurisdictional waters: traditional navigable waters, interstate waters, and the territorial seas, are jurisdictional by rule in all cases. Another type, impoundments of jurisdictional waters, is also jurisdictional by rule. Two types of waters, "tributaries" and "adjacent" waters, are jurisdictional by rule, as defined, because the science confirms that they have a significant nexus to traditional navigable waters, interstate waters, or territorial seas. For waters that are jurisdictional by rule, no additional analysis is required.

The final two types of jurisdictional waters are those waters found after a case-specific analysis to have a significant nexus to traditional navigable waters, interstate waters, or the territorial seas, either alone or in combination with similarly situated waters in the region. Justice Kennedy acknowledged the agencies could establish more specific regulations or establish a significant nexus on a case-by-case basis, "*Rapanos* at 782," and for these waters the agencies will continue to assess significant nexus on a case-specific basis.

2.1.2 The Antelope Valley Watershed and the Clean Water Act Sections 401 and 404

The Antelope Valley watershed is a closed basin situated within the western Mojave Desert, with a system of dry lakes as the central watershed terminus. Rosamond, Buckhorn, and Rogers Lakes and their tributaries (Antelope Valley Watershed) function as an isolated intrastate watershed system, which lacks the presence of a TNW. Moreover, Rosamond, Buckhorn, and Rogers Lakes and all tributaries to them are not (a)(3) waters as defined by 33 CFR 328.3, as they do not meet the (a)(3)(iii) criterion, because the surface waters are not used for industrial or other commercial purposes by interstate commerce industries. The USACE has concluded that all tributaries to Rosamond, Buckhorn, and Rogers Lakes, and the lakes themselves, (i.e., the Antelope Valley Watershed, excluding Lake Palmdale and its tributaries) are non-jurisdictional waters of the U.S. under *SWANCC*, since Antelope Valley waters are not tributaries to either a TNW or an (a)(3) water and Rosamond, Buckhorn, and Rogers Lakes are not (a)(3) waters themselves. The USACE makes such a watershed conclusion since the Antelope Valley Watershed is an isolated, intrastate watershed without any surface water related commerce (USACE 2013).

2.2 Clean Water Act Section 401 and the California Porter-Cologne Water Quality Act

The California State Water Resources Control Board (SWRCB) and its Regional Water Quality Control Boards (RWQCBs) regulate discharge of waste in any region that could affect the waters of the State under the California Porter-Cologne Water Quality Act or waters of the U.S. under Section 401 of the federal CWA. Under the Porter-Cologne Act, a Report of Waste Discharge must be submitted prior to discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State (California Water Code § 13260). Waste Discharge Requirements (WDRs) or a waiver of WDRs will then be issued by the RWQCB. Waters of the State are defined as "Any surface water or groundwater, including saline waters that are within the boundaries of the state" (California Water Code § 13050). This differs from the CWA definition of waters of the U.S. by its inclusion of groundwater and waters outside the ordinary high water mark in its jurisdiction.

Although all waters of the U.S. also fall under the category of waters of the State, some waters of the State may be identified beyond the delineation of waters of the U.S., and the RWQCB may exert authority to regulate waste discharge into these waters even if the waters do not fall under USACE federal jurisdiction. All projects that have a federal component and may affect waters of the U.S., including those that require a Section 404 Permit from the USACE, must also comply with Section 401 of the CWA. If discharge into waters of the U.S. is proposed, a 401 Water Quality Certification from the RWQCB is required (23 California Code of Regulation §§ 3830–3869) in addition to obtaining WDRs for impacts to waters of the State.

The federal CWA prohibits certain discharges of stormwater containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit (33 United States Code [U.S.C.] §§ 1311 and 1342[p]; also referred to as CWA §§ 301 and 402[p]). The EPA promulgates federal regulations to implement the CWA's mandate to control pollutants in stormwater runoff discharges (40 Code of Federal Regulations (C.F.R.) Parts 122, 123, and 124). The federal statutes and regulations require discharges to surface waters composed of stormwater associated with construction activity, including demolition, clearing, grading, and excavation, and other land disturbance activities (except operations that result in disturbance of less than 1 acre of total land area and that are not part of a larger common plan of development or sale), to obtain coverage under an NPDES Permit. The NPDES Permit must require implementation of best available technology economically achievable and best conventional pollutant control technology to reduce or eliminate pollutants in stormwater runoff. The NPDES Permit must also include additional requirements necessary to implement applicable water quality standards.

2.3 California Fish and Game Code Sections 1600-1616: Streambeds and Banks and Riparian Habitats

The CDFW asserts jurisdiction over the bed and bank of a stream and associated wildlife and habitats as established in California Fish and Game Code Sections 1600–1616. In accordance with Section 1602 of the code (Streambed Alteration), the CDFW regulates activities that will "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" and requires notification prior to such activities. In addition, Section 1603 of the code states that "after the notification is complete, the department shall determine whether the activity may substantially adversely affect an existing fish and wildlife resource," and a Lake and Streambed Alteration Agreement (LSA) may be pursued. These

regulations were established to protect the wildlife resources that are associated with the riparian habitats that occur within and adjacent to ephemeral or year-round drainage systems. The CDFW jurisdiction area is often defined in practice as the top of bank of the stream or to the limit (outer dripline) of the adjacent riparian vegetation.

3 DELINEATION METHODOLOGY

The delineation of waters of the U.S., State and CDFW jurisdictional areas on the Project site was completed by conducting a pre-survey literature review and field survey. The literature review was used to guide the field survey and to locate areas of potential jurisdictional waters.

3.1 Literature Review

Review of relevant literature and materials was used to preliminarily identify areas that may fall under agency jurisdiction. The following resources were reviewed or used prior to the field surveys:

- The Corps of Engineers Wetlands Delineation Manual (USACE 1987);
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008);
- A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (Lichvar and McColley 2008);
- A Review of Stream Processes and Forms in Dryland Watersheds (Vyverberg 2010);
- The MESA Field Guide-Mapping Episodic Stream Activity (Brady and Vyverberg 2014);
- U.S. Fish and Wildlife Service (USFWS) *National Wetlands Inventory* wetland geodatabase (USFWS 2017);
- The National Wetland Plant List: 2016 wetland ratings (Lichvar et al. 2016);
- California Soils Resource Lab's Soil Web Google Earth interface, queried to determine the soils that have been mapped on the Project site (California Soil Resources Lab 2010);
- Hydric Soils List of California, 2017 (Natural Resources Conservation Services 2017a);
- Official Soil Series Descriptions, 2017 (Natural Resources Conservation Services 2017b);
- Aerial imagery from 1994-2015 (Google Earth 2017);
- Previous jurisdictional delineations in the vicinity; and
- Previous jurisdictional determinations by the USACE in the Project area.

3.2 Field Surveys

SWCA biologists Alex Beakes and Justin Fowler conducted an initial survey on December 13, 2017 to determine the structure and composition of on-site hydrology, vegetation, and soils for the Project area. A second survey was conducted by SWCA biologists Mr. Beakes and Francesca Massarotto on December 20, 2017 to map additional features in the southern portion of the Project site. Potential jurisdictional water features within the Project area were mapped using a Geode handheld global positioning system (GPS) unit with Arc Collector software, then used ESRI ArcGIS 10 to compile the data into a database for future analysis. Plants were identified in the field and followed the taxonomic conventions of The Jepson Manual: *Vascular Plants of California, Second Edition* (Baldwin et al. 2012).

3.2.1 Potential Waters of the U.S. and State

Federal jurisdiction over a non-wetland waters of the U.S. extends to the OHWM, defined in 33 CFR § 328.3 as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris. In the Arid West region of the U.S., waters are variable and include ephemeral/intermittent and perennial channel forms. The most problematic ordinary high-water (OHW) delineations are associated with the commonly occurring ephemeral/intermittent channel forms that predominate in the Arid West.

The climate of the region drastically influences the hydrology, channel-forming processes, and distribution of OHWM indicators such that delineations can be inconsistent (over space and time) and problematic. The OHW zone in low-gradient, alluvial ephemeral/intermittent channel forms in the Arid West is the active floodplain. The dynamics of arid channel forms and the transitory nature of traditional OHWM indicators in arid environments render the limit of the active floodplain the only reliable and repeatable feature in terms of OHW delineation (Lichvar and McColley 2008). This was supported by recent additional research in *Vegetation and Channel Morphology Responses to Ordinary High Water Discharge Events in Arid West Stream Channels* (Lichvar et al. 2009).

3.2.2 Jurisdictional Wetlands

To determine the extent of potential jurisdictional wetlands on a Project site, the Corps of Engineers Wetlands Delineation Manual (USACE 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0; USACE 2008) were used as guides for identifying wetland characteristics. The following three indicators are typically present in wetlands:

- hydrology providing permanent or periodic inundation by groundwater or surface water;
- hydrophytic vegetation; and
- hydric soils.

To be considered a wetland, an area must exhibit at least minimal hydric conditions within these three parameters, except as specifically described in the USACE guidance. RWQCB and CDFW wetlands are equivalent to the limits of USACE wetlands.

3.2.2.1 WETLAND HYDROLOGY

Wetland hydrology indicators are classified into four groups:

- Group A Observation of Surface Water or Saturated Soils: This group is based on the direct observation of surface water or saturated soils.
- Group B Evidence of Recent Inundation: This group consists of evidence that the site is subject to flooding or ponding, although the inundation may not be recent. Indicators include water marks, drift deposits, sediment deposits, and similar characteristics.
- Group C Evidence of Recent Soil Saturation: This group consists of indirect evidence of recent soil saturation. Indicators include oxidized rhizospheres around living roots and the presence of reduced iron and sulfur in the soil profile.
- Group D Evidence from Other Site Conditions or Data: This group consists of soil and vegetation features that indicate current rather than historical hydric conditions.

The presence of wetland hydrology is assessed at each location where the wetland criteria are met. Data recorded include the extent of surface flows, depth of inundation, depth to saturated soils, and depth to free water in the soil test pit.

3.2.2.2 HYDROPHYTIC VEGETATION

Hydrophytic plants grow partially or completely in water and are indicators of wetland environments. Hydrophytic vegetation occurs only in areas where frequent or sustained inundations are sufficient to produce soil saturation that exerts a controlling influence on plant species. These periodic events must occur for sufficient duration to result in anaerobic soil conditions. Wetlands are characterized by

communities of plants, so that the occurrence of individual hydrophytic species in an area otherwise dominated by upland species is insufficient to characterize the area as a wetland. In arid environments, specific indicator species are important in identification of wetlands (e.g., halophytes and phreatophytes are associated with many wetland settings in the Arid West), but in general, the totality of plant species growing on a site is of greater importance than the presence or absence of particular indicator species.

Species that are indicators of wetlands have been classified in the *National Wetland Plant List* (NRCS 2017c). Frequency of a species occurrence in wetlands has been divided into the following five categories.

- 1. Obligate Wetland (OBL): Occurs almost always (estimated probability > 99%) under natural conditions in wetlands.
- 2. Facultative Wetland (FACW): Usually occurs in wetlands (estimated probability 67%–99%) but occasionally found in non-wetlands.
- 3. Facultative (FAC): Equally likely to occur in wetlands or non-wetlands (estimated probability 34%–66%).
- 4. Facultative Upland (FACU): Usually occurs in non-wetlands (estimated probability 67%–99%) but occasionally found in wetlands (estimated probability 1%–33%).
- 5. Obligate Upland (UPL): Occurs in wetlands in another region but occurs almost always (estimated probability > 99%) under natural conditions in non-wetlands in the region specified.

The USACE considers species that fall into the OBL, FACW, and FAC categories as being positive indicators of wetland vegetation. The prevalent vegetation that occurs in a wetland may be associated with more than one community and is characterized by the dominant species. A dominance test (Indicator 1) is the basic hydrophytic vegetation indicator and is used to determine the dominant species of a given plant community. The 50/20 Rule is used to determine wetland status by examining the species that dominate a community. This method involves identifying the species type that makes up at least 50% of the stratum of the community, and then identifying a second species type that makes up at least 20% of the stratum. This method should be applied in every wetland determination. Although some plant communities cannot be characterized by the dominance test, most wetlands in the Arid West have plant communities that will pass the dominance test, and therefore this test provides a sufficient indicator in most situations. If the plant community passes the dominance test for wetland species, then the vegetation is characterized as hydrophytic and no further vegetation analysis is required.

The prevalence index (Indicator 2) is used when the vegetation fails the dominance test, but hydric soils and wetland hydrology are present. The prevalence index weighs all of the plant species in a community, rather than just the dominant species. The prevalence index is a weighted-average wetland indicator status of the plant species in a sampling plot. Each indicator status is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5) and is weighted by the percent cover. Hydrophytic vegetation is present if the prevalence index is 3.0 or less.

Plant morphological adaptations (Indicator 3) can be used to distinguish certain wetland plant communities in the Arid West in the presence of hydric soils and wetland hydrology. Some hydrophytes develop easily recognized physical characteristics due to their adaption to wetland conditions. Common morphological adaptations include adventitious roots and shallow root systems developed on or in the upper layers of the soil. This indicator is applied when the wetland morphological adaptations are found on 50% or more of the FACU species present.

3.2.2.3 HYDRIC SOILS

The National Technical Committee for Hydric Soils defines a hydric soil as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (U.S. Department of Agriculture [USDA] 1994). Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. This classification includes soils that were historically hydric but have since become non-hydric as a result of artificial modification of the hydrologic system that originally created the hydric soil. Some series designated as hydric have phases that are not hydric, depending on water table, flooding, and ponding characteristics.

Hydric soils are identified using soil indicators presented in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0; USACE 2008) and the Field Indicators of Hydric Soils in the United States, Version 7.0, 2010 (Natural Resource Conservation Service 2010). Indicators of non-sandy hydric soils include an organic composition that is greater than 50% (formed in oversaturated conditions where the decomposition of plant debris is inhibited and slowly accumulates), the presence of sulfides in the soil composition that emanate a strong sulfur odor, and soils with peraquic (groundwater always at or near the soil surface) moisture regimes. The soil coloration produced by soil components is also an indicator that can be used to identify hydric soils while performing field observations. Gleyed (blue-gray in color) soils are produced when anaerobic soil conditions result in the pronounced chemical reduction of iron, manganese, and other elements, thereby producing grayish, bluish, and greenish soil colors. Mineral hydric soils that are saturated for substantial periods of the growing season (but not long enough to produce gleyed soils) will have bright mottles (marked with spots of contrasting colors) and a dark coloration matrix (the portion of the soil that makes up more than 50% of the composition that has the predominant color). In some mineral hydric soils, mottling may be absent and only the dark coloration occurs.

The coloration of the soil samples, matrix, and mottles is assessed using the *Munsell Soil Color Charts* (Munsell 2000). The Munsell Color System is the field and laboratory standard for classifying soil color, rocks, and archaeological specimens. The system has three components: hue (a specific color), value (lightness and darkness), and chroma (color intensity). Samples of these components are arranged in books of color chips, each of which is labeled to indicate the assigned value of each of these components. The soil sample is viewed through an aperture below each chip to compare and contrast the coloration until a best-match determination is made.

3.2.3 Identification of CDFW Jurisdictional Areas

There are no published or formalized guidelines for delineating the limits of CDFW jurisdictional waters in the field. Many who conduct field delineations have used section 1.72 of title 14 of the California Code of Regulations, which provides the only definition of "stream" found anywhere in title 14:

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

Recently, CDFW has been requesting that delineations of their jurisdictional waters be conducted according to the methods for mapping episodic stream activity (MESA) as described in *The Methods To Describe And Delineate Episodic Stream Processes On Arid Landscapes For Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2014). This includes identifying the watercourse indicators (fluvial transport, deposition, out-of-channel flow, and fluvial erosion), as well as upland indicators.

3.3 Feature Classification

3.3.1 Stream

A stream is defined by CDFW as a body of water that flows at least periodically or intermittently through a bed or channel, can be perennial, intermittent or ephemeral, and includes rivers, creeks, dry washes, sloughs, blue-line streams, and watercourses with subsurface flows. In addition, canals, aqueducts, irrigation ditches, and similar waterways may be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. CDFW and the RWQCBs typically assert jurisdiction over streams. CDFW jurisdiction extends from the stream bed to the bank or the outer edge of the associated riparian vegetation. RWQCB jurisdiction is similar to that of the Corps, but does not require connection to a TNW or tributary thereof; a stream is jurisdictional for the Corps if it is considered a TNW or a tributary to a TNW up to the OHWM (USACE 2008).

3.3.2 Discontinuous Ephemeral Streams

Three channel forms are described within the discontinuous ephemeral stream type: erosional, depositional, and sheet-flood zone. Erosional reaches, or arroyos, are commonly entrenched to the point that there is little to no terrace, except for colluvial deposits being reworked only during extremely rare events. Arroyo streams are therefore more easily delineated, as most of the incised area is within the low-flow and active floodplain. Depositional and sheet-flood zones are more difficult to delineate, as the active part of the channel is more dynamic. Sheet-flood zones in particular are a challenge due to the unconfined nature of flood-flow, resulting in a wide mosaic of aquatic and upland features (USACE 2008).

3.3.3 Swale

Swales are generally shallow features in the landscape that may convey water across upland areas during and following storm events. Swales usually occur on nearly flat slopes and typically have grass or other low-lying vegetation throughout the swale. Swales are generally not waters of the U.S. because they are not tributaries or they do not have a significant nexus to TNWs (USACE 2007).

3.3.4 Depression

Depressions are depositional features that accumulate water and sediments from the surrounding area due to their relatively low elevation. These features may support facultative wetland species, but are not wet enough to support obligate wetland species. Depressions differ from wetlands by their lack of hydric soils and hydrophytic vegetation. Depressions are generally not subject to the jurisdiction of CDFW, RWQCB, or USACE.

4 RESULTS – EXISTING CONDITIONS

A photographic exhibit is found in Appendix A with representative photos of each feature identified in the desktop analysis and field survey.

4.1 Hydrology

The desktop review of the National Wetlands Inventory (NWI) Wetland Geodatabase data identified one previously mapped linear features within the Project site and no mapped wetland features (USFWS 2017). No wetland features were identified during the survey.

The potential hydrological features were ground-truthed during the field survey to map them in detail and determine if they met the criteria of a regulated water feature. Water moves through much of the Project site via sheet flow and produces erosional features, such as bed, banks, and OHWM. Many of the historical drainages within the Project site and/or vicinity have been removed due to the on-site agricultural practices and residential homes. Additionally, the construction of the East Branch of the California Aqueduct along the base of Portal Ridge (located south-southwest of the Project) has substantially altered the overall hydrology of the region, truncating many streams and concentrating flows in selected areas. Hydrology in the region is further altered by local roads, which concentrate sheetflow into roadside ditches.

In all, four (4) features were identified at the Project site and gen-tie route (Figure 4).

4.2 Vegetation

No obligate or facultative wetland plant species were found on the Project site. The natural vegetation communities in the Project site were removed by agricultural activities in the past. Two vegetation communities were mapped on the Project site, as well as Disturbed/Ruderal, and Developed areas (Figure 5).

4.2.1 Cheatgrass Grassland (Bromus tectorum Herbaceous Semi-Natural Alliance)

Cheatgrass Grassland primarily consists of non-native grasses; in the Project area this vegetation community is commonly associated with Mediterranean grass (*Schismus barbatus*) and red brome. Cheatgrass Grasslands are typically found in disturbed habitats along roadsides, railroads, and cultivated fields. It is highly invasive and widely distributed in the western United States. Cheatgrass Grasslands are the dominant cover type within the Project area.

Within the Project site, Cheatgrass Grassland was typically homogenous. Plant diversity was very low, and most other species detected were generally non-native invasive species or weedy native species associated with disturbed areas. Some areas within the Cheatgrass Grassland were dominated by other species, however these areas were smaller than the minimum mapping unit (0.25 acre), and they were not mapped. The most common emergent species present include red brome and Russian thistle (*Salsola tragus*). All features discussed in this delineation were mapped as Cheatgrass Grassland.

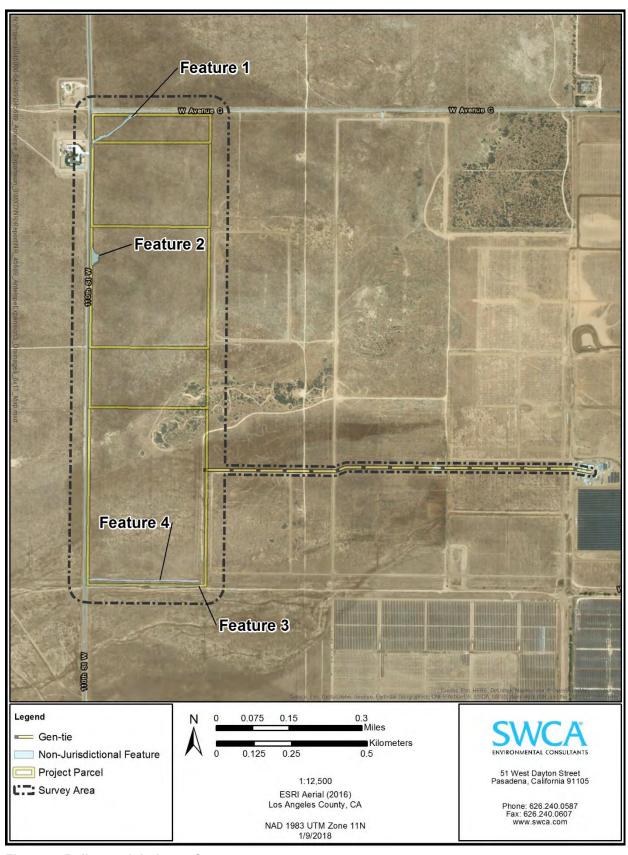


Figure 4. Delineated drainage features.

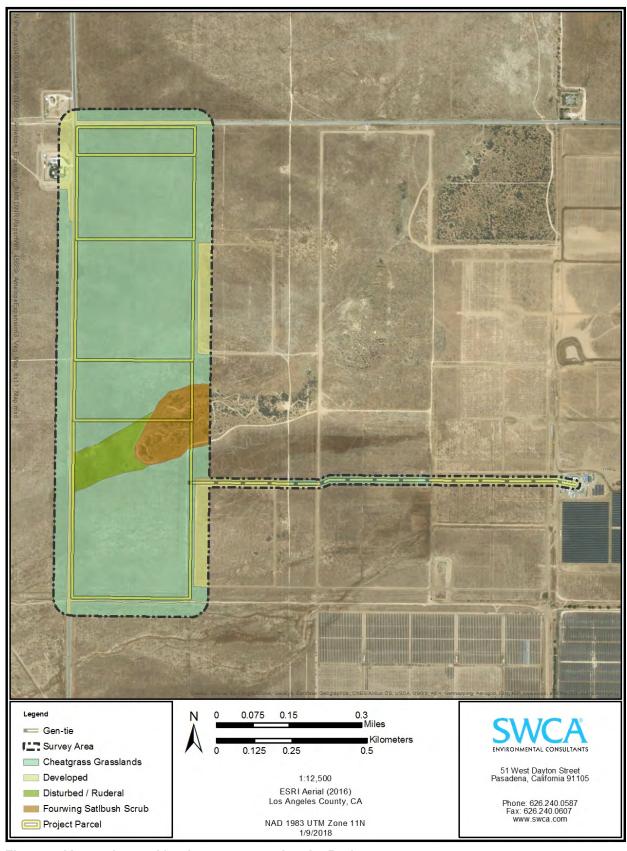


Figure 5. Vegetation and land cover mapped at the Project.

4.2.2 Fourwing Saltbush Scrub (Atriplex canescens Alliance)

Fourwing Saltbush Scrub is a native shrubland that is commonly associated with alkaline soils. Dominant species within this vegetation community are both native and non-natives including boxthorn and Russian thistle. This community was found in a dune land in the eastern portion of the project area where chenopods and other alkaline-associated and sandy substrate-associated species were found. There was considerable evidence of animal activity in areas of Fourwing Saltbush Scrub at the Project, including rabbit tracks, rodent tracks, canid scat, and burrows. All of these signs of animal activity were common and distributed throughout the dune land. No features were identified in the Fourwing Saltbush Scrub.

4.2.3 Disturbed/Ruderal

Disturbed/Ruderal areas are characterized by modified soils and are usually dominated by non-native species or native species associated with disturbance. Areas mapped as Disturbed/Ruderal did not meet definitions as described in the *Manual of California Vegetation* (MCV; Sawyer et a. 2009), and are classified as such because their primary characteristic is their lack of naturally functioning vegetation communities and the characteristic level of anthropogenic disturbance.

4.2.4 Developed

This cover type is used to describe areas occupied by existing structures or infrastructure (i.e. houses, existing solar facilities, and roads). Vegetation in these areas is dominated by weedy annuals or ornamental species that may or may not have been intentionally planted. Developed lands are a common land cover within the gen-tie route.

4.3 Soils

Potentially jurisdictional drainages were mapped on three (3) soil series (Figure 6; USDA 1970). Five elements of these series are included on the list of hydric soils, meaning that they have either a major or a minor component that is at least in part hydric (USDA 1994). The hydric soils developed under conditions of saturation, flooding, or ponding long enough to develop anaerobic conditions in the upper part (USDA Soil Conservation Service 1994). However, the USACE notes: "To be identified as hydric, these soils should generally have one or more of the indicators. However, not all areas that have hydric soils will qualify as wetlands, if they no longer have wetland hydrology or support hydrophytic vegetation" (USACE 2008).

4.3.1 Greenfield Series

Greenfield sandy loam, 0 to 2 percent slopes is present within Feature 1 and is included on the list of hydric soils (NRCS 2017b). The Greenfield series consists of deep, well-drained soils that formed in moderately coarse and coarse textured alluvium derived from granitic and mixed rock sources. The soils are on alluvial fans and terraces, and have slopes of 0 to 30 percent. Greenfield soils are well drained, with slow to medium runoff and moderately rapid permeability. Typical vegetation on uncultivated areas consists of annual grasses, forbs, some shrubs, and scattered oak trees (*Quercus* spp.; NRCS 2017a).

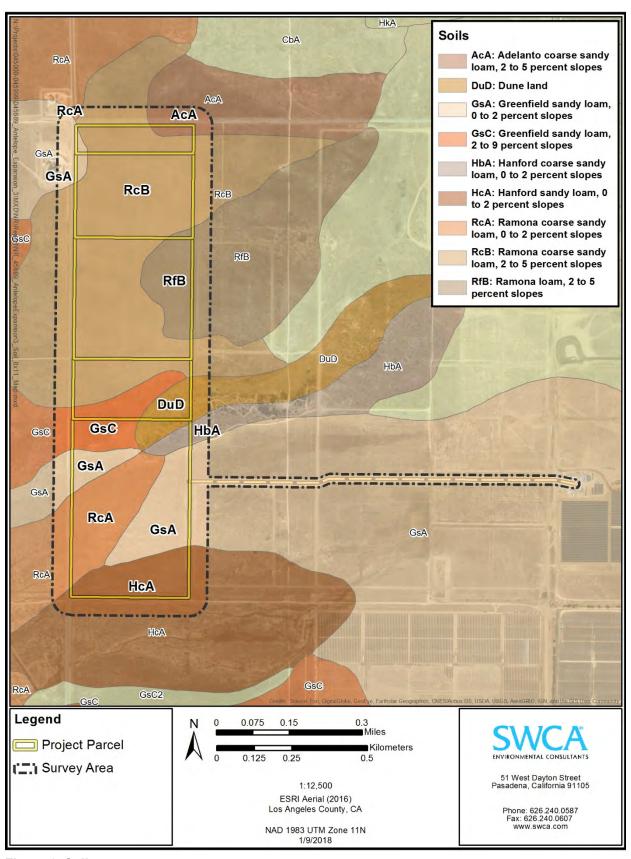


Figure 6. Soils map.

4.3.2 Hanford Series

Hanford coarse sandy loam, 0 to 2 percent slopes is present within Features 3 and 4 and is included on the list of hydric soils (NRCS 2017b). The Hanford series consists of very deep, well drained soils that formed in moderately coarse textured alluvium dominantly from granite. The Hanford soils are on stream bottoms, floodplains and alluvial fans at elevations of 150 to 3,500 feet. Slopes range from 0 to 15 percent. The soils formed in deep, moderately coarse textured alluvium dominantly from granite and other quartz bearing rocks of similar texture. Vegetation in uncultivated areas is mainly annual grasses and associated herbaceous plants. Vegetation in uncultivated areas is mainly annual grasses and associated herbaceous plants (NRCS 2017a).

4.3.3 Ramona Series

Ramona coarse sandy loam, 0 to 2 percent slopes is present within Features 1 and 2 and is included on the list of hydric soils (NRCS 2017b). The Ramona series is a member of the fine-loamy, mixed, thermic family of Typic Haploxeralfs. Typically, Ramona soils have brown, slightly and medium acid, sandy loam and fine sandy loam A horizons, reddish brown and yellowish red, slightly acid, sandy clay loam B2t horizons, and strong brown, neutral, fine sandy loam C horizons. It is well-drained, with slow to rapid runoff and it has moderately slow permeability. Uncultivated areas have a cover of annual grasses, forbs, chamise or chaparral (NRCS 2017a).

4.4 Potential Jurisdiction

Potential hydrological features were ground-truthed during the field survey to map them in detail and determine if they met the criteria of a regulated water feature. No potential jurisdictional wetlands (i.e. meeting all three criteria) were observed at the site; there is no evidence that saturation, flooding, or ponding occurs in a manner that supports hydrophytic vegetation. Water moves through much of the Survey Area via sheet flow and produces erosional features, such as bed, banks, and OHWMs. Many of the historical drainages in the Survey Area have been highly modified from water transportation infrastructure which have substantially altered the overall hydrology of the region.

Four (4) features were identified in the Project site, and are described in detail below (see Figure 4). No wetlands or non-wetland waters subject to USACE jurisdiction were observed.

4.4.1 Feature 1

Feature 1 is a non-jurisdictional swale that flows from the southwest to the northeast, and is located southeast of the intersection of 110th Street West and West Avenue G (Figure 7). A culvert (approximately 14 inches in diameter) at 46741 100th Street West is the first indication of the drainage. The culvert receives water from 110th Street West and redirects water across 110th Street West and into the Project site. Tire tracks were observed within the drainage, likely resulting in an artificially widened channel. There was no visible evidence of a drainage upstream of the culverts, and the linear feature eventually infiltrates into the soil within the Project site (see Figure 7). Feature 1 drains from the southwest to the northeast. Flow is obstructed by West Avenue G where the roadside berm blocks flow from the drainage.

Vegetation differs from the surrounding area in the prevalence of Russian thistle, annual bursage (*Ambrosia acanthicarpa*), and turkey mullein (*Croton setiger*) in the southwest, where the substrates are sandy and gravelly. Relative to the surrounding area, the herbaceous layer is dense within the drainage

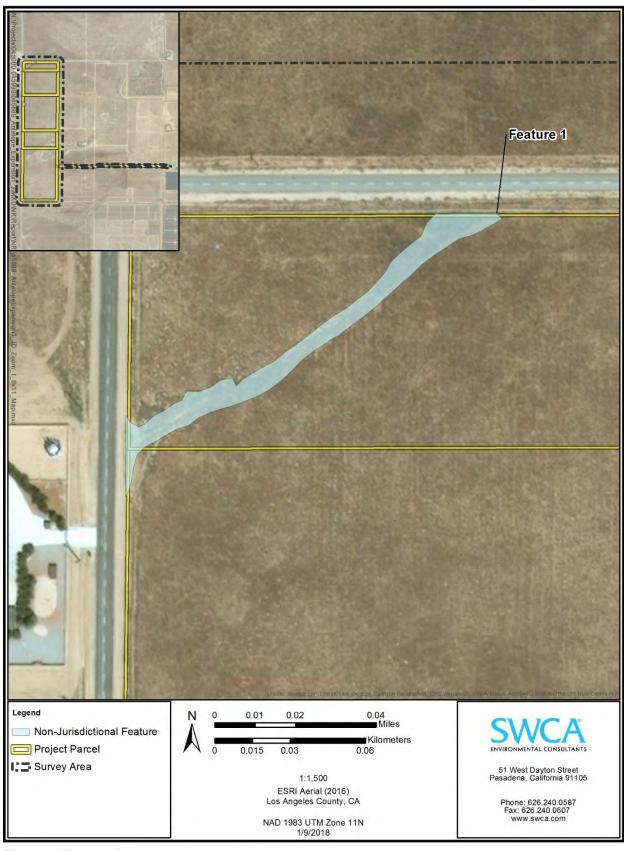


Figure 7. Feature 1 map.

and consists primarily of cheatgrass and red brome. Feature 1 lacked any hydrophytic vegetation or visible wetland hydrology. The eastern portion of the drainage is on Greenfield sandy loam, 0 to 2 percent slopes, which is included on the list of hydric soils (NRCS 2017b).

Due to the presence of upland vegetation and lack of evidence of soil saturation, OHWM, bed, bank, or other indicators of agency jurisdiction, Feature 1 was considered non-jurisdictional under CDFW, RWQCB or USACE. Photographs of this feature are included as Appendix A, Photos 1–5.

4.4.2 Feature 2

Feature 2 is a small depression that receives flow primarily from the south and east and it concentrates at the feature due to roadside berms along 110th Street West (Figure 8). Vegetation differs from the surrounding area in the prevalence of rubber rabbitbrush (*Ericameria nauseosa*), Russian thistle, annual bursage, and turkey mullein. The soils are more sandy and gravelly than the surrounding area, which is generally loamy. Feature 2 lacked any hydrophytic vegetation or visible wetland hydrology, and it is not on a soil type included on the list of hydric soils (NRCS 2017b).

Due to the presence of upland vegetation and lack of evidence of soil saturation, OHWM, bed, bank, or other indicators of agency jurisdiction, Feature 2 was considered non-jurisdictional under CDFW, RWQCB or USACE. Photographs of this feature are included as Appendix A, Photos 6–8.

4.4.3 Feature 3 and 4

Feature 3 and 4 are discontinuous ephemeral streams that appear to be a pair of old drainage ditches between 100th and 120th Street West; imagery from 1994-2017 show minimal change in the features since 1994. There is one linear feature previously mapped by the National Hydrography Dataset that crosses Feature 3 and overlaps with the majority of Feature 4 (Figure 9). The original feature mapped by the National Hydrography Dataset has likely been altered since its original documentation. The flow is apparently captured by the drainage that is south of West Avenue H and conveys flow to 105th Street West where it crosses West Avenue H and flows to the northeast. Hydrology has been altered in the region by the construction of the Los Angeles Aqueduct, the local road network, and the historic agricultural practices. These disturbances have flattened topography, channelized sheet flow into roadside ditches, and otherwise disconnected or altered the features from most of their headwaters. Furthermore, these practices have changed the function of Feature 3 and 4 from drainage ditches that convey water over a greater distance to oversized channels that capture sheetflow and channelize them briefly until they terminate due to road crossings. There was no sign of an OHWM within either feature, and they lacked hydrophytic vegetation or visible wetland hydrology, and are not on a soil type included on the list of hydric soils (NRCS 2017b).

Due to the presence of upland vegetation and lack of evidence of soil saturation, OHWM, bed, bank, or other indicators of agency jurisdiction, Feature 3 and 4 were considered non-jurisdictional under CDFW, RWQCB or USACE. Photographs of Feature 3 and 4 are included as Appendix A, Photos 9–14

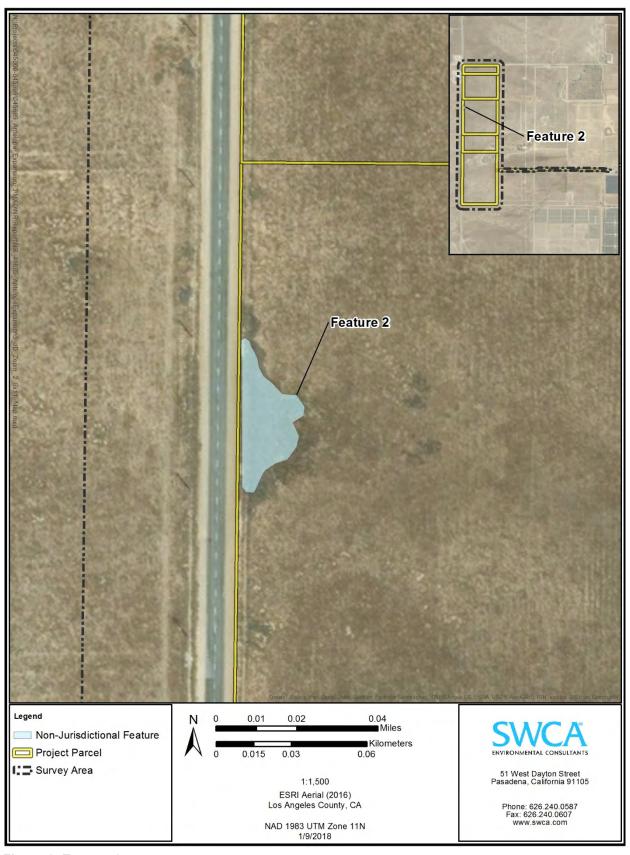


Figure 8. Feature 2 map.

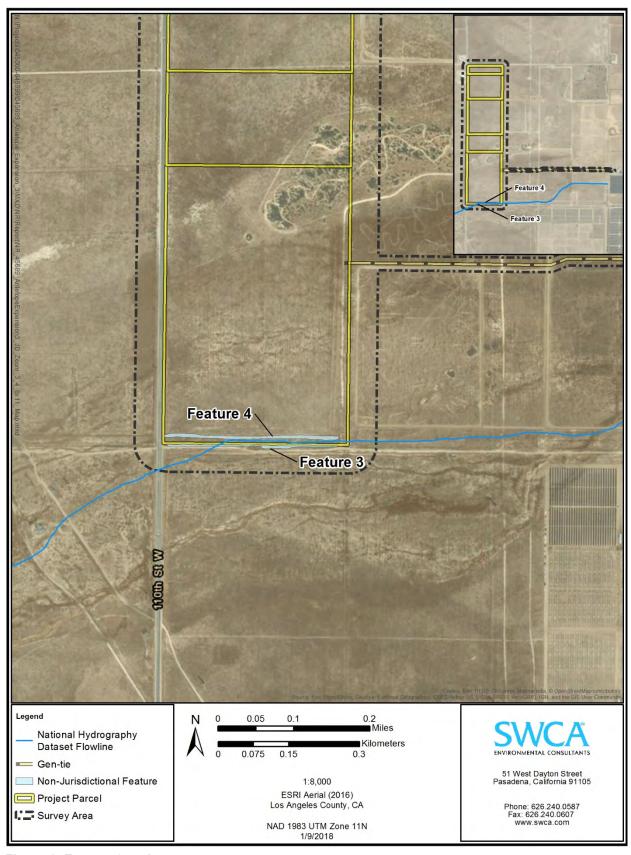


Figure 9. Feature 3 and 4 map.

5 JURISDICTIONAL DELINEATION FINDINGS

This report was prepared to delineate potential USACE, RWQCB, and CDFW jurisdictional authority over hydrological structures in the Survey Area. This report represents SWCA's best effort at determining the jurisdictional boundaries using the most current regulations and guidance from the regulatory agencies. However, the final determination of jurisdictional boundaries within a project site is by the regulatory agencies' discretion.

No areas that meet the federal or state definition of jurisdictional wetlands were identified. Of the potential hydrological features identified in the Survey Area, none had characteristics of CDFW- and RWQCB-regulated jurisdictional water features. None of the features had vegetation associated with riparian habitat.

5.1 Clean Water Act Determination: waters of the U.S.

At the time this jurisdictional delineation report was prepared, the USACE has concluded that all tributaries to Rosamond, Buckhorn, and Rogers Lakes, and the lakes themselves, (i.e., the Antelope Valley Watershed, excluding Lake Palmdale and its tributaries) are non-jurisdictional waters of the U.S. under the *SWANCC* decision, because Antelope Valley waters are not tributary to either a TNW or an (a)(3) water and Rosamond, Buckhorn, and Rogers Lakes are not (a)(3) waters themselves. The USACE makes such a watershed conclusion since the Antelope Valley Watershed is an isolated, intrastate watershed without any surface water related commerce (USACE 2013). As a result, a Department of the Army Permit from the USACE under Section 404 of the CWA and Water Quality Certification from the RWQCB under Section 401 of the CWA are not required.

5.2 California Porter-Cologne Water Quality Act: waters of the State Determination

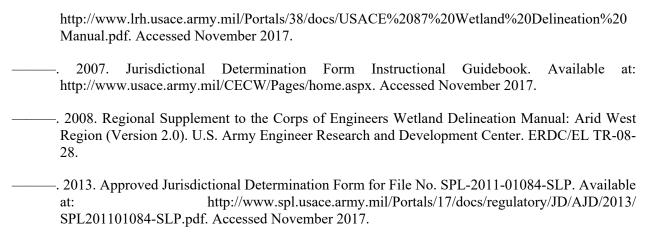
There were no drainages subject to RWQCB jurisdiction in the Project site. Therefore the Project would have no impacts that would require WDRs from the Lahontan RWQCB.

5.3 California Fish and Game Code §§ 1600-1616 Determination

There were no drainages subject to CDFW jurisdiction in the Project site. Therefore the Project would have no impacts that would require an LSA.

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APPENDIX A	
Photo Compendium	



Figure A-1. Facing east towards the western side (upstream) of the approximately 14-inch culvert.



Figure A-2. Facing west towards the eastern side (downstream) of the approximately 14-inch culvert.



Figure A-3. Facing north towards Feature 1. Feature flows from the left (west) to the right (northeast).



Figure A-4. Facing west-southwest towards Feature 1.



Figure A-5. Facing east past Feature 1. The drainage appears to terminate at the location of the photo.



Figure A-6. Facing south-southwest towards Feature 2. The depression is very minor, only allowing for rubber rabbitbrush to dominate in the location. The roadsides are dominated by Russian thistle.



Figure A-7. Photo taken northeast of Feature 2, facing southeast to show the lack of a linear feature that is a tributary to Feature 2.



Figure A-8. Photo taken immediately east of Feature 2, facing east.



Figure A-9. Facing east-northeast towards Feature 3.



Figure A-10. Facing northwest towards Feature 4.



Figure A-11. Facing east at the end of Feature 3.



Figure A-12. Facing east towards Feature 4. Roadside maintenance and vehicle disturbance appear to alter the hydrology of this drainage.



Figure A-13. Facing east towards Feature 4.



Figure A-14. Facing east-southeast towards Feature 4. Feature terminates at the road crossing.

Appendix D

Cultural Resources Assessment

CULTURAL RESOURCES ASSESSMENT

Antelope Expansion 3 City of Lancaster and Unincorporated Los Angeles County, California

Prepared for:

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Prepared by:

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Project No. SPO1705

National Archaeological Data Base (NADB) Information:

Type of Study: Reconnaissance Survey
Resources Recorded: None
Keywords: Lancaster
USGS Quadrangle: 7.5-minute Del Sur (1995)



MANAGEMENT SUMMARY

BCR Consulting LLC (BCR Consulting) is under contract to Sustainable Power Group to complete a Cultural Resources Assessment of the proposed Antelope Expansion 3 Project (the project) located in the City of Lancaster and Los Angeles County, California. A cultural resources records search, reconnaissance-level pedestrian field survey, Native American Heritage Commission (NAHC) Sacred Lands File Search, and vertebrate paleontological resources assessment were conducted for the project in partial fulfillment of the California Environmental Quality Act (CEQA). The records search revealed that five previous cultural resource studies have taken place, and nine cultural resources have been recorded within one mile of the project site. Of the five previous studies, none have assessed portions of the project site, and no cultural resources have been recorded within its boundaries. During the field survey, BCR Consulting did not identify any cultural resources within the project site boundaries. Based on these results no significant impact related to historical resources is anticipated and no further investigations are recommended for the proposed project unless:

- The proposed project is changed to include areas that have not been subject to this cultural resource assessment:
- Cultural materials are encountered during project activities.

The current study attempted to determine whether significant archaeological deposits were present on the proposed project site. Although none were yielded during the records search and field survey, ground-disturbing activities have the potential to reveal buried deposits not observed on the surface. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that field personnel encounter buried cultural materials, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register of Historical Resources (California Register) or the National Register of Historic Places (National Register), plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed. Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- historic-period artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic-period structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks;
- human remains.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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INTRODUCTION

BCR Consulting LLC (BCR Consulting) is under contract to Sustainable Power Group to complete a Cultural Resources Assessment of the proposed Antelope Expansion 3 Project (the project) located in the City of Lancaster and Los Angeles County, California. A cultural resources records search, reconnaissance-level pedestrian field survey, Native American Heritage Commission (NAHC) Sacred Lands File Search, and vertebrate paleontological resources assessment were conducted for the project in partial fulfillment of the California Environmental Quality Act (CEQA).

Project Description and Location

The project is a utility scale Solar Generating Facility that will generate renewable solar electricity. The project will employ photovoltaic modules that convert sunlight directly into electrical energy without use of heat transfer fluid or cooling water. The project site, as identified in this report, will occupy portions of the following legal descriptions (San Bernardino Base and Meridian):

Table A. Project Legal Description

Project Portion	USGS 7.5 Min Quad	Legal Description
Block Portion	Del Sur (1995)	Township 7 North, Range 14 West, Section 1

The Gen-tie alignments are included in this cultural resources assessment. A Gen-tie alignment will commence in the southeastern portion of the project site, proceed east along an unnamed street one-quarter mile north of West Avenue H, and terminate at the Big Sky North Substation (located at approximately 100th Street West and Avenue G-8). The entire project location, including Gen-tie alignments, is depicted in Figure 1.

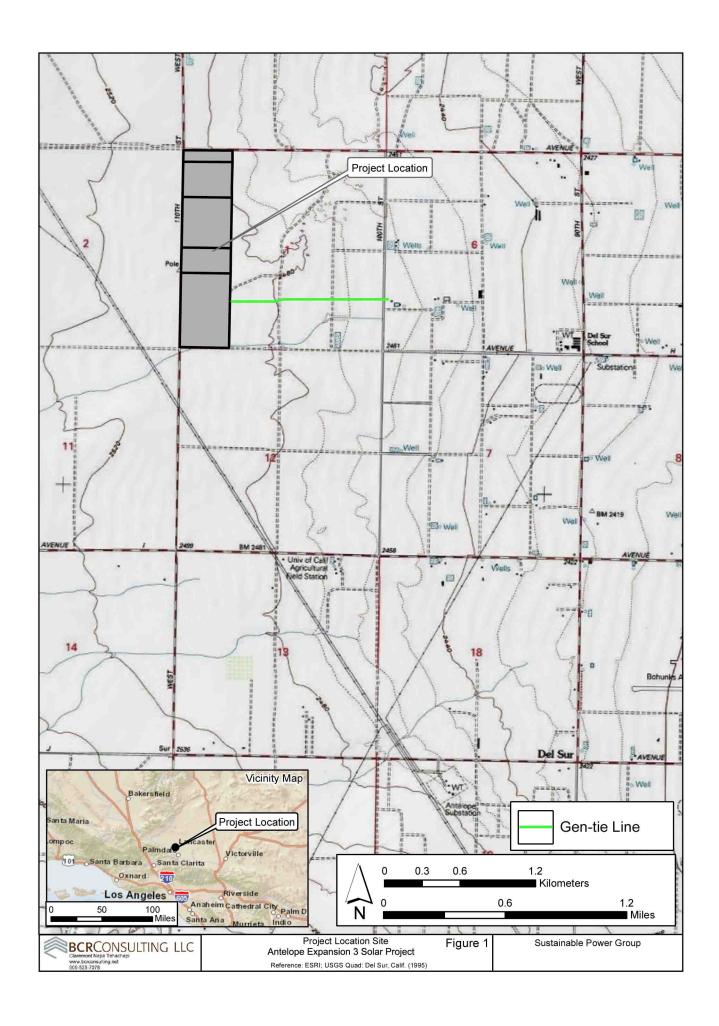
NATURAL SETTING

Geology

The project is located in the southwestern portion of the Mojave Desert. Sediments within the project boundaries have been derived from several geologic units (Hernandez 2010). These units include:

- Holocene slope wash composed of loose sand and rubble debris from downslope movement of Holocene surficial materials;
- Holocene modern alluvium containing unconsolidated fluvial gravel, sand and silt;
- Younger alluvial fan deposits (Holocene to Late Pleistocene) consisting of consolidated, dark-yellowish-brown, silty, fine arkosic sand with clay and calcium carbonate content.

Field observations during the current study are basically consistent with these descriptions, although disturbances related to former farming activities and modern utility and road installations were severe. None of the naturally occurring materials observed during the field survey exhibited evidence of the manufacture or acquisition of prehistoric stone tools or materials.



Hydrology

The project elevation ranges from approximately 2,479 to 2,540 feet above mean sea level (AMSL). Sheetwashing generally occurs from southwest to northeast throughout the region, and flood channels are often active after summer and winter storms. Local farming has utilized flood-irrigation, which relies on mechanical terracing for even water distribution. Local topography and natural erosive processes have been severely impacted by these activities to the extent that terraces are sometimes visible in topographic contour lines (see Figure 1). To the southeast, the peaks of the San Gabriel Mountains rise above 10,000 feet and are often capped with snow until late spring or early summer. The area currently exhibits an arid climate, with dry, hot summers and cool winters. Rainfall ranges from five to 15 inches annually (Jaeger and Smith 1971:36-37). Precipitation usually occurs in the form of winter and spring rain or snow at high elevations, with occasional warm monsoonal showers in late summer.

Biology

The mild climate of the late Pleistocene allowed piñon-juniper woodland to thrive throughout most of the Mojave (Van Devender et al. 1987). The vegetation and climate during that epoch attracted significant numbers of Rancholabrean fauna, including dire wolf, sabertoothed cat, short-faced bear, horse, camel, antelope, mammoth, pelican, goose, duck, cormorant, and eagle (Reynolds 1988). The drier climate of the middle Holocene resulted in the local development of complementary flora and fauna, which remain largely intact to this day. Common native plants currently include creosote, cacti (various species), rabbit bush, interior golden bush, cheesebush, sage (various species), buckwheat (at high elevations and near drainages), Joshua tree, and seasonal grasses. Common native animals include coyotes, cottontail and jackrabbits, rats, mice, desert tortoises, roadrunners, raptors, turkey vultures, and other bird species (see Williams et al. 2008).

CULTURAL SETTING

Prehistory

The prehistoric cultural setting of the Mojave Desert has been organized into many chronological frameworks (see Warren and Crabtree 1986; Bettinger and Taylor 1974; Lanning 1963; Hunt 1960; Wallace 1958, 1962, 1977; Wallace and Taylor 1978; Campbell and Campbell 1935), although there is no definitive sequence for the region. The difficulties in establishing cultural chronologies for the Mojave are a function of its enormous size and the small amount of archaeological excavations conducted there. Moreover, throughout prehistory many groups have occupied the Mojave and their territories often overlap spatially and chronologically resulting in mixed artifact deposits. Due to dry climate and capricious geological processes, these artifacts rarely become integrated in-situ. Lacking a milieu hospitable to the preservation of cultural midden. Mojave chronologies have relied temporally diagnostic artifacts, such as projectile points. or upon presence/absence of other temporal indicators, such as groundstone. Such methods are instructive, but can be limited by prehistoric occupants' concurrent use of different artifact styles, or by artifact re-use or re-sharpening, as well as researchers' mistaken diagnosis, and other factors (see Flenniken 1985; Flenniken and Raymond 1986; Flenniken and Wilke 1989). Recognizing the shortcomings of comparative temporal indicators, this study synthesizes Warren and Crabree (1986), who have drawn upon this method to produce a commonly cited and relatively comprehensive chronology.

Paleoindian (12,000 to 10,000 BP) and Lake Mojave (10,000 to 7,000 BP) Periods. Climatic warming characterizes the transition from the Paleoindian Period to the Lake Mojave Period. This transition also marks the end of Pleistocene Epoch and ushers in the Holocene. The Paleoindian Period has been loosely defined by isolated fluted (such as Clovis) projectile points, dated by their association with similar artifacts discovered in-situ in the Great Plains (Sutton 1996:227-228). Some fluted bifaces have been associated with fossil remains of Rancholabrean mammals approximately dated to ca. 13,300-10,800 BP near China Lake in the northern Mojave Desert. The Lake Mojave Period has been associated with cultural adaptations to moist conditions, and resource allocation pointing to more lacustrine environments than previously (Bedwell 1973; Hester 1973). Artifacts that characterize this period include stemmed points, flake and core scrapers, choppers, hammerstones, and crescentics (Warren and Crabtree 1986:184). Projectile points associated with the period include the Silver Lake and Lake Mojave styles. Lake Mojave sites commonly occur on shorelines of Pleistocene lakes and streams, where geological surfaces of that epoch have been identified (Basgall and Hall 1994:69).

Pinto Period (7,000 to 4,000 BP). The Pinto Period has been largely characterized by desiccation of the Mojave. As formerly rich lacustrine environments began to disappear, the artifact record reveals more sporadic occupation of the Mojave, indicating occupants' recession to the more hospitable fringes (Warren 1984). Pinto Period sites are rare, and are characterized by surface manifestations that usually lack significant in-situ remains. Artifacts from this era include Pinto projectile points and a flake industry similar to the Lake Mojave tool complex (Warren 1984), though use of Pinto projectile points as an index artifact for the era has been disputed (see Schroth 1994). Milling stones have also occasionally been associated with sites of this period (Warren 1984).

Gypsum Period. (4,000 to 1,500 BP). A temporary return to moister conditions during the Gypsum Period is postulated to have encouraged technological diversification afforded by the relative abundance of resources (Warren 1984:419-420; Warren and Crabtree 1986:189). Lacustrine environments reappear and begin to be exploited during this era (Shutler 1961, 1968). Concurrently a more diverse artifact assemblage reflects intensified reliance on plant resources. The new artifacts include milling stones, mortars, pestles, and a proliferation of Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Cornernotched dart points (Warren 1984; Warren and Crabtree 1986). Other artifacts include leaf-shaped projectile points, rectangular-based knives, drills, large scraper planes, choppers, hammer stones, shaft straighteners, incised stone pendants, and drilled slate tubes. The bow and arrow appears around 2,000 BP, evidenced by the presence of a smaller type of projectile point, the Rose Spring point (Rogers 1939; Shutler 1961).

Saratoga Springs Period (1,500 to 800 BP). During the Saratoga Springs Period regional cultural diversifications of Gypsum Period developments are evident within the Mojave. Basketmaker III (Anasazi) pottery appears during this period, and has been associated with turquoise mining in the eastern Mojave Desert (Warren and Crabtree 1986:191). Influences from Patayan/Yuman assemblages are apparent in the southern Mojave, and include buff and brown wares often associated with Cottonwood and Desert Side-notched projectile points (Warren 1984:423). Obsidian becomes more commonly used throughout the Mojave and characteristic artifacts of the period include milling stones, mortars, pestles, ceramics, and ornamental and ritual objects. More structured settlement patterns are evidenced by the presence of large villages, and three types of identifiable archaeological sites (major habitation, temporary camps, and processing stations) emerge (McGuire and Hall 1988).

Diversity of resource exploitation continues to expand, indicating a much more generalized, somewhat less mobile subsistence strategy.

Shoshonean Period (800 BP to Contact). The Shoshonean period is the first to benefit from contact-era ethnography –as well as be subject to its inherent biases. Interviews of living informants allowed anthropologists to match artifact assemblages and particular traditions with linguistic groups, and plot them geographically (see Kroeber 1925; Gifford 1918; Strong 1929). During the Shoshonean Period continued diversification of site assemblages, and reduced Anasazi influence both coincide with the expansion of Numic (Uto-Aztecan language family) speakers across the Great Basin, Takic (Uto-Aztecan language family) speakers into southern California, and the Hopi across the Southwest (Sutton 1996). Hunting and gathering continued to diversify, and the diagnostic arrow points include desert side-notch and cottonwood triangular. Ceramics continue to proliferate, though are more common in the southern Mojave during this period (Warren and Crabtree 1986). Trade routes have become well established across the Mojave, particularly the Mojave Trail, which transported goods and news across the desert via the Mojave River, to the west of the current project. Trade in the western Mojave was more closely related to coastal groups than others.

Ethnography

The Uto-Aztecan "Serrano" people occupied the western Mojave Desert periphery. Kroeber (1925) applied the generic term "Serrano" to four groups, each with distinct territories: the Kitanemuk, Tataviam, Vanyume, and Serrano. Only one group, in the San Bernardino Mountains and West-Central Mojave Desert, ethnically claims the term Serrano. Bean and Smith (1978) indicate that the Vanyume, an obscure Takic population, was found along the Mojave River at the time of Spanish contact. The Kitanemuk lived to the north and west, while the Tataviam lived to the west. The Serrano lived mainly to the south (Bean and Smith 1978). All may have used the western Mojave area seasonally. Historical records are unclear concerning precise territory and village locations. It is doubtful that any group, except the Vanyume, actually lived in the region for several seasons yearly.

History

Historic-era California is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Spanish Period. The first European to pass through the project area is thought to be a Spaniard called Father Francisco Garces. Having become familiar with the area, Garces acted as a guide to Juan Bautista de Anza, who had been commissioned to lead a group across the desert from a Spanish outpost in Arizona to set up quarters at the Mission San Gabriel in 1771 near what today is Pasadena (Beck and Haase 1974). This is the first recorded group crossing of the Mojave Desert and, according to Father Garces' journal, they camped at the headwaters of the Mojave River, one night less than a day's march from the mountains. Today, this is estimated to have been approximately 11 miles southeast of Victorville (Marenczuk 1962). Garces was followed by Alta California Governor Pedro Fages, who briefly explored the western Mojave region in 1772. Searching for San Diego Presidio deserters, Fages had traveled north through Riverside to San Bernardino, crossed over the mountains into the Mojave Desert, and then journeyed westward to the San Joaquin Valley (Beck and Haase 1974).

Mexican Period. In 1821, Mexico overthrew Spanish rule and the missions began to decline. By 1833, the Mexican government passed the Secularization Act, and the missions, reorganized as parish churches, lost their vast land holdings, and released their neophytes (Beattie and Beattie 1974).

American Period. The American Period, 1848–Present, began with the Treaty of Guadalupe Hidalgo. The Gold Rush had attracted huge numbers of American settlers and in 1850, California was accepted into the Union. The cattle industry reached its greatest prosperity during the first years of the American Period. Mexican Period land grants had created large pastoral estates in California, and demand for beef during the Gold Rush led to a cattle boom that lasted from 1849–1855. However, beginning about 1855, the demand for beef began to decline due to imports of sheep from New Mexico and cattle from the Mississippi and Missouri Valleys. When the beef market collapsed, many California ranchers lost their ranchos through foreclosure. A series of disastrous floods in 1861–1862, followed by a significant drought diminished the economic impact of local ranching. This decline combined with ubiquitous agricultural and real estate developments of the late 19th century, set the stage for diversified economic pursuits that have continued to proliferate to this day (Beattie and Beattie 1974; Cleland 1941).

Local Sequence. Lancaster grew up around the Southern Pacific Railroad, which entered the area in 1876. The railroad brought speculators that used artesian wells to found an early local agricultural and horticultural economy. A newspaper was established in 1884, and grammar schools and a local post office soon followed (Lewis Publishing Company 1889:350). Parcels within the new town were originally settled near today's I Street and the Sierra Highway. Although farming was initially successful, it was also subject to the caprices of desert rainfall that varied dramatically and caused a downturn during the early 20th century. Continued well drilling managed to revive local agriculture and by the teens and 1920s local mining and the continued influence of the railroad resulted in a local economic resurgence. Municipal advancements included paved streets in 1916, the formation of a local Los Angeles County Waterworks district in 1919, a fire department in 1921, and electric service brought by Southern California Edison in 1923. Although the economy slowed again during the depression and World War II, the founding of the Muroc Lake Bombing and Gunnery Range (now Edwards Air Force Base) in 1933 compensated somewhat for the losses, and mining and alfalfa farming remained locally viable (Ford 1998). The post war years brought an economic boom to Lancaster, which was locally punctuated by the opening of the first local ready-mix plant, the Antelope Valley Freeway plan, and eventually resulted in the local population expanding to 40,609 by 1970. Lancaster finally incorporated in 1977 and has since developed into a bedroom community, in addition to remaining a hub for farming, mining, and transportation (City of Lancaster 2012).

PERSONNEL

David Brunzell, M.A., RPA acted as the Project Manager and Principal Investigator for the current study. Mr. Brunzell also completed the records search at the South Central Coastal Information Center (SCCIC). Mr. Brunzell compiled the technical report. BCR Consulting Staff Archaeologists Joseph Orozco and Morgan Bird, B.A., carried out the fieldwork.

RESEARCH DESIGN

This work was completed pursuant to CEQA, the Public Resources Code (PRC) Chapter 2.6, Section 21083.2, and California Code of Regulations (CCR) Title 14, Chapter 3, Article 5, Section 15064.5. The pedestrian cultural resources survey was intended to locate and document previously recorded and new cultural resources, including archaeological sites, features, isolates, and historic buildings, that exceed 45 years in age within defined project boundaries. The project site was examined using systematic pedestrian field survey methods. The study is intended to determine whether cultural resources are located within the project boundaries, whether any cultural resources are significant pursuant to the above-referenced regulations and standards, and to develop specific mitigation measures that will address potential impacts to existing or potential resources. Tasks include:

- Vertebrate paleontology resources report through Dr. Samuel McLeod of the Los Angeles County Natural History Museum
- Cultural resources records search to review any studies conducted and the resulting cultural resources recorded within a one-mile radius of the project boundaries
- Systematic pedestrian survey of the project site
- Development of recommendations following CEQA guidelines.

METHODS

Research

Prior to fieldwork, a records search was conducted at the SCCIC. This archival research reviewed the status of all recorded historic and prehistoric cultural resources, and survey and excavation reports completed within one mile of the current project. Additional resources reviewed included the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), and documents and inventories published by the California Office of Historic Preservation. These include the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and the Inventory of Historic Structures.

Field Survey

A reconnaissance-level cultural resources field survey of the project site was conducted between November 6 and 8, 2017. The survey was conducted by walking parallel transects spaced approximately 15 meters apart across the project site, including the block portions of the project, and the linear alignment plus a 90-foot buffer, where accessible. Digital photographs were taken at various points within the project site.

RESULTS

Research

Data from the SCCIC revealed that five previous cultural resource studies have taken place, and nine cultural resources have been recorded within one mile of the project site. Of the five previous studies, none have assessed portions of the project site, and no cultural resources have been recorded within its boundaries. The records search is summarized as follows:

Table B. Cultural Resources and Reports Within One Mile of the Project Site

USGS 7.5 Minute Quad	Cultural Resources	Cultural Resource Studies
Del Sur	Resources within One Mile of Block Portion	LA-2053, 10210, 10758,
(1995)	P-19-3122: historic-period trans. line (1/4 mile W)	10859, 11846
	Resources within One Mile of Gen-tie Portion	
	P-19-3477: historic-period well (1/4 mile E)	
	P-19-4245: historic-period road (1/4 mile S)	
	P-19-4250: historic-period road (adjacent N)	
	P-19-100919: historic-period road (adjacent N)	
	P-19-100920: historic-period refuse (adjacent N)	
	P-19-100927: historic-period road (adjacent N)	
	P-19-186876: historic-period trans. line (1/4 mile E)	
	P-19-189437: historic-period building (1/4 mile NE)	

Field Survey

In general the project site has been highly disturbed by former farming activities, and utility and road installations and maintenance. None of the naturally occurring materials observed during the field survey exhibited evidence of the manufacture or acquisition of prehistoric stone tools or materials. No cultural resources (including prehistoric or historic-period archaeological resources, or historic-period architectural resources) were identified during the field survey.

RECOMMENDATIONS

BCR Consulting conducted a reconnaissance survey of the Antelope Expansion Solar Project in the City of Lancaster and Los Angeles County, California. The field survey and research failed to identify any cultural resources (including prehistoric or historic-period archaeological resources, or historic-period architectural resources) within the project site boundaries. Therefore, no significant impact related to historical resources is anticipated and no further investigations are recommended for the proposed project unless:

- The proposed project is changed to include areas that have not been subject to this cultural resource assessment;
- Cultural materials are encountered during project activities.

Although no archaeological deposits were yielded during the records search and field survey, ground-disturbing activities have the potential to reveal buried deposits not observed on the surface. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic-period cultural deposits. In the event that buried cultural materials are encountered by field personnel, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register or the National Register, plans for the treatment, evaluation, and mitigation of impacts to the

find will need to be developed. Prehistoric or historic-period cultural materials that may be encountered during ground-disturbing activities include:

- historic-period artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic-period structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks;
- human remains.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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APPENDIX A

NATIVE AMERICAN HERITAGE COMMISSION CORRESPONDENCE

NATIVE AMERICAN HERITAGE COMMISSION

Environmental and Cultural Department 1550 Harbor Blvd., Suite 100 West Sacramento, CA 95691 (916) 373-3710



November 15, 2017

David Brunzell BCR Consulting

Sent by E-mail: david.brunzell@yahoo.com

RE: Proposed Royal Solar Project, City of Lancaster; Del Sur USGS Quadrangle, Los Angeles County, California

Dear Mr. Brunzell:

A records search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential project effect (APE) referenced above with <u>negative results</u>. Please note that the absence of specific site information in the Sacred Lands File does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.

Associate Governmental Program Analyst

(916) 373-3714

Native American Heritage Commission Native American Contact List Los Angeles County 11/15/2017

Fernandeno Tataviam Band of Mission Indians

Beverly Salazar Folkes, Elders Council

1931 Shady Brooks Drive Thousand Oaks, CA, 91362

folkes9@msn.com

Phone: (805) 558 - 1154

Fernandeno Tataviam Band of Mission Indians

Alan Salazar, Chairman Elders Council

1019 Second St., Suite 1 San Fernando, CA, 91340 Phone: (805) 423 - 0091

Tataviam

Tataviam

Cahuilla

Serrano

Serrano

Tataviam

Fernandeno Tataviam Band of Mission Indians

Kimia Fatehi, Tribal Historic and **Cultural Preservation Officer** 1019 Second Street, Suite 1 San Fernando, CA, 91340

Phone: (818) 837 - 0794 Fax: (818) 837-0796

kfatehi@tataviam-nsn.us

Morongo Band of Mission Indians

Robert Martin, Chairperson 12700 Pumarra Rroad Banning, CA, 92220

Phone: (951) 849 - 8807

Fax: (951) 922-8146

Morongo Band of Mission Indians

Denisa Torres, Cultural Resources Manager Cahuilla

12700 Pumarra Rroad Banning, CA, 92220

Phone: (951) 849 - 8807 Fax: (951) 922-8146 dtorres@morongo-nsn.gov San Fernando Band of Mission Indians

John Valenzuela, Chairperson P.O. Box 221838 Newhall, CA, 91322 Phone: (760) 885 - 0955 tsen2u@hotmail.com

Kitanemuk Serrano Tataviam

San Manuel Band of Mission Indians

Lee Clauss, Director of Cultural Resources

26569 Community Center Drive

Highland, CA, 92346 Phone: (909) 864 - 8933 Fax: (909) 864-3370 Iclauss@sanmanuel-nsn.gov Serrano

Serrano Nation of Mission Indians

Goldie Walker, Chairperson P.O. Box 343

Patton, CA, 92369 Phone: (909) 528 - 9027 Serrano

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Royal Solar Project, Los Angeles County.

APPENDIX B PALEONTOLOGICAL RESOURCES ASSESSMENT



Natural History Museum of Los Angeles County 900 Exposition Boulevard Los Angeles, CA 90007

tel 213.763.DINO www.nhm.org

Vertebrate Paleontology Section Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

21 November 2017

BCR Consulting 505 West 8th Street Claremont, CA 91711

Attn: David Brunzell, Principal Investigator / Archaeologist

re: Paleontological resources for the Vertebrate Paleontology Records Search for the proposed Royal Solar Project, near Antelope Acres, Los Angeles County, project area

Dear David:

I have conducted a thorough check of our paleontology collection records for the locality and specimen data for the proposed Royal Solar Project, near Antelope Acres, Los Angeles County, project area as outlined on the portion of the Del Sur USGS topographic quadrangle map that you sent to me via e-mail on 9 November 2017. We do not have any vertebrate fossil localities that lie within the proposed project boundaries, but we do have localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The entire proposed project area has surface deposits that consist of younger Quaternary Alluvium, derived as alluvial fan deposits primarily from the convergence of the Sierra Nevada and Transverse Ranges at the head of the Antelope Valley to the west. Typically, these deposits do not contain significant vertebrate fossils in the uppermost layers, but they may well contain significant fossil vertebrate remains at depth. Our closest vertebrate fossil locality from these deposits is LACM 7884, just south of due east of the proposed project area on the northern side of Lancaster east of Division Street and north of East Avenue I, that from only four feet below the surface produced a fossil specimen of camel, *Camelops hesternus*. Further to the north and slight more east, east of 10th Street East and south of East Avenue E, our locality LACM 7853

produced fossil specimens of smelt, Osmeridae, western whiptail lizard, *Aspidocelis tigris*, desert iguana, *Dipsosaurus dorsalis*, desert spiny lizard, *Sceloporus magister*, side-blotched lizard, *Uta stansburiana*, desert night lizard, *Xantusia vigilis*, skink, *Plestiodon*, whip snake, *Masticophis*, leaf-nosed snake, *Phyllorhynchus*, western lyre snake, *Trimorphodon biscutatus*, wood rat, *Neotoma*, field mouse, *Peromyscus*, pocket gopher, *Thomomys bottae*, kangaroo rat, *Dipodomys*, pocket mouse, *Perognathus*, Audubon's cottontail rabbit, *Sylvilagus audubonii*, and antelope ground squirrel, *Ammospermophilus leucurus*, from a depth of only three feet in the younger Quaternary deposits.

Further to the southeast of the proposed project area, east of Palmdale along Avenue S from Little Rock eastward, we have localities LACM 5942-5953 from pipeline excavations in the Quaternary Alluvium and older Quaternary sediments that produced a fauna of small vertebrates including gopher snake, *Pituophis*, kingsnake, *Lampropeltis*, leopard lizard, *Gambelia wislizenii*, cottontail rabbit, *Sylvilagus*, pocket mouse, *Chaetodipus*, kangaroo rat, *Dipodomys*, and pocket gopher, *Thomomys*.

Even relatively shallow excavations in the younger Quaternary Alluvium exposed in the proposed project area may well uncover significant fossil vertebrate remains. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Sediment samples should also be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod, Ph.D. Vertebrate Paleontology

Summel a. M. Leod

enclosure: invoice

APPENDIX C PROJECT PHOTOGRAPHS



Photo 1: Project Site Overview, Northern Portion (View South)



Photo 2: Project Site Overview, Southern Portion (View North)

Appendix E

Phase I Environmental Site Assessment

Phase I Environmental Site Assessment

Antelope Expansion 3

Southeast of West Avenue G and 110th Street West

Lancaster, Los Angeles County, California

November 17, 2017

Terracon Project No. 60177365



Prepared for:

sPower Long Beach, California

Prepared by:

Terracon Consultants, Inc.
Tustin, California

terracon.com



Environmental Facilities Geotechnical Materials

November 15, 2017



sPower 5000 East Spring Street, Suite 130 Long Beach, CA 90815

Attn: Ms. Carisa Endrizzi-Davis

P: (562) 348-1117

E: cdavis@spower.com

Re: Phase I Environmental Site Assessment

Antelope Expansion 3

Southeast of West Avenue G and 110th Street West Lancaster, Los Angeles County, California 93536

Terracon Project No. 60177365

Dear Ms. Endrizzi-Davis:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Phase I Environmental Site Assessment (ESA) report for the above-referenced site. This assessment was performed in accordance with the Master Services Agreement dated September 18, 2017, Task Order 5 dated October 19, 2017 and Terracon Proposal No. P60177345 dated October 3, 2017.

We appreciate the opportunity to be of service to you on this project. In addition to Phase I services, our professionals provide geotechnical, environmental, construction materials, and facilities services on a wide variety of projects locally, regionally and nationally. For more detailed information on all of Terracon's services please visit our website at www.terracon.com. If there are any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

Sincerely.

Terracon Consultants, Inc.

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EXECUTIVE SUMMARY

This Phase I Environmental Site Assessment (ESA) was performed in accordance with the Master Services Agreement dated September 18, 2017, Task Order 5 dated October 19, 2017 and Terracon Proposal No. P60177345 dated October 3, 2017, and was conducted consistent with the procedures included in ASTM E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. The ESA was conducted under the supervision or responsible charge of Islam (Sami) R. Noaman, E.I.T., Environmental Professional. Lauren S. Gonter and Jeremy Rosenthal performed the site reconnaissance on October 27, 2017.

Findings and Opinions

A summary of findings is provided below. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

Site Description and Use

The site is located southeast of the intersection of West Avenue G and 110th Street West in Lancaster, Los Angeles County, California and consists of an approximate 153-acre tract of primarily fallow agricultural land (Assessor Parcel Numbers: 3265-006-001, 3265-006-002, 3265-007-001, 3265-007-003 and 365-007-007). In addition, the site consists of a proposed gen-tie line that extends east from the east side of the southern portion of the site. During the site reconaissance, the site was observed to be vacant and improvements were not observed.

Historical Information

Based on a review of historical information the site consisted of undeveloped, agricultural and/or vacant land from as early as 1928 through the present.

The site has been utilized as agricultural land and the agricultural practice of crop production often includes the use of pesticides and/or herbicides. The historical agricultural activities on the site may have included the use of pesticides and herbicides. Most currently used agricultural chemicals do not persist for extended periods of time, if applied appropriately. Information that would indicate the extensive use of pesticides or herbicides on the site was not identified. Indications of pesticide and/or herbicide misuse or vegetative stress on the site or surrounding property were not observed during the site reconnaissance.

The surrounding properties consisted of undeveloped, agricultural and/or vacant land from as early as 1928 through the 2000s, when apparent residences were developed to the adjacent northwest and west of the site. The existing solar farm located to the north, east and south of the

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proposed gen-tie line was developed in 2016 and have remained relatively unchanged through the present.

GSA Engineering, Inc. (GSA) completed a Phase I ESA on a portion of the existing site in 2016. GSA indicated the site consisted of vacant land owned by Daniel Saparzadeh. GSA did not identify recognized environmental conditions (RECs) associated with the site.

Records Review

Selected federal and state environmental regulatory databases as well as responses from state and local regulatory agencies were reviewed. The site is not identified in the regulatory database. The identified facilities listed in the database report do not appear to represent RECs to the site at this time, based upon regulatory status, apparent topographic gradient, and/or distance from the site.

Site Reconnaissance

During the site reconnaissance eight rubber tires were observed on the southeastern portion of the site. RECs were not identified

Adjoining Properties

West Avenue G abuts the site to the north followed by fallow agricultural land and a single-family residence to the northwest of the site. North of the gen-tie line consists of fallow agricultural land and solar farms. East of the site and gen-tie line consists of fallow agricultural land followed by solar fields. South of the site consists of West Avenue H followed by fallow agricultural land. South of the gen-tie line consists of solar fields. 110th Street West abuts the site to the west, followed by a single-family residence (46741 110th Street West) and fallow agricultural land.

Additional Services

Per the agreed scope of services specified in the proposal, additional services (e.g. asbestos sampling, lead-based paint sampling, wetlands evaluation, lead in drinking water testing, radon testing, vapor encroachment screening, etc.) were not conducted.

Significant Data Gaps

Significant data gaps were not identified.

Conclusions

We have performed a Phase I ESA consistent with the procedures included in ASTM Practice E1527-13 at the Antelope Expansion 3 solar project located southeast of the intersection of West Avenue G and 110th Street West in Lancaster, Los Angeles County, California, the site. RECs or Controlled RECs (CREC) were not identified in connection with the site.

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1.0 INTRODUCTION

1.1 Site Description

Site Name	Antelope Expansion 3
Site Location/Address	Southeast of West Avenue G and 110 th Street West, Lancaster, Los Angeles County, California (Assessor Parcel Numbers: 3265-006-001, 3265-006-002, 3265-007-001, 3265-007-003 and 365-007-007).
Land Area	Approximately 153 Acres.
Site Improvements	None.
Anticipated Future Site Use	Proposed solar farm.
Purpose of the ESA	Long-term ground lease of the proposed solar farm.

The location of the site is depicted on Exhibit 1 of Appendix A, which was reproduced from a portion of the USGS 7.5-minute series topographic map. The site and adjoining properties are depicted on the Site Diagram, which is included as Exhibit 2 of Appendix A. Acronyms and terms used in this report are described in Appendix F.

1.2 Scope of Services

This Phase I ESA was performed in accordance with the Master Services Agreement dated September 18, 2017, Task Order 5 dated October 19, 2017 and Terracon Proposal No. P60177345 dated October 3, 2017, and was conducted consistent with the procedures included in ASTM E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. The purpose of this ESA was to assist the client in developing information to identify RECs in connection with the site as reflected by the scope of this report. This purpose was undertaken through user-provided information, a regulatory database review, historical and physical records review, interviews, including local government inquiries, as applicable, and a visual noninvasive reconnaissance of the site and adjoining properties. Limitations, ASTM deviations, and significant data gaps (if identified) are noted in the applicable sections of the report.

ASTM E1527-13 contains a new definition of "migrate/migration," which refers to "the movement of hazardous substances or petroleum products in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface." By including this explicit reference to migration in ASTM E1527-13, the Standard clarifies that the potential for vapor migration should be addressed as part of a Phase I ESA. This Phase I ESA has considered vapor migration in evaluation of RECs associated with the site.

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1.3 Standard of Care

This ESA was performed in accordance with generally accepted practices of this profession, undertaken in similar studies at the same time and in the same geographical area. We have endeavored to meet this standard of care, but may be limited by conditions encountered during performance, a client-driven scope of work, or inability to review information not received by the report date. Where appropriate, these limitations are discussed in the text of the report, and an evaluation of their significance with respect to our findings has been conducted.

Phase I ESAs, such as the one performed at this site, are of limited scope, are noninvasive, and cannot eliminate the potential that hazardous, toxic, or petroleum substances are present or have been released at the site beyond what is identified by the limited scope of this ESA. In conducting the limited scope of services described herein, certain sources of information and public records were not reviewed. It should be recognized that environmental concerns may be documented in public records that were not reviewed. No ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs. No warranties, express or implied, are intended or made. The limitations herein must be considered when the user of this report formulates opinions as to risks associated with the site or otherwise uses the report for any other purpose. These risks may be further evaluated – but not eliminated – through additional research or assessment. We will, upon request, advise you of additional research or assessment options that may be available and associated costs.

1.4 Additional Scope Limitations, ASTM Deviations and Data Gaps

Based upon the agreed-on scope of services, this ESA did not include subsurface or other invasive assessments, vapor intrusion assessments or indoor air quality assessments (i.e. evaluation of the presence of vapors within a building structure), business environmental risk evaluations, or other services not particularly identified and discussed herein. Credentials of the company (Statement of Qualifications) have not been included in this report but are available upon request. Pertinent documents are referred to in the text of this report, and a separate reference section has not been included. Reasonable attempts were made to obtain information within the scope and time constraints set forth by the client; however, in some instances, information requested is not, or was not, received by the issuance date of the report. Information obtained for this ESA was received from several sources that we believe to be reliable; nonetheless, the authenticity or reliability of these sources cannot and is not warranted hereunder. This ESA was further limited by the following:

Terracon attempted to contact the local regulatory agencies in regards to records for the site. At the issuance of this report, a response from Los Angeles County Public Health Investigation and Los Angeles County Building and Safety – Antelope Valley Office remain pending. Based on the available historical information, the absence of these responses does not constitute a significant data gap.

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The client did not provide the requested User's information as of the issuance date of the report, Terracon assumes the client is evaluating the questionnaire information outside the context of the Terracon's Phase I ESA scope of work and report. The absence of questionnaire does not constitute a significant data gap.

An evaluation of the significance of limitations and missing information with respect to our findings has been conducted, and where appropriate, significant data gaps are identified and discussed in the text of the report. However, it should be recognized that an evaluation of significant data gaps is based on the information available at the time of report issuance, and an evaluation of information received after the report issuance date may result in an alteration of our conclusions, recommendations, or opinions. We have no obligation to provide information obtained or discovered by us after the issuance date of the report, or to perform any additional services, regardless of whether the information would affect any conclusions, recommendations, or opinions in the report. This disclaimer specifically applies to any information that has not been provided by the client.

This report represents our service to you as of the report date and constitutes our final document; its text may not be altered after final issuance. Findings in this report are based upon the site's current utilization, information derived from the most recent reconnaissance and from other activities described herein; such information is subject to change. Certain indicators of the presence of hazardous substances or petroleum products may have been latent, inaccessible, unobservable, or not present during the most recent reconnaissance and may subsequently become observable (such as after site renovation or development). Further, these services are not to be construed as legal interpretation or advice.

1.5 Reliance

This ESA report is prepared for the exclusive use and reliance of sPower. Use or reliance by any other party is prohibited without the written authorization of sPower and Terracon Consultants, Inc. (Terracon).

Reliance on the ESA by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the proposal, ESA report, and Terracon's Agreement. The limitation of liability defined in the Agreement is the aggregate limit of Terracon's liability to the client and all relying parties.

Continued viability of this report is subject to ASTM E1527-13 Sections 4.6 and 4.8. If the ESA will be used by a different user (third party) than the user for whom the ESA was originally prepared, the third party must also satisfy the user's responsibilities in Section 6 of ASTM E1527-13.

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1.6 Client Provided Information

Prior to the site visit, Ms. Carisa Endrizzi -Davis, client's representative, was asked to provide the following user questionnaire information as described in ASTM E1527-13 Section 6.

Client Questionnaire Responses

Client Questionnaire Item	Client Did Not	Client's Response	
	Respond	Yes	No
Specialized Knowledge or Experience that is material to a REC in connection with the site.	Х		
Actual Knowledge of Environmental Liens or Activity Use Limitations (AULs) that may encumber the site.	X		
Actual Knowledge of a Lower Purchase Price because contamination is known or believed to be present at the site.	Х		
Commonly Known or Reasonably Ascertainable Information that is material to a REC in connection with the site.	Х		
Obvious Indicators of Contamination at the site.	Х		

The client did not provide the requested User's information as of the issuance date of the report, which represents a data gap. Terracon assumes the client is evaluating the questionnaire information outside the context of Terracon's Phase I ESA scope of work and report.

2.0 PHYSICAL SETTING

P	hysical Setting Information	Source		
	Topography			
Site Elevation	Approximately 2,480 feet above sea level.	USGS Topographic Map,		
Topographic Gradient	Gently sloping towards the East.	Topo Del Sur, California		
Closest Surface Water	Site Closest Water, approximately 217 feet east of the gen-tie line.	Dated [2015] (Appendix A)		
	Soil Characteristics			
Soil Type	Adelanto Coarse Sandy Loam - well drained			
Description	soil with 0 to 2 percent slopes, the parent material is alluvium derived from granite. A typical profile consists of 0-16 inches coarse sandy loam, 16-41 inches sandy/coarse sandy loam, 41-80 inches stratified loamy sand to coarse sandy loam.	Antelope Valley Area, CA Web Soil Survey, issued September 2017		

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Physical Setting Information		Source
	Greenfield Sandy Loam – well drained soil with	
	0 to 2 percent slopes, the parent material is	
	alluvium derived from granite. A typical profile	
	consists of 0 to 60 sandy loam, 60-80 stratified	
	loamy sand to coarse sandy loam.	
	Ramona Coarse Sandy Loam – well drained soil	
	with 0 to 2 percent slopes, the parent material is	
	alluvium derived from granite. A typical profile	
	consists of 0 to 20 coarse sandy loam, 20-31	
	inches fine sandy loam, 31 to 90 inches sandy	
	clay loam.	
	Ramona Loam – well drained soil with 2 to 5	
	percent slopes, the parent material is alluvium	
	derived from granite. A typical profile consists of 0	
	to 12 inches loam, 12-31 fine sandy loam, 31 to	
	90 inches sandy clay loam.	
	Greenfield Sandy Loam – well drained soil with	
	2 to 9 percent slopes, the parent material is	
	alluvium derived from granite. A typical profile	
	consists of 0 to 60 sandy loam, 60 to 80 inches	
	stratified loamy sand to coarse sandy loam.	
	Hanford Coarse Sandy Loam – well drained soil	
	with 0 to 2 percent slopes, the parent material is	
	alluvium derived from granite. A typical profile	
	consists of 0 to 8 inches coarse sandy loam, 8 to	
	39 inches sandy loam, coarse sandy loam,	
	gravelly loamy coarse sand, gravelly coarse sandy loam.	
	Dune Land – The parent material is eolian sands.	
	A typical profile consists of 0 to 6 inches fine sand,	
	6 to 60 inches sand, fine sand.	
	Ramona Coarse Sandy Loam – well drained soil	
	with 2 to 5 percent slopes, the parent material is	
	alluvium derived from granite. A typical profile	
	consists of 0 to 20 coarse sandy loam, 20-31	
	inches fine sandy loam, 31 to 90 inches sandy	
	clay loam.	
	Hanford Sandy Loam - well drained soil with 0 to	
	2 percent slopes, the parent material is alluvium	
	derived from granite. A typical profile consists of 0	
	to 8 inches sandy loam, 8 to 70 inches fine sandy	
	loam, sandy loam.	
Formation	Quaternary deposits (Q)	

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Physical Setting Information		Source
Description	Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated. Mostly nonmarine, but includes marine deposits near the coast.	State of California Department of Conservation, Geologic Map of California, 2010
Estimated Depth to First Occurrence of Groundwater	Unknown. Depth to groundwater is reported at 236.09 feet bgs at a well located 1.13 miles to the southwest of the site	Well Name: USGS- 07N14W13A001S Geotracker Gama/ Groundwater elevation/depth data, recorded August 18 2010
*Hydrogeologic Gradient	Not known - may be inferred to be parallel to topog the east).	raphic gradient (primarily to

^{*} The groundwater flow direction and the depth to shallow, unconfined groundwater, if present, would likely vary depending upon seasonal variations in rainfall and other hydrogeological features. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

3.0 HISTORICAL USE INFORMATION

Terracon reviewed the following historical sources to develop a history of the previous uses of the site and surrounding area, in order to help identify RECs associated with past uses. Copies of selected historical documents are included in Appendix C.

3.1 Historical Topographic Maps, Aerial Photographs, Sanborn Maps

Readily available historical USGS topographic maps, selected historical aerial photographs (at approximately 10 to 15 year intervals) and historical fire insurance maps produced by the Sanborn Map Company were reviewed to evaluate land development and obtain information concerning the history of development on and near the site. Reviewed historical topographic maps, and aerial photographs are summarized below.

Historical fire insurance maps produced by the Sanborn Map Company were requested from ERIS to evaluate past uses and relevant characteristics of the site and surrounding properties. Based upon inquiries to the above-listed Sanborn provider, Sanborn maps were not available for the site.

Topographic maps:

- Bouquet Reservoir, California, 1958, (1:62,500)
- Little Buttes, California, 1931, 1934, (1:24,000)
- Del Sur, California, 1958, 1974, 1995, 2015, (1:24,000)

Aerial photograph:

- Fairchild, 1928, (1:9600)
- ASCS, 1948, 1959,1968, (1:9600)
- AMS, **1954**, (1:9600)

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- USGS, **1963, 1978, 1994, 2002**, (1:9600)
- NHAP, **1987**, (1:9600)
- o NAIP, **2003, 2005, 2010, 2012, 2014, 2016**, (1:9600)

Historical Topographic Maps, and Aerial Photographs

Direction	Description
Site	Undeveloped land with a trail (1928); the land became agricultural land with a well on the eastern edge of the gen-tie line (1931-1968); fallow agricultural land (1978-2015).
North	West Avenue G abuts the site to the north followed by undeveloped land (1928-1948); agricultural land (1954-1978); fallow agricultural (1987-2005); apparent residence developed to the northwest of the site (2010-2016).
East	East of the site consists several dirt roads and undeveloped land (1928-1934); agricultural land and several wells added east of the gen-tie line (1948-2010); fallow agricultural land (2012-2014); solar panels to the east of the gen tie line (2016).
South	West Avenue H abuts the site to the south followed by a creek and undeveloped land (1928-1934); agricultural land (1948-1968); fallow agricultural land (1978-2014); solar panels added southeast of the gen-tie lines (2016).
West	110 th Street West abuts the site to the west followed by a dirt road and undeveloped land (1928-1934); agricultural land (1948-1978); fallow agricultural land (1987-2003); apparent residence developed to west of the site (2005-2016).

The site has been utilized as agricultural land and the agricultural practice of crop production often includes the use of pesticides and/or herbicides. The historical agricultural activities on the site may have included the use of pesticides and herbicides. Most currently used agricultural chemicals do not persist for extended periods of time, if applied appropriately. Information that would indicate the extensive use of pesticides or herbicides on the site was not identified. Indications of pesticide and/or herbicide misuse or vegetative stress on the site or surrounding property were not observed during the site reconnaissance. Therefore, the agricultural use of the site does not appear to represent a REC to the site.

3.2 Historical City Directories

The Haines and Digital Business Directory city directories used in this study were made available through ERIS (selected years reviewed: 1971 through 2016) and were reviewed at approximate five-year intervals, if readily available. The current street address for the site was not identified

Historical City Directories

Direction	Description
Site	110 STW PAV VIC AVE G8 – No listings (1971-2016).
North	Unaddressed vacant land
East	Unaddressed vacant land

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Direction	Description
South	Unaddressed vacant land
West	46741 110 th Street West – No listings (1971-2016).

3.3 Site Ownership

Based on a review of the client provided information, the current site owners is Sapar Family LLC.

3.4 Title Search

At the direction of the client, a title search was not included as part of the scope of services. Unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

3.5 Environmental Liens and Activity and Use Limitations

The ERIS regulatory database report included a review of both Federal and State Engineering Control (EC) and Institutional Control (IC) databases. Based on a review of the database report, the site was not listed on the EC or IC databases. Please note that in addition to these federal and state listings, AULs can be recorded at the county and municipal level that may not be listed in the regulatory database report. Environmental lien and activity and use limitation records recorded against the site were not provided by the client. At the direction of the client, performance of a review of these records was not included as part of the scope of services and unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

3.6 Interviews Regarding Current and Historical Site Uses

The following individual was interviewed regarding the current and historical use of the site.

Interviewee

Interviewer	Name / Phone #	Title	Date
Jennifer Van	Mr. Daniel Saparzadeh / 310-442-6006	Owner Representative	November 15, 2017

Terracon interviewed Mr. Daniel Saparzadeh subsequent to the site reconnaissance. Mr. Saparzadeh indicated he has been associated with the site as the owner since 2004/2005. Mr. Saparzadeh indicated the site consisted of agricultural land prior to 2004/2005 and has consisted of vacant land through the present. Mr. Saparzadeh is not aware of water wells, petroleum pipelines, or USTs associated with the site. Mr. Saparzadeh is not aware of environmental concerns associated with the site or in the site vicinity. In addition, Mr. Saparzadeh was not aware of any pending, threatened or past environmental litigation, proceedings or notices of possible violations of environmental laws or liability or potential environmental concerns in connection with the site.

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3.7 Prior Report Review

Terracon requested the client provide any previous environmental reports they are aware of for the site. Previous reports were provided by the client to Terracon for review.

Phase I ESA, Vacant Land, APNs: 3265-006-001, 3265-006-002, 3265-007-001, 3265-007-003 and 3265-007-007, Lancaster, California, prepared for Daniel Saparzadeh, prepared by GSA Engineering, Inc., dated July 12, 2016.

GSA Engineering, Inc. (GSA) completed a Phase I ESA on a portion of the existing site in 2016. GSA indicated the site consisted of vacant land owned by Daniel Saparzadeh. GSA did not identified RECs associated with the site.

4.0 RECORDS REVIEW

Regulatory database information was provided by ERIS, a contract information services company. The purpose of the records review was to identify RECs in connection with the site. Information in this section is subject to the accuracy of the data provided by the information services company and the date at which the information is updated. The scope herein did not include confirmation of facilities listed as "unmappable" by regulatory databases.

In some of the following subsections, the words up-gradient, cross-gradient and down-gradient refer to the topographic gradient in relation to the site. As stated previously, the groundwater flow direction and the depth to shallow groundwater, if present, would likely vary depending upon seasonal variations in rainfall and the depth to the soil/bedrock interface. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

4.1 Federal and State/Tribal Databases

Listed below are the facility listings identified on federal and state/tribal databases within the ASTM-required search distances from the approximate site boundaries. Database definition, descriptions, and the database search report are included in Appendix D.

Federal Databases

Database	Description	Distance (miles)	Listings
CERC	Comprehensive Environmental Response, Compensation and Liability Information System – CERCLIS	0.5	0
CERL	CERCLIS Liens	Site	0
CNFR	CERCLIS - No Further Remedial Action Planned	0.5	0
EC	Federal Engineering Controls-ECs	0.5	0

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Database	Description	Distance (miles)	Listings
ERN1	Emergency Response Notification System	Site	0
ERN2	Emergency Response Notification System	Site	0
ERNS	Emergency Response Notification System	Site	0
FBFL	The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database	0.5	0
FRS	Facility Registry Service/Facility Index	Site	0
HMIR	Hazardous Materials Information Reporting System	0.10	0
HTSC	Hist TSCA	0.10	0
IC	Federal Institutional Controls- ICs	0.5	0
IODI	EPA Report on the Status of Open Dumps on Indian Lands	0.5	0
NCDL	National Clandestine Drug Labs	Site	0
NPL	National Priority List	1	0
NPLD	Delisted NPL	0.5	0
NPLP	National Priority List – Proposed	1	0
ODI	Inventory of Open Dumps, June 1985	0.5	0
RCOR	RCRA CORRACTS- Corrective Action	1	0
RGEN	RCRA Generator List	0.25	0
RNGN	RCRA Non-Generators	0.25	0
RTSD	RCRA non-CORRACTS TSD Facilities	0.5	0
TRI	Toxics Release Inventory (TRI) Program	Site	0
TSCA	Toxic Substances Control Act	0.10	0

State/Tribal Databases

Database	Description	Distance (miles)	Listings
AST	Aboveground Storage Tanks	0.25	0
CDL	Clandestine Drug Lab Sites	0.10	0
CHMR	California Hazardous Material Incident Report System (CHMIRS)	Site	0
DEED	Deed Restrictions and Land Use Restrictions	0.5	0
ENVS	EnviroStor Database	1	1
GTCL	GeoTracker Cleanup Sites Data	0.5	0
HLUR	Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions	0.5	0
HWP	EnviroStor Hazardous Waste Facilities	1	0
ICE	EnviroStor Inspection, Compliance, and Enforcement	1	0
ILST	Leaking Underground Storage Tanks (LUSTs) on Indian Lands	0.5	0
IUST	Underground Storage Tanks (USTs) on Indian Lands	0.25	0

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Database	Description		Listings
LDS	Land Disposal Sites	0.5	0
LUR	Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions	0.5	0
LUST	Leaking Underground Fuel Tank Reports	0.5	0
RESP	P State Response Sites		0
SCH	School Property Evaluation Program Sites		1
SWAT	Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report	0.5	0
SWF	Solid Waste Information System (SWIS)	0.5	0
UST	Permitted Underground Storage Tank (UST) in GeoTracker	0.25	0
VCP	Voluntary Cleanup Program	1	0

In addition to the above ASTM-required listings, Terracon reviewed other federal, state, local, and proprietary databases provided by the database firm. A list of the additional reviewed databases is included in the regulatory database report included in Appendix D. A review of federal state environmental regulatory database information did not identify regulated facilities, including the site.

The site is not identified in the regulatory databases.

One facility was identified in the regulatory database and this facility does not appear to represent RECs to the site at this time based upon regulatory status, apparent topographic gradient, and/or distance from the site.

Unmapped facilities are those that do not contain sufficient address or location information to evaluate the facility listing locations relative to the site. The report listed four facilities in the unmapped section. Determining the location of unmapped facilities is beyond the scope of this assessment; however, none of these facilities were identified as the site or adjacent properties. These facilities are listed in the database report in Appendix D.

4.2 Local Agency Inquiries

Agency Contacted/	
Contact Method	Response
Los Angeles County Public Health Investigation /	At the issuance of this report, a response has not
By fax 323-728-0217	been received.
Los Angeles County Public Works – Environmental	Records were not found for the site.
Programs Division / By fax (626) 458-3569 and by	
on-line database	
http://ladpw.org/epd/CleanLA/OpenFileReview.aspx	

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Agency Contacted/	
Contact Method	Response
Department of Toxic Substances Control (DTSC) / by e-mail pubreqact@dtsc.ca.gov	Per Ms. Katrina Waits of the DTSC, records were not found for the site.
Los Angeles County Building and Safety – Antelope Valley Office / by fax 661-524-2399	At the issuance of this report, a response has not been received.
Los Angeles Regional Water Quality Control Board / on-line GeoTracker database	Records were not found for the site.
Antelope Valley Air Quality Management District (AVAQMD) / By e-mail PIR@AVAQMD.CA.GOV	Per Mr. Bret S. Banks of the AVAQMD, records were not found for the site.
Los Angeles County Fire Department, Health Hazmat Division, on-line form	Per Amber Strange with the Los Angeles County Fire Department, records were not found for the site.

4.3 Local Area Knowledge

Based on a review of the California Department of Conservation Division of Oil, Gas, and Geothermal Resource Well Finder website (<u>DOGGR</u>), there are not active or plugged oil production wells located on the site.

5.0 SITE RECONNAISSANCE

5.1 General Site Information

Information contained in this section is based on a visual reconnaissance conducted while walking through the site and the accessible interior areas of structures, if any, located on the site. Exhibit 2 in Appendix A is a Site Diagram of the site. Photo documentation of the site at the time of the visual reconnaissance is provided in Appendix B. Credentials of the individuals planning and conducting the site visit are included in Appendix E.

General Site Information

Site Reconnaissance			
Field Personnel	Lauren Gonter and Jeremy Rosenthal		
Reconnaissance Date	October 27, 2017		
Weather Conditions	Sunny, 74 °F		
Site Contact/Title	N/A		

5.2 Overview of Current Site Occupants

The site is located southeast of the intersection of West Avenue G and 110th Street West in Lancaster, Los Angeles County, California and consists of an approximate 153-acre tract of

Antelope Expansion 3 ■ Lancaster, California November 17, 2017 ■ Terracon Project No. 60177365



primarily fallow agricultural land (Assessor Parcel Numbers: 3265-006-001, 3265-006-002, 3265-007-001, 3265-007-003 and 365-007-007). In addition, the site consists of a proposed gen-tie line that extends east from the east side of the southern portion of the site. During the site reconaissance, the site was observed to be vacant and improvements were not observed.

5.3 Overview of Current Site Operations

The site is currently unoccupied and site operations were not observed.

5.4 Site Observations

The following table summarizes site observations and interviews. Affirmative responses (designated by an "X") are discussed in more detail following the table.

Site Characteristics

Category	Item or Feature	Observed or Identified
	Emergency generators	
	Elevators	
	Air compressors	
	Hydraulic lifts	
	Dry cleaning	
	Photo processing	
	Ventilation hoods and/or incinerators	
	Waste treatment systems and/or water treatment systems	
Site Operations,	Heating and/or cooling systems	
Processes, and Equipment	Paint booths	
	Sub-grade mechanic pits	
	Wash-down areas or carwashes	
	Pesticide/herbicide production or storage	
	Printing operations	
	Metal finishing (e.g., electroplating, chrome plating, galvanizing, etc.)	
	Salvage operations	
	Oil, gas or mineral production	
	Other processes or equipment	
Aboveground Chemical or Waste	Aboveground storage tanks	
Storage	Drums, barrels and/or containers ≥ 5 gallons	

Antelope Expansion 3 ■ Lancaster, California November 17, 2017 ■ Terracon Project No. 60177365



Category	Item or Feature	Observed or Identified	
	MSDS or SDS		
Underground	Underground storage tanks or ancillary UST equipment		
	Sumps, cisterns, French drains, catch basins and/or dry wells		
	Grease traps		
Chemical or Waste Storage, Drainage	Septic tanks and/or leach fields		
or Collection Systems	Oil/water separators, clarifiers, sand traps, triple traps, interceptors		
	Pipeline markers		
	Interior floor drains		
Electrical Transformers/	Transformers and/or capacitors		
PCBs	Other equipment		
	Stressed vegetation		
	Stained soil		
	Stained pavement or similar surface		
	Leachate and/or waste seeps		
Releases or	Trash, debris and/or other waste materials	Х	
Potential Releases	Dumping or disposal areas		
	Construction/demolition debris and/or dumped fill dirt		
	Surface water discoloration, odor, sheen, and/or free floating product		
	Strong, pungent or noxious odors		
	Exterior pipe discharges and/or other effluent discharges		
	Surface water bodies		
Other Notable Site	Quarries or pits		
Features	Wastewater lagoons		
	Wells		

Releases or Potential Releases

Trash, debris and/or other waste materials

Eight rubber tires were observed on the southeastern portion of the site. Leakage, spills or releases from these materials were not observed. Based on site observations the rubber tires do not constitute a REC on the site.

Antelope Expansion 3 ■ Lancaster, California November 17, 2017 ■ Terracon Project No. 60177365



6.0 ADJOINING PROPERTY RECONNAISSANCE

Visual observations of adjoining properties (from site boundaries) are summarized below.

Adjoining Properties

Direction	Description	
North	West Avenue G abuts the site to the north followed by fallow agricultural land and a single-family residence to the northwest of the site. North of the gen-tie line consists of fallow agricultural and solar farms.	
East	East of the site and gen-tie line consists of fallow agricultural land followed by solar fields.	
South	West Avenue H followed by fallow agricultural land. South of the gen-tie line consists of solar farms	
West	110 th Street West abuts the site, followed by a single-family residence (46741 110 th Street West) and fallow agricultural land.	

RECs were not observed with the adjoining properties.

7.0 ADDITIONAL SERVICES

Per the agreed scope of services specified in the proposal, additional services (e.g. asbestos sampling, lead-based paint sampling, wetlands evaluation, lead in drinking water testing, radon testing, vapor encroachment screening, etc.) were not conducted.

Antelope Expansion 3 ■ Lancaster, California November 17, 2017 ■ Terracon Project No. 60177365



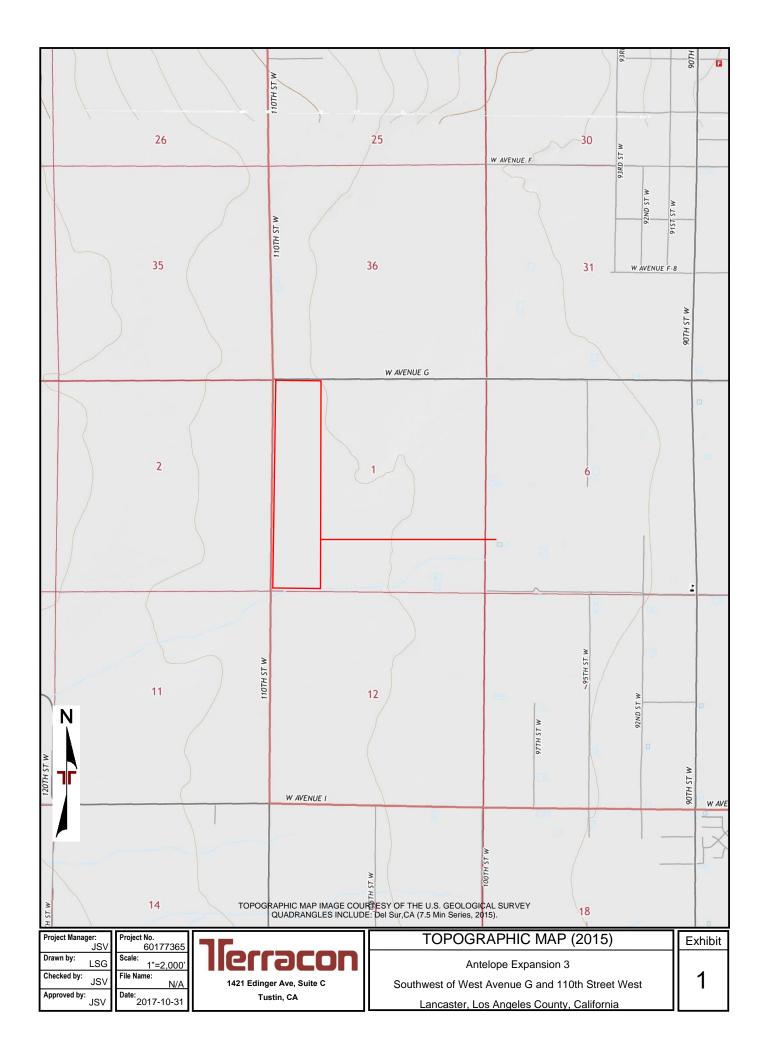
8.0 DECLARATION

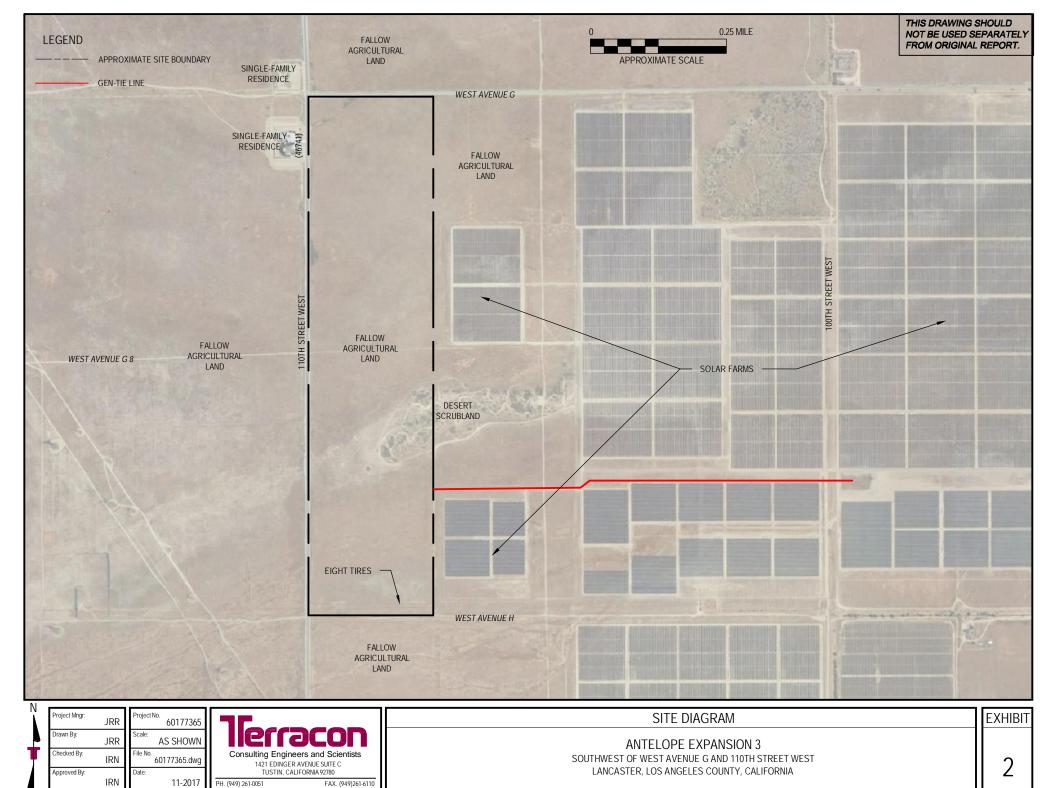
I, Islam (Sami) R. Noaman E.I.T., declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312; and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the site. I have developed and performed the All Appropriate Inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Islam (Sami) R. Noaman E.I.T.

Environmental Department Manager

APPENDIX A EXHIBIT 1 – TOPOGRAPHIC MAP EXHIBIT 2 – SITE DIAGRAM





APPENDIX B SITE PHOTOGRAPHS

sPower: Antelope Expansion 3 Project No. 60177365 Photo Date: October 27, 2017





Photo #1 View of the northern border of the site facing south.



Photo #2 View of the northwest corner of the site, facing southeast.



Photo #3 View of the northeast corner of the site.



Photo #4 View of the southwest corner of the site.



Photo #5 View of the southeastern portion of the site.



Photo #6 View of fallow agricultural land adjacent to the north of the site.

sPower: Antelope Expansion 3 Project No. 60177365 Photo Date: October 27, 2017





Photo #7 View of a single-family residence (unknown address) adjacent to the northwest of the site.



Photo #8 View of a single-family residence (46741 110th Street West) adjacent to the west of the site.



Photo #9 View of fallow agricultural land adjacent to the west of the site.



Photo #10 View of fallow agricultural land adjacent to the south of the site.



Photo #11 View of a solar farm adjacent to the east of the southern portion of the site.



Photo #12 View of a solar farm adjacent to the east of the northern portion of the site.

sPower: Antelope Expansion 3 Project No. 60177365 Photo Date: October 27, 2017





Photo #13 View facing east of the gen-tie line option for the site.



Photo #14 View of scattered tires (8 total) located on the southeastern portion of the site.

HISTORICAL DOCUMEN	APPENDIX O	IONNAIRE



TOPOGRAPHIC MAP RESEARCH RESULTS

Date: 10/31/2017

Project Property: n/a,Lancaster, CA ERIS Order Number: 20171030225

We have searched USGS collections of current topographic maps and historical topographic maps for the project property. Below is a list of maps found for the project property and adjacent area. Maps are from 7.5 and 15 minute topographic map series, if available.

Year	Map Series	
2015	7.5	
1995	7.5	
1974	7.5	
1958	7.5	
1934	7.5	
1931	7.5	
1958	15	

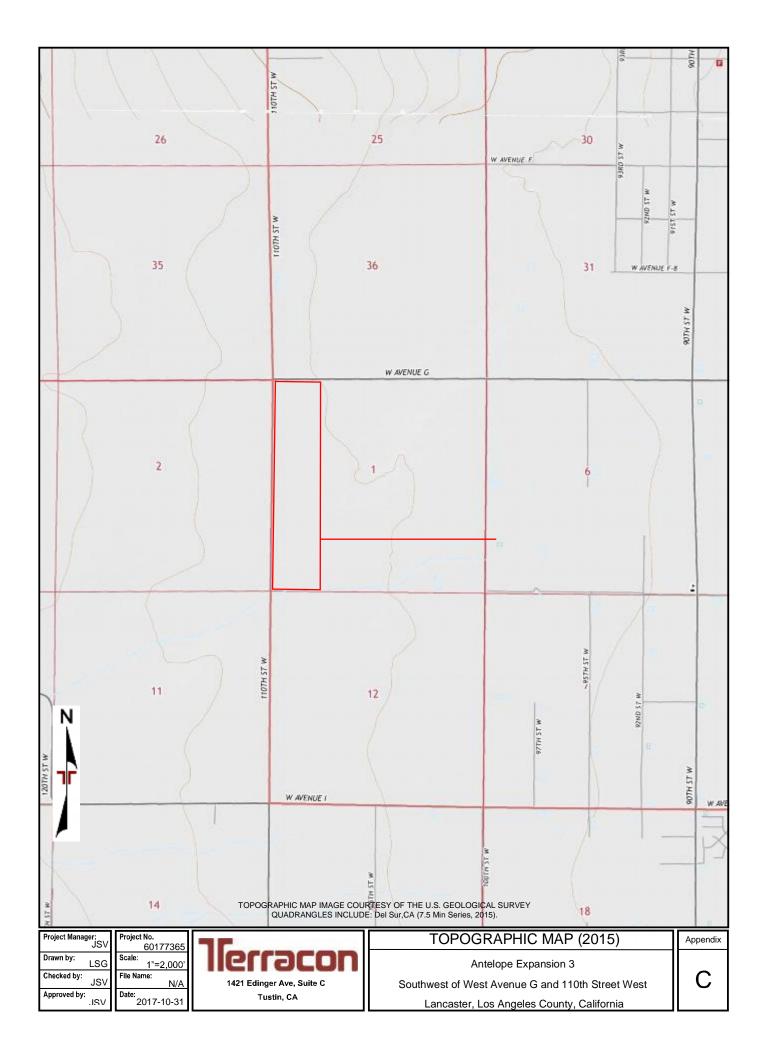
Topographic Maps included in this report are produced by the USGS and are to be used for research purposes including a phase I report. Maps are not to be resold as commercial property.

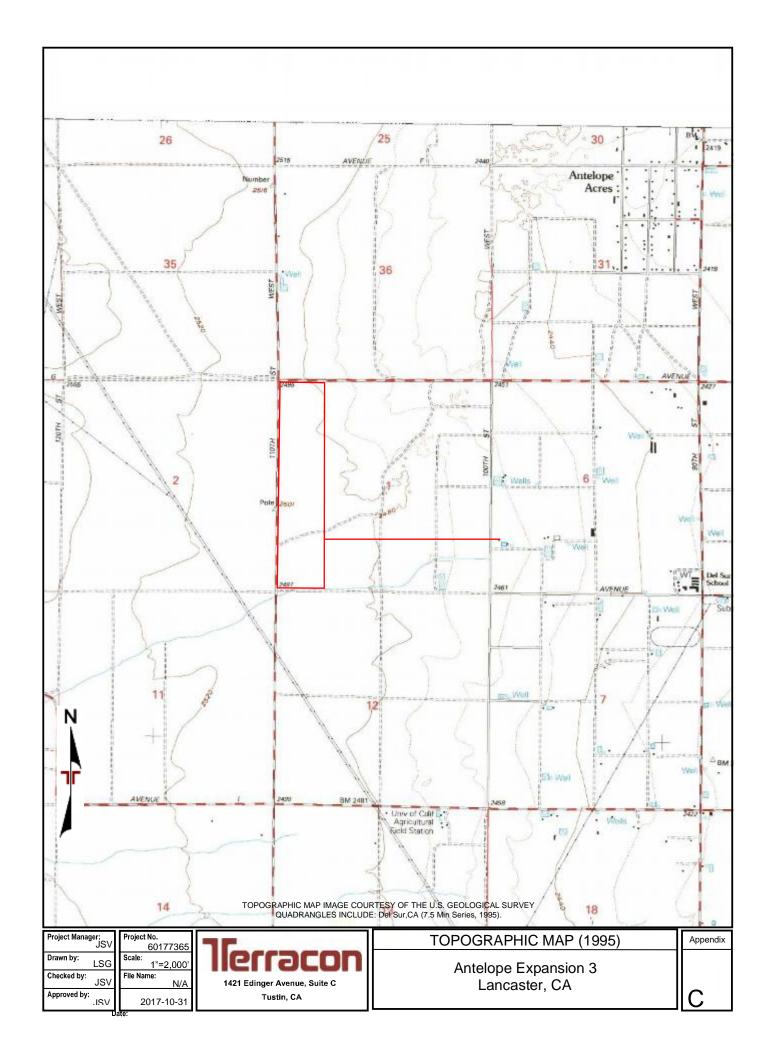
No warranty of Accuracy or Liability for ERIS: The information contained in this report has been produced by ERIS Information Inc. (in the US) and ERIS Information Limited Partnership (in Canada), both doing business as 'ERIS', using Topographic Maps produced by the USGS. This maps contained herein does not purport to be and does not constitute a guarantee of the accuracy of the information contained herein. Although ERIS has endeavored to present you with information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

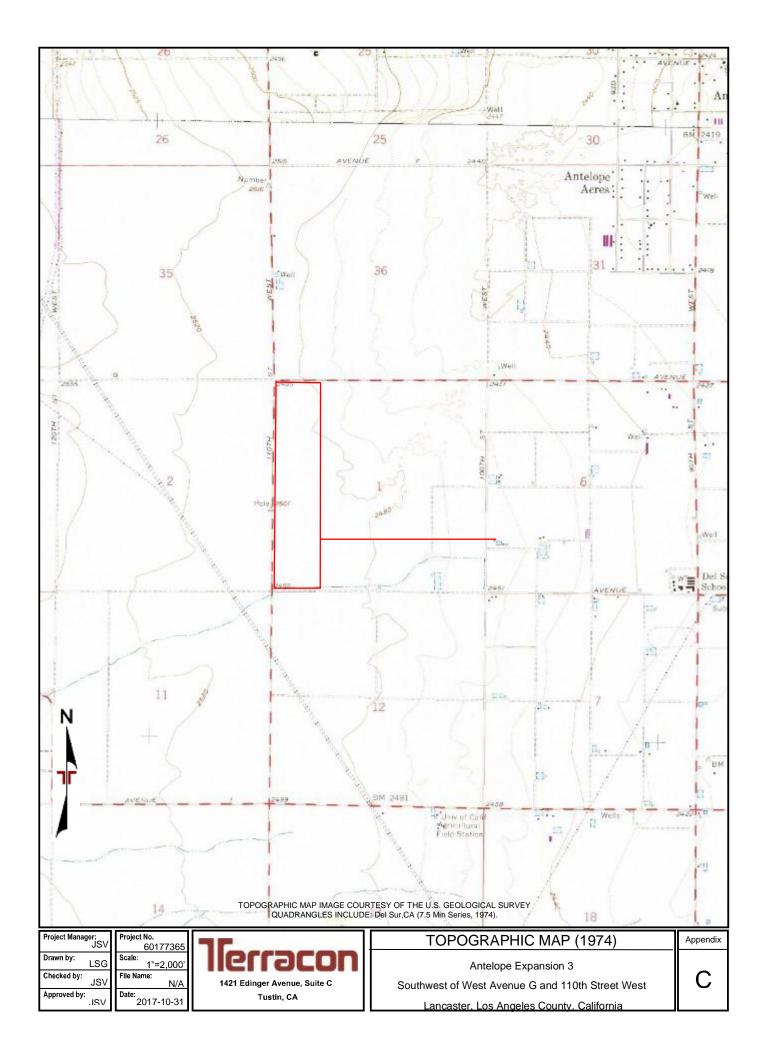
Address: 38 Lesmill Rd Unit 2, Toronto, ON M3B 2T5

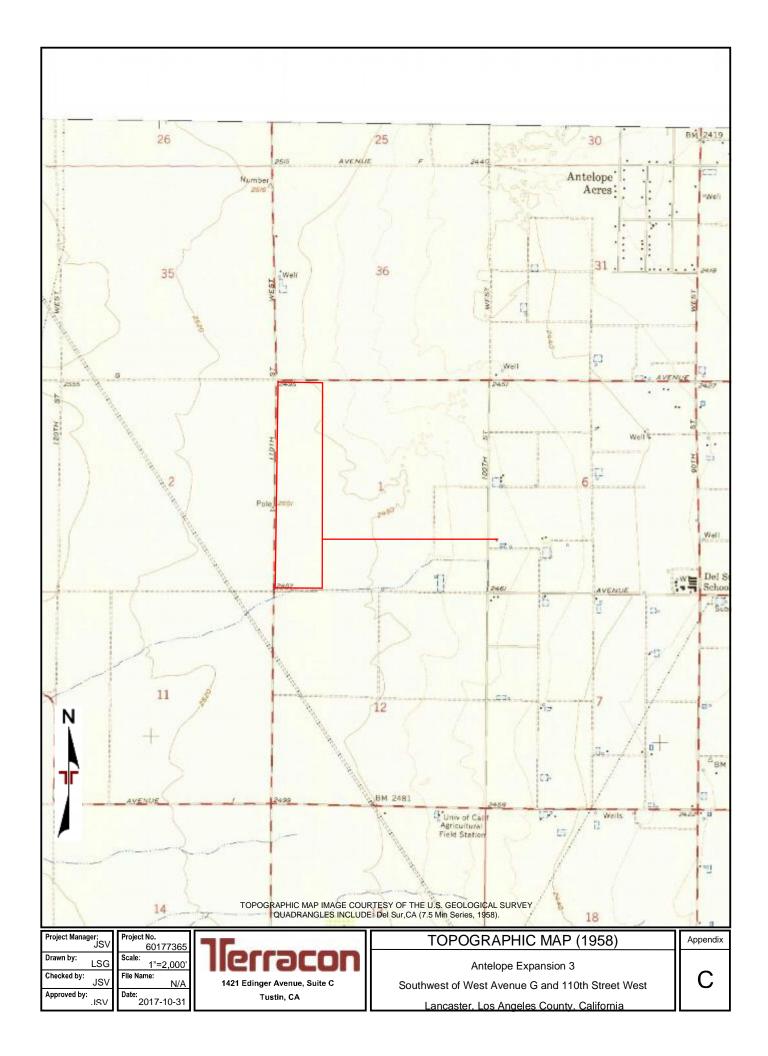
Phone: 1-866-517-5204

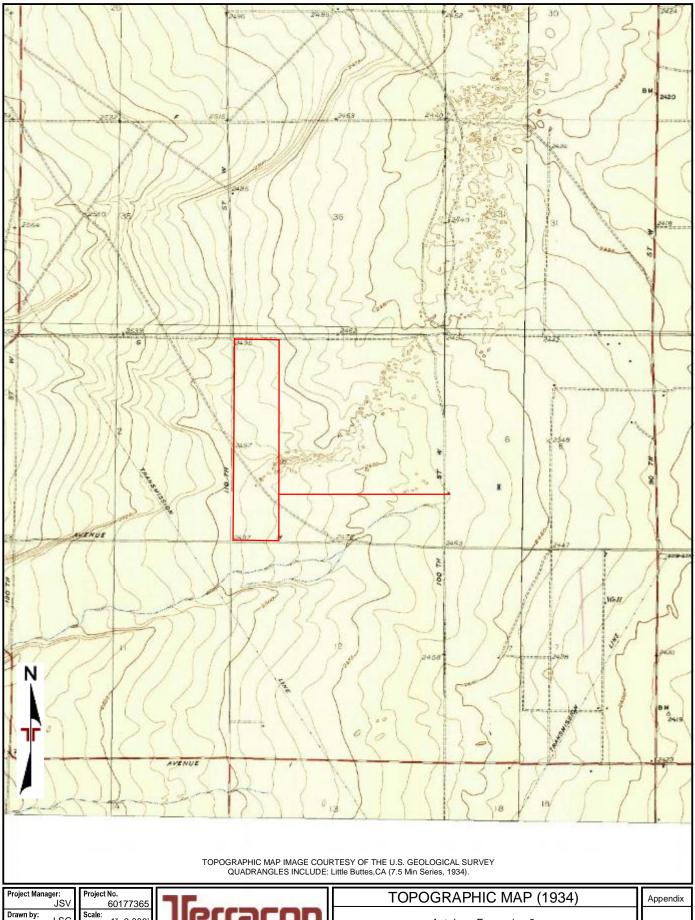
info@erisinfo.com • www.erisinfo.com









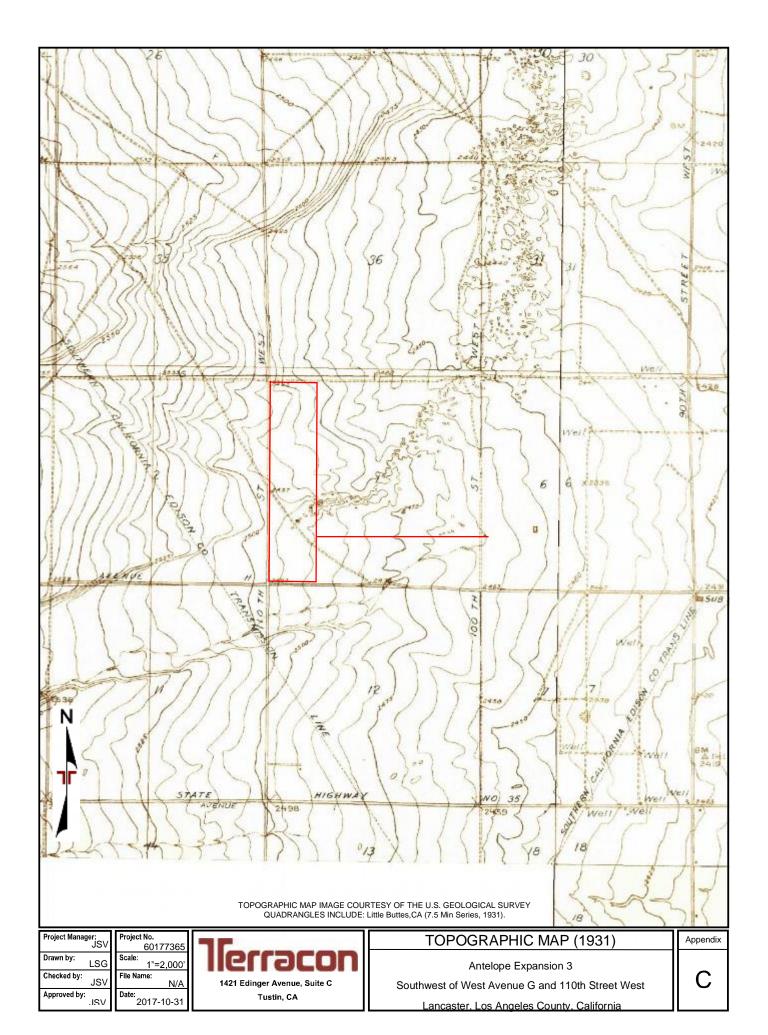


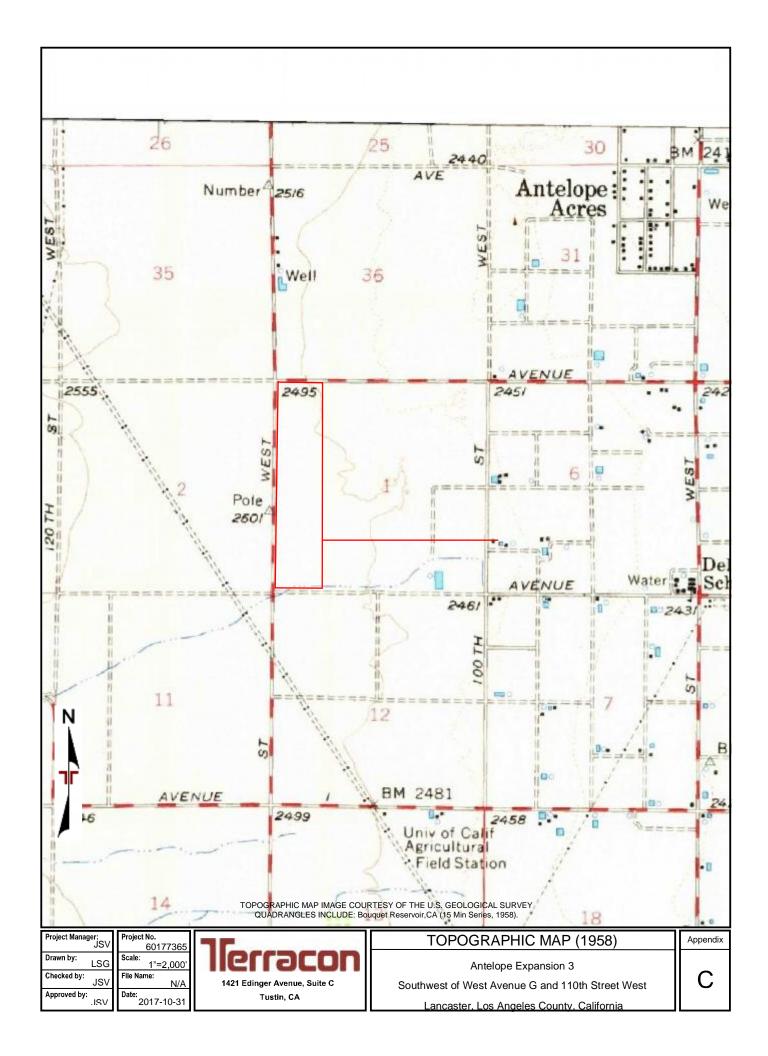
LSG Checked by: JSV Approved by: JSV

1"=2,000 File Name: N/A Date: 2017-10-31

1421 Edinger Avenue, Suite C Tustin, CA

Antelope Expansion 3 Southwest of West Avenue G and 110th Street West Lancaster, Los Angeles County, California







HISTORICAL AERIAL REPORT

for the site:

Royal Solar Order

n/a

Lancaster,CA PO #: 60177365

Report ID: 20171030225 Completed: 01/11/2017 **ERIS Information Inc.**

Environmental Risk Information Services (ERIS)

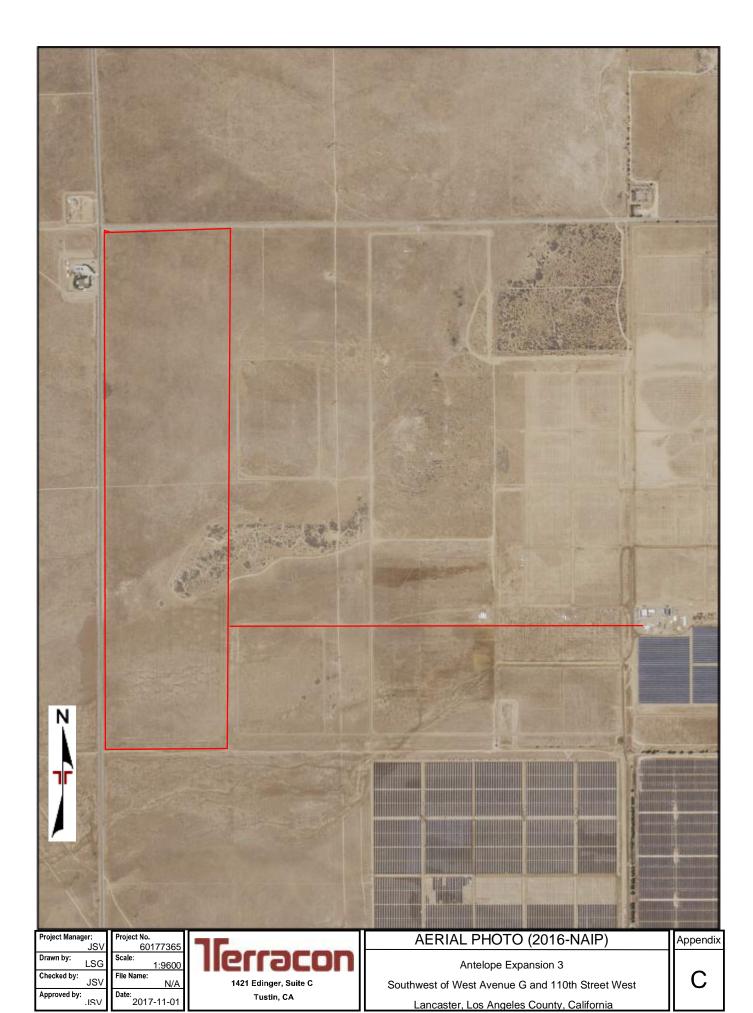
A division of Glacier Media Inc.

T: 1.866.517.5204 E: info@erisinfo.com

www.erisinfo.com

Search Results Summary

Date	Source	Scale	Comment
2016	NAIP	1:9600	
2014	NAIP	1:9600	
2012	NAIP	1:9600	
2010	NAIP	1:9600	
2005	NAIP	1:9600	
2003	NAIP	1:9600	
2002	USGS	1:9600	
1994	usgs	1:9600	
1987	NHAP	1:9600	
1978	USGS	1:9600	
1968	ASCS	1:9600	BEST COPY AVAILABLE
1963	USGS	1:9600	
1959	ASCS	1:9600	
1954	AMS	1:9600	
1948	ASCS	1:9600	
1928	FAIRCHILD	1:9600	





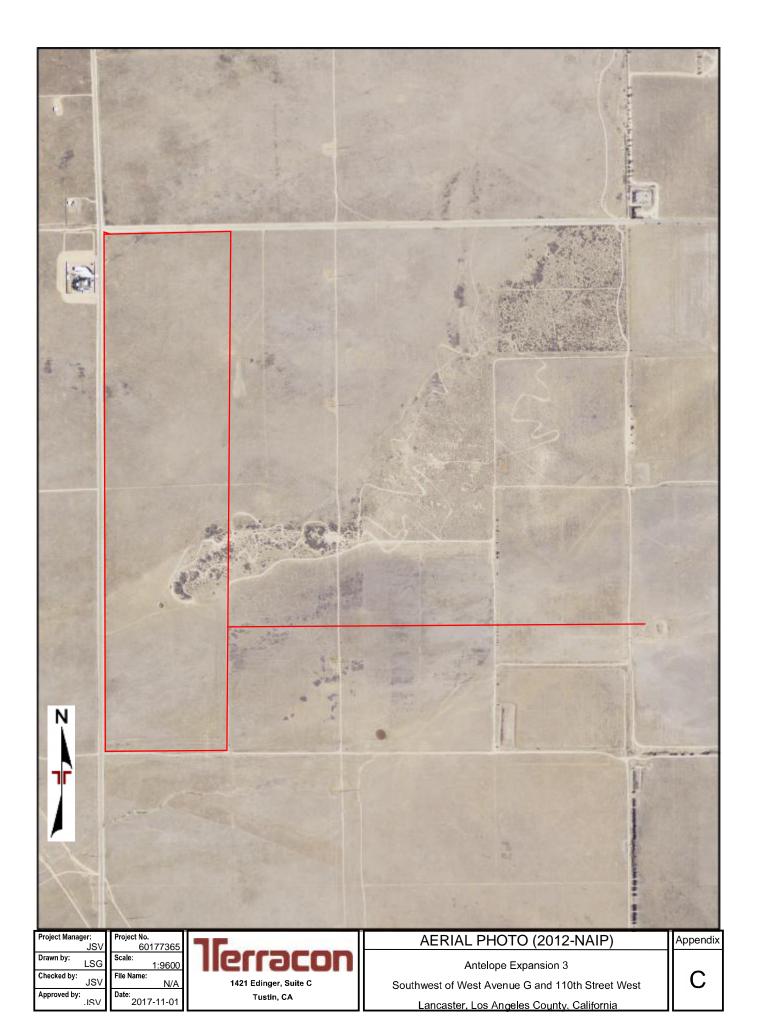
Drawn by: Checked by: JSV Approved by:

File Name: Date: 2017-11-01

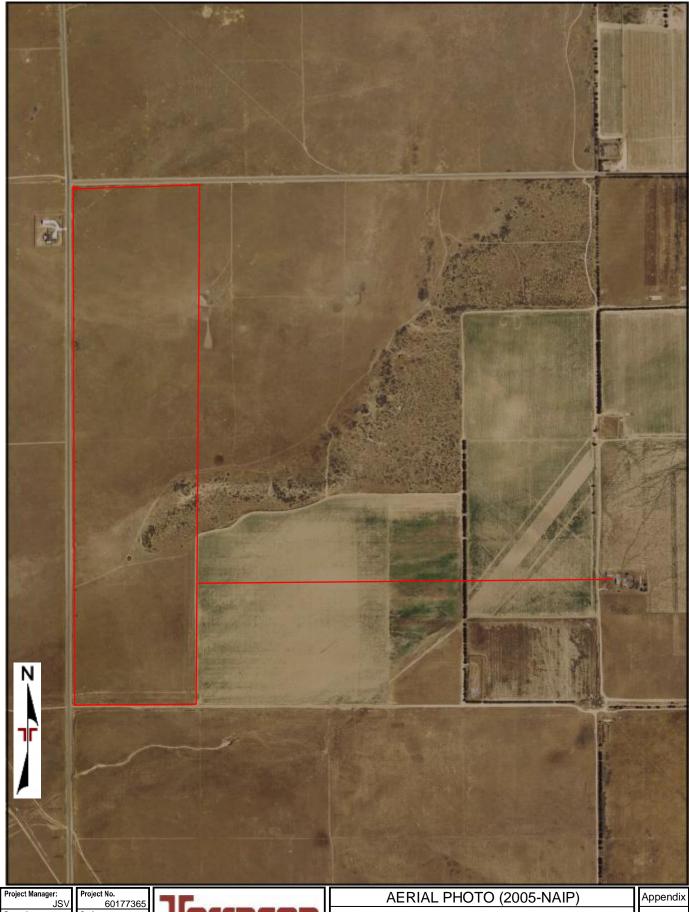
1421 Edinger, Suite C

Tustin, CA

Antelope Expansion 3 Southwest of West Avenue G and 110th Street West Lancaster, Los Angeles County, California







Project Manager:
JSV

Drawn by:
LSG

Checked by:
JSV

Approved by:
JSV

Project No. 60177365
Scale: 1:9600
File Name: N/A
Date: 2017-11-01

Terracon

1421 Edinger, Suite C

Tustin, CA

Antelope Expansion 3

Southwest of West Avenue G and 110th Street West

Lancaster, Los Angeles County, California

C



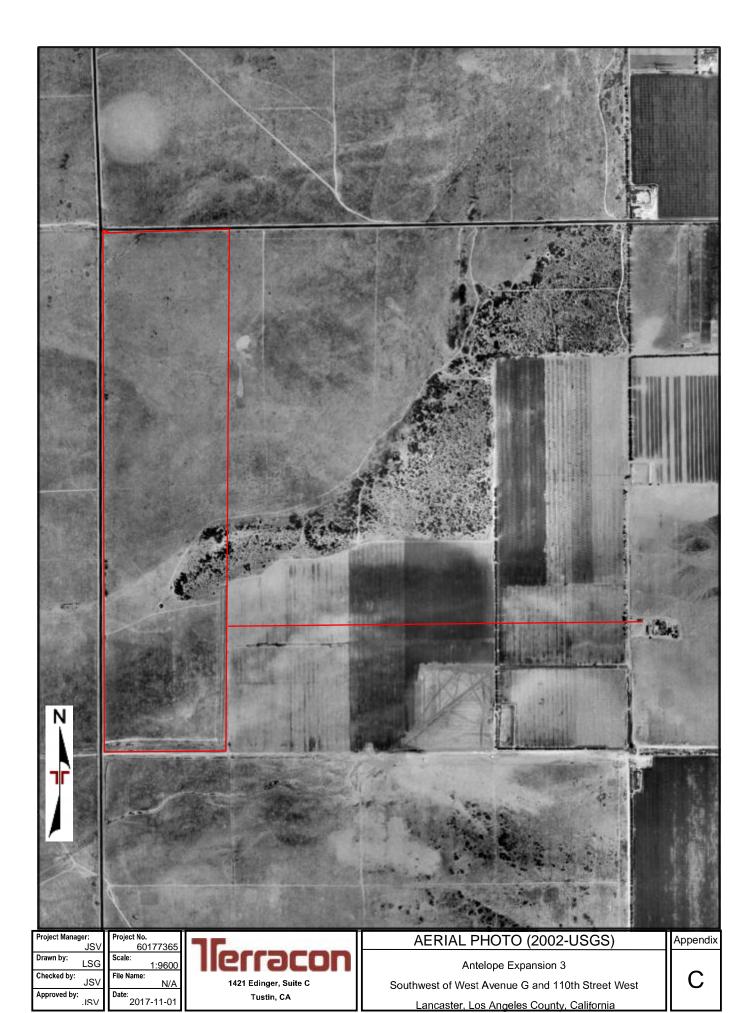
Drawn by: Checked by: JSV Approved by:

N/A Date: 2017-11-01

1421 Edinger, Suite C

Tustin, CA

Antelope Expansion 3 Southwest of West Avenue G and 110th Street West Lancaster, Los Angeles County, California









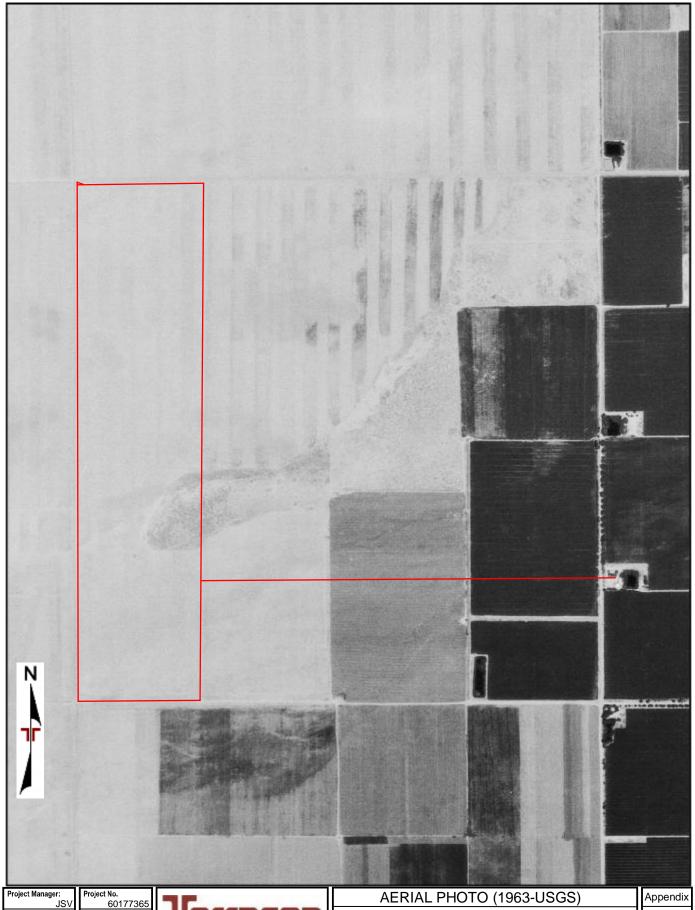


Drawn by: Checked by: JSV Approved by:

N/A Date: 2017-11-01

1421 Edinger, Suite C Tustin, CA

Antelope Expansion 3 Southwest of West Avenue G and 110th Street West Lancaster, Los Angeles County, California



Project Manager:
JSV
Drawn by:
LSG
Checked by:
JSV
Approved by:

Project No. 60177365
Scale: 1:9600
File Name: N/A
Date: 2017-11-01

Terracon

1421 Edinger, Suite C

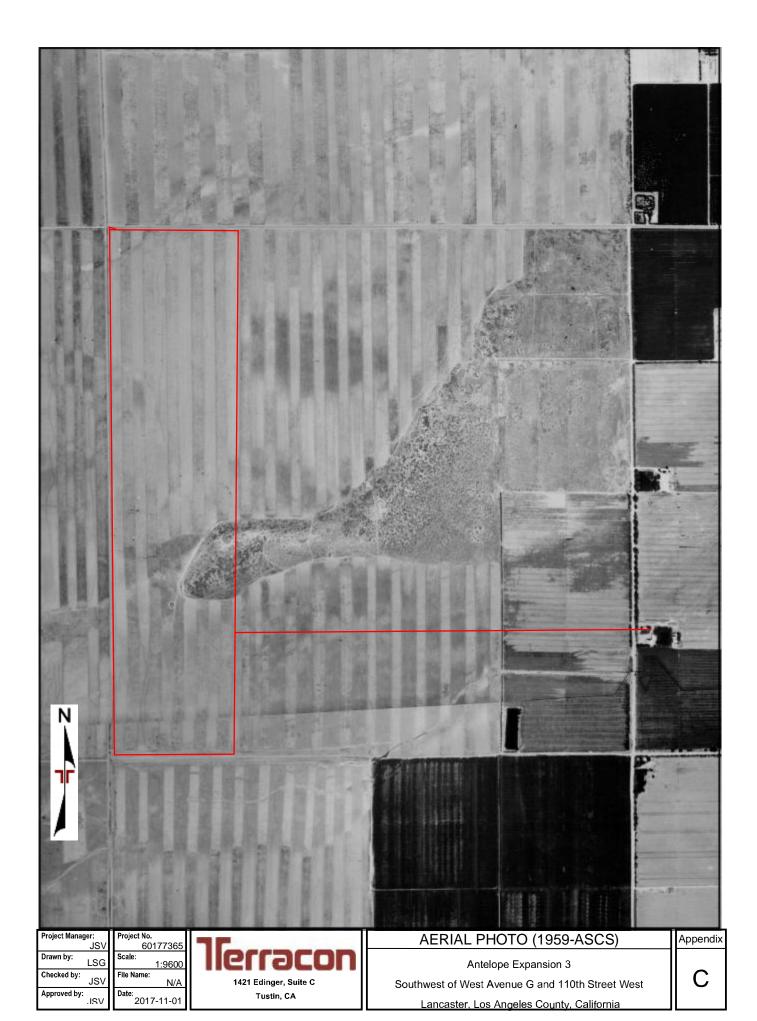
Tustin, CA

Antelope Expansion 3

Southwest of West Avenue G and 110th Street West

<u>Lancaster, Los Angeles County, California</u>

C





LSG Checked by:

JSV N/A Approved by: Date: 2017-11-01

1421 Edinger, Suite C Tustin, CA

Antelope Expansion 3 Southwest of West Avenue G and 110th Street West Lancaster, Los Angeles County, California



Project Manager:
__JS\ Drawn by: Checked by: JSV Approved by:

Date: 2017-11-01

1421 Edinger, Suite C

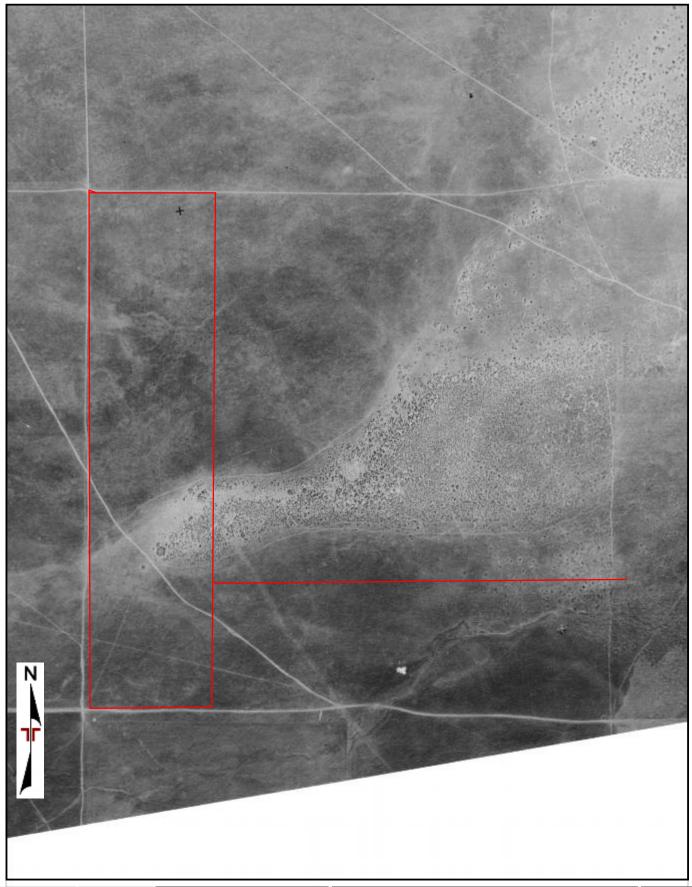
Tustin, CA

AERIAL PHOTO (1948-ASCS)

Antelope Expansion 3

Southwest of West Avenue G and 110th Street West Lancaster, Los Angeles County, California

Appendix



Project Manager: JSV
Drawn by: LSG
Checked by: JSV
Approved by: .ISV

Project No. 60177365
Scale: 1:9600
File Name: N/A
Date: 2017-11-01

Terracon
1421 Edinger, Suite C

Tustin, CA

AERIAL PHOTO (1928-FAIRCHILD)

Appendix

Antelope Expansion 3

Southwest of West Avenue G and 110th Street West

Lancaster, Los Angeles County, California

C



FIRE INSURANCE MAP RESEARCH RESULTS

Date: 10/31/2017

Order Number: 20171030225 n/a,Lancaster,CA

ERIS I	nas searched	our in-house	collection	of Fire	Insurance	Maps for	the a	address	at:
n/a,L	ancaster,CA								

Please note that no information was found for your site or adjacent properties.

If you have any questions regarding the enclosed information, please do not hesitate to contact us.

Individual Fire Insurance Maps for the subject property and/or adjacent sites are included with the ERIS environmental database report to be used for research purposes only and cannot be resold for any other commercial uses other than for use in a Phase I environmental assessment.

Address: 38 Lesmill Rd Unit 2, Toronto, ON M3B 2T5

Phone: 1-866-517-5204

info@erisinfo.com • www.erisinfo.com

APPENDIX D ENVIRONMENTAL DATABASE INFORMATION



DATABASE REPORT

Project Property: Royal Solar Order

n/a

Lancaster CA

Project No:

Report Type: Database Report

Order No: 20171030225

Requested by: Terracon Consultants, Inc.

Date Completed: October 31, 2017

Environmental Risk Information Services

A division of Glacier Media Inc.

P: 1.866.517.5204 E: info@erisinfo.com

www.erisinfo.com

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Executive Summary

D=-		, Infa	umatian	
rio	perty	/ IIIIO	rmation	ē

Royal Solar Order **Project Property:**

n/a Lancaster CA

Project No:

Coordinates:

34.725397 Latitude: -118.322133 Longitude: **UTM Northing:** 3,843,387.03 **UTM Easting:** 378,947.72 **UTM Zone:** UTM Zone 11S

Elevation: 2,494 FT

Order Information:

Order No: 20171030225 **Date Requested:** October 30, 2017

Requested by: Terracon Consultants, Inc.

Database Report **Report Type:**

Historicals/Products:

Aerial Photographs Historical Aerials

City Directory Search Custom City Directory Search **ERIS Xplorer** Data and Historical Layer Viewer

Excel Add-On **Excel Add-On**

US Fire Insurance Maps **Fire Insurance Maps**

Physical Setting Report (PSR) PSR

Topographic Map Topographic Maps terraDOCS (Terracon) terraDOCS Report

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records		Naurus	Порену	0.12111	0.23111	0.301111	1.001111	
Federal								
NPL	Υ	1	0	0	0	0	0	0
PROPOSED NPL	Υ	1	0	0	0	0	0	0
DELETED NPL	Y	.5	0	0	0	0	-	0
SEMS	Y	.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	.5	0	0	0	0	-	0
CERCLIS	Y	.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Υ	1	0	0	0	0	0	0
RCRA TSD	Υ	.5	0	0	0	0	-	0
RCRA LQG	Υ	.25	0	0	0	-	-	0
RCRA SQG	Υ	.25	0	0	0	-	-	0
RCRA CESQG	Υ	.25	0	0	0	-	-	0
RCRA NON GEN	Y	.25	0	0	0	-	-	0
FED ENG	Y	.5	0	0	0	0	-	0
FED INST	Y	.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Υ	PO	0	-	-	-	-	0
ERNS 1907 TO 1909	Υ	PO	0	-	-	-	-	0
	Y	.5	0	0	0	0	-	0
FED BROWNFIELDS	Y	.25	0	0	0	-	-	0
FEMA UST	Y	PO	0	-	-	-	-	0
SEMS LIEN								
State								
RESPONSE	Y Y	1 1	0	0	0	0	0	0
ENVIROSTOR	Y Y	1	0	0	0	0	1 0	1
DELISTED ENVS	Y Y	.5	0	0		0	-	0
SWF/LF	Y Y	.5 1	0	0	0	0	0	0
HWP	,	1	U	U	U	U	U	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
LDS	Y	.5	0	0	0	0	-	0
LUST	Y	.5	0	0	0	0	-	0
DLST	Y	.5	0	0	0	0	-	0
UST	Y	.25	0	0	0	-	-	0
UST CLOSURE	Y	.5	0	0	0	0	-	0
HHSS	Υ	.25	0	0	0	-	-	0
AST	Υ	.25	0	0	0	-	-	0
DELISTED TNK	Υ	.25	0	0	0	-	-	0
CERS TANK	Υ	.25	0	0	0	-	-	0
DELISTED HAZ	Υ	.5	0	0	0	0	-	0
LUR	Υ	.5	0	0	0	0	-	0
HLUR	Υ	.5	0	0	0	0	-	0
DEED	Y	.5	0	0	0	0	-	0
VCP	Y	.5	0	0	0	0	-	0
CLEANUP SITES	Y	.5	0	0	0	0	-	0
CERS HAZ	Y	.5	0	0	0	0	-	0
DELISTED CTNK	Y	.25	0	0	0	-	-	0
Tribal								
INDIAN LUST	Y	.5	0	0	0	0	-	0
INDIAN UST	Υ	.25	0	0	0	-	-	0
DELISTED ILST	Υ	.5	0	0	0	0	-	0
DELISTED IUST	Y	.25	0	0	0	-	-	0
County								
DELISTED COUNTY	Υ	.25	0	0	0	-	-	0
BURBANK CUPA	Y	.25	0	0	0	-	-	0
ELSEGUNDO UST	Y	.25	0	0	0	-	-	0
SANTAFESP UST	Y	.25	0	0	0	-	-	0
SANTAMON AST	Y	.25	0	0	0	-	-	0
SANTAMON CUPA	Y	.25	0	0	0	-	-	0
SANTAMON HAZ	Υ	.25	0	0	0	-	-	0
SANTAMON HW	Υ	.25	0	0	0	-	-	0
SANTA MONICA UST	Υ	.25	0	0	0	-	-	0
TORRANCE UST	Υ	.25	0	0	0	-	-	0
VERNON CUPA	Y	.25	0	0	0	-	-	0
VERNON UST	Y	.25	0	0	0	-	-	0
LA HMS	Υ	.25	0	0	0	-	-	0
LA LONGB UST	Υ	.25	0	0	0	-	-	0
LA SWF	Υ	.5	0	0	0	0	-	0
LA OWI								

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Federal			.,,					
FINDS/FRS	Υ	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
HMIRS	Y	.125	0	0	-	-	-	0
NCDL	Y	PO	0	-	-	-	-	0
ODI	Y	.5	0	0	0	0	-	0
IODI	Y	.5	0	0	0	0	-	0
TSCA	Y	.125	0	0	-	-	-	0
HIST TSCA	Y	.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	.25	0	0	0	-	-	0
DELISTED FED DRY	Y	.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	.25	0	0	0	-	-	0
ALT FUELS	Y	.25	0	0	0	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0
SSTS	Y	.25	0	0	0	-	-	0
PCB	Y	.5	0	0	0	0	-	0
State								
INSP COMP ENF	Υ	1	0	0	0	0	0	0
CDL	Y	.125	0	0	-	-	-	0
SCH	Y	1	0	0	0	0	1	1
CHMIRS	Y	PO	0	-	-	-	-	0
SWAT	Y	.5	0	0	0	0	-	0
HAZNET	Y	PO	0	-	-	-	-	0
SWRCB SWF	Y	.5	0	0	0	0	-	0
HWSS CLEANUP	Y	.5	0	0	0	0	-	0
DTSC HWF	Y	.5	0	0	0	0	-	0
HIST MANIFEST	Y	PO	0	-	-	-	-	0
HIST CHMIRS	Y	PO	0	-	-	-	-	0
HIST CORTESE	Υ	.5	0	0	0	0	-	0
CDO/CAO	Υ	.5	0	0	0	0	-	0
	Υ	.25	0	0	0	-	-	0
DRYCLEANERS DELISTED DRYC	Υ	.25	0	0	0	-	-	0
DELISTED DRYC								

Database	Searched	Search Radius	Project Property	Within 0.12mi	.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total	
WASTE DISCHG	Υ	.25	0	0	0	-	-	0	
EMISSIONS	Υ	.25	0	0	0	-	-	0	
Tribal	No Tribal additional environmental record sources available for this State.								
County									
LA SML	Y	.5	0	0	0	0	-	0	
	Total:		0	0	0	0	2	2	

^{*} PO – Property Only
* 'Property and adjoining properties' database search radii are set at 0.25 miles.

Executive Summary: Site Report Summary - Project Property

Map DB Company/Site Name Address Direction Distance Elev Diff Page Key (mi/ft) (ft) Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	ENVIROSTOR	DEL SUR SCHOOL	9023 WEST AVENUE H LANCASTER CA 93536	ESE	0.93 / 4,896.77	-59	<u>16</u>
<u>1</u>	SCH	DEL SUR SCHOOL	9023 WEST AVENUE H LANCASTER CA 93536	ESE	0.93 / 4,896.77	-59	<u>16</u>

Executive Summary: Summary by Data Source

Standard

State

ENVIROSTOR - EnviroStor Database

A search of the ENVIROSTOR database, dated Sep 14, 2017 has found that there are 1 ENVIROSTOR site(s) within approximately 1.00 miles of the project property.

Lower Elevation	<u>Address</u>	<u>Direction</u>	Distance (mi/ft)	<u>Map Key</u>
DEL SUR SCHOOL	9023 WEST AVENUE H LANCASTER CA 93536	ESE	0.93 / 4,896.77	<u>1</u>

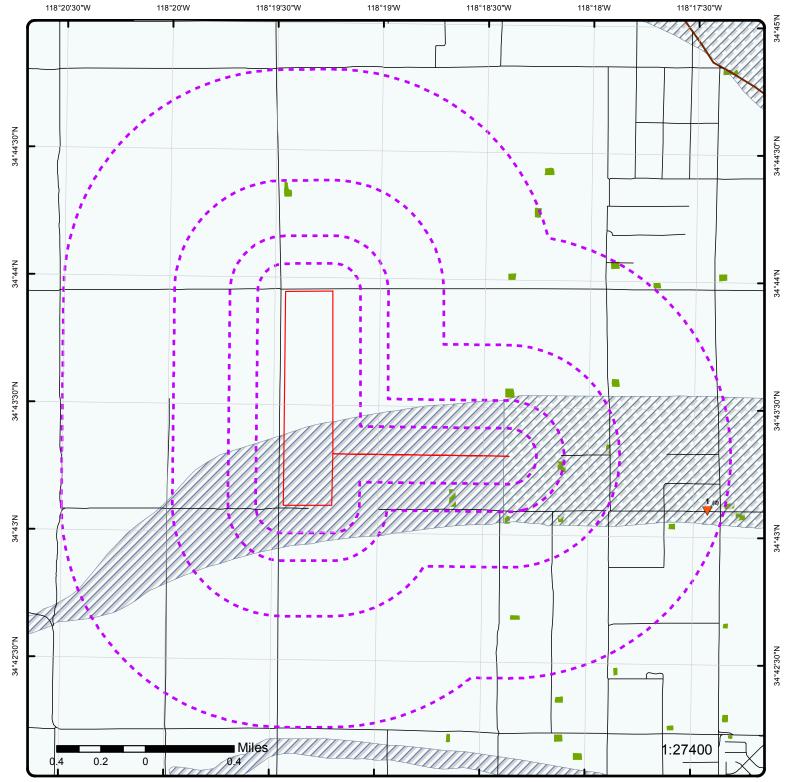
Non Standard

State

SCH - School Property Evaluation Program Sites

A search of the SCH database, dated Sep 20, 2017 has found that there are 1 SCH site(s) within approximately 1.00 miles of the project property.

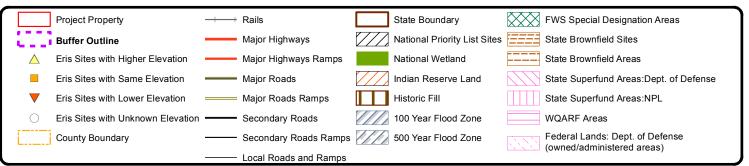
Lower Elevation	<u>Address</u>	<u>Direction</u>	Distance (mi/ft)	Map Key
DEL SUR SCHOOL	9023 WEST AVENUE H LANCASTER CA 93536	ESE	0.93 / 4,896.77	<u>1</u>



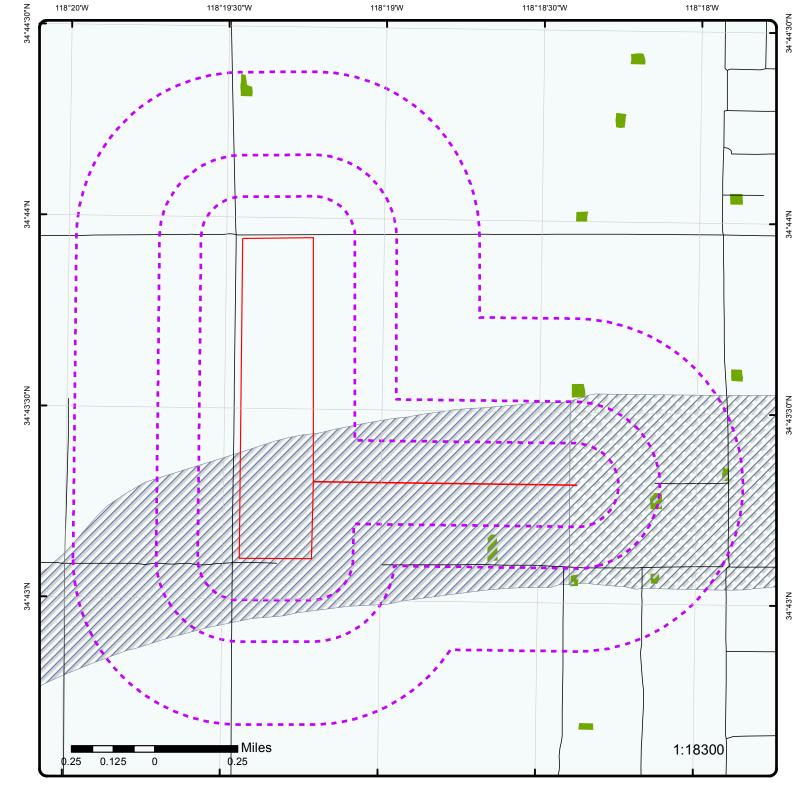
Map: 1 Mile Radius

Order No: 20171030225 Address: n/a, Lancaster, CA





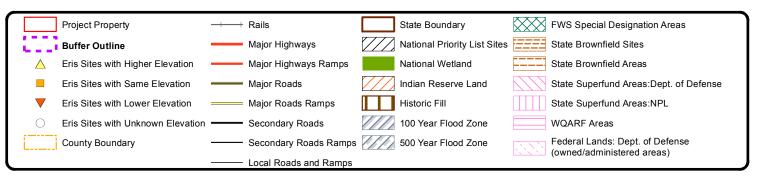
Source: © 2016 ESRI © ERIS Information Inc.



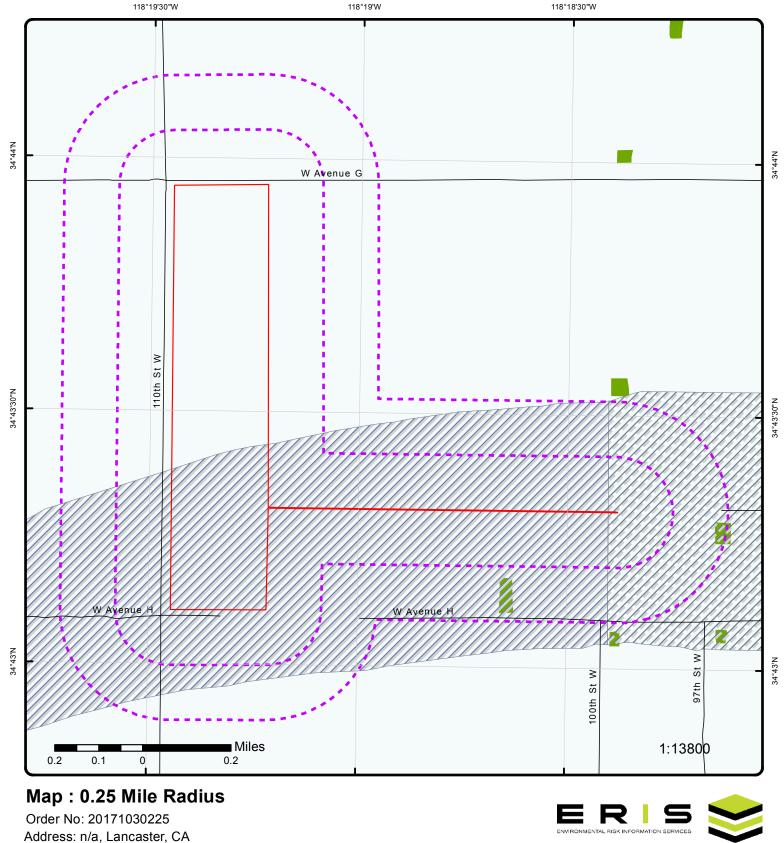
Map: 0.5 Mile Radius

Order No: 20171030225 Address: n/a, Lancaster, CA

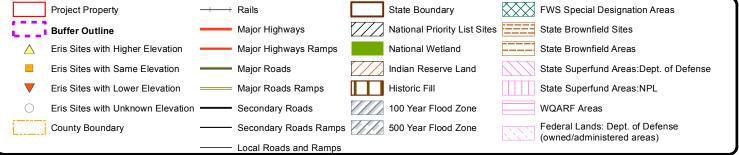




Source: © 2016 ESRI © ERIS Information Inc.





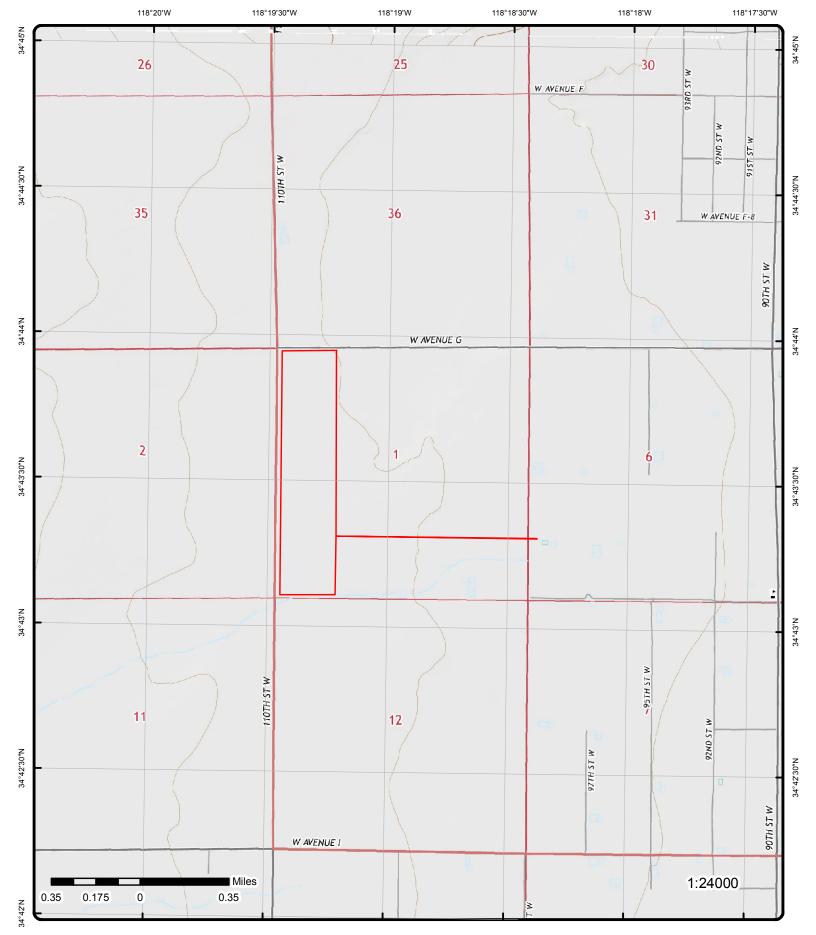


Aerial (2005)

Address: n/a, Lancaster, CA

Source: ESRI World Imagery





Topographic Map

Address: n/a, Lancaster, CA

Source: USGS Topographic Map

Order No: 20171030225





© ERIS Information Inc.

Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 2	ESE	0.93 / 4,896.77	2,434.44 / -59	DEL SUR SCHOOL 9023 WEST AVENUE H LANCASTER CA 93536	ENVIROSTOR
- · /-D4	10	2004			. 5:	

 Estor/EPA ID:
 19820031
 Assembly District:
 36

 Site Type:
 SCHOOL
 Senate District:
 21

 Out:
 204004
 Address Posses
 20

 Site Code:
 304304
 Address Desc:
 9023 WEST AVENUE H

 Ntnl Priority List:
 NO
 File 2 Address:
 9023 WEST AVENUE H

 Acres:
 10 ACRES
 County:
 LOS ANGELES

 Special Program:
 Latitude:
 34.7184

Funding: SCHOOL DISTRICT Longitude: -118.2905

APN: NONE SPECIFIED Past Caused Contam: EDUCATION

 APN:
 NONE SPECIFIED
 Past Caused Contam:
 EDUCATIONAL SERVICES

 File Name:
 ENVS_PARTII_2017_Jun28.xls;
 Pot. Media Affect:
 NO MEDIA AFFECTED

 EnviroStorCleanupSites sites.txt

Clean Up Status: NO ACTION REQUIRED AS OF 7/3/2001

Clean Up Oversight Agencies: DTSC - LEAD

School District: WESTSIDE UNION ELEMENTARY SCHOOL DISTRICT

Potential Contaminants:

NO CONTAMINANTS FOUND

Site History:

This is the existing 10-acre site of a current Westside Union Elementary School District school since 1949.

Facility Information

Program Type:SCHOOL EVALUATIONStatus:NO ACTION REQUIRED

Summary Link: http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=19820031

Completed Activities

Activity Type: Completed Activities

Area Name: Sub Area:

Date Completed: 7/3/2001
Document Type: Phase 1

Doc Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2.asp?global_id=19820031&doc_id=6001894

Comments:

Activity Type: Completed Activities

Area Name:

Sub Area:
Date Completed: 6/28/2001

Document Type: Site Inspections/Visit (Non LUR)

Doc Link:

Comments:

1 2 of 2 ESE 0.93 / 2,434.44 / DEL SUR SCHOOL 4,896.77 -59 9023 WEST AVENUE H

LANCASTER CA 93536

Order No: 20171030225

ESTOR/EPA ID: 19820031 **Site Code:** 304304

DB Map Key Number of Direction Distance Elev/Diff Site Records (mi/ft) (ft)

NO ACTION REQUIRED Status:

Cleanup Status: NO ACTION REQUIRED AS OF 7/3/2001

Program Type: SCHOOL EVALUATION

SCHOOL Site Type: National Priorities List: NO

CI Up Oversight Agencies: DTSC - LEAD AGENCY LOS ANGELES

County:

Special Program:

Funding: SCHOOL DISTRICT APN: NONE SPECIFIED

Past Use Caused Contam: **EDUCATIONAL SERVICES** Potential Contam of Cncrn: NO CONTAMINANTS FOUND NO MEDIA AFFECTED Potential Media Affected:

Acres: 10 ACRES

WESTSIDE UNION ELEMENTARY SCHOOL DISTRICT School District:

http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=19820031 Summary Link:

Assembly District: Senate District: 21 Latitude: 34.7184 Longitude: -118.2905

SITE HISTORY:

This is the existing 10-acre site of a current Westside Union Elementary School District school since 1949.

Completed Activities

Date Completed: 6/28/2001 Area Name: Site Inspections/Visit (Non LUR) Document Type: Sub Area:

Doc Link: Comments:

Date Completed: 7/3/2001 Area Name: Document Type: Phase 1 Sub Area:

http://www.envirostor.dtsc.ca.gov/public/final_documents2.asp?global_id=19820031&doc_id=6001894 Doc Link:

Order No: 20171030225

Comments:

Unplottable Summary

Total: 4 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
CDL		OFF AVE G, 200 YDS OUTSIDE LA	LANCASTER CA	93534	820123738
CDL		ON AVENUE G, BETWEEN 100 WEST AND 110 WEST	LANCASTER CA	93536	820116207
FINDS/FRS	J G COLE AND SONS	42406 N 100TH ST E	LANCASTER CA	93535	840147877
HHSS	RETLAW WEST RANCH	44040 N. 110TH ST. EAST	LANCASTER CA	93535	822981412

Unplottable Report

Site:

OFF AVE G, 200 YDS OUTSIDE LA LANCASTER CA 93534

CDL

Clue: 1997-02-074 2/15/1997 Date:

SAN BERNARDINO Lab Type: Α County:

Lab Type Description: Abandoned Drug Lab Waste - location away from an actual illegal drug lab where drug lab waste and/or equipment

were abandoned.

Site:

ON AVENUE G, BETWEEN 100 WEST AND 110 WEST LANCASTER CA 93536

CDL

Clue: 2002-07-065 Date: 7/16/2002 LOS ANGELES Lab Type: Α County:

Lab Type Description: Abandoned Drug Lab Waste - location away from an actual illegal drug lab where drug lab waste and/or equipment

were abandoned.

Site: J G COLE AND SONS

42406 N 100TH ST E LANCASTER CA 93535

FINDS/FRS

Registry ID: 110065963531

FIPS Code:

Program Acronyms: **CA-ENVIROVIEW**

HUC Code:

STATIONARY Site Type Name:

EPA Region Code:

Conveyor:

Source: County Name:

LOS ANGELES

SIC Codes:

SIC Code Descriptions:

NAICS Codes:

Federal Facility Code: **NAICS Code Descriptions:** Federal Agency Name: US/Mexico Border Ind: Congressional Dist No.:

Create Date: 14-OCT-2015 09:12:50

Census Block Code: **Update Date:** Location Description: Supplemental Location: Tribal Land Code: Tribal Land Name:

Latitude: Lonaitude:

Coord Collection Method:

Accuracy Value:

Datum: NAD83

Reference Point: Interest Types: STATE MASTER

http://ofmpub.epa.gov/enviro/fii_query_detail.disp_program_facility?p_registry_id=110065963531 Facility Detail Rprt URL:

RETLAW WEST RANCH Site:

44040 N. 110TH ST. EAST LANCASTER CA 93535

HHSS

Order No: 20171030225

Los Angeles County:

http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00027f55.pdf

Order No: 20171030225

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

NPL National Priority List:

National Priorities List (Superfund)-NPL: EPA's (United States Environmental Protection Agency) list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action.

Government Publication Date: Sep 13, 2017

National Priority List - Proposed:

PROPOSED NPL

Includes sites proposed (by the EPA, the state, or concerned citizens) for addition to the NPL due to contamination by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.

Government Publication Date: Sep 13, 2017

Deleted NPL:

DELETED NPL

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Government Publication Date: Sep 13, 2017

SEMS List 8R Active Site Inventory:

SEMS

The Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted.

Government Publication Date: Jul 11, 2017

SEMS List 8R Archive Sites: SEMS ARCHIVE

The Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

Government Publication Date: Jul 11, 2017

<u>Comprehensive Environmental Response, Compensation and Liability Information System-CERCLIS:</u>

CERCLIS

Order No: 20171030225

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

CERCLIS - No Further Remedial Action Planned:

CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS LIENS CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action:

RCRA CORRACTS

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Aug 10, 2017

RCRA non-CORRACTS TSD Facilities:

RCRATSD

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Government Publication Date: Aug 10, 2017

RCRA Generator List:

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Aug 10, 2017

RCRA Small Quantity Generators List:

RCRA SQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Aug 10, 2017

RCRA Conditionally Exempt Small Quantity Generators List:

RCRA CESQG

Order No: 20171030225

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Conditionally Exempt Small Quantity Generators (CESQG) generate 100 kilograms or less per month of hazardous waste or one kilogram or less per month of acutely hazardous waste.

Government Publication Date: Aug 10, 2017

RCRA Non-Generators:

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Aug 10, 2017

Federal Engineering Controls-ECs:

FED ENG

Engineering controls (ECs) encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 20, 2016

Federal Institutional Controls- ICs:

FED INST

Institutional controls are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's (United States Environmental Protection Agency) expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

Government Publication Date: Jan 20, 2016

Emergency Response Notification System:

ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System:

ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System:

ERNS

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Feb 8, 2017

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database:

FED BROWNFIELDS

Order No: 20171030225

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Feb 3, 2017

FEMA Underground Storage Tank Listing:

FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: May 31, 2017

<u>LIEN on Property:</u> SEMS LIEN

The EPA Superfund Enterprise Management System (SEMS) provides LIEN information on properties under the EPA Superfund Program. Government Publication Date: Jul 11, 2017

State

State Response Sites:

A list of identified confirmed release sites where the Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. This database is state equivalent NPL.

Government Publication Date: Sep 22, 2017

EnviroStor Database: ENVIROSTOR

The EnviroStor Data Management System is made available by the Department of Toxic Substances Control (DTSC). Includes Corrective Action sites, Tiered Permit sites, Historical Sites and Evaluation/Investigation sites. This database is state equivalent CERCLIS.

Government Publication Date: Sep 14, 2017

Delisted EnviroStor Database:

DELISTED ENVS

Sites removed from the list of facilities made available by the EnviroStor Data Management System, Department of Toxic Substances Control (DTSC). Government Publication Date: Sep 22, 2017

Solid Waste Information System (SWIS):

SWF/LF

The Solid Waste Information System (SWIS) database made available by the Department of Resources Recycling and Recovery (CalRecycle) contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

Government Publication Date: Aug 30, 2017

EnviroStor Hazardous Waste Facilities:

HWP

A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database.

Government Publication Date: Aug 29, 2017

Land Disposal Sites:

LDS

Land Disposal Sites in GeoTracker, the State Water Resources Control Board (SWRCB)'s data management system. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.

Government Publication Date: Jul 18, 2017

Leaking Underground Fuel Tank Reports:

LUST

List of Leaking Underground Storage Tanks within the Cleanup Sites data in GeoTracker database. GeoTracker is the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense and Site Cleanup Program) as well as permitted facilities such as operating Underground Storage Tanks. The Leak Prevention Program that overlooks LUST sites is the SWRCB in California's Environmental Protection Agency.

Government Publication Date: Aug 14, 2017

Delisted Leaking Storage Tanks:

DLST

List of Leaking Underground Storage Tanks (LUST) cleanup sites removed from GeoTracker, the State Water Resources Control Board (SWRCB)'s database system, as well as sites removed from the SWRCB's list of UST Case closures.

Government Publication Date: Aug 14, 2017

Permitted Underground Storage Tank (UST) in GeoTracker:

UST

List of Permitted Underground Storage Tank (UST) sites made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA).

Government Publication Date: Sep 25, 2017

Proposed Closure of Underground Storage Tank Cases:

UST CLOSURE

List of UST cases that are being considered for closure by either the California Environmental Protection Agency, State Water Resources Control Board or the Executive Director that have been posted for a 60-day public comment period.

Government Publication Date: Aug 31, 2017

Historical Hazardous Substance Storage Information Database:

HHSS

The Historical Hazardous Substance Storage database contains information collected in the 1980s from facilities that stored hazardous substances. The information was originally collected on paper forms, was later transferred to microfiche, and recently indexed as a searchable database. When using this database, please be aware that it is based upon self-reported information submitted by facilities which has not been independently verified. It is unlikely that every facility responded to the survey and the database should not be expected to be a complete inventory of all facilities that were operating at that time. This database is maintained by the California State Water Resources Control Board's (SWRCB) Geotracker.

Government Publication Date: Aug 27, 2015

Aboveground Storage Tanks:

AST

Order No: 20171030225

A statewide list from 2009 of aboveground storage tanks (ASTs) made available by the Cal FIRE Office of the State Fire Marshal (OSFM). This list is no longer maintained or updated by the Cal FIRE OSFM.

DELISTED TNK

This database contains a list of storage tank sites that were removed by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA) and the Cal FIRE Office of State Fire Marshal (OSFM).

Government Publication Date: Sep 25, 2017

California Environmental Reporting System (CERS) Tanks:

CERS TANK

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: May 30, 2017

Delisted Environmental Reporting System (CERS) Hazardous Waste Sites:

DELISTED HAZ

This database contains a list of sites that were removed from the California Environmental Protection Agency (CalEPA) in the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator.

Government Publication Date: May 30, 2017

Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions:

LUR

The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents land use restrictions that are active. Some sites have multiple land use restrictions.

Government Publication Date: Sep 12, 2017

Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions:

HLUR

The Department of Toxic Substances Control (DTSC) Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Government Publication Date: Sep 8, 2017

Deed Restrictions and Land Use Restrictions:

DEED

List of Deed Restrictions, Land Use Restrictions and Covenants in GeoTracker made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency. A deed restriction (land use covenant) may be required to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

Government Publication Date: Oct 4, 2017

Voluntary Cleanup Program:

VCP

List of sites in the Voluntary Cleanup Program made available by the Department of Toxic Substances and Control (DTSC). The Voluntary Cleanup Program was designed to respond to lower priority sites. Under the Voluntary Cleanup Program, DTSC enters site-specific agreements with project proponents for DTSC oversight of site assessment, investigation, and/or removal or remediation activities, and the project proponents agree to pay DTSC's reasonable costs for those services.

Government Publication Date: Sep 7, 2017

GeoTracker Cleanup Sites Data:

CLEANUP SITES

Order No: 20171030225

A list of cleanup sites in the state of California made available by The State Water Resources Control Board (SWRCB) of the California Environmental Protection Agency (EPA). SWRCB tracks leaking underground storage tank cleanups as well as other water board cleanups.

Government Publication Date: Aug 14, 2017

California Environmental Reporting System (CERS) Hazardous Waste Sites:

CERS HAZ

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: May 30, 2017

Delisted California Environmental Reporting System (CERS) Tanks:

DELISTED CTNK

This database contains a list of Aboveground Petroleum Storage and Underground Storage Tank sites that were removed from in the California Environmental Protection Agency (CalEPA) Regulated Site Portal.

Government Publication Date: May 30, 2017

Tribal

Leaking Underground Storage Tanks (LUSTs) on Indian Lands:

INDIAN LUST

LUSTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Apr 13, 2017

Underground Storage Tanks (USTs) on Indian Lands:

INDIAN UST

USTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Apr 13, 2017

Delisted Tribal Leaking Storage Tanks:

DELISTED ILST

Leaking Underground Storage Tank facilities which have been removed from the Regional Tribal LUST lists made available by the EPA.

Government Publication Date: Aug 3, 2017

Delisted Tribal Underground Storage Tanks:

DELISTED JUST

Underground Storage Tank facilities which have been removed from the Regional Tribal UST lists made available by the EPA.

Government Publication Date: Aug 3, 2017

County

DELISTED COUNTY

Records removed from county or CUPA databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.

Government Publication Date: Oct 27, 2017

Los Angeles County - Burbank City CUPA List:

BURBANK CUPA

A list of facilities associated with various Certified Unified Program Agency (CUPA) programs in the City of Burbank. This list is made available by the City of Burbank Fire Department.

Government Publication Date: Sep 12, 2017

Los Angeles County - El Segundo City Underground Storage Tanks List:

ELSEGUNDO UST

List of registered Underground Storage Tanks (USTs) in the City of El Segundo of Los Angeles County, made available by El Segundo City Fire Department.

Government Publication Date: Jan 17, 2017

Los Angeles County - Santa Fe Springs Underground Storage Tank:

SANTAFESP UST

A list of registered active Underground Storage Tanks (USTs) in the City of Santa Fe Springs. This list is made available by Santa Fe Springs Department of Fire-Rescue.

Government Publication Date: Jun 30, 2017

Los Angeles County - Santa Monica City Aboveground Storage Tank List:

SANTAMON AST

List of registered Aboveground Storage Tanks (ASTs) made available by the Santa Monica Fire Department in the City of Santa Monica of Los Angeles County, California.

Government Publication Date: Mar 13, 2017

Los Angeles County - Santa Monica City CUPA Facilities List:

SANTAMON CUPA

Order No: 20171030225

The Santa Monica Fire Department's office maintains a list of CUPA Facilities located in Santa Monica city.

Government Publication Date: Mar 23, 2017

Los Angeles County - Santa Monica City Hazardous Materials Facilities:

SANTAMON HAZ

A list of Hazardous Materials Facilities in the City of Santa Monica, Los Angeles county. This list is made available by Santa Monica Fire Prevention Division which has been designated as the CUPA for the City.

Government Publication Date: Mar 13, 2017

Los Angeles County - Santa Monica City Hazardous Waste Facilities:

SANTAMON HW

A list of Hazardous Waste Facilities in Los Angeles County, City of Santa Monica. This list is made available by Santa Monica Fire Prevention Division. Government Publication Date: Mar 13, 2017

Los Angeles County - Santa Monica City Underground Storage Tank List:

SANTA MONICA UST

A list of registered active Underground Storage Tanks (USTs) in the City of Santa Monica made available by Santa Monica Fire Prevention Division. Government Publication Date: Aug 28, 2017

Los Angeles County - Torrance City Underground Storage Tanks:

TORRANCE UST

A list of registered Underground Storage Tank (UST) sites in Torrance City of Los Angeles County. This list is made available by Torrance City Office of Clerk.

Government Publication Date: Jun 19, 2017

Los Angeles County - Vernon City CUPA List:

VERNON CUPA

The Vernon City Fire Department's office maintains a list of CUPA Facilities located in Vernon city.

Government Publication Date: Sep 6, 2017

Los Angeles County - Vernon City UST List:

VERNON UST

A list of Underground Storage Tanks (UST) in Vernon City provided by the Vernon City Fire Department.

Government Publication Date: Sep 6, 2017

Los Angeles County HMS List:

LA HMS

List of sites in the Los Angeles County Department of Public Works Hazardous Materials System (HMS) Database which have or have had permits for Industrial Waste, Underground Storage Tanks, or Stormwater in the county of Los Angeles.

Government Publication Date: Oct 10, 2017

Los Angeles County Long Beach UST List:

LA LONGB UST

List of registered Underground Storage Tanks (USTs) in the City of Long Beach, Los Angeles County, made available by the Long Beach Certified Unified Program Agency (CUPA). The Long Beach CUPA operates under oversight shared by the Long Beach Fire Department and Health Department. Government Publication Date: Mar 15, 2017

Los Angeles County Solid Waste Sites:

LA SWF

List of permitted solid waste facilities, closed landfills, historical dumpsites and other solid waste sites in Los Angeles County, made available by the Department of Public Works in Los Angeles County.

Government Publication Date: Aug 22, 2017

Additional Environmental Record Sources

Federal

Facility Registry Service/Facility Index:

FINDS/FRS

The US Environmental Protection Agency (EPA)'s Facility Registry System (FRS) is a centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, data collected from EPA's Central Data Exchange registrations and data management personnel.

Government Publication Date: Jun 1, 2017

Toxics Release Inventory (TRI) Program:

TRIS

Order No: 20171030225

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Dec 31, 2016

Hazardous Materials Information Reporting System:

HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

Government Publication Date: Feb 28, 2017

National Clandestine Drug Labs:

NCDL

The U.S. Department of Justice ("the Department") provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: May 4, 2017

Inventory of Open Dumps, June 1985:

ODI

The Resource Conservation and Recovery Act (RCRA of the Act) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257). Government Publication Date: Jun 1985

EPA Report on the Status of Open Dumps on Indian Lands:

IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified ongressional concerns that solid waste open dump sites located on American Indian or Alaska Native (Al/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

Toxic Substances Control Act:

TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

Government Publication Date: Jun 30, 2017

HIST TSCA:

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing:

FTTS ADMIN

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing:

FTTS INSP

Order No: 20171030225

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List:

PRP

Early in the cleanup process, the Environmental Protection Agency (EPA) conducts a search to find the potentially responsible parties (PRPs). EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site.

Government Publication Date: Nov 12, 2013

State Coalition for Remediation of Drycleaners Listing:

SCRD DRYCLEANER

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Government Publication Date: Jan 1, 2017

Integrated Compliance Information System (ICIS):

ICIS

The Integrated Compliance Information System (ICIS) is a system that provides information for the Federal Enforcement and Compliance (FE&C) and the National Pollutant Discharge Elimination System (NPDES) programs. The FE&C component supports the Environmental Protection Agency's (EPA) Civil Enforcement and Compliance program activities. These activities include Compliance Assistance, Compliance Monitoring and Enforcement. The NPDES program supports tracking of NPDES permits, limits, discharge monitoring data and other program reports.

Government Publication Date: Nov 18, 2016

<u>Drycleaner Facilities:</u> FED DRYCLEANERS

A list of drycleaner facilities from the Integrated Compliance Information System (ICIS). The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

Government Publication Date: Sep 14, 2016

Delisted Drycleaner Facilities:

DELISTED FED DRY

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

Government Publication Date: Sep 14, 2016

Formerly Used Defense Sites:

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DoD) is responsible for an environmental restoration. This list is published by the U.S. Army Corps of Engineers.

Government Publication Date: Nov 22, 2016

Material Licensing Tracking System (MLTS):

MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: Sep 13, 2016

Historic Material Licensing Tracking System (MLTS) sites:

HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File:

The Master Index File (MIF) contains mine identification numbers issued by the Department of Labor Mine Safety and Health Administration (MSHA) for mines active or opened since 1971. Note that addresses may or may not correspond with the physical location of the mine itself.

Government Publication Date: Feb 8, 2017

Alternative Fueling Stations:

ALT FUELS

Order No: 20171030225

List of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE). The National Renewable Energy Laboratory (NREL) obtains information about new stations from trade media, Clean Cities coordinators, a Submit New Station form on the Station Locator website, and through collaborating with infrastructure equipment and fuel providers, original equipment manufacturers (OEMs), and industry groups.

Superfund Decision Documents:

SUPERFUND ROD

This database contains a listing of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD), along with other associated memos and files. This information is maintained and made available by the US EPA (Environmental Protection Agency).

Government Publication Date: Jul 12, 2017

Registered Pesticide Establishments:

SSTS

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

Government Publication Date: Feb 28, 2017

Polychlorinated Biphenyl (PCB) Notifiers:

PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Jul 18, 2017

State

EnviroStor Inspection, Compliance, and Enforcement:

INSP COMP ENF

A list of permitted facilities with inspections and enforcements tracked in the Department of Toxic Substance Control (DTSC) EnviroStor.

Government Publication Date: Apr 17, 2017

Clandestine Drug Lab Sites:

CDL

The Department of Toxic Substances Control (DTSC) maintains a listing of drug lab sites. DTSC is responsible for removal and disposal of hazardous substances discovered by law enforcement officials while investigating illegal/clandestine drug laboratories.

Government Publication Date: Jun 30, 2017

School Property Evaluation Program Sites:

SCH

A list of sites registered with The Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup (SPEC) Division. SPEC is responsible for assessing, investigating and cleaning up proposed school sites. The Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school

Government Publication Date: Sep 20, 2017

California Hazardous Material Incident Report System (CHMIRS):

CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS). This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: May 09, 2017

Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report:

SWAT

In a 1993 Memorandum of Understanding, the State Water Resources Control Board (SWRCB) agreed to submit a comprehensive report on the Solid Waste Assessment Test (SWAT) Program to the California Integrated Waste Management Board (CIWMB). This report summarizes the work completed to date on the SWAT Program, and addresses both the impacts that leakage from solid waste disposal sites (SWDS) may have upon waters of the State and the actions taken to address such leakage.

Government Publication Date: Dec 31, 1995

Hazardous Waste Manifest Data:

HAZNET

Order No: 20171030225

A list of hazardous waste manifests received each year by Department of Toxic Substances Control (DTSC). The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Oct 24, 2016

Solid Waste Disposal Sites with Waste Constituents Above Hazardous Waste Levels:

SWRCB SWF

This is a list of solid waste disposal sites identified by California State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit.

Government Publication Date: Sep 20, 2006

Hazardous Waste and Substances Site List - Site Cleanup:

HWSS CLEANUP

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. This list is published by California Department of Toxic Substance Control.

Government Publication Date: Sep 6, 2017

List of Hazardous Waste Facilities Subject to Corrective Action:

DTSC HWF

This is a list of hazardous waste facilities identified in Health and Safety Code (HSC) § 25187.5. These facilities are those where Department of Toxic Substances Control (DTSC) has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

Government Publication Date: Jul 18, 2016

Historical Hazardous Waste Manifest Data:

HIST MANIFEST

A list of historic hazardous waste manifests received by the Department of Toxic Substances Control (DTSC) from year the 1980 to 1992. The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Dec 31, 1992

Historical California Hazardous Material Incident Report System (CHMIRS):

HIST CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS) prior to 1993. This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jan 1, 1993

HIST CORTESE
HIST CORTESE

List of sites which were once included on the Cortese list. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements for providing information about the location of hazardous sites.

Government Publication Date: Nov 13, 2008

Cease and Desist Orders and Cleanup and Abatement Orders:

CDO/CAO

The California Environment Protection Agency "Cortese List" of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO). This list contains many CDOs and CAOs that do NOT concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials, but the Water Boards' database does not distinguish between these types of orders.

Government Publication Date: Feb 16, 2012

<u>Drycleaner Facilities:</u>

DRYCLEANERS

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, linen supply, commercial laundry, dry cleaning and pressing machines - Coin Operated Laundry and Dry Cleaning. This is provided by the Department of Toxic Substance Control.

Government Publication Date: Jul 17, 2017

<u>Delisted Drycleaners:</u> DELISTED DRYC

Sites removed from the list of drycleaner related facilities that have EPA ID numbers, made available by the California Department of Toxic Substance Control.

Government Publication Date: Jul 17, 2017

Waste Discharge Requirements:

WASTE DISCHG

Order No: 20171030225

List of sites in California State Water Resources Control Board (SWRCB) Waste Discharge Requirements (WDRs) Program in California, made available by the SWRCB via GeoTracker. The WDR program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Government Publication Date: Oct 3, 2017

Toxic Pollutant Emissions Facilities:

EMISSIONS

A list of criteria and toxic pollutant emissions data for facilities in California made available by the California Environmental Protection Agency - Air Resources Board (ARB). Risk data may be based on previous inventory submittals. The toxics data are submitted to the ARB by the local air districts as requirement of the Air Toxics "Hot Spots" Program. This program requires emission inventory updates every four years.

Government Publication Date: Dec 31, 2015

<u>Tribal</u>

No Tribal additional environmental record sources available for this State.

County

Los Angeles County Site Mitigation List:

LA SML

Order No: 20171030225

A Site Mitigation List in the County of Los Angeles. The list is made available by Los Angeles County Fire Department. Site mitigation is handled by the Site Mitigation Unit (SMU) which facilitates completion of site clean-up projects of contaminated sites in an expeditious manner in all cities of the Los Angeles County except El Segundo, Glendale, Long Beach, Santa Fe Springs, and Vernon.

Government Publication Date: Oct 13, 2016

Definitions

<u>Database Descriptions:</u> This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

<u>Detail Report</u>: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

<u>Distance:</u> The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

<u>Elevation:</u> The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

<u>Unplottables:</u> These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

Order No: 20171030225



Property Information

Order Number: 20171030225p

Date Completed: October 31, 2017

Project Number: 60177365

Project Property: Royal Solar Order

n/a Lancaster CA

Coordinates:

Latitude:

Longitude:

UTM Northing: 3843387.01403 Meters UTM Easting: 378947.722134 Meters

UTM Zone: UTM Zone 11S Elevation: 2,493.84 ft

Slope Direction:

Topographic Information	2
Topographic Information	12
Geologic Information	19
Soil Information	23
Wells and Additional Sources	31
Summary	
Detail Report	
Radon Information	110
AppendixLiability Notice	113

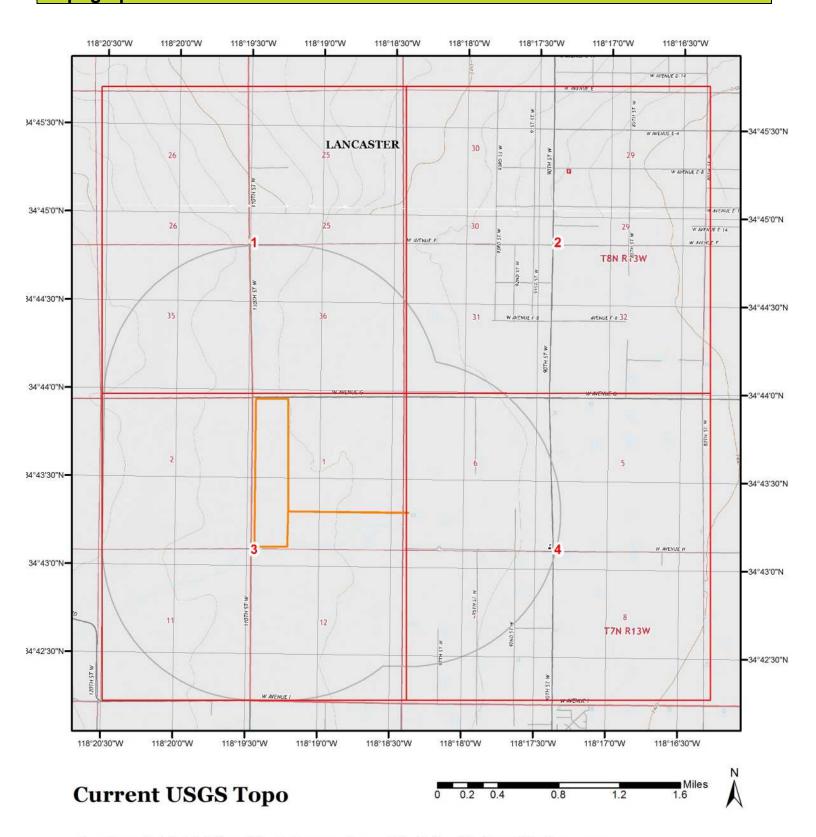
The ERIS *Physical Setting Report - PSR* provides comprehensive information about the physical setting around a site and includes a complete overview of topography and surface topology, in addition to hydrologic, geologic and soil characteristics. The location and detailed attributes of oil and gas wells, water wells, public water systems and radon are also included for review.

The compilation of both physical characteristics of a site and additional attribute data is useful in assessing the impact of migration of contaminants and subsequent impact on soils and groundwater.

Disclaimer

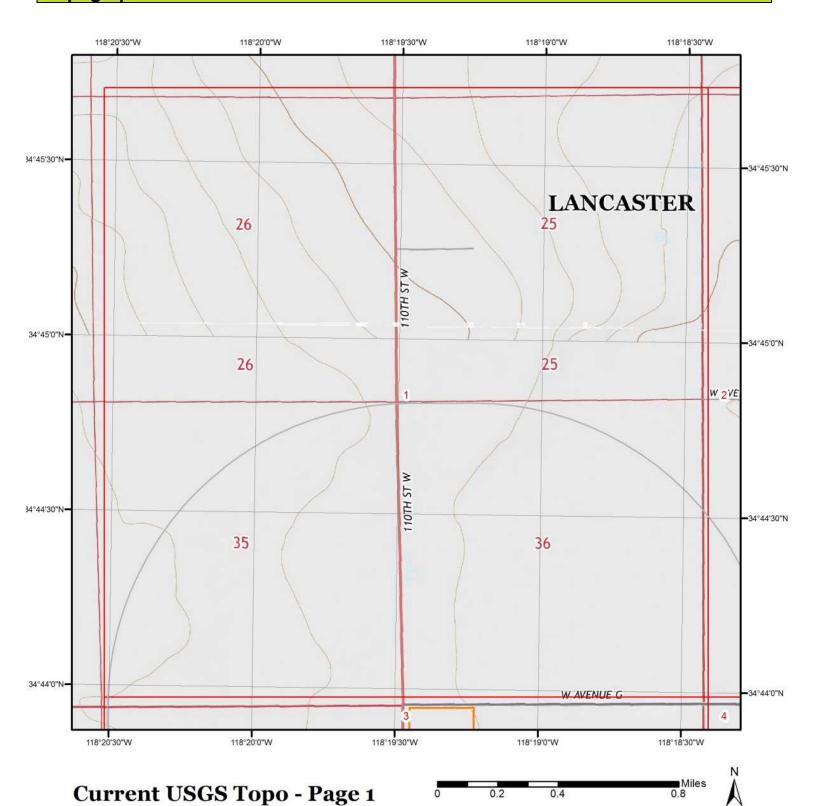
This Report does not provide a full environmental evaluation for the site or adjacent properties. Please see the terms and disclaimer at the end of the Report for greater detail.

Order No: 20171030225p



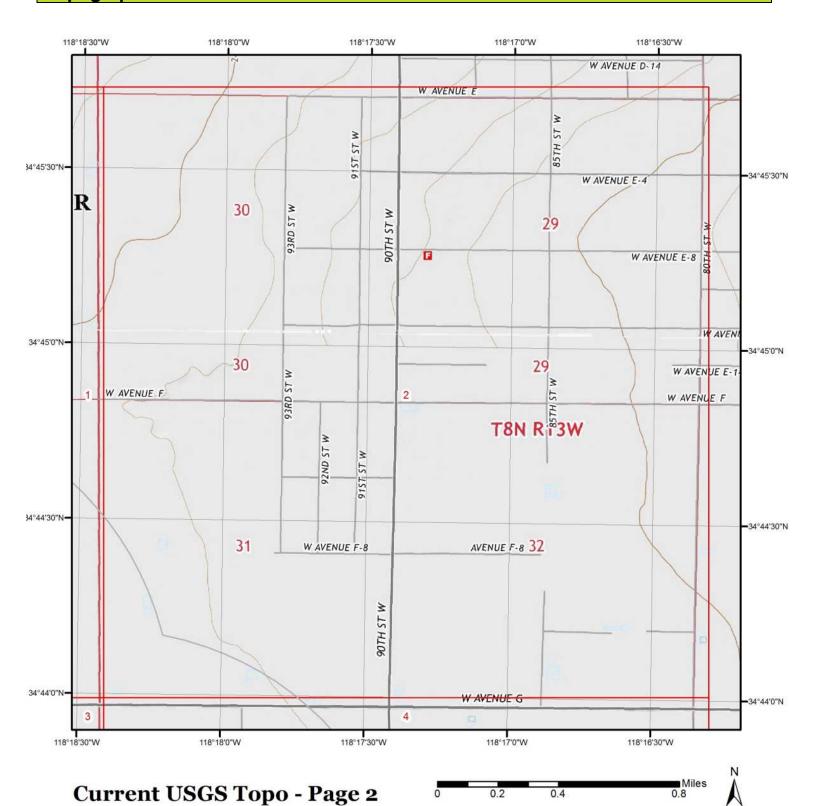
Quadrangle(s): Del Sur,CA; Fairmont Butte,CA; Lake Hughes,CA; Lancaster West,CA; Little Buttes,CA; Rosamond,CA





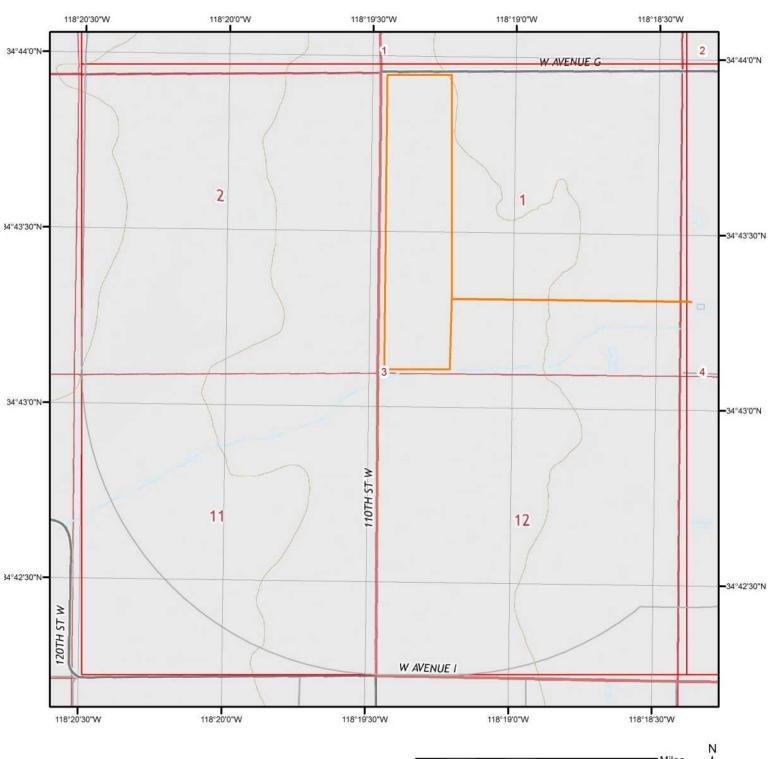
Quadrangle(s): Del Sur,CA; Little Buttes,CA





Quadrangle(s): Del Sur,CA; Little Buttes,CA



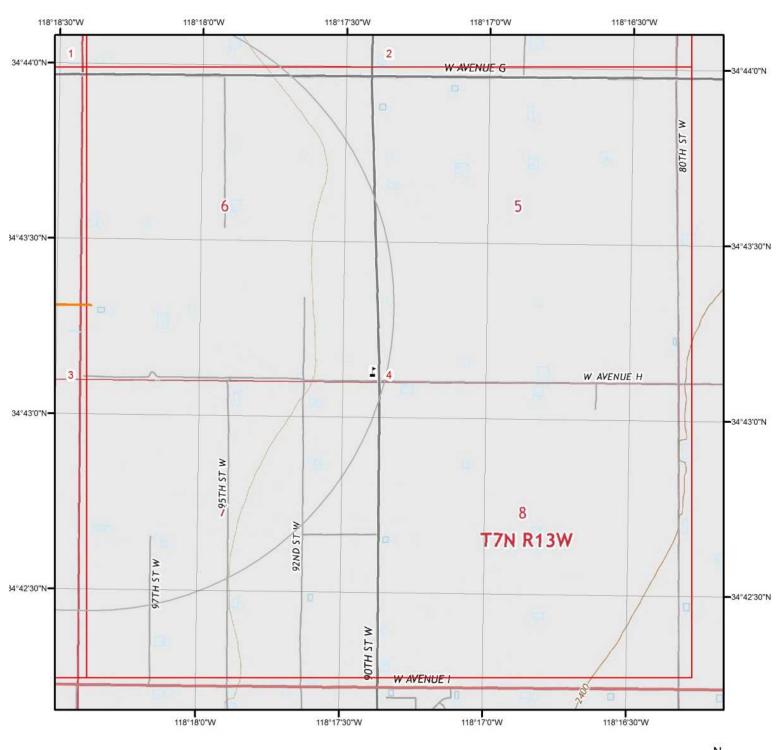


Current USGS Topo - Page 3



Quadrangle(s): Del Sur,CA





Current USGS Topo - Page 4



Quadrangle(s): Del Sur,CA

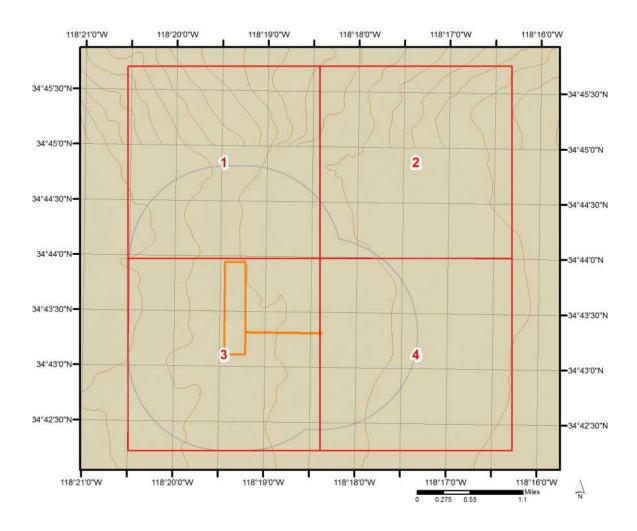


The previous topographic map(s) are created by seamlessly merging and cutting current USGS topographic data. Below are shaded relief map(s), derived from USGS elevation data to show surrounding topography in further detail.

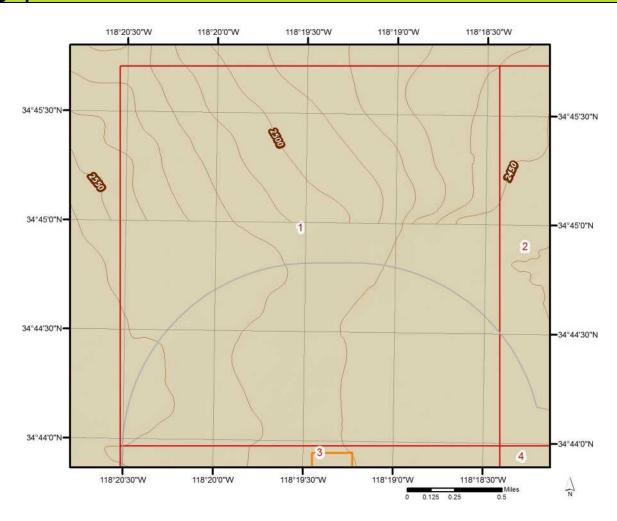
Topographic information at project property:

Elevation: 2,493.84 ft

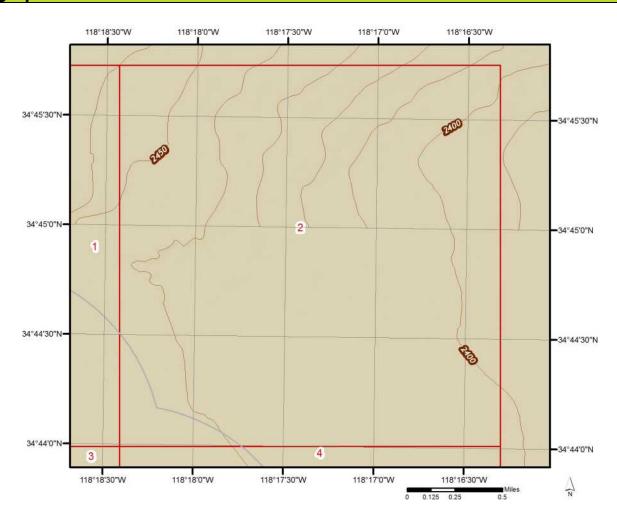
Slope Direction: E



Order No: 20171030225p

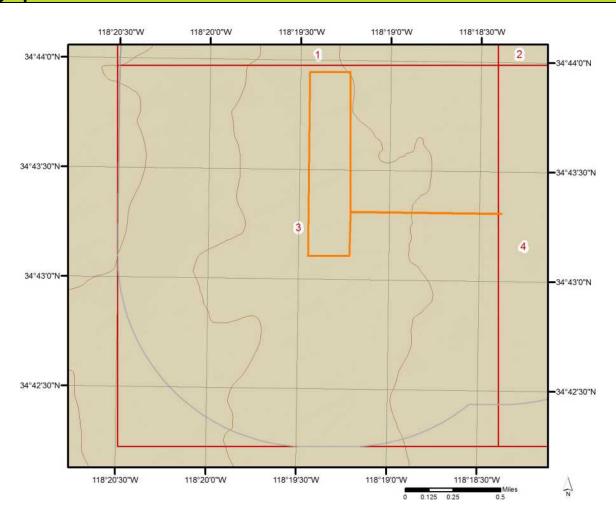


Order No: 20171030225p

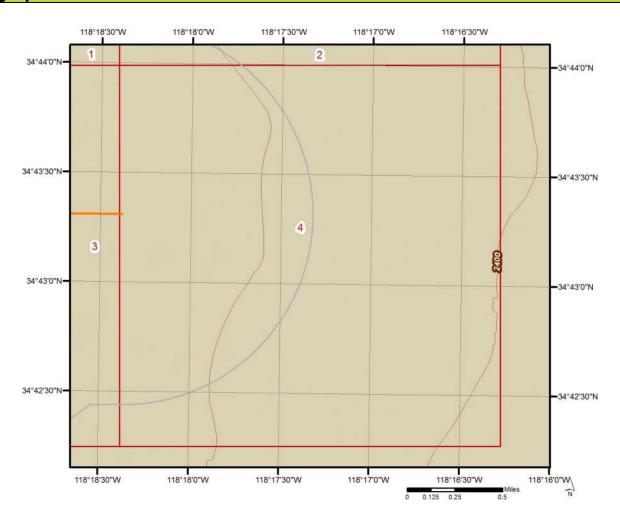


Order No: 20171030225p

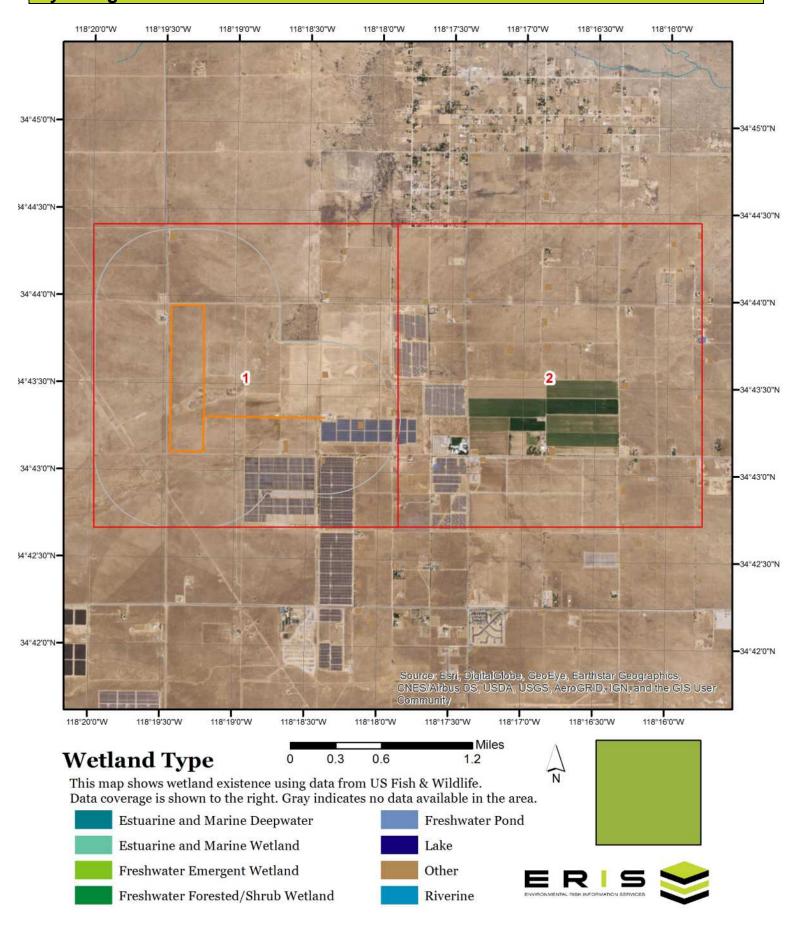
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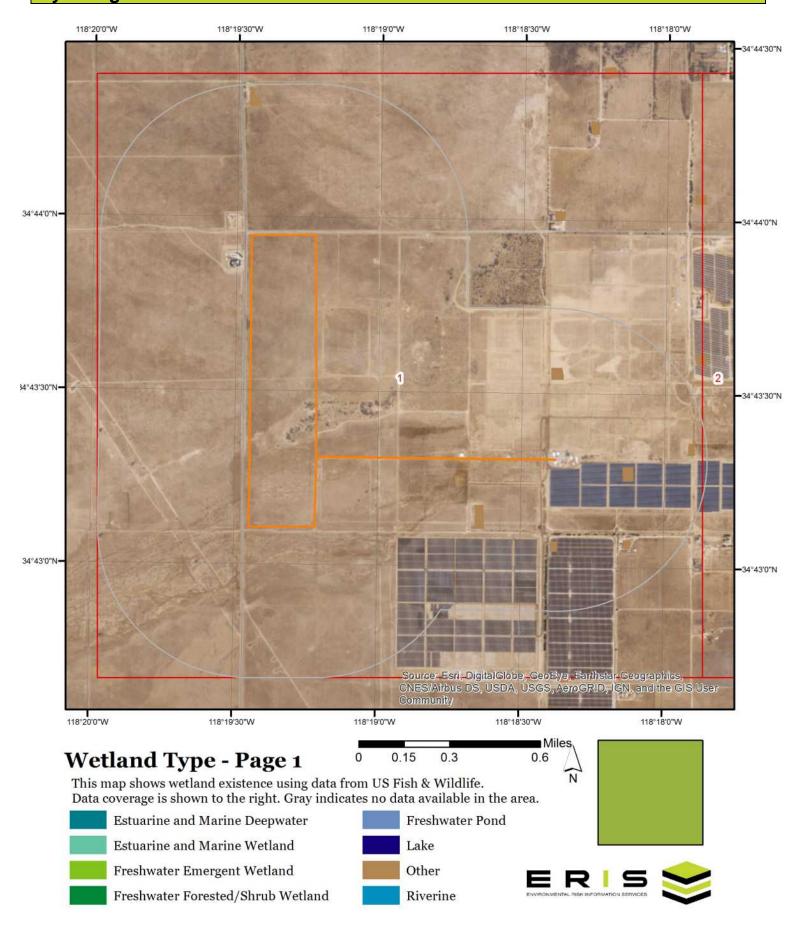


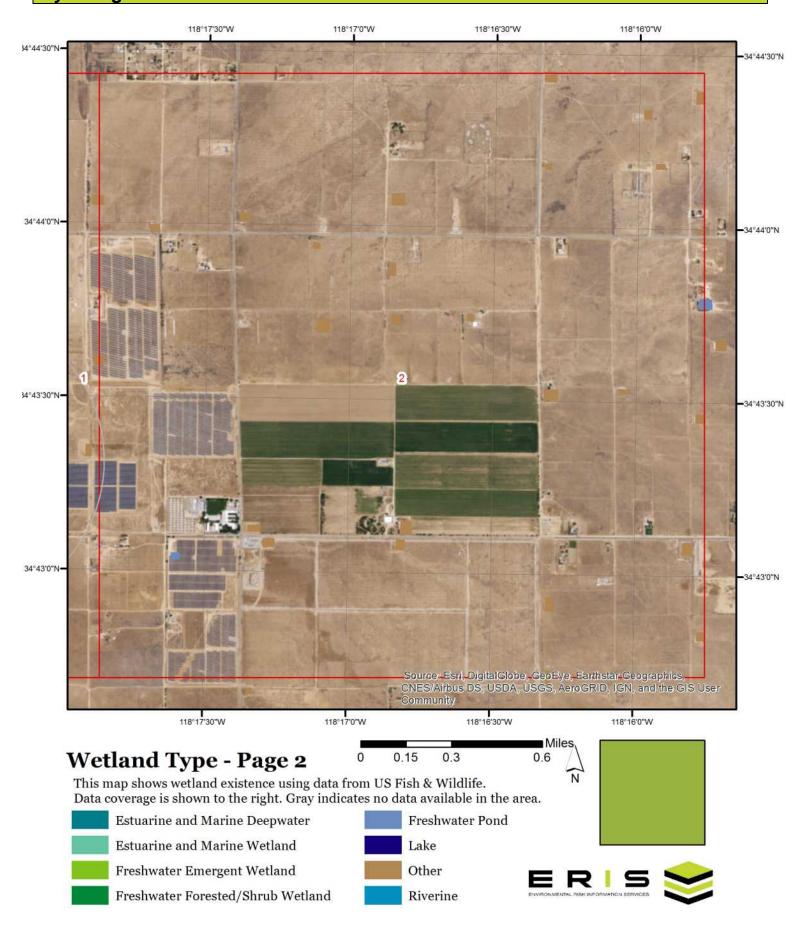
Order No: 20171030225p

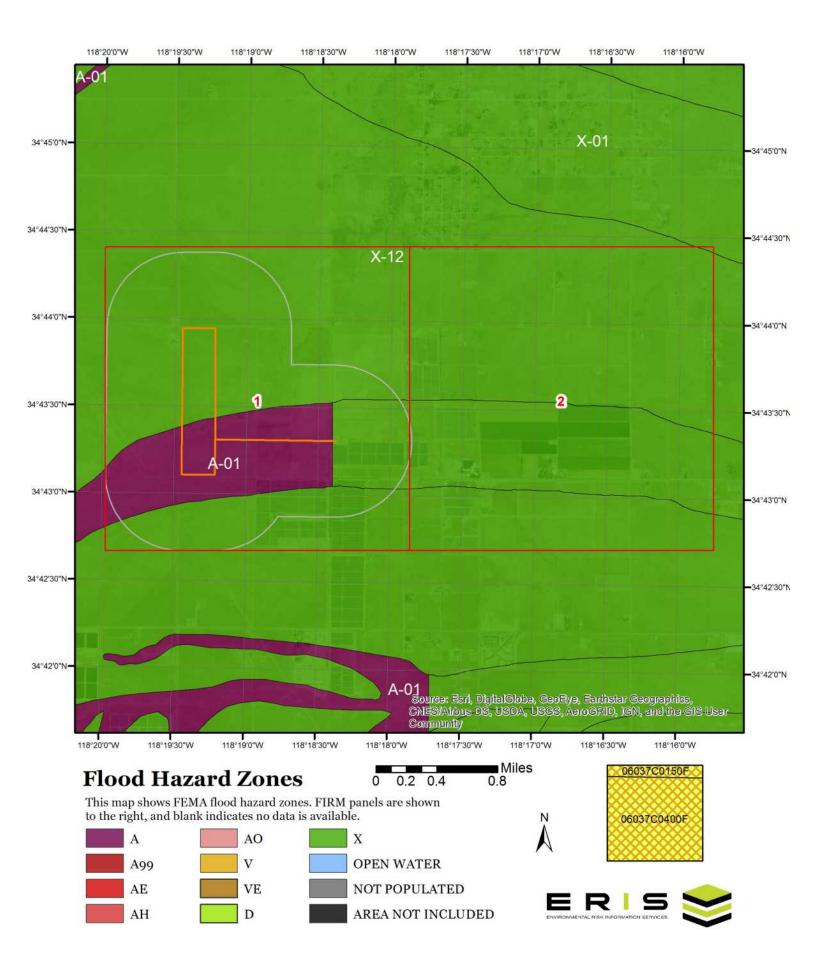


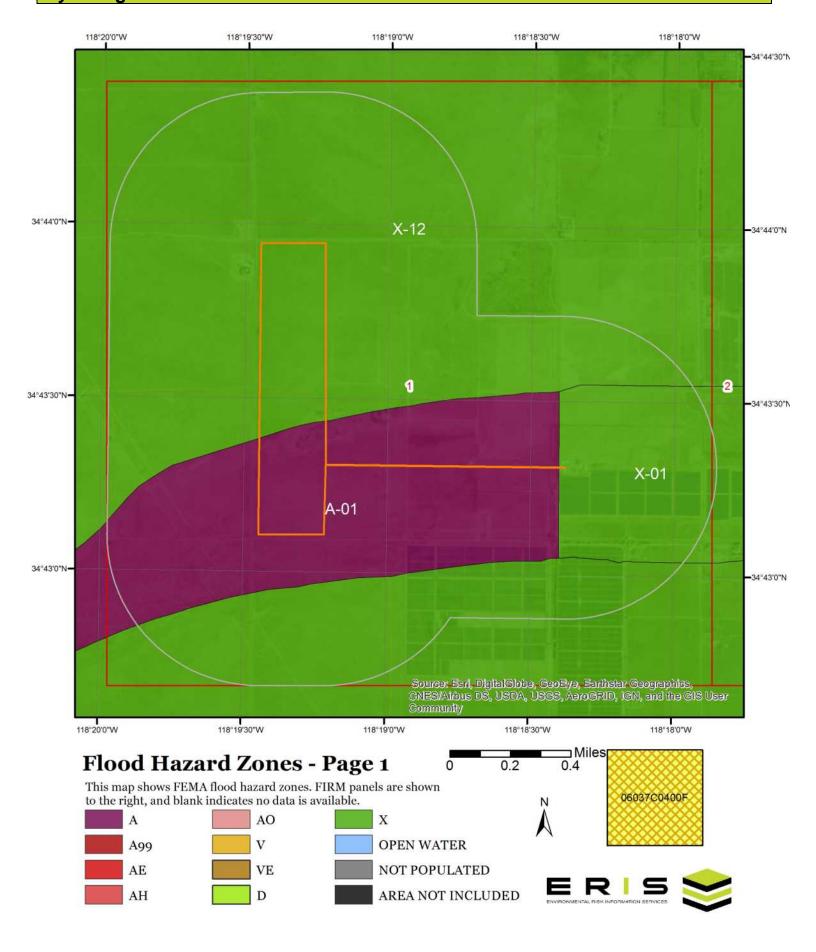
Order No: 20171030225p

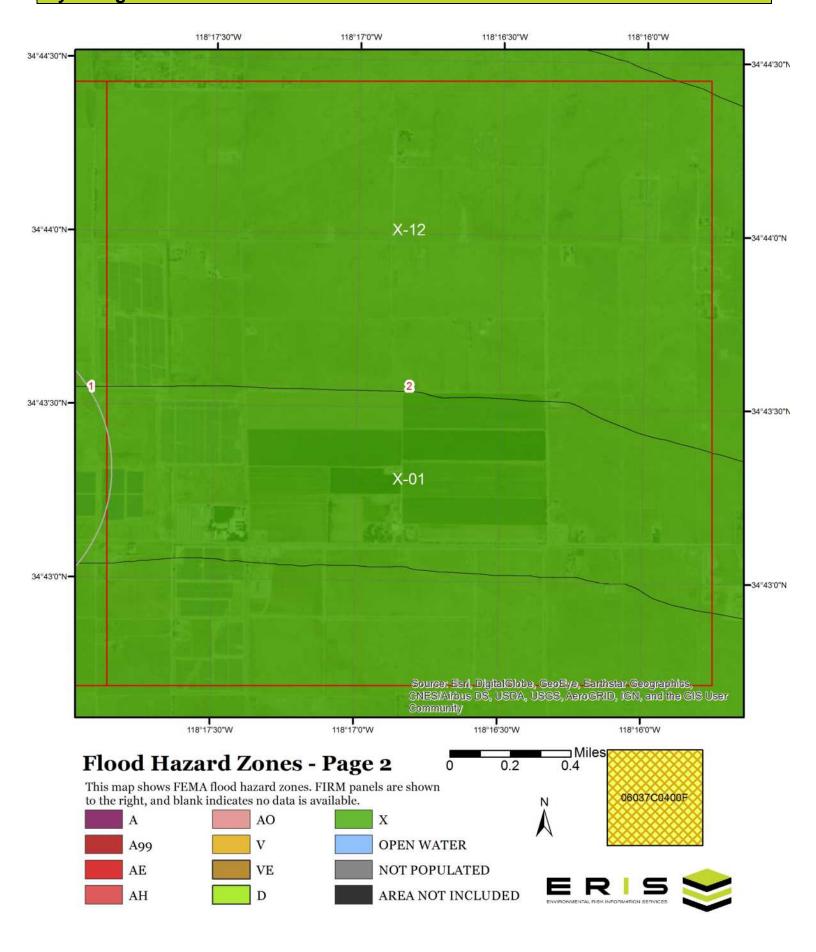












The Wetland Type map shows wetland existence overlaid on an aerial imagery. The Flood Hazard Zones map shows FEMA flood hazard zones overlaid on an aerial imagery. Relevant FIRM panels and detailed zone information is provided below.

Available FIRM Panels in area: 06037C0400F(effective:2008-09-26)

Flood Zone A-01

Zone: A

Zone subtye:

Flood Zone X-01

Zone: X

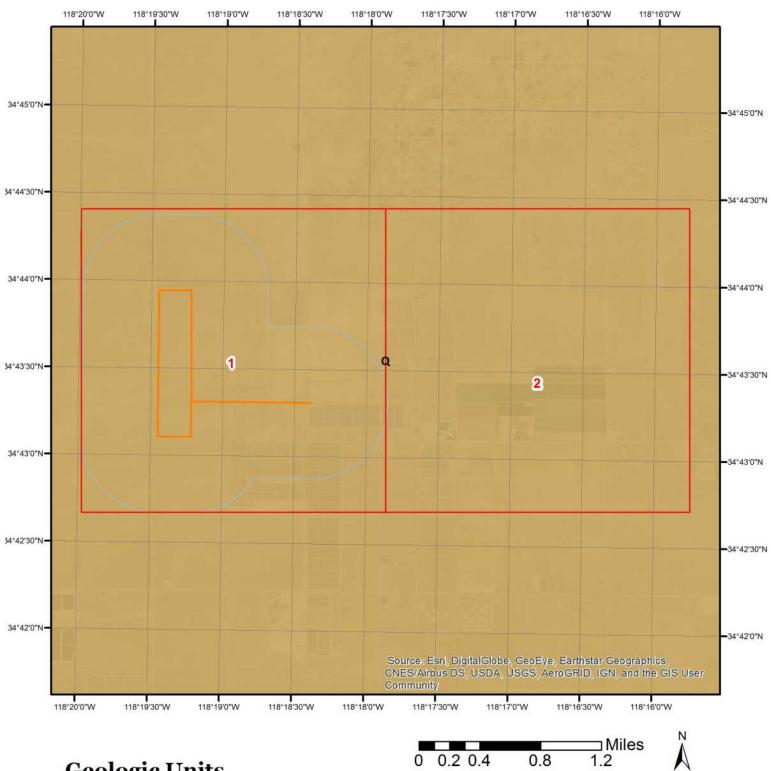
Zone subtye: 0.2 PCT ANNUAL CHANCE FLOOD HAZARD

Flood Zone X-12

Zone: X

Zone subtye: AREA OF MINIMAL FLOOD HAZARD

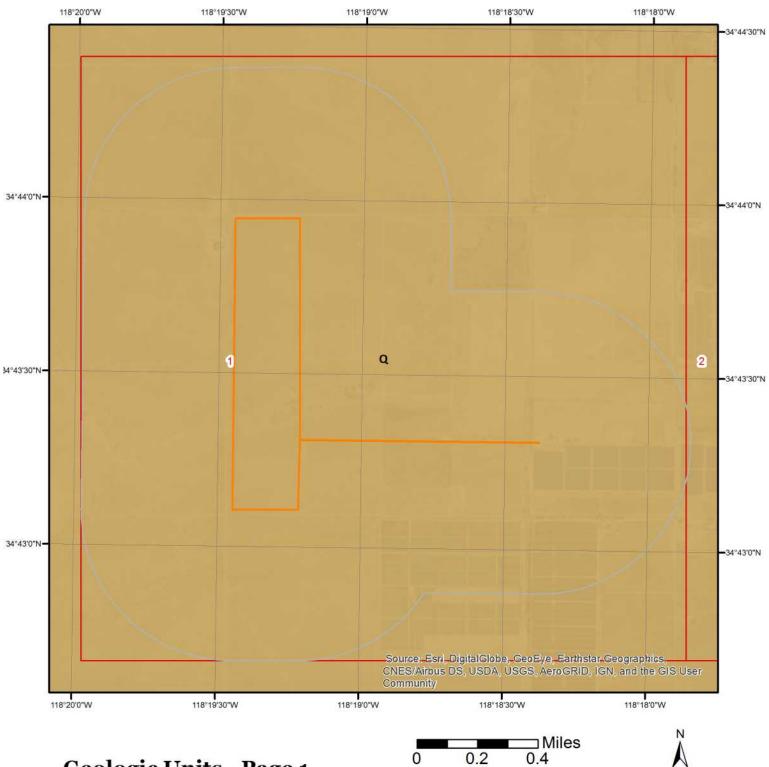
Order No: 20171030225p



Geologic Units

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.



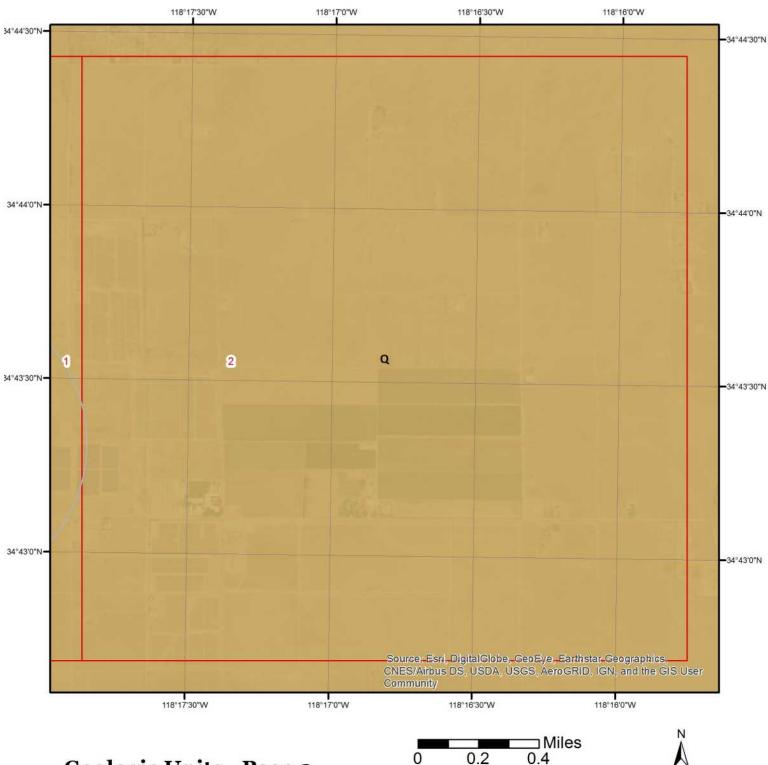


Geologic Units - Page 1

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.







Geologic Units - Page 2

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.





The previous page shows USGS geology information. Detailed information about each unit is provided below.

Geologic Unit Q

Unit Name: Quaternary alluvium and marine deposits

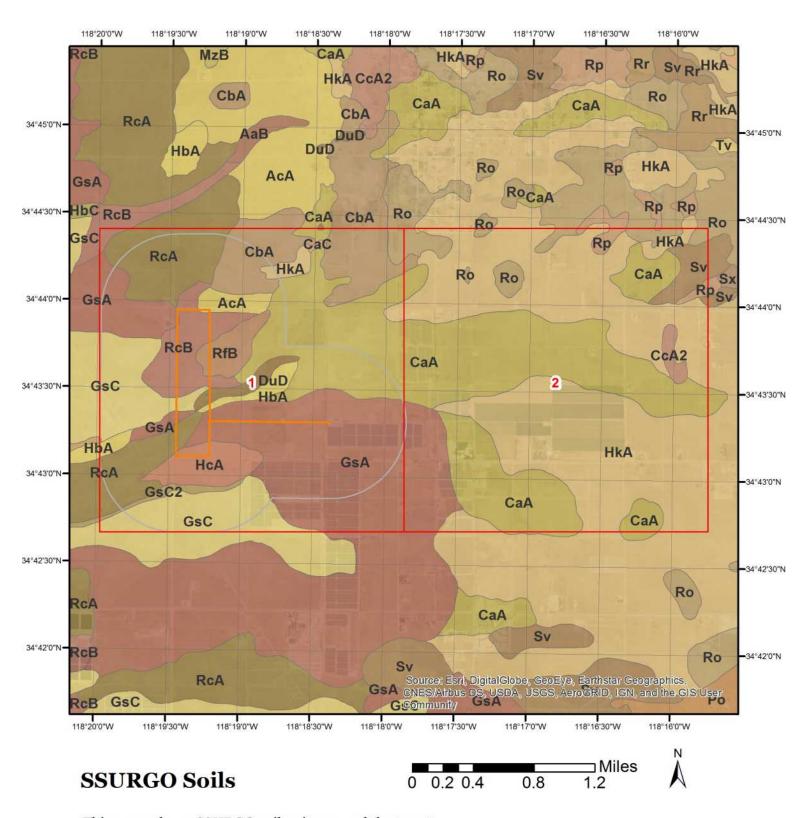
Unit Age: Pliocene to Holocene

Primary Rock Type: alluvium
Secondary Rock Type: terrace

Unit Description: Alluvium, lake, playa, and terrace deposits; unconsolidated and semi-

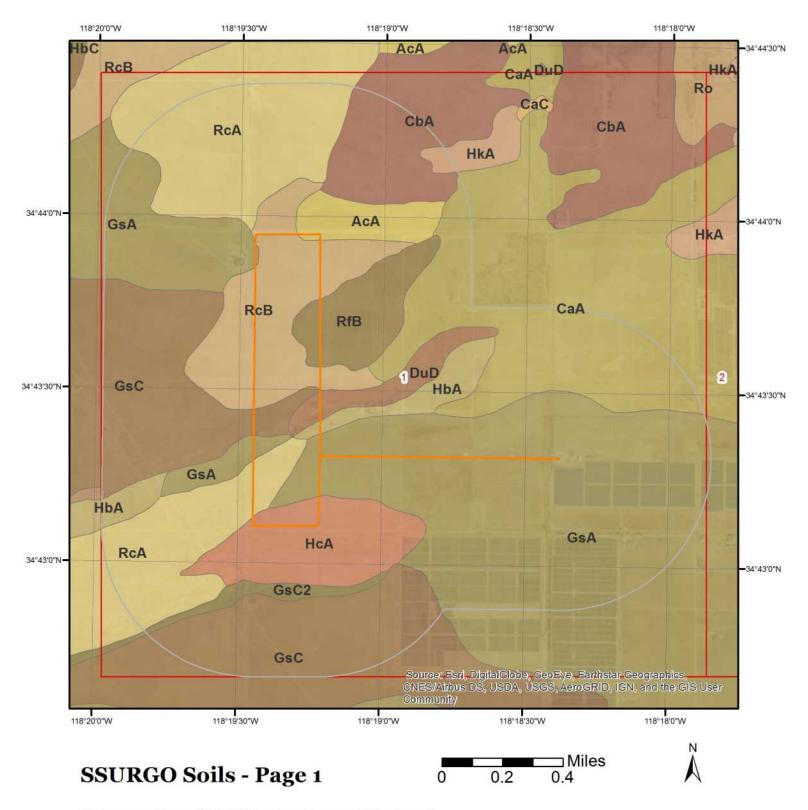
consolidated. Mostly nonmarine, but includes marine deposits near the coast.

Order No: 20171030225p



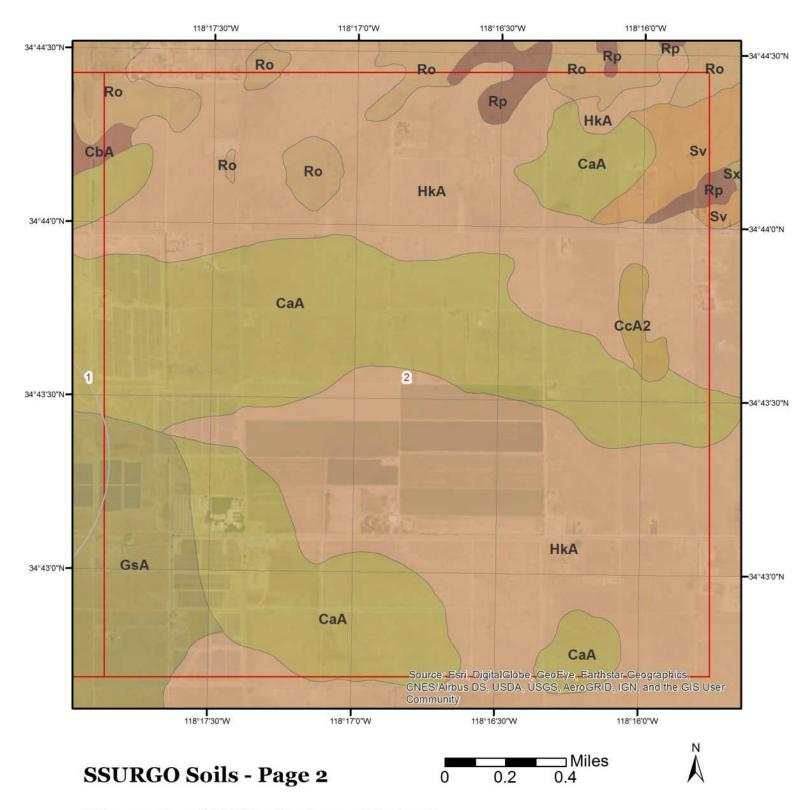
This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.





This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.





This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.



The previous page shows a soil map using SSURGO data from USDA Natural Resources Conservation Service. Detailed information about each unit is provided below.

Map Unit AcA

Map Unit Name: Adelanto coarse sandy loam, 2 to 5 percent slopes

Bedrock Depth - Min: null Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Major components are printed below

Adelanto(85%)

horizon H1(0cm to 41cm)

Coarse sandy loam
horizon H2(41cm to 104cm)

Coarse sandy loam

horizon H2(41cm to 104cm) Sandy loam horizon H3(104cm to 203cm) Sandy loam

horizon H4(203cm to 218cm) Stratified loamy sand to coarse sandy loam

Map Unit CaA

Map Unit Name: Cajon loamy sand, 0 to 2 percent slopes

Bedrock Depth - Min: null
Watertable Depth - Annual Min: null

Drainage Class - Dominant: Excessively drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Major components are printed below

Cajon(85%)

horizon H1(0cm to 23cm)

horizon H2(23cm to 152cm)

horizon H2(23cm to 152cm)

Sand

Map Unit CbA

Map Unit Name: Cajon loamy sand, loamy substratum, 0 to 2 percent slopes

Bedrock Depth - Min: null Watertable Depth - Annual Min: null

Drainage Class - Dominant: Excessively drained

Hydrologic Group - Dominant: B - Soils in this group have moderately low runoff potential when thoroughly

wet. Water transmission through the soil is unimpeded.

Order No: 20171030225p

Major components are printed below

Cajon(85%)

horizon H1(0cm to 23cm)

horizon H2(23cm to 76cm)

horizon H2(23cm to 76cm)

Sand

horizon H3(76cm to 152cm) Stratified sand to clay loam

Map Unit DuD

Map Unit Name: Dune land

Bedrock Depth - Min: null
Watertable Depth - Annual Min: null

Drainage Class - Dominant: Excessively drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Major components are printed below

Dune land(90%)

horizon H1(0cm to 15cm) Fine sand horizon H2(15cm to 152cm) Fine sand horizon H2(15cm to 152cm) Sand

Map Unit GsA

Map Unit Name: Greenfield sandy loam, 0 to 2 percent slopes

Bedrock Depth - Min: null Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Major components are printed below

Greenfield(85%)

horizon H1(0cm to 51cm) Sandy loam horizon H2(51cm to 152cm) Sandy loam

horizon H3(152cm to 203cm) Stratified loamy sand to coarse sandy loam

Map Unit GsC

Map Unit Name: Greenfield sandy loam, 2 to 9 percent slopes

Bedrock Depth - Min: null Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Order No: 20171030225p

Major components are printed below

Greenfield(85%)

horizon H1(0cm to 51cm) Sandy loam horizon H2(51cm to 152cm) Sandy loam

horizon H3(152cm to 203cm) Stratified loamy sand to coarse sandy loam

Map Unit GsC2

Map Unit Name: Greenfield sandy loam, 2 to 9 percent slopes, eroded

Bedrock Depth - Min: null
Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Major components are printed below

Greenfield(85%)

horizon H1(0cm to 43cm) Sandy loam horizon H2(43cm to 152cm) Sandy loam

horizon H3(152cm to 203cm) Stratified loamy sand to coarse sandy loam

Map Unit GsD2

Map Unit Name: Greenfield sandy loam, 9 to 15 percent slopes, eroded

Bedrock Depth - Min: null Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Major components are printed below

Greenfield(85%)

horizon H1(0cm to 43cm) Sandy loam horizon H2(43cm to 152cm) Sandy loam

horizon H3(152cm to 203cm) Stratified loamy sand to coarse sandy loam

Map Unit HbA

Map Unit Name: Hanford coarse sandy loam, 0 to 2 percent slopes

Bedrock Depth - Min: null
Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Major components are printed below

Hanford(85%)

horizon H1(0cm to 20cm)

Coarse sandy loam
horizon H2(20cm to 99cm)

Coarse sandy loam

horizon H2(20cm to 99cm) Sandy loam

horizon H3(99cm to 178cm) Gravelly coarse sandy loam horizon H3(99cm to 178cm) Gravelly loamy coarse sand

Map Unit HcA

Map Unit Name: Hanford sandy loam, 0 to 2 percent slopes

Bedrock Depth - Min: null
Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Order No: 20171030225p

Major components are printed below

Hanford(85%)

horizon H1(0cm to 20cm) Sandy loam

horizon H2(20cm to 178cm) Fine sandy loam horizon H2(20cm to 178cm) Sandy loam

Map Unit HkA

Map Unit Name: Hesperia fine sandy loam, 0 to 2 percent slopes

Bedrock Depth - Min: null Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: A - Soils in this group have low runoff potential when thoroughly wet. Water is

transmitted freely through the soil.

Major components are printed below

Hesperia(85%)

horizon H1(0cm to 10cm)

horizon H2(10cm to 137cm)

Fine sandy loam

horizon H2(10cm to 137cm)

Sandy loam

horizon H3(137cm to 196cm) Coarse sandy loam

horizon H3(137cm to 196cm) Sandy loam

Map Unit RcA

Map Unit Name: Ramona coarse sandy loam, 0 to 2 percent slopes

Bedrock Depth - Min: null
Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: C - Soils in this group have moderately high runoff potential when thoroughly

wet. Water transmission through the soil is somewhat restricted.

Major components are printed below

Ramona(85%)

horizon H1(0cm to 51cm)

Coarse sandy loam

horizon H2(51cm to 79cm)

Fine sandy loam

horizon H3(79cm to 229cm)

Sandy clay loam

Map Unit RcB

Map Unit Name: Ramona coarse sandy loam, 2 to 5 percent slopes

Bedrock Depth - Min: null
Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: C - Soils in this group have moderately high runoff potential when thoroughly

wet. Water transmission through the soil is somewhat restricted.

Major components are printed below

Ramona(85%)

horizon H1(0cm to 51cm)

Coarse sandy loam

horizon H2(51cm to 79cm)

Fine sandy loam

horizon H3(79cm to 229cm)

Sandy clay loam

Map Unit RfB

Map Unit Name: Ramona loam, 2 to 5 percent slopes

Bedrock Depth - Min: null Watertable Depth - Annual Min: null

Drainage Class - Dominant: Well drained

Hydrologic Group - Dominant: C - Soils in this group have moderately high runoff potential when thoroughly

wet. Water transmission through the soil is somewhat restricted.

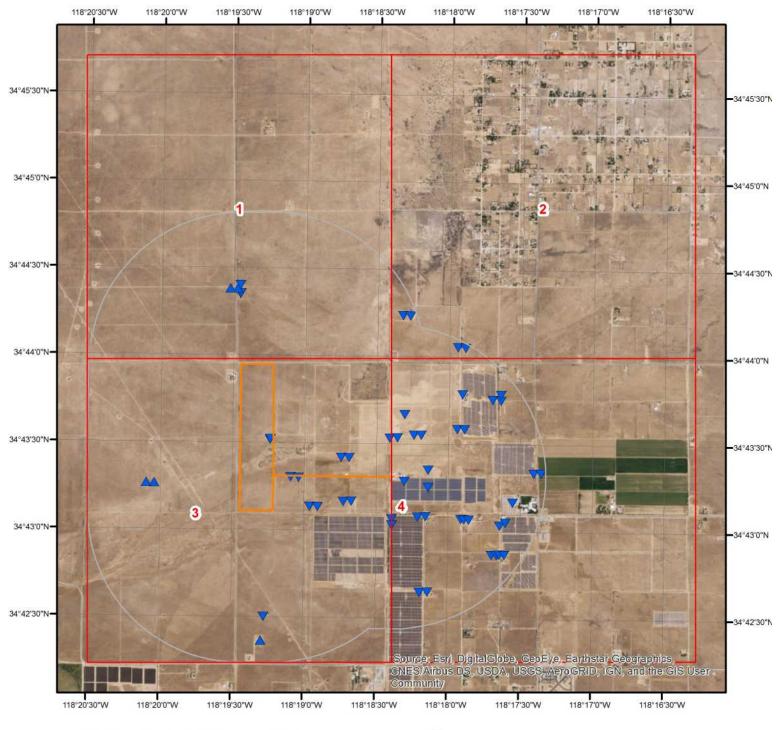
Order No: 20171030225p

Major components are printed below

Ramona(85%)

horizon H1(0cm to 30cm) Loam

horizon H2(30cm to 79cm) Fine sandy loam horizon H3(79cm to 229cm) Sandy clay loam

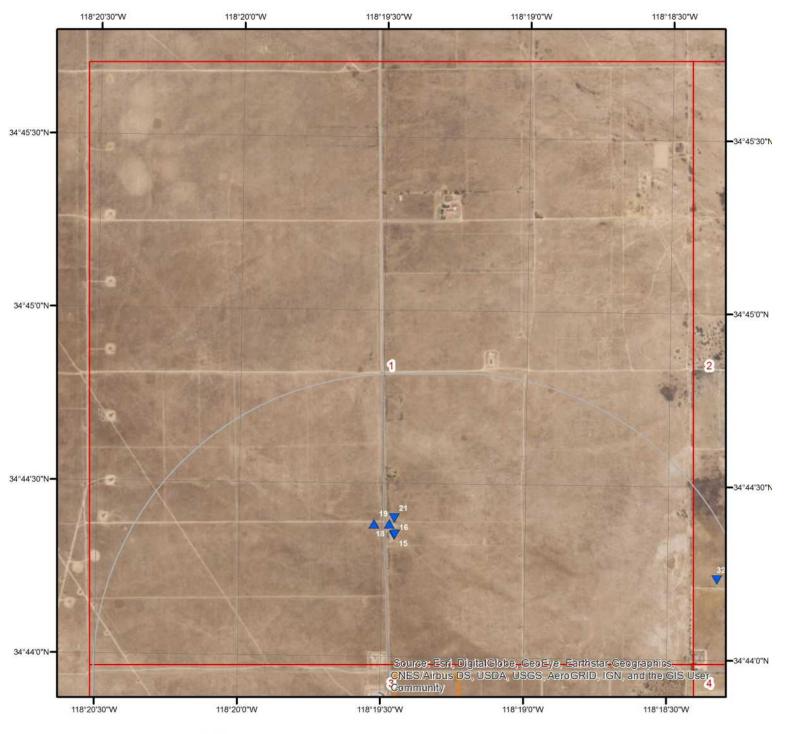


Wells & Additional Sources

- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation





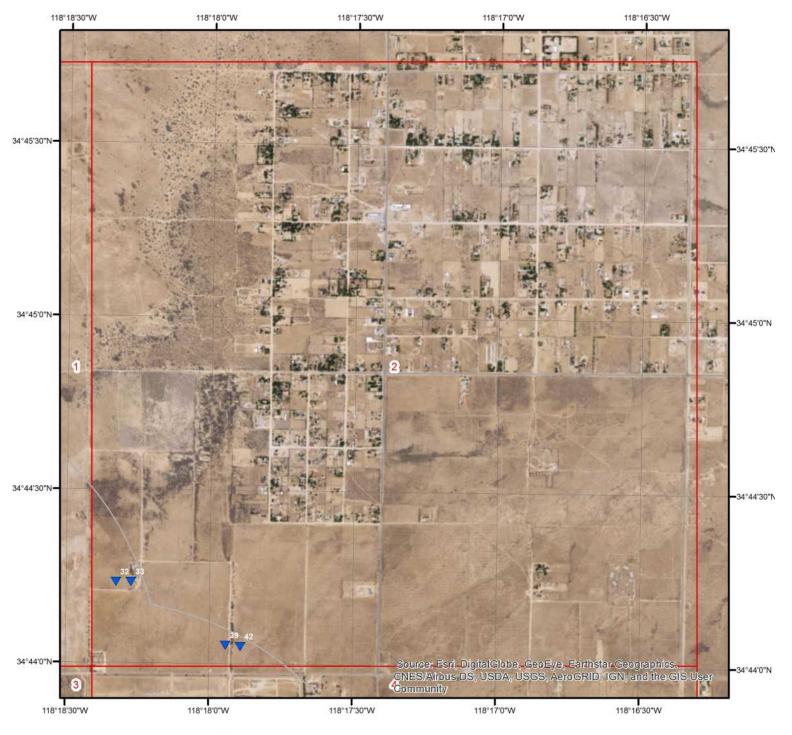


- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation

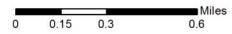




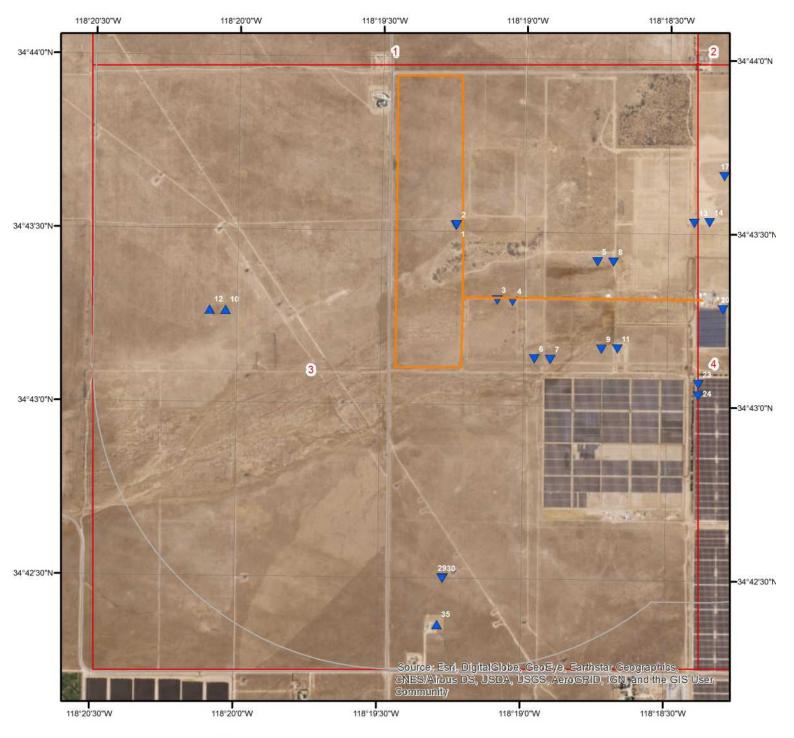




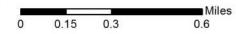
- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation





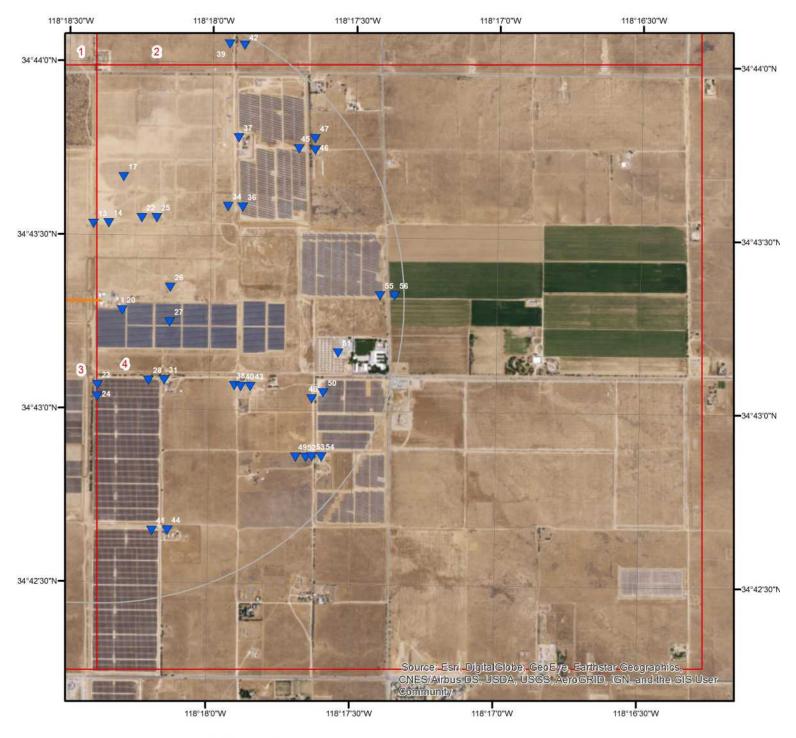


- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation

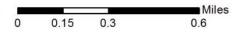








- Sites with Higher Elevation
- Sites with Same Elevation
- Sites with Lower Elevation
- Sites with Unknown Elevation





Wells and Additional Sources Summary

Federal Sources

Public Water Systems Violations and Enforcement Data

Map Key ID Distance (ft) Direction

No records found

Safe Drinking Water Information System (SDWIS)

Map Key ID Distance (ft) Direction

No records found

USGS National Water Information System

Мар Кеу	Monitoring Loc Identifier	Distance (ft)	Direction
1	USGS-344331118191101	0.00	-
4	USGS-344318118185901	61.42	SE
7	USGS-344308118185101	1,072.15	SE
8	USGS-344325118183801	639.20	ESE
10	USGS-344316118195901	2,973.04	WSW
11	USGS-344310118183701	870.02	SE
14	USGS-344332118181801	1,353.78	E
15	USGS-344421118192401	2,452.09	N
17	USGS-344340118181501	2,190.21	E
18	USGS-344423118192501	2,656.81	N
20	USGS-344317118181501	391.12	ESE
21	USGS-344424118192401	2,755.25	N
23	USGS-344304118182001	1,474.81	ESE
24	USGS-344302118182001	1,676.80	ESE
25	USGS-344333118180801	1,735.05	E E
26	USGS-344321118180501	1,216.53	E
27	USGS-344315118180501	1,245.38	ESE
29	USGS-344230118191301	3,690.35	S
31	USGS-344305118180601	1,764.07	ESE
33	USGS-344414118181301	5,060.28	NE
35	USGS-344222118191401	4,497.95	S
36	USGS-344335118175001	2,953.87	E
37	USGS-344347118175101	3,717.71	ENE
40	USGS-344304118175001	2,853.55	ESE
42	USGS-344403118175001	5,111.58	ENE
43	USGS-344304118174801	2,997.71	ESE
44	USGS-344239118180501	4,174.13	SE
46	USGS-344345118173501	4,559.23	E E
47	USGS-344347118173501	4,680.48	E
50	USGS-344302118173201	4,190.31	ESE
51	USGS-344310118172601	4,226.70	ESE
53	USGS-344252118173501	4,568.86	ESE
54	USGS-344252118173301	4,704.91	ESE
56	USGS-344320118171801	5,116.27	Е

State Sources

Oil and Gas Wells

Wells and Additional Sources Summary

Map Key ID Distance (ft) Direction

No records found

Public Water Supply Wells

Map Key ID Distance (ft) Direction

No records found

Water Wells

Мар Кеу	Site Code	Distance (ft)	Direction
0	2470520144022001004	0.00	
2	347253N1183206W001	0.00	-
3	347217N1183182W001	43.21	SE
5	347236N1183124W001	641.29	ESE
6	347189N1183160W001	1,062.10	SE
9	347194N1183121W001	880.17	SE
12	347211N1183349W001	3,253.29	WSW
13	347255N1183068W001	1,332.36	E
16	347392N1183242W001	2,470.27	N
19	347397N1183254W001	2,680.35	N
22	347258N1183040W001	1,603.25	E
28	347180N1183035W001	1,616.66	ESE
30	347083N1183212W001	3,696.57	S
32	347372N1183054W001	4,812.37	NE
34	347264N1182990W001	2,748.39	E
38	347178N1182985W001	2,752.14	ESE
39	347342N1182990W001	5,008.79	ENE
41	347108N1183032W001	4,111.19	SE
45	347292N1182949W001	4,346.17	Е
48	347172N1182940W001	4,049.27	ESE
49	347144N1182949W001	4,351.33	ESE
52	347144N1182943W001	4.494.20	ESE
55	347222N1182901W001	4.858.99	E
		,,	
Well Investigation	on Program Case List		
Мар Кеу	ID	Distance (ft)	Direction

No records found

USGS National Water Information System

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
1	-	0.00	0.00	2,489.11	FED USGS

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft

US

NWIS

LOS ANGELES

34.725261

-118.3206334

Organiz Identifier: **USGS-CA** Formation Type: Aquifer Name:

Organiz Name: USGS California Water Science Center

Well Depth: 113 Well Hole Depth: 113 ft W Hole Depth Unit:

Construction Date: 18890101

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344331118191101 Monitoring Loc Name: 007N014W01Z001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2487.00 Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Interpolated from MAP.

Vert Coord Refer System: NGVD29

Map Key	Direct	ion	Distance (mi)	Distance (ft)	Elevation (ft)	DB
4	SE		0.01	61.42	2,485.49	FED USGS
Organiz Identifier:		USGS		Formation Type:		
Organiz Name:		USGS Center	California Water Science	Aquifer Name:	Basin and Range basi	n-fill aquifers
Well Depth:		680		Well Depth Unit:	ft	
Well Hole Depth:		680		Country Code:	US	
W Hole Depth Unit:		ft		Provider Name:	NWIS	
Construction Date:		19430	101	County:	LOS ANGELES	

Aquifer Type: Latitude: 34.72165
Source Map Scale: 24000 Longitude: -118.3173

Monitoring Loc Identifier: USGS-344318118185901 Monitoring Loc Name: 007N013W06P001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Interpolated from MAP.

Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2452.00

Vertical Measure Unit: feet

Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
7	SE	0.20	1,072.15	2,480.52	FED USGS

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 904
Well Hole Depth: 904
W Hole Depth Unit: ft

Construction Date: 19560101

Aquifer Type:

Source Map Scale:

Monitoring Loc Identifier: USGS-344308118185101

Monitoring Loc Name: 007N014W01Q001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit: ft
Country Code: US
Provider Name: NWIS

County: LOS ANGELES
Latitude: 34.7188724
Longitude: -118.3150777

Horizontal Collection

Interpolated from MAP.

Mthd:

Horiz Coord Refer

NAD83

System:

2478.00 Vertical Measure: Vertical Measure Unit: feet Vertical Accuracy: 010 Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key Direction Distance (mi) Distance (ft) Elevation (ft) DB 8 **ESE** 0.12 639.20 2,475.48 **FED USGS**

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft

US

NWIS

LOS ANGELES 34.7235944

-118.3114665

Aguifer Name:

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth: 858 Well Hole Depth: 858 W Hole Depth Unit: ft

Construction Date: 19601230

Aquifer Type:

24000 Source Map Scale:

Monitoring Loc Identifier: USGS-344325118183801 007N014W01K001S Monitoring Loc Name:

Monitoring Loc Type: Well

Monitoring Loc Desc:

18090206 **HUC Eight Digit Code:**

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection

Interpolated from MAP.

Mthd:

Horiz Coord Refer NAD83

System:

2475.00 Vertical Measure: Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit:

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Elevation (ft) Map Key Direction Distance (mi) Distance (ft) DB 10 WSW 0.56 2,973.04 2,529.83 FED USGS

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth:

Well Hole Depth: 187
W Hole Depth Unit: ft

Construction Date: 18860101

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344316118195901
Monitoring Loc Name: 007N014W02P001S

Well

Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd: Horiz Coord Refer

System:

NAD83

Interpolated from MAP.

Vertical Measure: 2525.00

Vertical Measure Unit: feet

Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Formation Type:

Aguifer Name: Basin and Range basin-fill aguifers

Well Depth Unit:

Country Code: US
Provider Name: NWIS

County: LOS ANGELES
Latitude: 34.7210945
Longitude: -118.3339672

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
11	SE	0.16	870.02	2,474.49	FED USGS

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 735
Well Hole Depth: 735
W Hole Depth Unit: ft

Construction Date: 19470115

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344310118183701
Monitoring Loc Name: 007N014W01R001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit: ft
Country Code: US
Provider Name: NWIS

County: LOS ANGELES
Latitude: 34.7194279
Longitude: -118.3111887

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection Interpolated from MAP.

Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2472.00

Vertical Measure Unit: feet

Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
14	Е	0.26	1,353.78	2,463.20	FED USGS

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 643
Well Hole Depth: 643
W Hole Depth Unit: ft

Construction Date: 19380210

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344332118181801
Monitoring Loc Name: 007N013W06E002S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection Mthd:

NABOO

feet

Horiz Coord Refer

NAD83

System:

Vertical Measure: 2460.00
Vertical Measure Unit: feet
Vertical Accuracy: 010

Vertical Accuracy Unit:

Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit: ft
Country Code: US
Provider Name: NWIS

County: LOS ANGELES
Latitude: 34.7255388
Longitude: -118.3059107

Interpolated from MAP.

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
15	N	0.46	2,452.09	2,492.74	FED USGS

Organiz Identifier:	USGS-CA	Formation Type:	
Organiz Name:	USGS California Water Science Center	Aquifer Name:	Basin and Range basin-fill aquifers
Well Depth:	150	Well Depth Unit:	ft
Well Hole Depth:	150	Country Code:	US
W Hole Depth Unit:	ft	Provider Name:	NWIS
Construction Date:	18870101	County:	LOS ANGELES
Aquifer Type:		Latitude:	34.7391493
Source Map Scale:	24000	Longitude:	-118.3242446
Monitoring Loc Identifier:	USGS-344421118192401		
Monitoring Loc Name:	008N014W36Z001S		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	18090206		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area			
Unit: Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	2496.00		
Vertical Measure Unit:	feet		
Vertical Accuracy:	010		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direct	ion	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	Е		0.41	2,190.21	2,460.51	FED USGS
Organiz Identifier:		USGS-	CA	Formation Type:		
Organiz Name:		USGS (Center	California Water Science	Aquifer Name:	Basin and Range	e basin-fill aquifers
Well Depth:		Conto		Well Depth Unit:		
Well Hole Depth:				Country Code:	US	
W Hole Depth Unit:				Provider Name:	NWIS	
Construction Date:				County:	LOS ANGELES	

Order No: 20171030225p

Latitude: Aquifer Type: 34.7277609 Source Map Scale: 24000 Longitude: -118.3050774

Monitoring Loc Identifier: USGS-344340118181501 Monitoring Loc Name: 007N013W07E001S

Well Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area:

Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection

Interpolated from MAP.

Mthd:

Horiz Coord Refer

System:

NAD83

Vertical Measure: 2456.00 Vertical Measure Unit: feet Vertical Accuracy: 010 Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	N	0.50	2,656.81	2,494.20	FED USGS

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth:

Well Hole Depth: W Hole Depth Unit: Construction Date:

Aquifer Type: Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344423118192501 Monitoring Loc Name: 008N014W36E001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit:

Country Code: US Provider Name: **NWIS**

County: LOS ANGELES Latitude: 34.7397048 Longitude: -118.3245224

Horizontal Collection

Mthd:

Interpolated from MAP.

Horiz Coord Refer

NAD83

System:

2488.00 Vertical Measure: Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
20	ESE	0.07	391.12	2,464.77	FED USGS

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft

US

NWIS

LOS ANGELES

34.7213723

-118.3050774

Aquifer Name:

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth: 702 Well Hole Depth: 702 W Hole Depth Unit: ft

Construction Date: 19250101

Aquifer Type:

24000 Source Map Scale:

Monitoring Loc Identifier: USGS-344317118181501 Monitoring Loc Name: 007N013W06N001S

Well

Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection Mthd:

Horiz Coord Refer NAD83

System:

2462.00 Vertical Measure: Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit:

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
21	N	0.52	2,755.25	2,493.01	FED USGS

Interpolated from MAP.

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth:

Well Hole Depth: W Hole Depth Unit: Construction Date:

Aquifer Type:

Monitoring Loc Identifier: Monitoring Loc Name: 008N014W36E002S

Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd: Horiz Coord Refer

NAD83 System:

Vertical Measure: 2488.00 Vertical Measure Unit: feet Vertical Accuracy: 010 Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Latitude: Longitude: Source Map Scale: 24000 USGS-344424118192401 Monitoring Loc Type: Well Monitoring Loc Desc: **HUC Eight Digit Code:** 18090206 Drainage Area:

Interpolated from MAP.

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
23	ESE	0.28	1.474.81	2.464.43	FED USGS

Organiz Identifier: **USGS-CA**

USGS California Water Science Organiz Name:

Center

Well Depth: 174 174 Well Hole Depth: W Hole Depth Unit: ft

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344304118182001 Monitoring Loc Name: 007N013W07D002S

Monitoring Loc Type: Well

Monitoring Loc Desc:

Construction Date:

HUC Eight Digit Code: 18090206 Formation Type:

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Aquifer Name:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Basin and Range basin-fill aquifers

US

NWIS

LOS ANGELES

34.7399826

-118.3242446

Well Depth Unit: ft US Country Code: Provider Name: **NWIS**

LOS ANGELES County: Latitude: 34.7177613 Longitude: -118.3064663

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection Interpolated from MAP.

Mthd:

Horiz Coord Refer NAD83

System:

2463.00 Vertical Measure: Vertical Measure Unit: feet Vertical Accuracy: 010 Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
24	ESE	0.32	1,676.80	2,464.99	FED USGS

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Hole Depth: W Hole Depth Unit: Construction Date:

Well Depth:

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344302118182001 Monitoring Loc Name: 007N013W07D001S

Well Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2463.00 Vertical Measure Unit: feet 010 Vertical Accuracy:

Vertical Accuracy Unit: feet Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit:

Country Code: US **NWIS** Provider Name:

LOS ANGELES County: Latitude: 34.7172058 Longitude: -118.3064664

Interpolated from MAP.

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
25	E	0.33	1,735.05	2,458.54	FED USGS

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft

US

NWIS

LOS ANGELES

34.7258165

-118.3031329

Aquifer Name:

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 760
Well Hole Depth: 760
W Hole Depth Unit: ft

Construction Date: 19541202

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344333118180801
Monitoring Loc Name: 007N013W06E001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2455.00

Vertical Measure Unit: feet

Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Interpolated from MAP.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
26	E	0.23	1,216.53	2,459.42	FED USGS
Organiz Identifier:	USG	S-CA	Formation Type:		
Organiz Name:	USG Cent	S California Water Science	Aquifer Name:	Basin and Range	e basin-fill aquifers
Well Depth:	680		Well Depth Unit:	ft	
Well Hole Depth:	680		Country Code:	US	
W Hole Depth Unit	: ft		Provider Name:	NWIS	
Construction Date:	1946	31208	County:	LOS ANGELES	

 Aquifer Type:
 Latitude:
 34.7224833

 Source Map Scale:
 24000
 Longitude:
 -118.3022995

Monitoring Loc Identifier: USGS-344321118180501
Monitoring Loc Name: 007N013W06L001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area Unit:
Contrib Drainage Area:

Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Interpolated from MAP.

Mthd:

Horiz Coord Refer

NAD83

System:

Vertical Measure: 2457.00

Vertical Measure Unit: feet

Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
27	ESE	0.24	1,245.38	2.459.51	FED USGS

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 941
Well Hole Depth: 941
W Hole Depth Unit: ft

Construction Date: 19630210

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344315118180501
Monitoring Loc Name: 007N013W06P002S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit: ft
Country Code: US
Provider Name: NWIS

County: LOS ANGELES
Latitude: 34.7208168
Longitude: -118.3022995

Horizontal Collection

Mthd:

Interpolated from MAP.

Horiz Coord Refer

NAD83

System:

2457.00 Vertical Measure: Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
29	S	0.70	3,690.35	2,493.16	FED USGS

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude: Longitude: Basin and Range basin-fill aquifers

Order No: 20171030225p

US

NWIS

LOS ANGELES 34.7083172

-118.321189

Aquifer Name:

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Well Depth:

Center

Well Hole Depth: 120 W Hole Depth Unit: ft

Construction Date: 18860101

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344230118191301 Monitoring Loc Name: 007N014W12Z001S

Well

Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:

Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection Mthd:

NAD83

Interpolated from MAP.

Horiz Coord Refer

System:

2487.00 Vertical Measure: Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit:

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
31	ESE	0.33	1,764.07	2,453.93	FED USGS

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth: 665 Well Hole Depth: 665 W Hole Depth Unit: ft

Construction Date: 19470101

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344305118180601 Monitoring Loc Name: 007N013W07C001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd:

System:

Horiz Coord Refer NAD83

Vertical Measure: 2454.00 Vertical Measure Unit: feet Vertical Accuracy: 010 Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Interpolated from MAP.

Vert Coord Refer System: NGVD29

DB **Direction** Distance (mi) Distance (ft) **Elevation (ft)** Map Key 33 NE 0.96 5,060.28 2,446.07 FED USGS

Formation Type:

Aquifer Name:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Organiz Identifier: **USGS-CA**

USGS California Water Science Organiz Name:

Center

Well Depth:

700 Well Hole Depth: W Hole Depth Unit:

19480101 Construction Date:

Aquifer Type:

Source Map Scale:

Monitoring Loc Identifier: USGS-344414118181301

Monitoring Loc Name: 008N013W31M001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206 Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Basin and Range basin-fill aquifers

Order No: 20171030225p

US

NWIS

LOS ANGELES

34.737205

-118.3045217

ft Well Depth Unit: Country Code: US Provider Name: **NWIS**

County: LOS ANGELES Latitude: 34.7180391 Longitude: -118.3025773

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection Interpolated from MAP.

Mthd:

Horiz Coord Refer NAD83

System:

2440.00 Vertical Measure: Vertical Measure Unit: feet Vertical Accuracy: 010 Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
35	S	0.85	4,497.95	2,495.05	FED USGS

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth: 3.1

Well Hole Depth: W Hole Depth Unit: Construction Date:

Aquifer Type:

Source Map Scale: 24000

USGS-344222118191401 Monitoring Loc Identifier: Monitoring Loc Name: 007N014W12N001S

Well Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2490.00 Vertical Measure Unit: feet 010 Vertical Accuracy:

Vertical Accuracy Unit: feet Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit: ft Country Code: US **NWIS** Provider Name:

LOS ANGELES County: Latitude: 34.7060951 Longitude: -118.3214669

Interpolated from MAP.

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map KeyDirectionDistance (mi)Distance (ft)Elevation (ft)DB36E0.562,953.872,449.65FED USGS

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft

US

NWIS

LOS ANGELES

34.7263721

-118.2981327

Aguifer Name:

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 702
Well Hole Depth: 702
W Hole Depth Unit: ft

Construction Date: 19530116

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344335118175001
Monitoring Loc Name: 007N013W06G001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2446.00

Vertical Measure Unit: feet

Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Interpolated from MAP.

Vert Coord Refer System: NGVD29

Distance (ft) **Elevation (ft)** DB Map Key Direction Distance (mi) 37 **ENE** 0.70 3.717.71 2.447.82 **FED USGS USGS-CA** Organiz Identifier: Formation Type: Organiz Name: USGS California Water Science Aquifer Name: Basin and Range basin-fill aquifers Center Well Depth Unit: Well Depth: 500 ft US Well Hole Depth: Country Code: W Hole Depth Unit: Provider Name: **NWIS** Construction Date: LOS ANGELES County:

Latitude: 34.7297053 Aquifer Type: Source Map Scale: 24000 Longitude: -118.2984105

Monitoring Loc Identifier: USGS-344347118175101 Monitoring Loc Name: 007N013W06B001S

Well Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area:

Contrib Drainage Area Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection Mthd:

Interpolated from MAP.

Horiz Coord Refer

System:

NAD83

Vertical Measure: 2446.00 Vertical Measure Unit: feet Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
40	ESE	0.54	2,853.55	2,447.45	FED USGS

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth: 500 Well Hole Depth: 500 W Hole Depth Unit: ft

Construction Date: 19410101

Aquifer Type:

24000 Source Map Scale:

Monitoring Loc Identifier: USGS-344304118175001 Monitoring Loc Name: 007N013W07B002S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit: ft Country Code: US Provider Name: **NWIS**

County: LOS ANGELES Latitude: 34.7177613

-118.2981327 Longitude:

Horizontal Collection

Mthd:

Interpolated from MAP.

Horiz Coord Refer

NAD83

System:

2447.00 Vertical Measure: Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key Direction Distance (mi) Distance (ft) Elevation (ft) DB 42 **ENE** 0.97 5,111.58 2,441.48 **FED USGS**

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft

US

NWIS

LOS ANGELES 34.7341495

-118.2981326

Aquifer Name:

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth: 655 Well Hole Depth: 655 W Hole Depth Unit: ft

Construction Date: 194810

Aquifer Type:

24000 Source Map Scale:

Monitoring Loc Identifier: USGS-344403118175001 008N013W31Q001S Monitoring Loc Name:

Well

Monitoring Loc Type:

Monitoring Loc Desc:

18090206 **HUC Eight Digit Code:**

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection Mthd:

Interpolated from MAP.

55

Horiz Coord Refer

System:

NAD83

2440.00 Vertical Measure: Vertical Measure Unit: feet 10 Vertical Accuracy: Vertical Accuracy Unit:

Vertical Collection Mthd: Interpolated from topographic map.

erisinfo.com Environmental Risk Information Services

Vert Coord Refer System: NGVD29

Elevation (ft) Map Key Direction Distance (mi) Distance (ft) DB 43 **ESE** 0.57 2,997.71 2,445.70 FED USGS

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 610
Well Hole Depth: 610
W Hole Depth Unit: ft

Construction Date: 19370101

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344304118174801 Monitoring Loc Name: 007N013W07B001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd: Horiz Coord Refer NAD83

System:

Vertical Measure: 2446.00

Vertical Measure Unit: feet

Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Interpolated from MAP.

Vert Coord Refer System: NGVD29

Map KeyDirectionDistance (mi)Distance (ft)Elevation (ft)DB44SE0.794,174.132,452.92FED USGS

Formation Type:

Aquifer Name:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 500
Well Hole Depth: 500
W Hole Depth Unit: ft

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344239118180501
Monitoring Loc Name: 007N013W07L001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

Construction Date:

HUC Eight Digit Code: 18090206

Formation Type:

Aguifer Name: Basin and Range basin-fill aguifers

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft

US

NWIS

LOS ANGELES

34.7108172

-118.3022996

Well Depth Unit: ft
Country Code: US
Provider Name: NWIS

County: LOS ANGELES
Latitude: 34.7177613
Longitude: -118.2975772

Interpolated from MAP.

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd:

Horiz Coord Refer NAD83

System:

2450.00 Vertical Measure: Vertical Measure Unit: feet Vertical Accuracy: 010 Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
46	Е	0.86	4.559.23	2.442.78	FED USGS

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth:

Well Hole Depth: 425 W Hole Depth Unit: ft

Construction Date: Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344345118173501 Monitoring Loc Name: 007N013W06A002S

Well

Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy:

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd: Horiz Coord Refer NAD83

System:

Vertical Measure: 2440.00 Vertical Measure Unit: feet Vertical Accuracy: 5.

Vertical Accuracy Unit: feet Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit:

Country Code: US **NWIS** Provider Name:

LOS ANGELES County: Latitude: 34.7291498 Longitude: -118.2939659

Interpolated from MAP.

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
47	Е	0.89	4,680.48	2,441.91	FED USGS

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft US

NWIS

LOS ANGELES

34.7297053

-118.2939659

Aquifer Name:

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 400

Well Hole Depth:
W Hole Depth Unit:

Construction Date: 19570101

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344347118173501
Monitoring Loc Name: 007N013W06A003S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: Unknown
Horizontal Accuracy Unit: Unknown

Horizontal Collection

Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2440.00

Vertical Measure Unit: feet

Vertical Accuracy: 20

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Interpolated from MAP.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
50	ESE	0.79	4,190.31	2,438.85	FED USGS
Organiz Identifier: USGS-CA		Formation Type:			
Organiz Name:	USGS California Water Science Center		Aquifer Name:	Basin and Range basin-fill aquifers	
Well Depth:	500	21	Well Depth Unit:	ft	
Well Hole Depth:	500		Country Code:	US	
W Hole Depth Unit	: ft		Provider Name:	NWIS	
Construction Date:	1956	0725	County:	LOS ANGELES	
Construction Date.	1930	J1 20	County.	LOS ANGELES	

Latitude: Aquifer Type: 34.7175 Source Map Scale: 24000 Longitude: -118.2933333

Monitoring Loc Identifier: USGS-344302118173201 Monitoring Loc Name: 007N013W07A001S

Well Monitoring Loc Type:

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:

Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy: .5

seconds Horizontal Accuracy Unit:

Horizontal Collection

Mapping grade GPS unit (handheld accuracy range 12 to 40 ft)

Mthd:

Horiz Coord Refer

NAD83

System:

Vertical Measure: 2436.00 Vertical Measure Unit: feet Vertical Accuracy: 010 Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
51	ESE	0.80	4,226.70	2,438.28	FED USGS

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth: 500 Well Hole Depth: 500 W Hole Depth Unit: ft

Construction Date: 19450101

Aquifer Type:

24000 Source Map Scale:

Monitoring Loc Identifier: USGS-344310118172601 Monitoring Loc Name: 007N013W06R001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy: .5 Horizontal Accuracy Unit: seconds Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Order No: 20171030225p

Well Depth Unit: ft Country Code: US Provider Name: **NWIS**

County: LOS ANGELES Latitude: 34.7194167

Longitude: -118.2925

Horizontal Collection

Mthd:

Interpolated from MAP.

Horiz Coord Refer

NAD83

System:

2435.00 Vertical Measure: Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
53	ESE	0.87	4,568.86	2,435.19	FED USGS

Formation Type:

Well Depth Unit:

Country Code:

Provider Name:

County:

Latitude:

Longitude:

Basin and Range basin-fill aquifers

Order No: 20171030225p

ft

US

NWIS

LOS ANGELES

34.7144281

-118.293966

Aquifer Name:

Organiz Identifier: **USGS-CA**

Organiz Name: USGS California Water Science

Center

Well Depth: 450 Well Hole Depth: 450 W Hole Depth Unit: ft

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344252118173501 Monitoring Loc Name: 007N013W07H002S

Monitoring Loc Type: Well

Monitoring Loc Desc:

Construction Date:

HUC Eight Digit Code: 18090206

Drainage Area: Drainage Area Unit: Contrib Drainage Area: Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection Mthd:

Interpolated from MAP.

Horiz Coord Refer

System:

NAD83

2432.00 Vertical Measure: Vertical Measure Unit: feet 010 Vertical Accuracy: Vertical Accuracy Unit:

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
54	ESE	0.89	4,704.91	2,434.37	FED USGS

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 605
Well Hole Depth: 605
W Hole Depth Unit: ft

Construction Date: 195401

Aquifer Type:

Source Map Scale: 24000

Monitoring Loc Identifier: USGS-344252118173301
Monitoring Loc Name: 007N013W07H001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection

Mthd:

Horiz Coord Refer

System:

Vertical Measure: 2432.00 Vertical Measure Unit: feet

Vertical Accuracy: 010
Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

NAD83

Interpolated from MAP.

Vert Coord Refer System: NGVD29

Formation Type:

Aquifer Name: Basin and Range basin-fill aquifers

Well Depth Unit: ft
Country Code: US
Provider Name: NWIS

County: LOS ANGELES
Latitude: 34.7144281
Longitude: -118.2934104

Map KeyDirectionDistance (mi)Distance (ft)Elevation (ft)DB56E0.975,116.272,430.97FED USGS

Organiz Identifier: USGS-CA

Organiz Name: USGS California Water Science

Center

Well Depth: 750
Well Hole Depth: 750
W Hole Depth Unit: ft

Construction Date: 19511001

Aquifer Type:

Source Map Scale: 124000

Monitoring Loc Identifier: USGS-344320118171801
Monitoring Loc Name: 007N013W05M001S

Monitoring Loc Type: Well

Monitoring Loc Desc:

HUC Eight Digit Code: 18090206

Formation Type:

Aguifer Name: Basin and Range basin-fill aguifers

Order No: 20171030225p

Well Depth Unit: ft
Country Code: US
Provider Name: NWIS

County: LOS ANGELES
Latitude: 34.7222056
Longitude: -118.2892435

Drainage Area:
Drainage Area Unit:
Contrib Drainage Area:
Contrib Drainage Area

Unit:

Horizontal Accuracy: 1

Horizontal Accuracy Unit: seconds

Horizontal Collection Interpolated from MAP.

Mthd:

Horiz Coord Refer NAD83

System:

Vertical Measure: 2428.00

Vertical Measure Unit: feet

Vertical Accuracy: 010

Vertical Accuracy Unit: feet

Vertical Collection Mthd: Interpolated from topographic map.

Vert Coord Refer System: NGVD29

Water Wells

Мар Кеу	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
2	-	0.00	0.00	2,489.02	WATER WELLS
Site Code:	3472	53N1183206W001	Basin ID:	431	
State Well No:	07N1	4W01Z001S	Basin CD:	6-44	
CASGEM Statn ID	: 9883		Basin Desc:	Antelope Va	alley
Loc Well Designtn	:		Basin Region	n Code: 6	
Total Depth (ft):			Basin Region	n Desc: San Joaquii	n River
Station Use Desc:	Unkn	own	Basin Region	n Actv: Y	
IS Vol Rpting:	Yes		Basin Region	n Order: 6	
Loc Method:	Unkn	own	Latitude:	34.7253	
Loc Accuracy:	Unkn	own	Longitude:	-118.3206	
County Name:	Los A	Angeles			
Details					
Meas Date:		908 0:00:00	Elevation ID:		
Meas Method ID:	7		Elev Meas M		
Meas Accuracy ID	: 5		Elev Meas M		
Meas Issue ID:			Elev Meas M		
Meas Issue Code:			Elev Meas M		
Meas Issue Desc:			Elev Accurac		accuracy is unknown
Meas Issue Actv:			Elev Accurac		
Meas Issue Class:			Elev Accurac	cy Cd: Unknown	
Meas Issue Tp Ord	d:		Org ID:	1	
GS Elevation:	2489	.79	Org Name:	Department	of Water Resources
RP Elevation:	2489	.79	Coop Agcy C	Org ID: 5167	
RP Reading:	105		Coop Org Na	ame: United State	es Geological Survey
Casgem Reading:	N		Comments:		
WS Reading:	0				

Мар Кеу	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	SE	0.01	43.21	2,487.73	WATER WELLS
Site Code:	3472	17N1183182W001	Basin ID:	431	
State Well No:	07N1	3W06P001S	Basin CD:	6-44	
CASGEM Statn ID:	8412		Basin Desc:	Antelope Valley	
Loc Well Designtn:			Basin Region Code:	6	
Total Depth (ft):			Basin Region Desc:	San Joaquin Riv	/er
Station Use Desc:	Unkn	own	Basin Region Actv:	Υ	
IS Vol Rpting:	Yes		Basin Region Order:	6	
Loc Method:	Unkn	own	Latitude:	34.7217	
Loc Accuracy:	Unkn	own	Longitude:	-118.3182	
County Name:	Los A	Angeles			
Details					
Meas Date:		963 0:00:00	Elevation ID:	1453375	
Meas Method ID:	7		Elev Meas Mtd Desc		
Meas Accuracy ID:	5		Elev Meas Mtd Actv:	-	
Meas Issue ID:			Elev Meas Mtd Orde		
Meas Issue Code:			Elev Meas Mtd Cd:	UNK	
Meas Issue Desc:			Elev Accuracy Desc:		uracy is unknown
Meas Issue Actv:			Elev Accuracy Actv:	Υ	
Meas Issue Class:			Elev Accuracy Cd:	Unknown	
Meas Issue Tp Ord	:		Org ID:	1	
GS Elevation:	2454	.79	Org Name:	Department of V	Vater Resources
RP Elevation:	2454	.79	Coop Agcy Org ID:	5167	
RP Reading:	248.0	09	Coop Org Name:	United States G	eological Survey
Casgem Reading:	N		Comments:		
WS Reading:	0				

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
5	ESE	0.12	641.29	2,478.05	WATER WELLS
Site Code:	3472	36N1183124W001	Basin ID:	431	
State Well No:	07N1	4W01K001S	Basin CD:	6-44	
CASGEM Statn ID	9881		Basin Desc:	Antelope Valley	
Loc Well Designtn:			Basin Region Code:	6	
Total Depth (ft):			Basin Region Desc:	San Joaquin Rive	r
Station Use Desc:	Unkn	own	Basin Region Actv:	Υ	
IS Vol Rpting:	Yes		Basin Region Order:	6	
Loc Method:	Unkn	own	Latitude:	34.7236	
Loc Accuracy:	Unkn	own	Longitude:	-118.3124	
County Name:	Los A	Angeles			

Meas Date: 12/30/1960 0:00:00 Elevation ID: 1454527 Meas Method ID: Elev Meas Mtd Desc: Unknown 5 Υ Meas Accuracy ID: Elev Meas Mtd Actv: Meas Issue ID: Elev Meas Mtd Order: 7 UNK Meas Issue Code: Elev Meas Mtd Cd: Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown Υ Meas Issue Actv: Elev Accuracy Actv: Elev Accuracy Cd: Unknown Meas Issue Class: Meas Issue Tp Ord: Org ID: GS Elevation: 2477.79 Org Name: Department of Water Resources RP Elevation: 2477.79 Coop Agcy Org ID:

RP Reading: 260 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Map Key	Direction	Distance (mi)	Dist	ance (ft)	Elev	vation (ft)	DB
6	SE	0.20	1,06	2.10	2,482	2.05	WATER WELLS
Site Code:	3471	189N1183160W001	E	Basin ID:		431	
State Well No:	07N	14W01Q001S	Е	Basin CD:		6-44	
CASGEM Statn ID): 2965	53	E	Basin Desc:		Antelope Valley	
Loc Well Designtn	:		E	Basin Region Code:		6	
Total Depth (ft):			E	Basin Region Desc:		San Joaquin Riv	er
Station Use Desc:	Unkr	nown	E	Basin Region Actv:		Υ	
IS Vol Rpting:	Yes		E	Basin Region Order:		6	
Loc Method:	Unkı	nown	L	atitude:		34.7189	
Loc Accuracy:	Unkr	nown	L	.ongitude:		-118.316	
County Name:	Los	Angeles					
Details							
Meas Date:		9/1957 0:00:00	_	Elevation ID:		1454529	
Meas Method ID:	7		E	lev Meas Mtd Desc	:	Unknown	
Meas Accuracy ID	: 5		_	Elev Meas Mtd Actv:		Υ	
Meas Issue ID:			E	Elev Meas Mtd Order	r:	7	
Meas Issue Code:			E	lev Meas Mtd Cd:		UNK	
Meas Issue Desc:			E	lev Accuracy Desc:		Water level accu	ıracy is unknown
Meas Issue Actv:			E	lev Accuracy Actv:		Υ	
Meas Issue Class:			E	lev Accuracy Cd:		Unknown	
Meas Issue Tp Or	d:		(Org ID:		1	
GS Elevation:	2480).79	(Org Name:		Department of V	later Resources
RP Elevation:	2480).79	(Coop Agcy Org ID:		5167	
RP Reading:	239.	5	(Coop Org Name:		United States G	eological Survey
Casgem Reading:	N		(Comments:			
WS Reading:	0						
Meas Date:	10/2	3/1957 0:00:00	E	Elevation ID:		1454528	

7

Υ Meas Accuracy ID: 5 Elev Meas Mtd Actv: Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown Elev Accuracy Actv: Meas Issue Actv: Meas Issue Class: Elev Accuracy Cd: Unknown 1 Meas Issue Tp Ord: Org ID: GS Elevation: 2480.79 Org Name: Department of Water Resources RP Elevation: 2480.79 Coop Agcy Org ID: 5167 RP Reading: 248 Coop Org Name: United States Geological Survey Casgem Reading: Ν Comments: 0 WS Reading: Meas Date: 3/14/1958 0:00:00 Elevation ID: 1454530

Elev Meas Mtd Desc:

Unknown

Order No: 20171030225p

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown Meas Accuracy ID: 5 Elev Meas Mtd Actv: Elev Meas Mtd Order: 7 Meas Issue ID: Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2480.79 Org Name: Department of Water Resources

RP Elevation: 2480.79 Coop Agcy Org ID: 5167

RP Reading: 217.6 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Method ID:

Map Key	Direction	Distance (mi)	D	istance (ft)	Elevation (ft)	DB
9	SE	0.17	88	30.17	2,475.60	WATER WELLS
Site Code:	3471	194N1183121W001		Basin ID:	431	
State Well No:	07N	14W01R001S		Basin CD:	6-44	
CASGEM Statn ID:	9882	2		Basin Desc:	Antelope Valley	<i>'</i>
Loc Well Designtn:				Basin Region Code:	6	
Total Depth (ft):				Basin Region Desc:	San Joaquin Ri	ver
Station Use Desc:	Unkı	nown		Basin Region Actv:	Υ	
IS Vol Rpting:	Yes			Basin Region Order:	6	
Loc Method:	Unkı	nown		Latitude:	34.7194	
Loc Accuracy:	Unkı	nown		Longitude:	-118.3121	
County Name:	Los	Angeles				
Details						
Meas Date:	2/1/1	1947 0:00:00		Elevation ID:	1454531	
Meas Method ID:	7			Elev Meas Mtd Desc:	Unknown	

5 Υ Meas Accuracy ID: Elev Meas Mtd Actv: 7 Meas Issue ID: Elev Meas Mtd Order: Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Actv: Elev Accuracy Actv: Υ Meas Issue Class: Elev Accuracy Cd: Unknown Meas Issue Tp Ord: Org ID: GS Elevation: 2474.79 Org Name: Department of Water Resources

RP Elevation: 2474.79 Coop Agcy Org ID: 5167

RP Reading: 193.5 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

0

Map Key Direction Distance (mi) Distance (ft) Elevation (ft) DB 12 **WSW** 0.62 3,253.29 2,531.34 WATER WELLS Site Code: 347211N1183349W001 Basin ID: 431 07N14W02P001S 6-44 State Well No: Basin CD: **CASGEM Statn ID:** 29654 Basin Desc: Antelope Valley

Basin Region Code:

Total Depth (ft): Basin Region Desc: San Joaquin River

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: Yes Basin Region Order: 6

Loc Method: Unknown Latitude: 34.7211
Loc Accuracy: Unknown Longitude: -118.3349

County Name: Los Angeles

--Details--

WS Reading:

Loc Well Designtn:

 Meas Date:
 1/1/1908 0:00:00
 Elevation ID:
 1454533

 Meas Method ID:
 7
 Elev Meas Mtd Desc:
 Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2527.81 Org Name: Department of Water Resources

RP Elevation: 2527.81 Coop Agcy Org ID: 5167

RP Reading: Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
13	E	0.25	1,332.36	2,465.36	WATER WELLS

 Site Code:
 347255N1183068W001
 Basin ID:
 431

 State Well No:
 07N13W06E002S
 Basin CD:
 6-44

CASGEM Statn ID: 28413 Basin Desc: Antelope Valley

Loc Well Designtn: Basin Region Code:

Total Depth (ft): Basin Region Desc: San Joaquin River

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: Yes Basin Region Order: 6

Loc Method:UnknownLatitude:34.7255Loc Accuracy:UnknownLongitude:-118.3068

County Name: Los Angeles

--Details--

Meas Date: 5/9/1963 0:00:00 Elevation ID: 1453373

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2462.78 Org Name: Department of Water Resources

RP Elevation: 2462.78 Coop Agcy Org ID: 5167

RP Reading: 202.5 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
16	N	0.47	2,470.27	2,492.71	WATER WELLS
Site Code: State Well No:		92N1183242W001 4W36Z001S	Basin ID: Basin CD:	431 6-44	
CASGEM Statn ID Loc Well Designtn:			Basin Desc: Basin Region Code:	Antelope Valley 6	
Total Depth (ft): Station Use Desc:	Unkr	nown	Basin Region Desc: Basin Region Actv:	San Joaquin Riv Y	rer
IS Vol Rpting: Loc Method:	Yes Unkr	nown	Basin Region Order: Latitude:	6 34.7392	
Loc Accuracy: County Name:	Unkr Los <i>i</i>	nown Angeles	Longitude:	-118.3242	
Details					
Meas Date: Meas Method ID: Meas Accuracy ID:	7	909 0:00:00	Elevation ID: Elev Meas Mtd Desc Elev Meas Mtd Actv	: Y	
Meas Issue ID:			Elev Meas Mtd Orde	er: 7	

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2498.79 Org Name: Department of Water Resources

RP Elevation: 2498.79 Coop Agcy Org ID: 5167

RP Reading: 130 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Мар Кеу	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
19	N	0.51	2,680.35	2,497.63	WATER WELLS
Site Code:	3473	397N1183254W001	Basin ID:	431	
State Well No:	08N1	14W36E001S	Basin CD:	6-44	
CASGEM Statn ID	2842	23	Basin Desc:	Antelope Valley	
Loc Well Designtn	:		Basin Region Code:	6	
Total Depth (ft):			Basin Region Desc:	San Joaquin Riv	er
Station Use Desc:	Unkr	nown	Basin Region Actv:	Υ	
IS Vol Rpting:	Yes		Basin Region Order:	6	
Loc Method:	Unkr	nown	Latitude:	34.7397	
Loc Accuracy:	Unkr	nown	Longitude:	-118.3254	
County Name:	Los A	Angeles			
Details					
Meas Date:	4/19/	/1967 0:00:00	Elevation ID:	1303731	
Meas Method ID:	7		Elev Meas Mtd Desc:	Unknown	
Meas Accuracy ID	: 5		Elev Meas Mtd Actv:	Υ	
Meas Issue ID:			Elev Meas Mtd Order:	: 7	
Meas Issue Code:			Elev Meas Mtd Cd:	UNK	
Meas Issue Desc:			Elev Accuracy Desc:	Water level accu	ıracy is unknown
Meas Issue Actv:			Elev Accuracy Actv:	Υ	
Meas Issue Class:			Elev Accuracy Cd:	Unknown	
Meas Issue Tp Ord	d:		Org ID:	1	
GS Elevation:	2490).79	Org Name:	Department of V	Vater Resources
RP Elevation:	2490).79	Coop Agcy Org ID:	5167	
RP Reading:	292.9	9	Coop Org Name:	United States Go	eological Survey
Casgem Reading:	N		Comments:		
WS Reading:	0				
Meas Date:	2/19/	/1975 0:00:00	Elevation ID:	1303742	
Meas Method ID:	7		Elev Meas Mtd Desc:	Unknown	
Meas Accuracy ID	: 5		Elev Meas Mtd Actv:	Υ	
Meas Issue ID:			Elev Meas Mtd Order:	7	
Meas Issue Code:			Elev Meas Mtd Cd:	UNK	

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 282.46 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 11/27/1958 0:00:00 Elevation ID: 1303720

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 232.5 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 11/12/1959 0:00:00 Elevation ID: 1303722

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agey Org ID: 5167

RP Reading: 243.9 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 10/28/1960 0:00:00 Elevation ID: 1303724

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Order No: 20171030225p

Meas Issue Actv: Elev Accuracy Actv: Y

0

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 252.9 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

Meas Date: 11/13/1957 0:00:00 Elevation ID: 1303718

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 232.1 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

WS Reading:

Meas Date: 3/16/1959 0:00:00 Elevation ID: 1303721

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 233.5 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/9/1960 0:00:00 Elevation ID: 1303723

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Order No: 20171030225p

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 237 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 11/13/1962 0:00:00 Elevation ID: 1303728

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 264.5 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/17/1971 0:00:00 Elevation ID: 1303737

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 293.34 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/5/1963 0:00:00 Elevation ID: 1303729

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

Order No: 20171030225p

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

268 RP Reading: Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

WS Reading: 0

Meas Date: 4/14/1969 0:00:00 Elevation ID: 1303734

Meas Method ID: Elev Meas Mtd Desc: Unknown 5 Elev Meas Mtd Actv: Υ

Meas Accuracy ID: 7 Meas Issue ID: Elev Meas Mtd Order: Meas Issue Code: Elev Meas Mtd Cd: **UNK**

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Unknown Elev Accuracy Cd:

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID:

RP Reading: 299.56 Coop Org Name: United States Geological Survey

Casgem Reading: Comments:

0

Meas Date: 10/22/1970 0:00:00 Elevation ID: 1303736

7 Meas Method ID: Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Υ

Meas Issue ID: Elev Meas Mtd Order: Meas Issue Code: Elev Meas Mtd Cd: **UNK**

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 310.02 Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

WS Reading: 0

Meas Date: 2/12/1974 0:00:00 Elevation ID: 1303741

7 Meas Method ID: Elev Meas Mtd Desc: Unknown 5 Meas Accuracy ID: Elev Meas Mtd Actv: Υ

Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Υ Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 5167 Coop Agcy Org ID:

RP Reading: 282.4 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: Ν Comments:

WS Reading:

WS Reading: 0

WS Reading:

Meas Date: 3/27/1985 0:00:00 Elevation ID: 1303750

Meas Method ID: Elev Meas Mtd Desc:

Meas Accuracy ID: Elev Meas Mtd Actv: Meas Issue ID: 19 Elev Meas Mtd Order:

Meas Issue Code: 4 Elev Meas Mtd Cd: Meas Issue Desc: Can't get tape in casing Elev Accuracy Desc: Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: No Measurement Elev Accuracy Cd:

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

11/28/1956 0:00:00 Meas Date: Elevation ID: 1303716 Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Elev Meas Mtd Actv: Meas Accuracy ID: 5

7 Meas Issue ID: Elev Meas Mtd Order: Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Unknown Meas Issue Class: Elev Accuracy Cd:

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Department of Water Resources Org Name:

RP Elevation: 2490.79 Coop Agcy Org ID:

RP Reading: 230.8 Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

WS Reading: 0

Meas Date: 3/14/1968 0:00:00 Elevation ID: 1303733

7 Meas Method ID: Elev Meas Mtd Desc: Unknown Meas Accuracy ID: 5 Elev Meas Mtd Actv: Υ

7 Meas Issue ID: Elev Meas Mtd Order: Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Water level accuracy is unknown Elev Accuracy Desc:

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

1 Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 291.73 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Comments: Casgem Reading: Ν

WS Reading: 0

Meas Date:3/9/1977 0:00:00Elevation ID:1303744Meas Method ID:7Elev Meas Mtd Desc:Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 279.19 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/12/1979 0:00:00 Elevation ID: 1303746

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agry Org ID: 5167

RP Reading: 276.29 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/6/1957 0:00:00 Elevation ID: 1303717

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 217.5 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 10/27/1971 0:00:00 Elevation ID: 1303738

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

Elev Accuracy Desc:

Water level accuracy is unknown

Order No: 20171030225p

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 298.69 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Issue Desc:

Meas Date: 2/15/1973 0:00:00 Elevation ID: 1303740

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 286.86 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/4/1962 0:00:00 Elevation ID: 1303727

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7

Meas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 250.4 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/13/1980 0:00:00 Elevation ID: 1303747

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Elev Meas Mtd Order: 7

Meas Issue ID:

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 275.38 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/9/1982 0:00:00 Elevation ID: 1303749

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 271.1 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/14/1958 0:00:00 Elevation ID: 1303719

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 222.8 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 10/17/1961 0:00:00 Elevation ID: 1303726

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 245.8 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/25/1963 0:00:00 Elevation ID: 1303730

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 270.1 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/17/1970 0:00:00 Elevation ID: 1303735

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 295.65 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/15/1972 0:00:00 Elevation ID: 1303739

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Order No: 20171030225p

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agry Org ID: 5167

RP Reading: 289.87 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/3/1961 0:00:00 Elevation ID: 1303725

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 258 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 12/26/1967 0:00:00 Elevation ID: 1303732

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 291.82 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/11/1976 0:00:00 Elevation ID: 1303743

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 284.69 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/28/1978 0:00:00 Elevation ID: 1303745

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 277.74 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/14/1981 0:00:00 Elevation ID: 1303748

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

weas issue ip Oid.

GS Elevation: 2490.79 Org Name: Department of Water Resources

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: 275.02 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/28/1985 0:00:00 Elevation ID: 1303751

Meas Method ID: Elev Meas Mtd Desc:

Meas Accuracy ID: Elev Meas Mtd Actv:

Meas Issue ID: 15 Elev Meas Mtd Order:

Meas Issue Code: 0 Elev Meas Mtd Cd:

Meas Issue Desc: Measurement Discontinued Elev Accuracy Desc:

Meas Issue Actv: Y Elev Accuracy Actv:

Meas Issue Class: No Measurement Elev Accuracy Cd:

Meas Issue Class: No Measurement Elev Accuracy Cd:

Meas Issue Tp Ord: 1 Org ID:

GS Elevation: 2490.79 Org Name: Department of Water Resources

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Order No: 20171030225p

RP Elevation: 2490.79 Coop Agcy Org ID: 5167

RP Reading: Coop Org Name: United States Geological Survey

Casgem Reading: WS Reading:

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Comments:

Мар Кеу	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
22	E	0.30	1,603.25	2,459.94	WATER WELLS
Site Code:	3472	58N1183040W001	Basin ID:	431	
State Well No:	07N1	3W06E001S	Basin CD:	6-44	
CASGEM Statn ID): 8275		Basin Desc:	Antelope Valley	/
Loc Well Designtn	1:		Basin Region Code	e: 6	
Total Depth (ft):			Basin Region Desc	c: San Joaquin Ri	ver
Station Use Desc:	Unkn	own	Basin Region Actv	: Y	
IS Vol Rpting:	Yes		Basin Region Orde	er: 6	
Loc Method:	Unkn	own	Latitude:	34.7258	
Loc Accuracy:	Unkn	own	Longitude:	-118.304	
County Name:	Los A	Angeles			
Details					
Meas Date:	8/3/1	955 0:00:00	Elevation ID:	1453372	
Meas Method ID:	7		Elev Meas Mtd Des	sc: Unknown	
Meas Accuracy ID): 5		Elev Meas Mtd Act		
Meas Issue ID:			Elev Meas Mtd Ord	der: 7	
Meas Issue Code:			Elev Meas Mtd Cd	: UNK	
Meas Issue Desc:			Elev Accuracy Des	sc: Water level acc	curacy is unknown
Meas Issue Actv:			Elev Accuracy Act	v: Y	
Meas Issue Class	•		Elev Accuracy Cd:	Unknown	
Meas Issue Tp Or	d:		Org ID:	1	
GS Elevation:	2457	.78	Org Name:	Department of	Water Resources
RP Elevation:	2457	.78	Coop Agcy Org ID:		
RP Reading:	268.9)	Coop Org Name:	United States 0	Seological Survey
Casgem Reading:	N		Comments:		
WS Reading:	0				

Мар Кеу	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
28	ESE	0.31	1,616.66	2,459.27	WATER WELLS
Site Code:	_	7180N1183035W001	Basin ID:	431	
State Well No: CASGEM Statn ID	_	N13W07C001S 13	Basin CD: Basin Desc:	6-44 Antelope Valley	
Loc Well Designtn:			Basin Region Code:		
Total Depth (ft):			Basin Region Desc:	San Joaquin Rive	er
Station Use Desc:	Un	known	Basin Region Actv:	Υ	
IS Vol Rpting:	Ye	S	Basin Region Order:	6	
Loc Method:	Un	known	Latitude:	34.718	
Loc Accuracy:	Un	known	Longitude:	-118.3035	
County Name:	Los	s Angeles			

--Details--

Meas Date: 1/1/1955 0:00:00 Elevation ID: 1453402

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:Y

Meas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 195 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1951 0:00:00 Elevation ID: 1453398

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 155 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1949 0:00:00 Elevation ID: 1453396

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 135 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1953 0:00:00 Elevation ID: 1453400

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 175 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1947 0:00:00 Elevation ID: 1453394

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:Y

Meas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 115 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 5/23/1963 0:00:00 Elevation ID: 1453404

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 236.63 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1950 0:00:00 Elevation ID: 1453397

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 155 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1954 0:00:00 Elevation ID: 1453401

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 185 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/21/1956 0:00:00 Elevation ID: 1453403

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7

Meas Issue Code: Elev Meas Mtd Order: 7

Meas Issue Code: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 205 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1948 0:00:00 Elevation ID: 1453395

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Elev Meas Mtd Order: 7

Order No: 20171030225p

Meas Issue ID:

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 125 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1952 0:00:00 Elevation ID: 1453399

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2456.78 Org Name: Department of Water Resources

RP Elevation: 2456.78 Coop Agcy Org ID: 5167

RP Reading: 165 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Мар Кеу	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
30	S	0.70	3,696.57	2,493.16	WATER WELLS
Site Code:	34708	3N1183212W001	Basin ID:	431	
State Well No:		W12Z001S	Basin CD:	6-44	
CASGEM Statn ID:	38162		Basin Desc:	Antelope Valley	
Loc Well Designtn:			Basin Region Code:	6	
Total Depth (ft):			Basin Region Desc:	San Joaquin Rive	r

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: Yes Basin Region Order: 6

Loc Method:UnknownLatitude:34.7083Loc Accuracy:UnknownLongitude:-118.3212

County Name: Los Angeles

--Details--

 Meas Date:
 1/1/1908 0:00:00
 Elevation ID:
 1454610

 Meas Method ID:
 7
 Elev Meas Mtd Desc:
 Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2489.8 Org Name: Department of Water Resources

RP Elevation: 2489.8 Coop Agcy Org ID: 5167

RP Reading: 113 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Map KeyDirectionDistance (mi)Distance (ft)Elevation (ft)DB32NE0.914,812.372,444.85WATER WELLS

 Site Code:
 347372N1183054W001
 Basin ID:
 431

 State Well No:
 08N13W31M001S
 Basin CD:
 6-44

CASGEM Statn ID: 29098 Basin Desc: Antelope Valley

Loc Well Designtn: Basin Region Code: 6

Total Depth (ft): Basin Region Desc: San Joaquin River

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: Yes Basin Region Order: 6

Loc Method:UnknownLatitude:34.7372Loc Accuracy:UnknownLongitude:-118.3054

County Name: Los Angeles

--Details--

Meas Date: 2/27/1957 0:00:00 Elevation ID: 1302810

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:7Elev Meas Mtd Order:7Meas Issue Code:6Elev Meas Mtd Cd:UNK

Meas Issue Desc: Other Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 7 Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 195 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Map KeyDirectionDistance (mi)Distance (ft)Elevation (ft)DB34E0.522,748.392,451.32WATER WELLS

Order No: 20171030225p

 Site Code:
 347264N1182990W001
 Basin ID:
 431

 State Well No:
 07N13W06G001S
 Basin CD:
 6-44

CASGEM Statn ID: 8276 Basin Desc: Antelope Valley

Loc Well Designtn: Basin Region Code: 6

Total Depth (ft): Basin Region Desc: San Joaquin River

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: Yes Basin Region Order: 6

Loc Method:UnknownLatitude:34.7264Loc Accuracy:UnknownLongitude:-118.299

County Name: Los Angeles

--Details--

Meas Date: 1/1/1957 0:00:00 Elevation ID: 1453374

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y
Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2448.78 Org Name: Department of Water Resources

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

RP Reading: 194 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
38	ESE	0.52	2,752.14	2,449.07	WATER WELLS

 Site Code:
 347178N1182985W001
 Basin ID:
 431

 State Well No:
 07N13W07B001S
 Basin CD:
 6-44

CASGEM Statn ID: 30933 Basin Desc: Antelope Valley

Loc Well Designtn: Basin Region Code: 6

Total Depth (ft): Basin Region Desc: San Joaquin River

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: Yes Basin Region Order: 6
Loc Method: Unknown Latitude: 34.

Loc Method:UnknownLatitude:34.7178Loc Accuracy:UnknownLongitude:-118.2985

County Name: Los Angeles

--Details--

Meas Date:1/1/1950 0:00:00Elevation ID:1453388Meas Method ID:7Elev Meas Mtd Desc:Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:2Elev Meas Mtd Order:7Meas Issue Code:1Elev Meas Mtd Cd:UNK

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Order No: 20171030225p

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID:

GS Elevation: 2448.78 Org Name: Department of Water Resources

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

RP Reading: 315 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1947 0:00:00 Elevation ID: 1453385

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y
Meas Issue ID: 2 Elev Meas Mtd Order: 7
Meas Issue Code: 1 Elev Meas Mtd Cd: UNK

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID: 1

GS Elevation: 2448.78 Org Name: Department of Water Resources

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

RP Reading: 285 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1952 0:00:00 Elevation ID: 1453390

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:2Elev Meas Mtd Order:7Meas Issue Code:1Elev Meas Mtd Cd:UNK

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID: 1

GS Elevation: 2448.78 Org Name: Department of Water Resources

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

RP Reading: 335 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 1/1/1953 0:00:00 Elevation ID: 1453391

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y
Meas Issue ID: 2 Elev Meas Mtd Order: 7
Meas Issue Code: 1 Elev Meas Mtd Cd: UNK

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Order No: 20171030225p

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID: 1

GS Elevation: 2448.78 Org Name: Department of Water Resources

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

RP Reading: 345 Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

WS Reading: 0

Meas Date: 1/1/1954 0:00:00 Elevation ID: 1453392 Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Meas Issue ID: 2 Elev Meas Mtd Order: 7 Meas Issue Code: 1 Elev Meas Mtd Cd: UNK

Meas Issue Desc: **Pumping** Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Questionable Elev Accuracy Cd: Unknown Meas Issue Class:

Meas Issue Tp Ord: Org ID:

GS Elevation: 2448.78 Department of Water Resources Org Name:

RP Elevation: 2448.78 Coop Agcy Org ID:

RP Reading: 355 Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

WS Reading: 0

Meas Issue Code:

Meas Date: 1/1/1949 0:00:00 Elevation ID: 1453387

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown Meas Accuracy ID: 5 Elev Meas Mtd Actv: Υ 2 Elev Meas Mtd Order: Meas Issue ID:

Elev Meas Mtd Cd: Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID:

GS Elevation: 2448.78 Org Name: Department of Water Resources

UNK

Order No: 20171030225p

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

RP Reading: 305 Coop Org Name: United States Geological Survey

Casgem Reading: Comments: Ν

WS Reading:

Meas Date: 1/1/1948 0:00:00 Elevation ID: 1453386

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown 5 Υ Meas Accuracy ID: Elev Meas Mtd Actv: Meas Issue ID: 2 Elev Meas Mtd Order: 7

1 UNK Meas Issue Code: Elev Meas Mtd Cd:

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Υ

Unknown Meas Issue Class: Questionable Elev Accuracy Cd:

Meas Issue Tp Ord: 2 Org ID:

GS Elevation: 2448.78 Department of Water Resources Org Name:

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

1

0

RP Reading: 295 Coop Org Name: United States Geological Survey
Casgem Reading: N Comments:
WS Reading: 0

Meas Date:1/1/1951 0:00:00Elevation ID:1453389Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:2Elev Meas Mtd Order:7

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Elev Meas Mtd Cd:

Elevation ID:

UNK

1453393

Order No: 20171030225p

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID: 1

GS Elevation: 2448.78 Org Name: Department of Water Resources

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

RP Reading: 325 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

4/22/1955 0:00:00

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:2Elev Meas Mtd Order:7Meas Issue Code:1Elev Meas Mtd Cd:UNK

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID: 1

GS Elevation: 2448.78 Org Name: Department of Water Resources

RP Elevation: 2448.78 Coop Agcy Org ID: 5167

RP Reading: 367 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Issue Code:

WS Reading:

Meas Date:

Map KeyDirectionDistance (mi)Distance (ft)Elevation (ft)DB39ENE0.955,008.792,443.23WATER WELLS

 Site Code:
 347342N1182990W001
 Basin ID:
 431

 State Well No:
 08N13W31Q001S
 Basin CD:
 6-44

CASGEM Statn ID: 29099 Basin Desc: Antelope Valley

Loc Well Designtn: Basin Region Code: 6

Total Depth (ft): Basin Region Desc: San Joaquin River

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: Yes Basin Region Order: 6

Loc Method:UnknownLatitude:34.7342Loc Accuracy:UnknownLongitude:-118.299

County Name: Los Angeles

--Details--

Meas Date:3/28/1978 0:00:00Elevation ID:1302817Meas Method ID:7Elev Meas Mtd Desc:Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 235.96 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/23/2009 0:00:00 Elevation ID: 1302844

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 215.5 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/12/1974 0:00:00 Elevation ID: 1302813

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y
Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agry Org ID: 5167

RP Reading: 239.85 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/13/1980 0:00:00 Elevation ID: 1302819

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 233.95 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/24/1987 0:00:00 Elevation ID: 1302826

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 220.77 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/13/1990 0:00:00 Elevation ID: 1302829

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Elev Meas Mtd Cd:

UNK

Order No: 20171030225p

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 214.97 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Issue Code:

Meas Date: 2/18/1975 0:00:00 Elevation ID: 1302814

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Υ Meas Accuracy ID: 5 Elev Meas Mtd Actv: Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 1 Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 221.87 Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

WS Reading:

Meas Date: 2/9/1976 0:00:00 Elevation ID: 1302815

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv:

Meas Issue ID: Elev Meas Mtd Order: 7 Elev Meas Mtd Cd: Meas Issue Code: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Department of Water Resources Org Name:

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 239.35 Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

WS Reading:

Meas Date: 3/27/1985 0:00:00 Elevation ID: 1302824

Meas Method ID: Elev Meas Mtd Desc: Unknown

5 Elev Meas Mtd Actv: Υ Meas Accuracy ID: Meas Issue ID: Elev Meas Mtd Order: 7

Elev Meas Mtd Cd: Meas Issue Code: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Υ Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID:

RP Reading: 225.29 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: Ν Comments:

WS Reading: 0

Meas Date: 4/12/1994 0:00:00 Elevation ID: 1302833 7 Meas Method ID: Elev Meas Mtd Desc: Unknown

Υ

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 213.18 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/18/1995 0:00:00 Elevation ID: 1302834

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Method ID:7Elev Meas Mtd Desc:UnknoMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 210.74 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/23/2005 0:00:00 Elevation ID: 1302841

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 220.16 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/31/2006 0:00:00 Elevation ID: 1302842

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Order: /
Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 218.07 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/27/2008 0:00:00 Elevation ID: 1302843

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agry Org ID: 5167

RP Reading: 215.95 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/25/2010 0:00:00 Elevation ID: 1302845

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue Code:

Elev Meas Mtd Order: 7

Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 218.58 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/29/1988 0:00:00 Elevation ID: 1302827

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Order No: 20171030225p

Meas Issue Actv: Elev Accuracy Actv: Y

2442.78

RP Elevation:

Meas Accuracy ID:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

Coop Agcy Org ID:

Elev Meas Mtd Actv:

RP Reading: 219.14 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0 Comments:

Meas Date: 4/20/1993 0:00:00 Elevation ID: 1302832

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 213.46 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/17/1998 0:00:00 Elevation ID: 1302837

Meas Method ID: Elev Meas Mtd Desc:

Meas Issue ID:16Elev Meas Mtd Order:Meas Issue Code:1Elev Meas Mtd Cd:

Meas Issue Desc:PumpingElev Accuracy Desc:Meas Issue Actv:YElev Accuracy Actv:Meas Issue Class:No MeasurementElev Accuracy Cd:

Meas Issue Tp Ord: 2 Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading:

Meas Date: 3/16/1999 0:00:00 Elevation ID: 1302839

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Order No: 20171030225p

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 217.21 Coop Org Name: United States Geological Survey

Comments:

Casgem Reading: N

WS Reading: 0

Meas Date: 3/26/2007 0:00:00 Elevation ID: 1302840

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 218.74 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/6/1984 0:00:00 Elevation ID: 1302823

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 226.28 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/22/1989 0:00:00 Elevation ID: 1302828

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y
Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

Order No: 20171030225p

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 216.98 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments: WS Reading: 0

Meas Date: 3/20/1991 0:00:00 Elevation ID: 1302830

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:Y

Meas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 213.3 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

0

Meas Date: 3/11/1997 0:00:00 Elevation ID: 1302836

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 214.22 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 10/2/1962 0:00:00 Elevation ID: 1302812

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 293.1 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading:

WS Reading: 0

Meas Date: 3/9/1977 0:00:00 Elevation ID: 1302816

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 241.6 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/9/1982 0:00:00 Elevation ID: 1302821

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 230.19 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/26/1986 0:00:00 Elevation ID: 1302825

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 221.78 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading: 0

Meas Date:4/17/1996 0:00:00Elevation ID:1302835Meas Method ID:7Elev Meas Mtd Desc:Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:3Elev Meas Mtd Order:7Meas Issue Code:2Elev Meas Mtd Cd:UNK

Meas Issue Desc: Nearby pump operating Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 3 Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 217.05 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/14/1981 0:00:00 Elevation ID: 1302820

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 236.66 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/12/1983 0:00:00 Elevation ID: 1302822

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 227.98 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 7/30/1998 0:00:00 Elevation ID: 1302838

Meas Method ID: Elev Meas Mtd Desc:

Meas Accuracy ID:Elev Meas Mtd Actv:Meas Issue ID:16Elev Meas Mtd Order:Meas Issue Code:1Elev Meas Mtd Cd:Meas Issue Desc:PumpingElev Accuracy Desc:Meas Issue Actv:YElev Accuracy Actv:

Meas Issue Class: No Measurement Elev Accuracy Cd:

Meas Issue Tp Ord: 2 Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading:

Meas Date: 2/12/1979 0:00:00 Elevation ID: 1302818

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y
Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 235.65 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 4/16/1992 0:00:00 Elevation ID: 1302831

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 212.09 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Map KeyDirectionDistance (mi)Distance (ft)Elevation (ft)DB41SE0.784,111.192,452.83WATER WELLS

 Site Code:
 347108N1183032W001
 Basin ID:
 431

 State Well No:
 07N13W07L001S
 Basin CD:
 6-44

CASGEM Statn ID: 30935 Basin Desc: Antelope Valley

Loc Well Designtn: Basin Region Code: 6

Total Depth (ft): Basin Region Desc: San Joaquin River

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: Yes Basin Region Order: 6

Loc Method:UnknownLatitude:34.7108Loc Accuracy:UnknownLongitude:-118.3032

County Name: Los Angeles

--Details--

Meas Date:5/23/1963 0:00:00Elevation ID:1453409Meas Method ID:7Elev Meas Mtd Desc:Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2452.78 Org Name: Department of Water Resources

RP Elevation: 2452.78 Coop Agcy Org ID: 5167

RP Reading: 300 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Мар Кеу	Direction	Distance (mi)	Dis	stance (ft)	Elevation	on (ft) DB
45	E	0.82	4,34	46.17	2,443.78	WATER WELLS
Site Code:	3472	92N1182949W001		Basin ID:	431	1
State Well No:	07N1	3W06A002S		Basin CD:	6-4	4
CASGEM Statn ID:	8273			Basin Desc:	Ant	telope Valley
Loc Well Designtn:				Basin Region Code:	6	
Total Depth (ft):				Basin Region Desc:	Sai	n Joaquin River
Station Use Desc:	Unkn	iown		Basin Region Actv:	Υ	
IS Vol Rpting:	Yes			Basin Region Order:	6	
Loc Method:	Unkn	iown		Latitude:	34.	7292
Loc Accuracy:	Unkn	iown		Longitude:	-11	8.2949
County Name:	Los A	Angeles				
Details						
Meas Date:	3/8/1	976 0:00:00		Elevation ID:	145	53348
Meas Method ID:	7			Elev Meas Mtd Desc:	Uni	known
Meas Accuracy ID:	5			Elev Meas Mtd Actv:	Υ	
Meas Issue ID:				Elev Meas Mtd Order	: 7	

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 207.72 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 5/8/1963 0:00:00 Elevation ID: 1453344

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 230 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/13/1973 0:00:00 Elevation ID: 1453345

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 207.55 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

 Meas Date:
 2/12/1975 0:00:00
 Elevation ID:
 1453347

 Meas Method ID:
 7
 Flow Meas Mtd Desc:
 Linknown

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown
Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 209.51 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 2/11/1974 0:00:00 Elevation ID: 1453346

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

RP Reading: 210.15 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/30/1978 0:00:00 Elevation ID: 1453349

Meas Method ID: Elev Meas Mtd Desc:

Meas Accuracy ID:Elev Meas Mtd Actv:Meas Issue ID:15Elev Meas Mtd Order:Meas Issue Code:0Elev Meas Mtd Cd:

Meas Issue Desc: Measurement Discontinued Elev Accuracy Desc:

Meas Issue Actv: Y Elev Accuracy Actv:

Meas Issue Tp Ord: 1 Org ID: 1

GS Elevation: 2442.78 Org Name: Department of Water Resources

Elev Accuracy Cd:

Order No: 20171030225p

RP Elevation: 2442.78 Coop Agcy Org ID: 5167

Til Elevation. 2442.70 Coop Agey Org 12. Stor

RP Reading: Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

No Measurement

WS Reading:

Meas Issue Class:

Map KeyDirectionDistance (mi)Distance (ft)Elevation (ft)DB48ESE0.774,049.272,439.50WATER WELLS

 Site Code:
 347172N1182940W001
 Basin ID:
 431

 State Well No:
 07N13W07A001S
 Basin CD:
 6-44

CASGEM Statn ID: 40104 Basin Desc: Antelope Valley

Loc Well Designtn: 344302118173201 Basin Region Code: 6

Total Depth (ft): 500 Basin Region Desc: San Joaquin River

Station Use Desc: Unknown Basin Region Actv: Y
IS Vol Rpting: No Basin Region Order: 6

Loc Method:UnknownLatitude:34.7172Loc Accuracy:UnknownLongitude:-118.294

County Name: Los Angeles

--Details--

Meas Date: 3/26/2008 0:00:00 Elevation ID: 1453381

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2438.78 Org Name: Department of Water Resources

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 213.93 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 5/23/1963 0:00:00 Elevation ID: 1453377

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2438.78 Org Name: Department of Water Resources

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 330.55 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 8/20/1956 0:00:00 Elevation ID: 1453376

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Order No: 20171030225p

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2438.78 Org Name: Department of Water Resources

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 268 Coop Org Name: United States Geological Survey

Comments:

Casgem Reading: N

WS Reading: 0

Meas Date: 3/21/2006 0:00:00 Elevation ID: 1453382

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2438.78 Org Name: Department of Water Resources

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 216.5 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/23/2005 0:00:00 Elevation ID: 1453379

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2438.78 Org Name: Department of Water Resources

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 217.34 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/17/1967 0:00:00 Elevation ID: 1453378

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y
Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2438.78 Org Name: Department of Water Resources

Order No: 20171030225p

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 273.97 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments: WS Reading: 0

Meas Date: 3/17/2010 0:00:00 Elevation ID: 1453383

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:Y

Meas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2438.78 Org Name: Department of Water Resources

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 215.59 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

0

Meas Date: 3/20/2007 0:00:00 Elevation ID: 1453380

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y

Meas Issue ID: Elev Meas Mtd Order: 7

Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2438.78 Org Name: Department of Water Resources

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 216 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 3/24/2009 0:00:00 Elevation ID: 1453384

Meas Method ID: 7 Elev Meas Mtd Desc: Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2438.78 Org Name: Department of Water Resources

RP Elevation: 2438.78 Coop Agcy Org ID: 5167

RP Reading: 213.38 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading:

WS Reading: 0

4.96	Мар Кеу	Directio	on Distance (mi)	D	istance (ft)	Elev	vation (ft)	DB
State Well No: 07N13W07H002S Basin CD: 6-44 CASGEM Statn ID: 8414 Basin Desc: Antelope Valley Loc Well Designtn: Basin Region Code: 6 Total Depth (ft): Basin Region Desc: San Joaquin River Station Use Desc: Unknown Basin Region Actv: Y IS Vol Rpting: Yes Basin Region Order: 6 Loc Method: Unknown Latitude: 34.7144 Loc Accuracy: Unknown Longitude: -118.2949 County Name: Los Angeles Details Details Belev Meas Mtd Desc: Unknown Meas Date: 9/12/1944 0:00:00 Elev Meas Mtd Desc: Unknown Meas Method ID: 7 Elev Meas Mtd Actv: Y Meas Accuracy ID: 5 Elev Meas Mtd Order: 7 Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Exercises: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Exercises: </td <td>49</td> <td>ESE</td> <td>0.82</td> <td>4,</td> <td>351.33</td> <td>2,43</td> <td>6.88</td> <td>WATER WELLS</td>	49	ESE	0.82	4,	351.33	2,43	6.88	WATER WELLS
State Well No: 07N13W07H002S Basin CD: 6-44 CASGEM Statn ID: 8414 Basin Desc: Antelope Valley Loc Well Designtn: Basin Region Code: 6 Total Depth (ft): Basin Region Desc: San Joaquin River Station Use Desc: Unknown Basin Region Actv: Y IS Vol Rpting: Yes Basin Region Order: 6 Loc Method: Unknown Latitude: 34.7144 Loc Accuracy: Unknown Longitude: -118.2949 County Name: Los Angeles Details Details Belev Meas Mtd Desc: Unknown Meas Date: 9/12/1944 0:00:00 Elev Meas Mtd Desc: Unknown Meas Method ID: 7 Elev Meas Mtd Actv: Y Meas Accuracy ID: 5 Elev Meas Mtd Order: 7 Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Exercises: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Exercises: </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
CASGEM Statn ID: 8414 Basin Desc: Antelope Valley Loc Well Designtn: Basin Region Code: 6 Total Depth (ft): Basin Region Desc: San Joaquin River Station Use Desc: Unknown Basin Region Actv: Y IS Vol Rpting: Yes Basin Region Order: 6 Loc Method: Unknown Latitude: 34.7144 Loc Accuracy: Unknown Longitude: -118.2949 County Name: Los Angeles Details Meas Date: 9/12/1944 0:00:00 Elevation ID: 1453407 Meas Method ID: 7 Elev Meas Mtd Desc: Unknown Meas Accuracy ID: 5 Elev Meas Mtd Order: 7 Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Actv: Elev Accuracy Cd: Unknown Meas Issue Class: Elev Accuracy Cd: Unknown Meas Issue Class: Elev Accuracy Cd: Unknown Meas Issue Tp Ord: Org ID: 1 GS Elevation: 2434.78 Org Name: Department of Water Resources RP Elevation: 2434.78 Coop Agcy Org ID: 5167 RP Reading: 92 Coop Org Name: United States Geological Survey Casgem Reading: N	Site Code:	3	347144N1182949W001		Basin ID:		431	
Loc Well Designtn:Basin Region Code:6Total Depth (ft):Basin Region Desc:San Joaquin RiverStation Use Desc:UnknownBasin Region Actv:YIS Vol Rpting:YesBasin Region Order:6Loc Method:UnknownLatitude:34.7144Loc Accuracy:UnknownLongitude:-118.2949County Name:Los AngelesDetailsDetailsDetailsMeas Date:9/12/1944 0:00:00Elevation ID:1453407Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Order:7Meas Issue Desc:Elev Accuracy Desc:Water level accuracy is unknownMeas Issue Actv:Elev Accuracy Actv:YMeas Issue Tp Ord:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	State Well No:	0	7N13W07H002S		Basin CD:		6-44	
Total Depth (ft): Station Use Desc: Unknown Basin Region Desc: Stan Joaquin River Y IS Vol Rpting: Yes Basin Region Order: 6 Loc Method: Unknown Latitude: 34.7144 Loc Accuracy: Unknown Longitude:Details Meas Date: Meas Method ID: For Elev Meas Mtd Desc: What Is Water level accuracy is unknown Meas Issue Code: Meas Issue Code: Meas Issue Cate: Meas Issue Class: Elev Accuracy Actv: Elev Accuracy Cd: Department of Water Resources RP Elevation: 2434.78 Coop Org Name: United States Geological Survey Casgem Reading: N	CASGEM Statn ID	: 8	3414		Basin Desc:		Antelope Valley	
Station Use Desc:UnknownBasin Region Actv:YIS Vol Rpting:YesBasin Region Order:6Loc Method:UnknownLatitude:34.7144Loc Accuracy:UnknownLongitude:-118.2949County Name:Los AngelesDetailsDetailsDetailsMeas Date:9/12/1944 0:00:00Elevation ID:1453407Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNKMeas Issue Desc:Elev Accuracy Desc:Water level accuracy is unknownMeas Issue Actv:Elev Accuracy Actv:YMeas Issue Class:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	Loc Well Designtn:				Basin Region Code:		6	
IS Vol Rpting:YesBasin Region Order:6Loc Method:UnknownLatitude:34.7144Loc Accuracy:UnknownLongitude:-118.2949County Name:Los AngelesDetailsMeas Date:9/12/1944 0:00:00Elevation ID:1453407Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNKMeas Issue Desc:Elev Accuracy Desc:Water level accuracy is unknownMeas Issue Actv:Elev Accuracy Actv:YMeas Issue Class:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	Total Depth (ft):				Basin Region Desc:		San Joaquin Riv	er
Loc Method:UnknownLatitude:34.7144Loc Accuracy:UnknownLongitude:-118.2949County Name:Los AngelesDetailsDetailsDetailsMeas Date:9/12/1944 0:00:00Elevation ID:1453407Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNKMeas Issue Desc:Elev Accuracy Desc:Water level accuracy is unknownMeas Issue Actv:Elev Accuracy Actv:YMeas Issue Class:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	Station Use Desc:	L	Jnknown		Basin Region Actv:		Υ	
Loc Accuracy: County Name:Unknown Los AngelesLongitude:-118.2949Details Meas Date:9/12/1944 0:00:00Elevation ID:1453407Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNKMeas Issue Desc:Elev Accuracy Desc:Water level accuracy is unknownMeas Issue Actv:Elev Accuracy Actv:YMeas Issue Class:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	IS Vol Rpting:	Y	⁄es		Basin Region Order:		6	
County Name: Los Angeles Details Meas Date: 9/12/1944 0:00:00 Elevation ID: 1453407 Meas Method ID: 7 Elev Meas Mtd Desc: Unknown Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Actv: Elev Accuracy Actv: Y Meas Issue Class: Elev Accuracy Cd: Unknown Meas Issue Tp Ord: Org ID: 1 GS Elevation: 2434.78 Org Name: Department of Water Resources RP Elevation: 92 Coop Org Name: United States Geological Survey Casgem Reading: N	Loc Method:	L	Jnknown		Latitude:		34.7144	
Details Meas Date: 9/12/1944 0:00:00 Elevation ID: 1453407 Meas Method ID: 7 Elev Meas Mtd Desc: Unknown Meas Accuracy ID: 5 Elev Meas Mtd Order: 7 Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Actv: Elev Accuracy Actv: Y Meas Issue Class: Elev Accuracy Cd: Unknown Meas Issue Tp Ord: Org ID: 1 GS Elevation: 2434.78 Org Name: Department of Water Resources RP Elevation: 92 Coop Org Name: United States Geological Survey Casgem Reading: N	Loc Accuracy:	L	Jnknown		Longitude:		-118.2949	
Meas Date: 9/12/1944 0:00:00 Elevation ID: 1453407 Meas Method ID: 7 Elev Meas Mtd Desc: Unknown Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Actv: Elev Accuracy Actv: Y Meas Issue Class: Elev Accuracy Cd: Unknown Meas Issue Tp Ord: Org ID: 1 GS Elevation: 2434.78 Org Name: Department of Water Resources RP Elevation: 2434.78 Coop Agcy Org ID: 5167 RP Reading: N Comments:	County Name:	L	os Angeles					
Meas Date: 9/12/1944 0:00:00 Elevation ID: 1453407 Meas Method ID: 7 Elev Meas Mtd Desc: Unknown Meas Accuracy ID: 5 Elev Meas Mtd Actv: Y Meas Issue ID: Elev Meas Mtd Order: 7 Meas Issue Code: Elev Meas Mtd Cd: UNK Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Actv: Elev Accuracy Actv: Y Meas Issue Class: Elev Accuracy Cd: Unknown Meas Issue Tp Ord: Org ID: 1 GS Elevation: 2434.78 Org Name: Department of Water Resources RP Elevation: 2434.78 Coop Agcy Org ID: 5167 RP Reading: N Comments: United States Geological Survey Casgem Reading: N								
Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNKMeas Issue Desc:Elev Accuracy Desc:Water level accuracy is unknownMeas Issue Actv:Elev Accuracy Actv:YMeas Issue Class:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:								
Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:Elev Meas Mtd Order:7Meas Issue Code:Elev Meas Mtd Cd:UNKMeas Issue Desc:Elev Accuracy Desc:Water level accuracy is unknownMeas Issue Actv:Elev Accuracy Actv:YMeas Issue Class:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	Meas Date:	9	9/12/1944 0:00:00		Elevation ID:		1453407	
Meas Issue ID: Meas Issue Code: Meas Issue Desc: Meas Issue Actv: Meas Issue Class: Meas Issue Class: Meas Issue Tp Ord: GS Elevation: 2434.78 RP Reading: Piev Meas Mtd Order: Elev Meas Mtd Cd: Elev Meas Mtd Cd: UNK Water level accuracy is unknown Y Meat Issue Accuracy Actv: Elev Accuracy Actv: Org ID: Org ID: 1 Coop Agcy Org ID: 5167 RP Reading: Coop Org Name: United States Geological Survey Comments:	Meas Method ID:	7	7				Unknown	
Meas Issue Code: Meas Issue Desc: Elev Meas Mtd Cd: Elev Accuracy Desc: Water level accuracy is unknown Meas Issue Actv: Meas Issue Class: Elev Accuracy Actv: Elev Accuracy Cd: Unknown Meas Issue Tp Ord: GS Elevation: GS Elevation: PF Elevation: 2434.78 Coop Agcy Org ID: Coop Org Name: Coop Org Name: United States Geological Survey Casgem Reading: N Comments:	Meas Accuracy ID:	: 5	5		Elev Meas Mtd Actv: Y			
Meas Issue Desc:Elev Accuracy Desc:Water level accuracy is unknownMeas Issue Actv:Elev Accuracy Actv:YMeas Issue Class:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	Meas Issue ID:				Elev Meas Mtd Order	:	-	
Meas Issue Actv:Elev Accuracy Actv:YMeas Issue Class:Elev Accuracy Cd:UnknownMeas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	Meas Issue Code:				Elev Meas Mtd Cd:		UNK	
Meas Issue Class: Meas Issue Tp Ord: GS Elevation: RP Elevation: RP Reading: Q1 Q2 Q2 Q3 Q4 Q4 Q4 Q4 Q4 Q4 Q4 Q4 Q4	Meas Issue Desc:				Elev Accuracy Desc:		Water level accu	racy is unknown
Meas Issue Tp Ord:Org ID:1GS Elevation:2434.78Org Name:Department of Water ResourcesRP Elevation:2434.78Coop Agcy Org ID:5167RP Reading:92Coop Org Name:United States Geological SurveyCasgem Reading:NComments:	Meas Issue Actv:				Elev Accuracy Actv:		Υ	
GS Elevation: 2434.78 Org Name: Department of Water Resources RP Elevation: 2434.78 Coop Agcy Org ID: 5167 RP Reading: 92 Coop Org Name: United States Geological Survey Casgem Reading: N Comments:	Meas Issue Class:				Elev Accuracy Cd:	Unknown		
RP Elevation: 2434.78 Coop Agcy Org ID: 5167 RP Reading: 92 Coop Org Name: United States Geological Survey Casgem Reading: N Comments:	Meas Issue Tp Ord	d:			Org ID:		1	
RP Reading: 92 Coop Org Name: United States Geological Survey Casgem Reading: N Comments:	GS Elevation:	2	2434.78		Org Name:		Department of W	ater Resources
Casgem Reading: N Comments:	RP Elevation:	2	2434.78		Coop Agcy Org ID:		5167	
	RP Reading:	9	92		Coop Org Name:		United States Ge	eological Survey
WS Reading: 0	Casgem Reading:	N	N		Comments:			
	WS Reading:	0)					

Мар Кеу	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
52	ESE	0.85	4,494.20	2,435.88	WATER WELLS
Site Code:	347	144N1182943W001	Basin ID:	431	
State Well No:	07N	13W07H001S	Basin CD:	6-44	
CASGEM Statn ID	: 309	34	Basin Desc:	Antelope Valley	
Loc Well Designtn:	:		Basin Region Code:	6	
Total Depth (ft):			Basin Region Desc:	San Joaquin Rive	er
Station Use Desc:	Unk	nown	Basin Region Actv:	Υ	
IS Vol Rpting:	Yes		Basin Region Order:	6	
Loc Method:	Unk	nown	Latitude:	34.7144	
Loc Accuracy:	Unk	nown	Longitude:	-118.2943	
County Name:	Los	Angeles			

--Details--Meas Date: 7/9/1962 0:00:00 Elevation ID: Meas Method ID: 7 Elev Meas Mtd Desc:

Meas Accuracy ID: 5 Elev Meas Mtd Actv: Υ Meas Issue ID: Elev Meas Mtd Order: 7 Elev Meas Mtd Cd: UNK Meas Issue Code:

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

1453406

Unknown

Υ Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

Department of Water Resources GS Elevation: 2434.78 Org Name: RP Elevation: 2434.78 Coop Agcy Org ID:

RP Reading: 305.4 Coop Org Name: United States Geological Survey

Ν Comments: Casgem Reading:

WS Reading: 0

Meas Date: 8/24/1960 0:00:00 Elevation ID: 1453405 Meas Method ID: Elev Meas Mtd Desc: Unknown

5 Elev Meas Mtd Actv: Υ Meas Accuracy ID: Elev Meas Mtd Order: Meas Issue ID:

UNK Meas Issue Code: Elev Meas Mtd Cd:

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv:

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID:

GS Elevation: 2434.78 Org Name: Department of Water Resources

RP Elevation: 2434.78 5167 Coop Agcy Org ID:

RP Reading: 282.2 Coop Org Name: United States Geological Survey

Casgem Reading: Ν Comments:

0.92

WS Reading: 0

Map Key Direction Distance (mi) Distance (ft) Elevation (ft) DB Ε

4,858.99

2,432.72

Site Code: 347222N1182901W001 Basin ID: 431 State Well No: 07N13W05M001S Basin CD: 6-44

CASGEM Statn ID: 28409 Basin Desc: Antelope Valley

Basin Region Code: Loc Well Designtn:

Total Depth (ft): Basin Region Desc: San Joaquin River

Υ Station Use Desc: Unknown Basin Region Actv: IS Vol Rpting: Yes Basin Region Order: Loc Method: Unknown Latitude: 34.7222 Loc Accuracy: Unknown Longitude: -118.2901

County Name: Los Angeles

--Details--

55

WATER WELLS

 Meas Date:
 11/2/1951 0:00:00
 Elevation ID:
 1453319

 Meas Method ID:
 7
 Elev Meas Mtd Desc:
 Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:2Elev Meas Mtd Order:7Meas Issue Code:1Elev Meas Mtd Cd:UNK

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID: 1

GS Elevation: 2430.78 Org Name: Department of Water Resources

RP Elevation: 2430.78 Coop Agcy Org ID: 5167

RP Reading: 215 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

 Meas Date:
 7/24/1956 0:00:00
 Elevation ID:
 1453321

 Meas Method ID:
 7
 Elev Meas Mtd Desc:
 Unknown

Meas Accuracy ID:5Elev Meas Mtd Actv:YMeas Issue ID:2Elev Meas Mtd Order:7Meas Issue Code:1Elev Meas Mtd Cd:UNK

Meas Issue Desc: Pumping Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Y Elev Accuracy Actv: Y

Meas Issue Class: Questionable Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: 2 Org ID: 1

GS Elevation: 2430.78 Org Name: Department of Water Resources

RP Elevation: 2430.78 Coop Agcy Org ID: 5167

RP Reading: 310 Coop Org Name: United States Geological Survey

Casgem Reading: N Comments:

WS Reading: 0

Meas Date: 6/2/1954 0:00:00 Elevation ID: 1453320

Meas Method ID:7Elev Meas Mtd Desc:UnknownMeas Accuracy ID:5Elev Meas Mtd Actv:Y

Meas Issue ID: Elev Meas Mtd Order: 7
Meas Issue Code: Elev Meas Mtd Cd: UNK

Meas Issue Desc: Elev Accuracy Desc: Water level accuracy is unknown

Meas Issue Actv: Elev Accuracy Actv: Y

Meas Issue Class: Elev Accuracy Cd: Unknown

Meas Issue Tp Ord: Org ID: 1

GS Elevation: 2430.78 Org Name: Department of Water Resources

RP Elevation: 2430.78 Coop Agry Org ID: 5167

RP Reading: 233.8 Coop Org Name: United States Geological Survey

Order No: 20171030225p

Casgem Reading: N Comments:

WS Reading: 0

Radon Information

This section lists any relevant radon information found for the target property.

Federal EPA Radon Zone for LOS ANGELES County: 2

- Zone 1: Counties with predicted average indoor radon screening levels greater than 4 pCi/L
- Zone 2: Counties with predicted average indoor radon screening levels from 2 to 4 pCi/L
- Zone 3: Counties with predicted average indoor radon screening levels less than 2 pCi/L

Federal Area Radon Information for LOS ANGELES County

No Measures/Homes: 69
Geometric Mean: 0.4
Arithmetic Mean: 0.5
Median: 0.5
Standard Deviation: 1
Maximum: 5.6
% >4 pCi/L: 1
% >20 pCi/L: 0

Notes on Data Table: TABLE 1. Screening indoor

radon data from the EPA/State Residential Radon Survey of California conducted during 1989-90. Data represent 2-7

day charcoal canister

measurements from the lowest level of each home tested.

Federal Sources

FEMA National Flood Hazard Layer

FEMA FLOOD

The National Flood Hazard Layer (NFHL) data incorporates Flood Insurance Rate Map (FIRM) databases published by the Federal Emergency Management Agency (FEMA), and any Letters Of Map Revision (LOMRs) that have been issued against those databases since their publication date. The FIRM Database is the digital, geospatial version of the flood hazard information shown on the published paper FIRMs. The FIRM Database depicts flood risk information and supporting data used to develop the risk data. The FIRM Database is derived from Flood Insurance Studies (FISs), previously published FIRMs, flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data, where available.

Indoor Radon Data INDOOR RADON

Indoor radon measurements tracked by the Environmental Protection Agency(EPA) and the State Residential Radon Survey.

Public Water Systems Violations and Enforcement Data

PWSV

List of drinking water violations and enforcement actions from the Safe Drinking Water Information System (SDWIS) made available by the Drinking Water Protection Division of the US EPA's Office of Groundwater and Drinking Water. Enforcement sensitive actions are not included in the data released by the EPA. Address information provided in SWDIS may correspond either with the physical location of the water system, or with a contact address.

RADON ZONE

Areas showing the level of Radon Zones (level 1, 2 or 3) by county. This data is maintained by the Environmental Protection Agency (EPA).

Safe Drinking Water Information System (SDWIS)

SDWIS

The Safe Drinking Water Information System (SDWIS) contains information about public water systems as reported to US Environmental Protection Agency (EPA) by the states. Addresses may correspond with the location of the water system, or with a contact address.

Soil Survey Geographic database

SSURGO

The Soil Survey Geographic database (SSURGO) contains information about soil as collected by the National Cooperative Soil Survey at the Natural Resources Conservation Service (NRCS). Soil maps outline areas called map units. The map units are linked to soil properties in a database. Each map unit may contain one to three major components and some minor components.

U.S. Fish & Wildlife Service Wetland Data

US WETLAND

The U.S. Fish & Wildlife Service Wetland layer represents the approximate location and type of wetlands and deepwater habitats in the United States.

USGS Current Topo US TOPO

US Topo topographic maps are produced by the National Geospatial Program of the U.S. Geological Survey (USGS). The project was launched in late 2009, and the term "US Topo" refers specifically to quadrangle topographic maps published in 2009 and later.

USGS Geology US GEOLOGY

Seamless maps depicting geological information provided by the United States Geological Survey (USGS).

USGS National Water Information System

FED USGS

The U.S. Geological Survey (USGS)'s National Water Information System (NWIS) is the nation's principal repository of water resources data. This database includes comprehensive information of well-construction details, time-series data for gage height, streamflow, groundwater level, and precipitation and water use data.

State Sources

Oil and Gas Wells OGW

A list of Oil and Gas well locations. This is provided by California's Department of Conservation Division of

Appendix

Oil, Gas and Geothermal Resources.

Public Water Supply Wells PWSW

List of community water supply wells in California. This data was made available by California Department of Water Resources, Division of Statewide Integrated Water Management, who indicates that the management of the data in an ongoing project, and some county data is not represented. Location information is provided using the Public Land Survey System (PLSS) and is subject to the accuracy limitations inherent to the PLSS system.

Water Wells WATER WELLS

A list of water wells maintained by the Department of Water Resources (DWR) Water Data Library.

Well Investigation Program Case List

WIP

Order No: 20171030225p

The Well Investigation Program (WIP) was developed by the State Water Resources Control Board (SWRCB) to locate, assess and remediate sources of solvent contamination impacting drinking water wells. This list contains WIP cases (active and historical) for the San Gabriel and San Fernando Valley area and was provided by the Los Angeles Regional Water Quality Control Board.

Liability Notice

Reliance on information in Report: The Physical Setting Report (PSR) DOES NOT replace a full Phase I Environmental Site Assessment but is solely intended to be used as a review of environmental databases and physical characteristics for the site or adjacent properties.

License for use of information in Report: No page of this report can be used without this cover page, this notice and the project property identifier. The information in Report(s) may not be modified or re-sold.

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APPENDIX E CREDENTIALS

ISLAM (SAMI) R. NOAMAN, E.I.T. ENVIRONMENTAL DEPARTMENT MANAGER

PROFESSIONAL EXPERIENCE

Mr. Noaman is an environmental Department Manager with track record in client management, management of phases of environmental site assessments (ESAs), business environmental risk reviews, site characterizations, regulatory compliance services, and remediation projects. Possess excellent analytical, problem solving, advisory, and team management skills.

PROJECT EXPERIENCE

Environmental Site Assessments (ESA):

Performed and managed hundreds of ESAs in California for industrial, commercial, residential, and agricultural properties. Managed long-term national accounts for financial institutions (equity and loan portfolios), major retail chains, real estate investment trusts, developers and other real property owners. Mr. Noaman understands facility operating systems; state and federal regulations; and fate and transport of chemicals through air, soil, soil vapor, surface water and groundwater. He is experienced in the performance of ESAs under the All Appropriate Inquiry (AAI) rules (ASTM 1527-13), and meets the requirements of an Environmental Professional as defined in Section 312.10 of 40 CFR 312.

Limited Subsurface Investigations (LSIs):

Performed and managed hundreds of LSIs in California, New Jersey, and New York. Investigated environmental conditions in soils and groundwater as a result of releases from a variety of sources, including service stations, dry cleaners, and a wide range of industrial and manufacturing operations. Specialized in collection and interpretation of data to pursue closure through state and federal programs including Los Angeles County Site Mitigation Unit, the California Regional Water Quality Control Board, and the Department Of Toxic Substances Control Voluntary Cleanup Programs (VCP).

Hazardous Materials Surveys:

Managed and/or provided quality assurance for numerous hazardous materials surveys in the state of california including, but not limited to, acm, lead in paint, mold, pcbs, and mercury-containing equipment. Acm surveys were performed in accordance with ahera and neshap guidelines on commercial, multi-family residential, and educational properties slated for renovation or demolition.

Stormwater Prevention and Pollution Control Plan (SWPPP):

Managed SWPPP for numerous industrial sites in Southern California. Scope of the work typically included client and agency coordination, implementation of guidelines required by the state of California Water Resources Board (SWRB), and preparation of documentations for submittals to the SWRB. In addition, I have managed several limited regulatory compliance projects (annual submittals and Level 1 ERA reporting) for industrial stormwater, to achieve compliance in accordance with the NPDES general permit requirements.



Education

Bachelor of Science, Chemistry/Environmental Chemistry, 2002, City University of New York, City College of New York

Pursuing Masters in Environmental Engineering (California State University Fullerton-expected graduation date Fall 2017)

Certifications

Certified Engineer In Training (CA) Certification No. EIT 171371

40-Hour OSHA Hazardous Waste Operations & Emergency Response Training Course

Work History

Terracon Consultants, Inc. (Irvine, CA), Environmental Group/Department Manager, June 2012 to Present

Smith Emery GeoServices (SEG), (Los Angeles, CA), Project Engineer, August 2008 to June 2012

KLK Environmental Group LLC. (Kearny, NJ). Environmental Scientist -August 2003 to June 2008

UniChem Inc. (Kearny, NJ). Staff Environmental Chemist - August 2002 to June 2003



Major Department Store Commercial Retail Portfolio: Environmental team lead for evaluating environmental site conditions and due diligence review, including overseeing Phase I Environmental Site Assessments and Phase II Environmental Site Investigations for over thirty retail facilities with automotive maintenance across California. Findings from subsurface investigations were used to support regulatory closure of select facilities to facilitate a real estate transaction across the United States.

Industrial Facility – Land-use Change/Private School, Los Angeles, CA: Environmental consulting services including Phase I Environmental Site Assessments (ESA) due diligence support, subsurface investigation activities to evaluate environmental media including soil, soil gas and indoor / outdoor air. Services included a land-use change from an industrial facility to a private school. Prepared environmental investigation reports, regulatory interaction, corrective action design for indoor air mitigation, and work plan for management of environmental media.

Retail Shopping Center – Former Dry Cleaners Facility – DTSC, Fremont, CA: Conducted extensive site investigation activities to evaluate the magnitude and extent of chlorinated solvents identified in the vicinity of a former dry cleaners facility, including an evaluation of groundwater, soil, soil-gas and indoor vapors as a result of a chlorinated solvent plume. Project responsibilities consisted of direct support and interaction with client, client legal team and DTSC representatives to manage the closure process, including the preparation of work plans and environmental investigation reports, risk-based human health evaluation, and response actions.

Underground Storage Tank Assessment and Monitoring – West Los Angeles, CA: Assisted property owner with the regulatory closure of former underground storage tank (UST) site located in West Los Angeles, California. The project scope included historical research of past site use and site characterization, including soil, groundwater and soil gas assessments, followed by groundwater monitoring until closure was achieved.

Automated Fuel Dispensing Facilities – Camp Pendleton, California: Project scope included environmental and geotechnical investigations at six fueling existing/proposed facilities within Camp Pendleton, California. The project consisted of construction of new buildings, canopies, pavements, retaining walls, slopes, and installation of underground storage tanks (USTs), and other site facilities. Served as the environmental group leader.

Emerson College, Hollywood, California: Conducted comprehensive investigation and assisted the client through enrolling and interacting with the LAFD regarding USTs found during construction activities. Provided construction management oversight to manage impacted soils and assisted the client in waste disposition, permitting and regulatory compliance interaction. A total of 45,000 cubic yards of soil was removed from the site and disposed at an off-site facility, prior to the construction of a mid-rise school complex. Support services allowed for significant savings in construction, on an expedited timeline in concert with the construction schedule.

Los Angeles Unified School District (LAUSD Sites): Managed soil characterization for export/import soils for over nine Los Angeles Unified School District (LAUSD) sites. Prepared Sample Strategy Plans (SSP) for stockpiled and in-place soils, oversaw the sampling, and prepared soil certification reports under the supervision of a professional geologist for submittal to the LAUSD Office of Environmental Health.

Newton Plastics, Newton, NJ: Managed the removal of two 12,000-gallon (solvents & gasoline containing) USTs from a plastic products manufacturing facility as a part of transaction deal. Project tasks included, work plan preparation, regulatory officials interface, client contact/coordination, oversight of removal activities, and report preparation. No further action letter from NJDEP was obtained for the client. The property value was retained for the client with our consulting services.

Eagle Electric, Queens, NY: Responsibilities were to manage the cleanup of former Coal storage rooms in basement of a landmark building in Queens, NY. The cleanup activities included, hauling of approximately 425 tons of Class N-1 Hazardous materials, managed and ensured safety of eight to twelve crew, handling of waste manifests, and coordination for transportation / disposal and client interface.

AROL Chemicals, Newark, NJ: Managed Phase I and Phase II ESA of chemical manufacturing facility. Scope of Phase II ESA included, the removal of three 12,000-gallon USTs, excavation and disposal of impacted soils.



KeySpan Energy, NY: Responsibilities include inspection and maintenance of client boilers and tanks systems. Objectives were to prevent scaling/rusting in the boiler systems resulting from the plant operations to maintain operations efficiency. Goals were achieved for the client by developing environmentally friendly chemical reagents (pH controlled) to mitigate the concerns at the plant, boilers maintenance issues were resolved and steady business was created for the company.

The HACH Company, OH: Implementing a unique techniques producing Ferrozine - Iron- reagent for determining trace levels of iron in chemical reagents and glycols. Ferrozine can also be used to analyze samples containing magnetite (black iron oxide) or ferrites.

KIWA of The Netherlands: Research and development of new synthetic methods of alkali Ferrates including, Potassium, Sodium, and Barium ferrates, an environmentally friendly oxidative reagents used in wastewater treatment for municipal and industrial facilities.



JENNIFER S. VAN

SENIOR STAFF ENVIRONMENTAL SCIENTIST



PROFESSIONAL EXPERIENCE

Ms. Van is a Senior Environmental Staff Scientist in Terracon's Orange County, California Office. She has over four years of experience in Environmental Services, Phase I Environmental Site Assessments (ESAs). She has conducted over 450 site assessments on vacant lots, undeveloped land, multi-family residential, office warehouse, agricultural, multi-tenant retail, industrial, automotive dealerships, service stations, and dry cleaner properties. She prepares environmental site assessment reports based on the ASTM E1527-05/13 AAI standards. In addition, she performs limited visual inspection and sampling for ACM and radon assessments.

PROJECT EXPERIENCE

Environemntal – Spill Prevention, Control And Countermeasure Plans

Ms. Van has experience with federal and state requirements for Spill Prevention, Control and Countermeasure Plans for Tier I and II qualified facilities.

PHASE I ESA Portfolios

Along with managing individual ESAs, Ms. Van has managed several ESA portfolios including three funeral home facilities, four water processing facilities, and five commercial/retail sites throughout Southern California.

Undeveloped/Vacant land - California

Project Manager for Environmental Site Assessments on multiple undeveloped and vacant properties ranging from less than one acre to 4,000 acres in size.

Multi-family Housing - California

Project Manager for Environmental Site Assessments on numerous multi-family residential projects.

Downtown Properties - California

Project Manager for Environmental Site Assessments on multiple retail properties.

Multi-tenant Retail Centers - California

Project Manager for Environmental Site Assessments on multiple mid-to-large scale retail properties.

Telecommunications Sites - California

Performed Environmental Site Assessments on multiple properties proposed for telecommunications installations.

EDUCATION

Bachelor of Science. Environmental Sciences: Natural Sciences.

Minor: Business Adminstration University of California Riverside, California, 2011.

CERTIFICATIONS

24-Hour AHERA Asbestos Abatement Building Inspector 40-Hour OSHA HAZWOPER

National Radon Proficiency Program Residential Measurement Provider

WORK HISTORY

August 2015 to Present Terracon, Irvine, California Senior Staff Environmental Scientist

August 2011 to August 2015: Terracon, Irvine, California, Staff Scientist - Environmental Services

May 2011 to June 2011 Riverside Public Utilities, Riverside, California, Business District Development Intern

June 2009 to November 2010 Riverside Community Hospital, Riverside, California, Clinical Care Extender

May 2008 to January 2011 UCR: Botany and Plant Sciences, Riverside, California, Lab Assistant I/Supervisor

APPENDIX F DESCRIPTION OF TERMS AND ACRONYMS

Description of Selected General Terms and Acronyms

Term/Acronym	Description
	Asbestos Containing Material. Asbestos is a naturally occurring mineral, three varieties of which (chrysotile, amosite, crocidolite) have been commonly used as fireproofing or binding agents in construction materials. Exposure to asbestos, as well as ACM, has been documented to cause lung diseases including asbestosis (scarring of the lung), lung cancer and mesothelioma (a cancer of the lung lining). Regulatory agencies have generally defined ACM as a material containing greater that one (1) percent asbestos, however some states
ACM	(e.g. California) define ACM as materials having 0.1% asbestos. In order to define a homogenous material as non-ACM, a minimum number of samples must be collected from the material dependent upon its type and quantity. Homogenous materials defined as non-ACM must either have 1) no asbestos identified in all of its samples or 2) an identified asbestos concentration below the appropriate regulatory threshold. Asbestos concentrations are generally determined using polarized light microscopy or transmission electron microscopy. Point counting is an analytical method to statistically quantify the percentage of asbestos in a sample. The asbestos component of ACM may either be friable or non-friable. Friable materials, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure and have a higher potential for a fiber release than non-friable ACM. Non-friable ACM are materials that are firmly bound in a matrix by plastic, cement, etc. and, if handled carefully, will not become friable.
	Federal and state regulations require that either all suspect building materials be presumed ACM or that an asbestos survey be performed prior to renovation, dismantling, demolition, or other activities that may disturb potential ACM. Notifications are required prior to demolition and/or renovation activities that may impact the condition of ACM in a building. ACM removal may be required if the ACM is likely to be disturbed or damaged during the demolition or renovation. Abatement of friable or potentially friable ACM must be performed by a licensed abatement contractor in accordance with state rules and NESHAP. Additionally, OSHA regulations for work classification, worker training and worker protection will apply.
AHERA	Asbestos Hazard Emergency Response Act
AST	Aboveground Storage Tanks. ASTs are generally described as storage tanks less than 10% of which are below ground (i.e., buried). Tanks located in a basement, but not buried, are also considered ASTs. Whether, and the extent to which, an AST is regulated, is determined on a case-by-case basis and depends upon tank size, its contents and the jurisdiction of its location.
BGS	Below Ground Surface
Brownfields	State and/or tribal listing of Brownfield properties addressed by Cooperative Agreement Recipients or Targeted Brownfields Assessments.
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes. BTEX are VOC components found in gasoline and commonly used as analytical indicators of a petroleum hydrocarbon release.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (a.k.a. Superfund). CERCLA is the federal act that regulates abandoned or uncontrolled hazardous waste sites. Under this Act, joint and several liability may be imposed on potentially responsible parties for cleanup-related costs.
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System. An EPA compilation of sites having suspected or actual releases of hazardous substances to the environment. CERCLIS also contains information on site inspections, preliminary assessments and remediation of hazardous waste sites. These sites are typically reported to EPA by states and municipalities or by third parties pursuant to CERCLA Section 103.
CESQG	Conditionally exempt small quantity generators.
CFR	Code of Federal Regulations

Description of Selected General Terms and Acronyms (cont.)

Term/Acronym	Description
CREC	Controlled Recognized Environmental Condition is defined in ASTM E1527-13 as "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). A condition considered by the environmental professional to be a controlled recognized environmental condition shall be listed in the findings section of the Phase I Environmental Site Assessment report, and as a recognized environmental condition in the conclusions section of the Phase I Environmental Site Assessment report."
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System. An EPA-maintained federal database which stores information on notifications of oil discharges and hazardous substance releases in quantities greater than the applicable reportable quantity under CERCLA. ERNS is a cooperative datasharing effort between EPA, DOT, and the National Response Center.
ESA	Environmental Site Assessment
FRP	Fiberglass Reinforced Plastic
Hazardous Substance	As defined under CERCLA, this is (A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title; (C) any hazardous waste having characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (with some exclusions); (D) any toxic pollutant listed under section 1317(a) of Title 33; (E) any hazardous air pollutant listed under section 112 of the Clean Air Act; and (F) any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action under section 2606 of Title 15. This term does not include petroleum, including crude oil or any fraction thereof which is not otherwise listed as a hazardous substance under subparagraphs (A) through (F) above, and the term include natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).
Hazardous Waste	This is defined as having characteristics identified or listed under section 3001 of the Solid Waste Disposal Act (with some exceptions). RCRA, as amended by the Solid Waste Disposal Act of 1980, defines this term as a "solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."
HREC	Historical Recognized Environmental Condition is defined in ASTM E1527-13 as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time of the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition."

IC/EC	A listing of sites with institutional and/or engineering controls in place. IC include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. EC include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.
ILP	Innocent Landowner/Operator Program
LQG	Large quantity generators.
LUST	Leaking Underground Storage Tank. This is a federal term set forth under RCRA for leaking USTs. Some states also utilize this term.
MCL	Maximum Contaminant Level. This Safe Drinking Water concept (and also used by many states as a ground water cleanup criteria) refers to the limit on drinking water contamination that determines whether a supplier can deliver water from a specific source without treatment.
MSDS	Material Safety Data Sheets. Written/printed forms prepared by chemical manufacturers, importers and employers which identify the physical and chemical traits of hazardous chemicals under OSHA's Hazard Communication Standard.
NESHAP	National Emissions Standard for Hazardous Air Pollutants (Federal Clean Air Act). This part of the Clean Air Act regulates emissions of hazardous air pollutants.
NFRAP	Facilities where there is "No Further Remedial Action Planned," as more particularly described under the Records Review section of this report.
NOV	Notice of Violation. A notice of violation or similar citation issued to an entity, company or individual by a state or federal regulatory body indicating a violation of applicable rule or regulations has been identified.
NPDES	National Pollutant Discharge Elimination System (Clean Water Act). The federal permit system for discharges of polluted water.
NPL	The NPL is the EPA's database of uncontrolled or abandoned hazardous waste facilities that have been listed for priority remedial actions under the Superfund Program.
OSHA	Occupational Safety and Health Administration or Occupational Safety and Health Act
PACM	Presumed Asbestos-Containing Material. A material that is suspected of containing or presumed to contain asbestos but which has not been analyzed to confirm the presence or absence of asbestos.

Description of Selected General Terms and Acronyms (cont.)

Term/Acronym	Description
PCB	Polychlorinated Biphenyl. A halogenated organic compound commonly in the form of a viscous liquid or resin, a flowing yellow oil, or a waxy solid. This compound was historically used as dielectric fluid in electrical equipment (such as electrical transformers and capacitors, electrical ballasts, hydraulic and heat transfer fluids), and for numerous heat and fire sensitive applications. PCB was preferred due to its durability, stability (even at high temperatures), good chemical resistance, low volatility, flammability, and conductivity. PCBs, however, do not break down in the environment and are classified by the EPA as a suspected carcinogen. 1978 regulations, under the Toxic Substances Control Act, prohibit manufacturing of PCB-containing equipment; however, some of this equipment may still be in use today.
pCi/L	Pico Curies per Liter of Air. Unit of measurement for Radon and similar radioactive materials.
PLM	Polarized Light Microscopy (see ACM section of the report, if included in the scope of services)
PST	Petroleum Storage Tank. An AST or UST that contains a petroleum product.
Radon	A radioactive gas resulting from radioactive decay of naturally-occurring radioactive materials in rocks and soils containing uranium, granite, shale, phosphate, and pitchblende. Radon concentrations are measured in Pico Curies per Liter of Air. Exposure to elevated levels of radon creates a risk of lung cancer; this risk generally increases as the level of radon and the duration of exposure increases. Outdoors, radon is diluted to such low concentrations that it usually does not present a health concern. However, radon can accumulate in building basements or similar enclosed spaces to levels that can pose a risk to human health. Indoor radon concentrations depend primarily upon the building's construction, design and the concentration of radon in the underlying soil and ground water. The EPA recommended annual average indoor "action level" concentration for residential structures is 4.0 pCi/l.
RCRA	Resource Conservation and Recovery Act. Federal act regulating solid and hazardous wastes from point of generation to time of disposal ('cradle to grave"). 42 U.S.C. 6901 et seq.
RCRA Generators	The RCRA Generators database, maintained by the EPA, lists facilities that generate hazardous waste as part of their normal business practices. Generators are listed as either large (LQG), small (SQG), or conditionally exempt (CESQG). LQG produce at least 1000 kg/month of non-acutely hazardous waste. SQG produce 100-1000 kg/month of non-acutely hazardous waste. CESQG are those that generate less than 100 kg/month of non-acutely hazardous waste.
RCRA CORRACTS/TS Ds	The USEPA maintains a database of RCRA facilities associated with treatment, storage, and disposal (TSD) of hazardous materials which are undergoing "corrective action". A "corrective action" order is issued when there is a release of hazardous waste or constituents into the environment from a RCRA facility.
RCRA Non- CORRACTS/TS Ds	The RCRA Non-CORRACTS/TSD Database is a compilation by the USEPA of facilities which report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required.
RCRA Violators List	RAATS. RCRA Administrative Actions Taken. RAATS information is now contained in the RCRIS database and includes records of administrative enforcement actions against facilities for noncompliance.
RCRIS	Resource Conservation and Recovery Information System, as defined in the Records Review section of this report.
REC	Recognized Environmental Conditions are defined by ASTM E1527-13 as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1)due to any release to the environment; 2) under conditions indicative of a release to the environment. <i>De minimis</i> conditions are not recognized environmental conditions."
SCL	State "CERCLIS" List (see SPL /State Priority List, below).

Description of Selected General Terms and Acronyms (cont.)

Term/Acronym	Description			
SPCC	Spill Prevention, Control and Countermeasures. SPCC plans are required under federal law (Clean Water Act and Oil Pollution Act) for facility storing petroleum in tanks and/or containers of 55-gallons or more that when taken in aggregate exceed 1,320 gallons. SPCC pare also required for facilities with underground petroleum storage tanks with capacities of over 42,000 gallons. Many states have significantly prevention programs, which may have additional requirements.			
SPL	State Priority List. State list of confirmed sites having contamination in which the state is actively involved in clean up activities or is actively pursuing potentially responsible parties for clean up. Sometimes referred to as a State "CERCLIS" List.			
SQG	Small quantity generator.			
SWF/LF	State and/or Tribal database of solid waste/Landfill facilities. The database information may include the facility name, class, operation type, area, estimated operational life, and owner.			
TPH	Total Petroleum Hydrocarbons			
TRI	Toxic Release Inventory. Routine EPA report on releases of toxic chemicals to the environment based upon information submitted by entities subject to reporting under the Emergency Planning and Community Right to Know Act.			
TSCA	Toxic Substances Control Act. A federal law regulating manufacture, import, processing and distribution of chemical substances not specifically regulated by other federal laws (such as asbestos, PCBs, lead-based paint and radon). 15 U.S.C 2601 et seq.			
USACE	United States Army Corps of Engineers			
USC	United States Code			
USGS	United States Geological Survey			
USNRCS	United States Department of Agriculture-Natural Resource Conservation Service			
UST	Underground Storage Tank. Most federal and state regulations, as well as ASTM E1527-13, define this as any tank, incl., underground piping connected to the tank, that is or has been used to contain hazardous substances or petroleum products and the volume of which is 10% or more beneath the surface of the ground (i.e., buried).			
VCP	State and/or Tribal facilities included as Voluntary Cleanup Program sites.			
VOC	Volatile Organic Compound			
	Areas that are typically saturated with surface or ground water that creates an environment supportive of wetland vegetation (i.e., swamps, marshes, bogs). The Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1) defines wetlands as areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. For an area to be considered a jurisdictional wetland, it must meet the following criteria: more than 50 percent of the dominant plant species must be categorized as Obligate, Facultative Wetland, or Facultative on lists of plant species that occur in wetlands; the soil must be hydric; and, wetland hydrology must be present.			
Wetlands	The federal Clean Water Act which regulates "waters of the US," also regulates wetlands, a program jointly administered by the USACE and the EPA. Waters of the U.S. are defined as: (1) waters used in interstate or foreign commerce, including all waters subject to the ebb and flow of tides; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, etc., which the use, degradation, or destruction could affect interstate/ foreign commerce; (4) all impoundments of waters otherwise defined as waters of the U. S., (5) tributaries of waters identified in 1 through 4 above; (6) the territorial seas; and (7) wetlands adjacent to waters identified in 1 through 6 above. Only the USACE has the authority to make a final wetlands jurisdictional determination.			

Appendix F

On-site and Off-site Drainage Report

ONSITE AND OFFSITE DRAINAGE REPORT

Antelope Expansion 3

Los Angeles County, CA 93536

PREPARED FOR



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PREPARED BY





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March 2018

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

Kimley-Horn was retained by sPower Development Company, LLC (sPower Group) to conduct a hydrologic analysis for the flow entering the proposed Solar Photovoltaic (PV) Generation Facility, Antelope Expansion 3, in Los Angeles County, California (Figure 1). The purpose of this report is to provide the results of drainage analysis, to evaluate the potential impacts, and provide recommendations, as necessary, associated with storm runoff.

The proposed project consists of the installation of a 30 megawatt solar power generation facility. The PV solar module arrays will be mounted on a single-axis tracking system. These arrays along with central inverters and project equipment will be enclosed by a chain link perimeter fence with a barbed wire top.

1.2 SITE DESCRIPTION

The project is located 9 miles west of Lancaster in Los Angeles County, CA. It is bounded by West Avenue G to the north, 110th St W to the west, W Avenue H to the south, and an existing solar site to the east. It encompasses four parcels amounting to approximately 155 acres of land. The project site generally drains to the east, with slopes ranging from less than 1% to 3% throughout the site. Farmland, undeveloped land and existing solar sites surround the site in all directions.

A portion of the site lies within a FEMA Flood Zone A, areas subject to inundation by the 1-Percent annual chance flood event flooding, as depicted on Flood Insurance Rate Map Number 06037C0400F (Figure 4).

2 ON AND OFFSITE DRAINAGE

Drainage flows from east to west, eventually draining to Piute Pond. As illustrated in Figures 1, there are two (2) drainage basins. Flow travels across the western edge and travels across the site to the eastern edge.

Both offsite watersheds were delineated using the U.S. Geological Survey (USGS) Quadrangle Maps (Figure 1), aerial imagery, and contours created from the USGS National Elevation Dataset (NED) Digital Elevation Model (DEM) with a resolution of approximately 1/3-arc-second (approximately 10 meters).

All mapping was done in NAVD 88.

2.1 PEAK FLOW CALCULATION SUMMARY

As illustrated in Figure 1, the project is located within 2 drainage basins. Basin 1 was modeled using FLO-2D Pro (FLO-2D Software, Inc.) as part of a previous study, Preliminary Onsite and Offsite Drainage Report for Conditional Use Permits 17-10 and 16-07, prepared for Antelope Expansion 2 (February 2018). The northern portion of Antelope Expansion 3, was included as part of the FLO-2D analysis for Antelope Expansion 2 (Figure 2).

Basin 2 discharges onto the site at three locations (Figure 2). The 100-year peak flow for Basin 2 was modeled using HEC-HMS 4.2.1.

2.1.1 BASIN 1

For Antelope Expansion 2, a combined two-dimensional (2D) hydrologic and hydrologic model was developed using FLO-2D Pro Software to model offsite flows. The purpose of developing the 2D model was to estimate 100-year onsite flood and scour depths. FLO-2D is a 2D hydrodynamic modeling program that incorporates hydrologic and hydraulic routines into a single model. A portion of the Antelope Expansion 2 model crosses the Antelope Expansion 3 property boundary. Analysis for Antelope Expansion 2 was slightly modified to model flows crossing Antelope Expansion 3.

Flow is calculated on a grid system with 50-ft x 50-ft grid elements. Each grid element was assigned an elevation value based on the average of elevation points considered at grid spacings of approximately 33-ft. Manning's n values ranging from 0.01 to 0.10 were assigned to individual grid elements across the model via shapefiles created to reflect sheet flow roughness properties based on review of aerial imagery dated April 2017 showing vegetative cover. SCS Curve Numbers were assigned to individual grid elements using shapefiles based on soil data and future buildout condition. Zoning data was gathered from the Los Angeles County GIS Data Portal and was further categorized by USDA NRCS Technical Release-55 (TR-55) Table 2-2. Soil data and its engineering properties was acquired from the USDA NRCS Web Soil Survey. Boundary grid elements where the ground slopes away from the computational domain along the east edge of the model were designated as outflow grid elements where flow leaves the Site at its calculated normal depth.

The model was run using the FLO-2D Pro model version released in October 2016. The FLO-2D model was run for the 100-year, 24-hour storm event and calculations were made and recorded at intervals of 1/10th of one hour. The precipitation depth of this storm event was determined from LA County 100-year, 24-hour Isohyet shapefiles. A universal rainfall depth value of 4.93-inches was applied across the model as calculated as a weighted average in FLO-2D Pro from the County-provided shapefiles. This rainfall was applied to the Site using the SCS Nondimensional synthetic rainfall distribution. Infiltration was calculated by FLO-2D using only the SCS method based on the universal CN value varying from 39-98.

The 100-year flood and scour depth results of this model, for the Antelope Expansion 3 portion only, are depicted in Figure 2. Scour depths calculations are summarized in Appendix B.

2.1.2 BASIN 2

Basin 2 has an area of approximately 9.6 mi². The 100-year peak flow from Basin 2 was determined using HEC-HMS. SCS Curve Numbers and the SCS Type 1 storm were used for losses and precipitation, respectively. The weighted SCS Curve Number, based on a land use of Herbaceous in good condition, used was 65. The precipitation depth was determined as the weighted average using Los Angeles County 100-year precipitation depth contours. The total precipitation depth used was 7.0 inches. The 100-year peak flow from HEC-HMS is 2280 cfs.

The approximate 100-year inundation depths were estimated using Bentley's FlowMaster software. The calculations are summarized in Appendix C. A total of 9 cross-sections of the onsite flow path were cut along 3 flow paths using the onsite topographic survey data. The onsite cross-sections were entered in FlowMaster, along with the offsite flows to estimate the 100-year water depths at each cross-section. Flows were allocated to each flow path based on the percentage of area contributing to the flow path. The 100-year flow depths were then used, in conjunction with the onsite topographic survey, to estimate the 100-year inundation area. The 100-year flow depth along

the flow path varies between 0.9- and 1.3-feet (Table 1). The 100-year inundation area is illustrated in Figure 2.

Table 1: 100-Year Inundation and Scour Depths

Cross Section	Flow Depth (ft)	Scour Depth (ft)
XS1-1	1.1	1.2
XS1-2	1.2	1.3
XS2-1	1.3	1.3
XS2-2	0.9	1.1
XS3-1	1.3	1.3
XS3-2	1.2	1.2

To evaluate the erosion effects due to scouring from the offsite flows, the pier scour depth was estimated using the methods in FHWA HEC-18. The results are summarized in Table 2. The pier scour depths within the inundation area ranges between 1.1- and 1.3-feet. Scour potential may be reduced by placing rip rap protection around the base of piers. Scour calculations are summarized in Appendix D.

3 DISCUSSION OF POTENTIAL IMPACTS

The proposed project is a solar power generating facility. The improvements to the site will include the solar panels, at-grade earth perimeter and internal access roads, and the associated electrical equipment. The project will be surrounded by a security fence with barbed wire top.

The impacts of solar facilities on the hydrologic process and methods to quantify any impact have not been widely documented in the civil engineering industry. A study published in the Journal of Hydrologic Engineering researched the hydrologic impacts of utility scale solar generating facilities. The study utilized a model to simulate runoff from pre- and post-solar panel conditions. The study showed that the solar panels themselves have very little impact on runoff volumes or rates (Cook and McCuen, 2013). Increases in runoff were found from other well-documented causes such as increased imperviousness or significant reduction in vegetal cover.

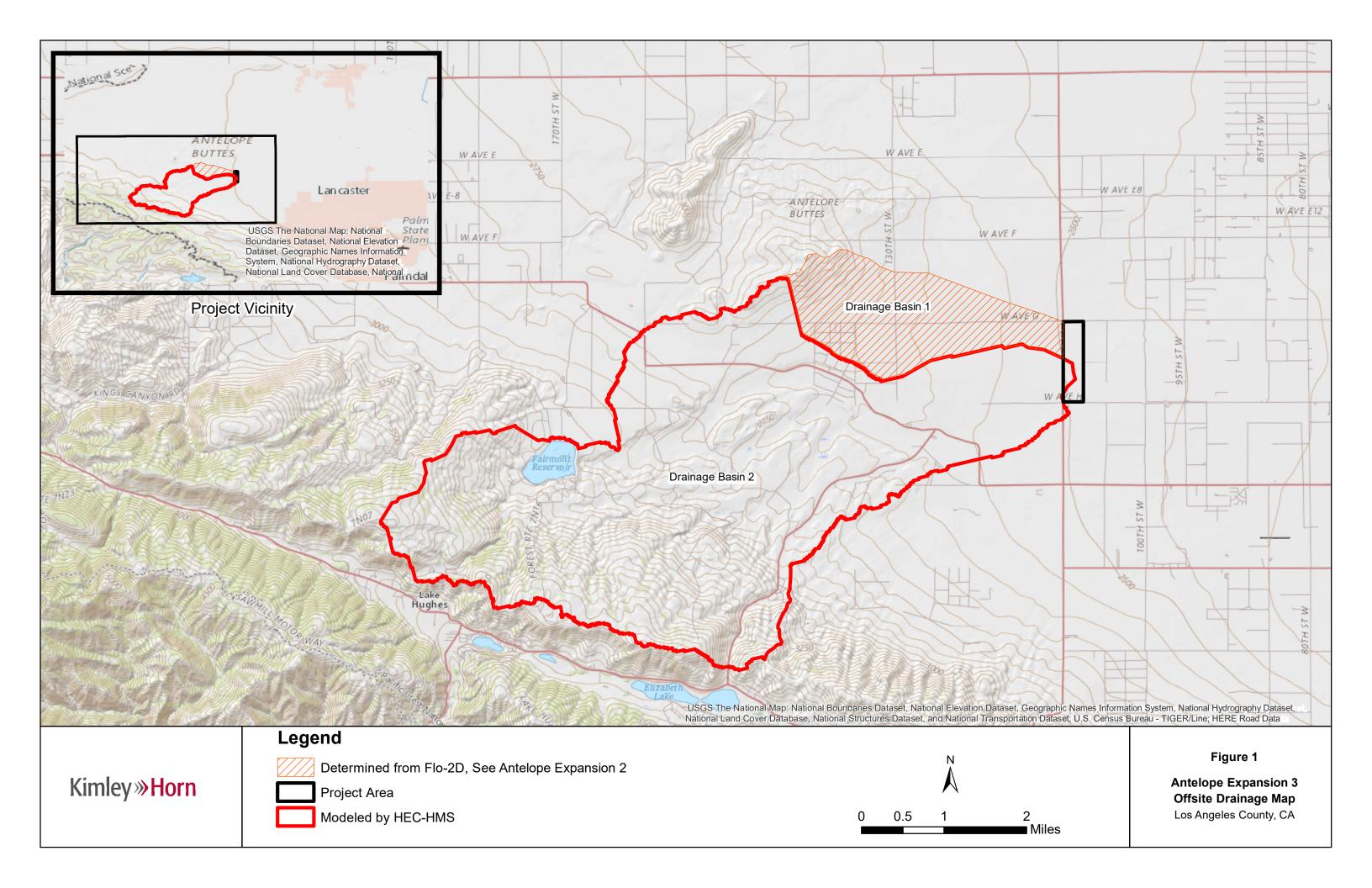
Increases in imperviousness for the project will be minimal. Onsite access roads will be gravel and compacted native soils. The site has very little vegetation and only minor grading is proposed with no changes to the existing site drainage patterns. Therefore, no impact to onsite drainage is expected as a result of the proposed project.

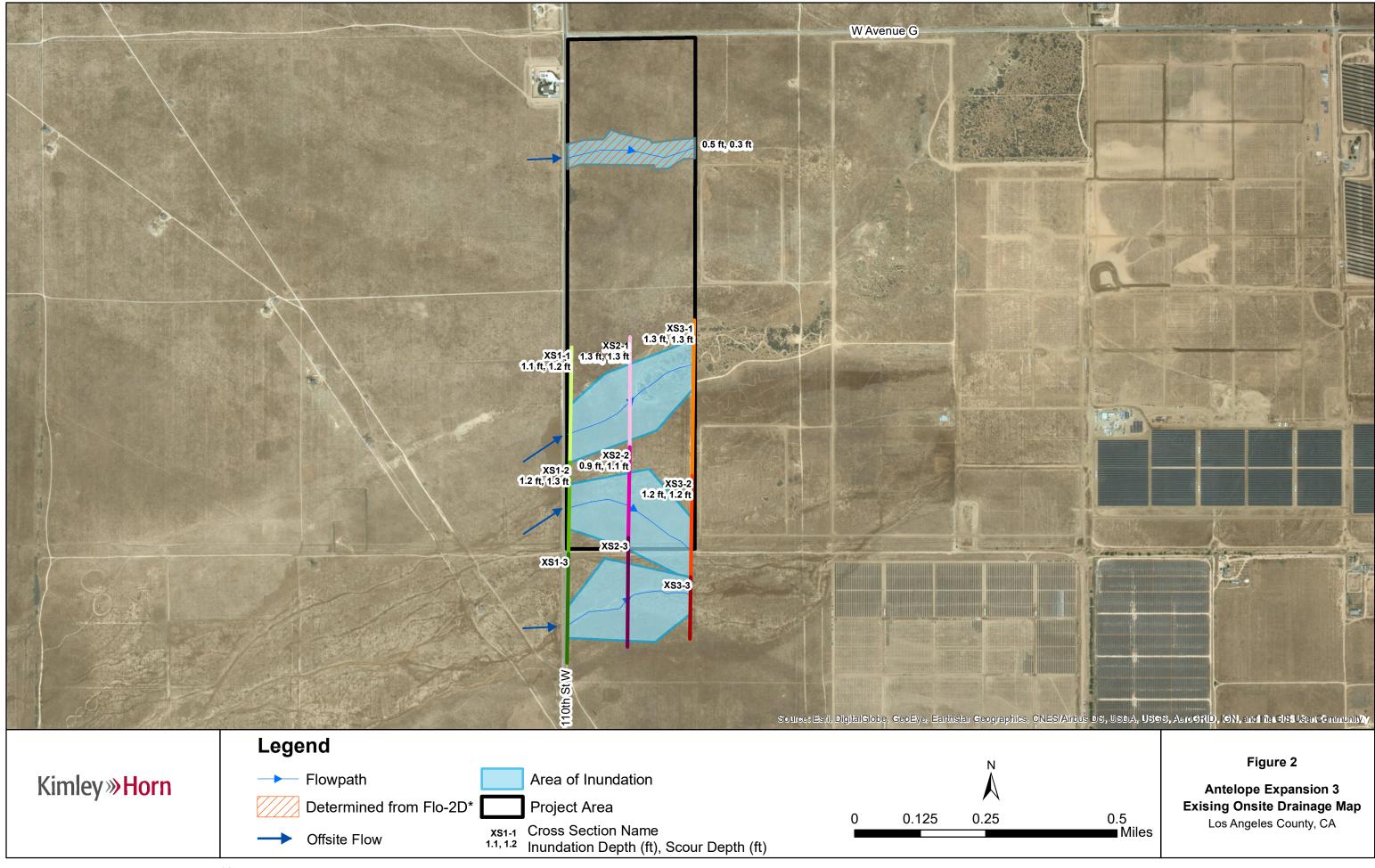
The site lies within a FEMA Flood Zone A, areas within the 1 percent annual flood, no elevations provided. The 100-year inundation area, flood depths, and scour depths were determined using methods discussed above. Flow outside the inundation area is dominated by sheet flow, which is shallow flow over plane surfaces with depths of 6-inches or less.

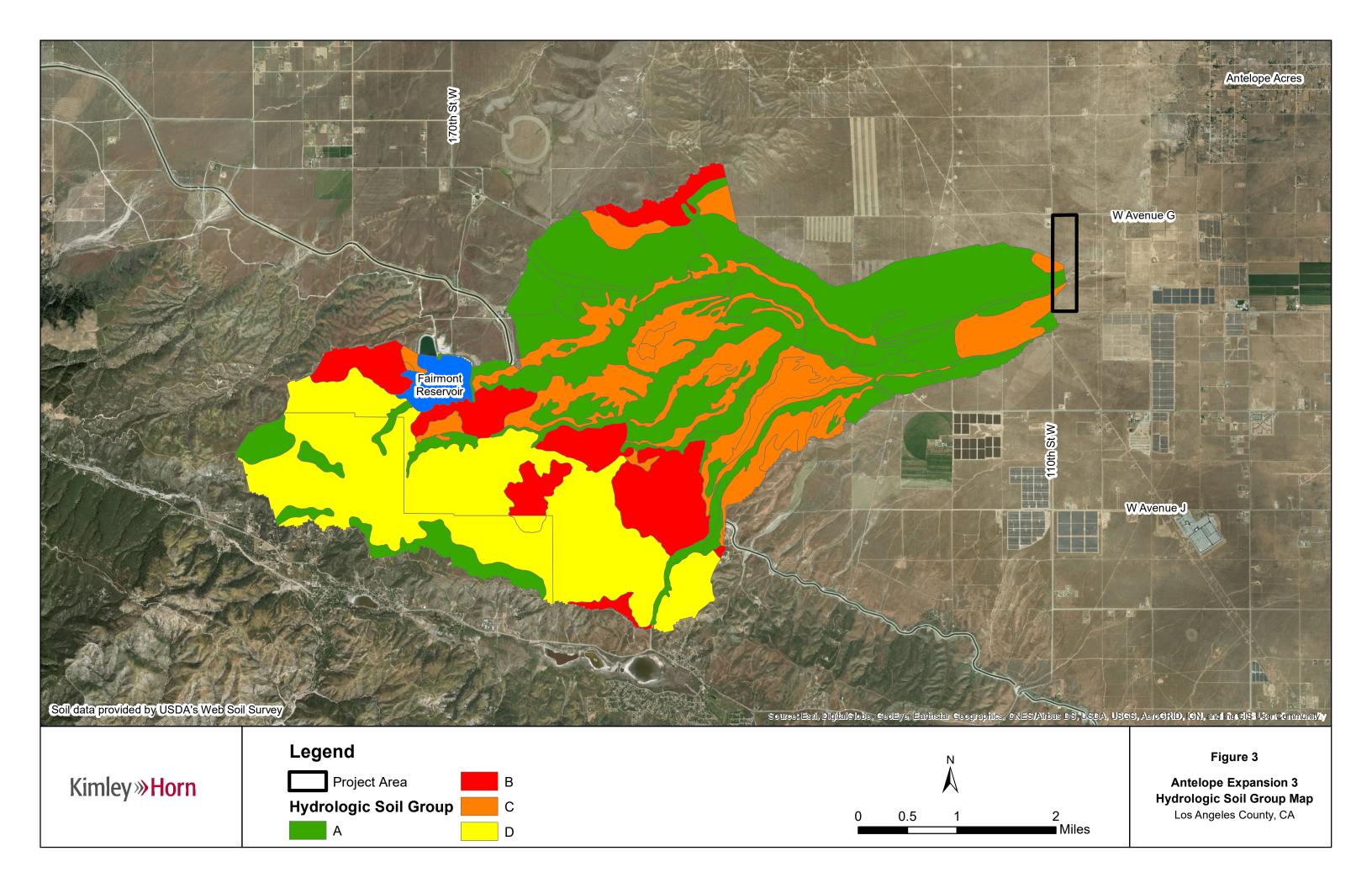
4 REFERENCES

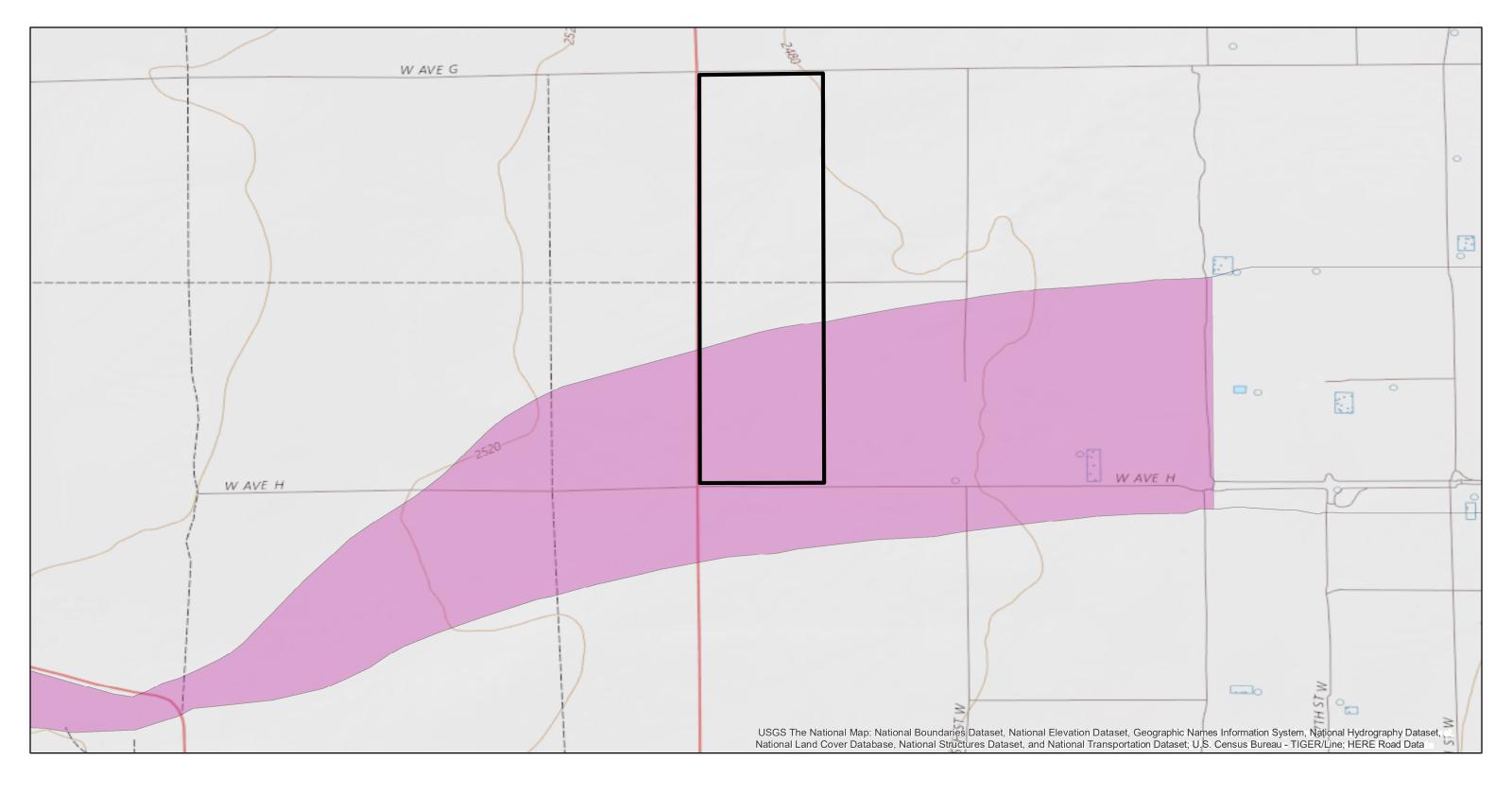
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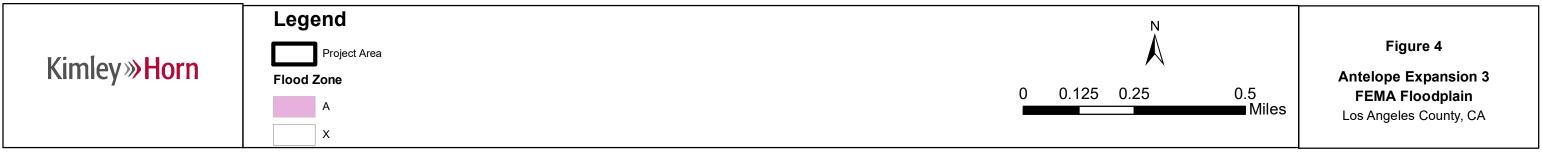
Appendix A – Figures



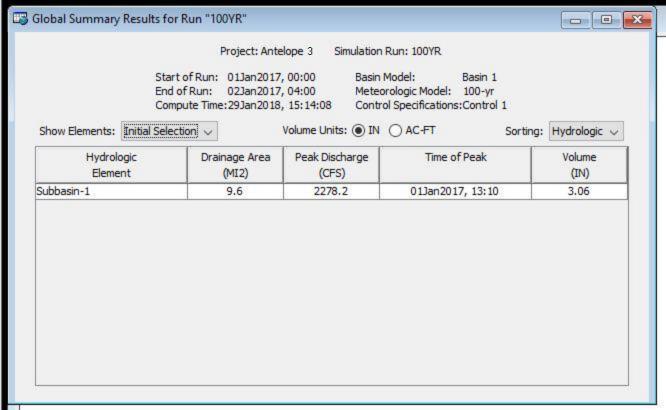


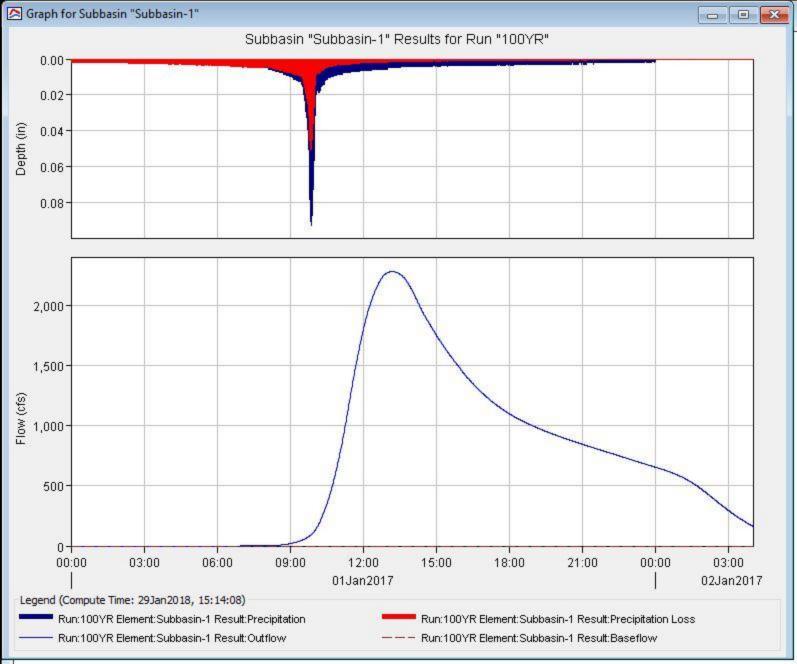






Appendix B – Hydrologic Calculations





Appendix C – Hydraulic Calculations

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Discharge} & 960.00 & \text{ft}^3\text{/s} \\ \end{array}$

Section Definitions

Station (ft)	Elevation (ft)
0+62	2501.02
0+92	2500.99
1+23	2500.81
1+54	2500.53
1+85	2500.23
2+15	2500.04
2+46	2500.02
2+77	2499.82
3+08	2499.81
3+38	2499.87
3+69	2499.88
4+00	2499.88
4+31	2500.17
4+62	2500.07
4+92	2500.09
5+23	2500.26
5+54	2500.52
5+85	2500.83
6+15	2500.88
6+46	2501.04
6+77	2501.11
7+08	2501.12
7+39	2501.05
7+69	2501.07
8+00	2501.18
8+31	2501.22
8+62	2501.38
0.02	2501.00

Input Data

Station (ft)	Elevation (ft)
8+92	2501.70
9+23	2501.88
9+54	2502.04
9+85	2502.14
10+15	2502.44
10+46	2502.57
10+77	2502.59
11+08	2502.60

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Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth		1.10	ft
Elevation Range	2499.81 to 2502.60 ft		
Flow Area		362.06	ft²
Wetted Perimeter		516.47	ft
Hydraulic Radius		0.70	ft
Top Width		516.46	ft
Normal Depth		1.10	ft
Critical Depth		0.81	ft
Critical Slope		0.02854	ft/ft
Velocity		2.65	ft/s
Velocity Head		0.11	ft
Specific Energy		1.21	ft
Froude Number		0.56	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Lenath	0.00	ft

Worksheet for XS1-1 GVF Input Data Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s

Infinity ft/s

1.10 ft

0.81 ft

0.00818 ft/ft

ft/ft

0.02854

Upstream Velocity

Normal Depth

Critical Depth

Channel Slope

Critical Slope

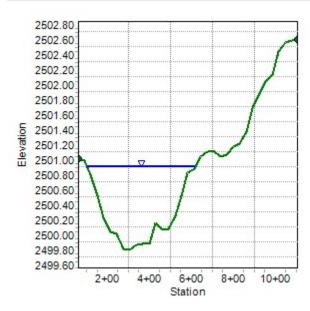
Cross Section for XS1-1

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 1.10 & \text{ft} \\ \text{Discharge} & 960.00 & \text{ft} \\ \end{array}$



Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Discharge} & 960.00 & \text{ft}^3\text{/s} \\ \end{array}$

Section Definitions

Station (ft)	Elevation (ft)
44.00	0500 50
11+39	2502.59
11+69	2502.62
12+00	2502.31
12+31	2502.23
12+62	2502.00
12+92	2501.94
13+23	2501.95
13+54	2501.76
13+85	2501.54
14+15	2501.50
14+46	2501.22
14+77	2501.18
15+08	2501.44
15+39	2501.54
15+69	2501.82
16+00	2501.86
16+31	2501.87
16+62	2501.88
16+92	2501.89
17+23	2501.89
17+54	2501.89
17+85	2501.97
18+16	2502.14
18+46	2502.17
18+77	2502.21
19+08	2502.29
19+39	2502.41

Input Data

Station (ft)	Elevation (ft)
19+69	2502.61
20+00	2502.66
20+31	2502.67
20+62	2502.68

O			

Current Rougnness weighted Pavlovskii's Method Method Open Channel Weighting Method Pavlovskii's Method Pavlovskii's Method Closed Channel Weighting Method

Results

Normal Depth		1.24	ft
Elevation Range	2501.18 to 2502.68 ft		
Flow Area		420.98	ft²
Wetted Perimeter		752.65	ft
Hydraulic Radius		0.56	ft
Top Width		752.64	ft
Normal Depth		1.24	ft
Critical Depth		1.02	ft
Critical Slope		0.03125	ft/ft
Velocity		2.28	ft/s
Velocity Head		0.08	ft
Specific Energy		1.32	ft
Froude Number		0.54	
Flow Type	Subcritical		

GVF Input Data

0.00 ft Downstream Depth Length 0.00 ft 0 Number Of Steps

GVF Output Data

Upstream Depth 0.00 ft

GVF Output Data

Profile Description

0.00 ft Profile Headloss Downstream Velocity Infinity ft/s **Upstream Velocity** Infinity ft/s 1.24 ft Normal Depth 1.02 ft Critical Depth Channel Slope 0.00818 ft/ft Critical Slope 0.03125 ft/ft

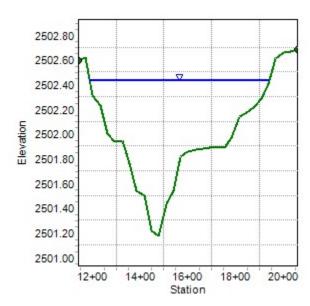
Cross Section for XS1-2

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 1.24 & \text{ft} \\ \text{Discharge} & 960.00 & \text{ft} \text{s}/\text{s} \\ \end{array}$



Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00818 ft/ft Discharge 365.00 ft 3 /s

Section Definitions

Station (ft)	Elevation (ft)
20+92	2502.69
21+23	2502.69
21+54	2502.53
21+85	2502.35 2502.35
22+16	2502.47
22+46	2502.75
22+77	2503.00
23+08	2502.91
23+39	2502.83
23+69	2502.74
24+00	2502.72
24+31	2502.68
24+62	2502.91
24+93	2503.28
25+23	2503.40
25+54	2503.34
25+85	2503.34
26+16	2503.29
26+46	2503.13
26+77	2503.10
27+08	2503.17
27+39	2503.41
27+69	2503.48
28+00	2503.47
28+31	2503.47
28+62	2503.47
28+93	2503.49

Input Data

Station (ft)	Elevation (ft)
29+23	2503.56
29+54	2503.50
29+85	2503.55
30+16	2503.93
30+46	2504.37
30+77	2504.52
31+08	2504.53
31+31	2504.53
31+54	2504.53
31+77	2504.53

Options

Current Rougnness vveignted Method
Open Channel Weighting Method
Closed Channel Weighting Method
Pavlovskii's Method
Pavlovskii's Method

Results

Normal Depth	0.86	ft
Elevation Range	2502.35 to 2504.53 ft	
Flow Area	196.24	ft²
Wetted Perimeter	476.74	ft
Hydraulic Radius	0.41	ft
Top Width	476.21	ft
Normal Depth	0.86	ft
Critical Depth	0.67	ft
Critical Slope	0.03459	ft/ft
Velocity	1.86	ft/s
Velocity Head	0.05	ft
Specific Energy	0.91	ft
Froude Number	0.51	
Flow Type	Subcritical	

worksneet for A51-3			
GVF Input Data			
Downstream Depth	0.00	ft	
Length	0.00	ft	
Number Of Steps	0		
GVF Output Data			
Upstream Depth	0.00	ft	
Profile Description			
Profile Headloss	0.00	ft	
Downstream Velocity	Infinity	ft/s	
Upstream Velocity	Infinity	ft/s	
Normal Depth	0.86	ft	
Critical Depth	0.67	ft	
Channel Slope	0.00818	ft/ft	
Critical Slope	0.03459	ft/ft	

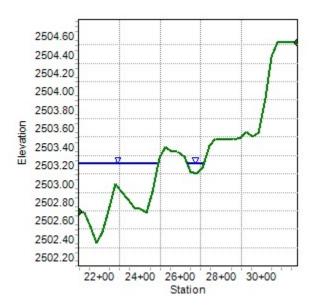
Cross Section for XS1-3

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 0.86 & \text{ft} \\ \text{Discharge} & 365.00 & \text{ft}^{3}/\text{s} \\ \end{array}$



Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Discharge} & 960.00 & \text{ft}^3\text{/s} \\ \end{array}$

Section Definitions

Station (ft)	Elevation (ft)
. ,	. ,
0+00	2494.66
0+31	2494.50
0+62	2494.49
0+92	2494.41
1+23	2494.35
1+54	2494.10
1+85	2493.82
2+15	2493.67
2+46	2493.75
2+77	2493.86
3+08	2493.80
3+38	2493.86
3+69	2494.15
4+00	2494.49
4+31	2494.80
4+61	2495.01
4+92	2495.16
5+23	2495.33
5+54	2495.35
5+84	2495.39
6+15	2495.43
6+46	2495.43
6+77	2495.43
7+08	2495.46
7+38	2495.59
7+69	2495.70
8+00	2495.89

Input Data

Station (ft)	Elevation (ft)
8+31	2496.22
8+61	2496.33
8+92	2496.38
9+23	2496.49
9+54	2496.65
9+84	2496.84
10+15	2497.16
10+46	2497.37
10+77	2497.40
11+07	2497.52

Options

Current Rougnness vveignted Method
Open Channel Weighting Method
Closed Channel Weighting Method
Pavlovskii's Method
Pavlovskii's Method

Results

Normal Depth		1.27	ft
Elevation Range	2493.67 to 2497.52 ft		
Flow Area		342.89	ft²
Wetted Perimeter		450.74	ft
Hydraulic Radius		0.76	ft
Top Width		450.46	ft
Normal Depth		1.27	ft
Critical Depth		1.00	ft
Critical Slope		0.02850	ft/ft
Velocity		2.80	ft/s
Velocity Head		0.12	ft
Specific Energy		1.39	ft
Froude Number		0.57	
Flow Type	Subcritical		

worksneet for A32-1			
GVF Input Data			
Downstream Depth	0.00	ft	
Length	0.00	ft	
Number Of Steps	0		
GVF Output Data			
Upstream Depth	0.00	ft	
Profile Description			
Profile Headloss	0.00	ft	
Downstream Velocity	Infinity	ft/s	
Upstream Velocity	Infinity	ft/s	
Normal Depth	1.27	ft	
Critical Depth	1.00	ft	
Channel Slope	0.00818	ft/ft	
Critical Slope	0.02850	ft/ft	

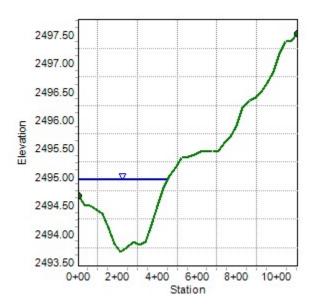
Cross Section for XS2-1

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 1.27 & \text{ft} \\ \text{Discharge} & 960.00 & \text{ft}^{3}/\text{s} \\ \end{array}$



Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Discharge} & 960.00 & \text{ft}^3\text{/s} \\ \end{array}$

Section Definitions

Station (ft)	Elevation (ft)
, ,	()
11+38	2497.55
11+69	2497.42
12+00	2497.42
12+30	2497.38
12+61	2497.10
12+92	2497.09
13+23	2497.10
13+54	2497.11
13+84	2497.11
14+15	2497.11
14+46	2497.12
14+77	2497.12
15+07	2497.13
15+38	2497.12
15+69	2497.06
16+00	2496.92
16+30	2496.94
16+61	2496.89
16+92	2496.81
17+23	2496.72
17+53	2496.70
17+84	2496.72
18+15	2496.88
18+46	2496.83
18+76	2496.88
19+07	2497.07
19+38	2497.23

Input Data

Roughness Segment Definitions

Start Station	Ending Stati	on		Roughness Coefficient	
(11+38, 249			2497.61)	Troughness Sociation	0.040
`	,	·	,		
Options					
Current Rougnness vveigntea Method	Pavlovskii's Method				
Open Channel Weighting Method	Pavlovskii's Method				
Closed Channel Weighting Method	Pavlovskii's Method				
Results					
Normal Depth		0.89	ft		
Elevation Range	2496.70 to 2497.61 ft				
Flow Area	•	443.46	ft²		
Wetted Perimeter	;	856.60	ft		
Hydraulic Radius		0.52	ft		
Top Width	:	856.55	ft		
Normal Depth		0.89	ft		
Critical Depth		0.68	ft		
Critical Slope	0.	.03223	ft/ft		
Velocity		2.16	ft/s		
Velocity Head		0.07	ft		
Specific Energy		0.96	ft		
Froude Number		0.53			
Flow Type	Subcritical				
GVF Input Data					
Downstream Depth		0.00	ft		
Length		0.00	ft		
Number Of Steps		0			
GVF Output Data					
Upstream Depth		0.00	ft		
Profile Description					
Profile Headloss		0.00	ft		
Downstream Velocity		Infinity	ft/s		

GVF Output Data

Upstream Velocity Infinity ft/s Normal Depth 0.89 ft Critical Depth 0.68 ft Channel Slope 0.00818 ft/ft Critical Slope 0.03223 ft/ft

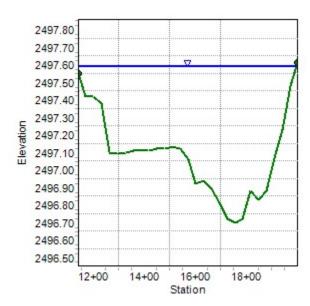
Cross Section for XS2-2

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 0.89 & \text{ft} \\ \text{Discharge} & 960.00 & \text{ft}^{3}/\text{s} \\ \end{array}$



Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00818 ft/ft Discharge 365.00 ft 3 /s

Section Definitions

Station (ft)	Elevation (ft)
,	(,
20+30	2497.53
20+61	2497.10
20+92	2496.92
21+23	2497.09
21+53	2497.13
21+84	2497.44
22+15	2497.52
22+46	2497.61
22+76	2497.64
23+07	2497.65
23+38	2497.65
23+69	2497.66
23+99	2497.65
24+30	2497.35
24+61	2497.32
24+92	2497.03
25+23	2497.03
25+53	2497.06
25+84	2497.09
26+15	2497.40
26+46	2497.39
26+76	2497.39
27+07	2497.41
27+38	2497.40
27+69	2497.49
27+99	2497.81
28+30	2497.95

Input Data

Station (ft)	Elevation (ft)
28+61	2497.98
28+92	2498.30
29+22	2498.48
29+53	2498.53
29+84	2498.53
30+15	2498.53
30+45	2498.53
30+76	2498.54
31+07	2498.67
31+38	2498.85
31+69	2498.86

Options

Current Roughness Weighted Method
Open Channel Weighting Method
Closed Channel Weighting Method
Pavlovskii's Method
Pavlovskii's Method

Results

Normal Depth		0.74	ft
Elevation Range	2496.92 to 2498.86 ft		
Flow Area		236.04	ft²
Wetted Perimeter		755.21	ft
Hydraulic Radius		0.31	ft
Top Width		755.05	ft
Normal Depth		0.74	ft
Critical Depth		0.56	ft
Critical Slope		0.03710	ft/ft
Velocity		1.55	ft/s
Velocity Head		0.04	ft
Specific Energy		0.78	ft
Froude Number		0.49	
Flow Type	Subcritical		

Worksneet for A52-3				
GVF Input Data				
Downstream Depth	0.00	ft		
Length	0.00	ft		
Number Of Steps	0			
GVF Output Data				
Upstream Depth	0.00	ft		
Profile Description				
Profile Headloss	0.00	ft		
Downstream Velocity	Infinity	ft/s		
Upstream Velocity	Infinity	ft/s		
Normal Depth	0.74	ft		
Critical Depth	0.56	ft		
Channel Slope	0.00818	ft/ft		
Critical Slope	0.03710	ft/ft		

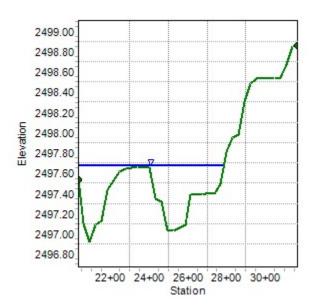
Cross Section for XS2-3

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 0.74 & \text{ft} \\ \text{Discharge} & 365.00 & \text{ft}^{3}\text{/s} \\ \end{array}$



Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Discharge} & 960.00 & \text{ft}^3\text{/s} \\ \end{array}$

Section Definitions

Station (ft)	Elevation (ft)
0+00	2487.16
0+31	2487.18
0+61	2487.18
0+92	2487.19
1+23	2487.20
1+54	2487.20
1+84	2487.29
2+15	2487.59
2+46	2487.81
2+76	2488.11
3+07	2488.34
3+38	2488.62
3+69	2488.84
3+99	2489.11
4+30	2489.30
4+61	2489.48
4+91	2489.49
5+22	2489.70
5+53	2490.02
5+84	2490.04
6+14	2490.00
6+45	2490.24
6+76	2490.51
7+07	2490.57
7+37	2490.68
7+68	2490.69
7+99	2490.91

Input Data

Station (ft)	Elevation (ft)
8+29	2490.94
8+60	2491.00
8+91	2491.25
9+22	2491.54
9+52	2491.63
9+83	2491.71
10+14	2491.89
10+44	2492.05
10+75	2492.05
11+06	2491.95
11+37	2491.96
11+67	2492.09
11+98	2492.11
12+29	2492.27
12+59	2492.41
12+90	2492.43
13+21	2492.42
13+52	2492.43
13+82	2492.43
14+13	2492.45
14+44	2492.47
14+74	2492.48
15+05	2492.48
15+36	2492.50
15+67	2492.50

Options

Current Rougnness vveignted Method
Open Channel Weighting Method
Closed Channel Weighting Method
Pavlovskii's Method
Pavlovskii's Method

Elevation Range	Results		
Flow Area 297.80 ft²	Normal Depth	1.26	ft
Wetted Perimeter 316.88 ft Hydraulic Radius 0.94 ft Top Width 315.62 ft Normal Depth 1.26 ft Critical Depth 0.92 ft Critical Slope 0.02606 ft/ft Velocity 3.22 ft/s Velocity Head 0.16 ft Specific Energy 1.42 ft Froude Number 0.59 Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Elevation Range	2487.16 to 2492.50 ft	
Hydraulic Radius 0.94 ft	Flow Area	297.80	ft²
Top Width 315.62 ft Normal Depth 1.26 ft Critical Depth 0.92 ft Critical Slope 0.02606 ft/ft Velocity 3.22 ft/s Velocity Head 0.16 ft Specific Energy 1.42 ft Froude Number 0.59 Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Wetted Perimeter	316.88	ft
Normal Depth 1.26 ft Critical Depth 0.92 ft Critical Slope 0.02606 ft/ft Velocity 3.22 ft/s Velocity Head 0.16 ft Specific Energy 1.42 ft Froude Number 0.59 Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Hydraulic Radius	0.94	ft
Critical Depth 0.92 ft Critical Slope 0.02606 ft/ft Velocity 3.22 ft/s Velocity Head 0.16 ft Specific Energy 1.42 ft Froude Number 0.59 Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description 0.00 ft Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Top Width	315.62	ft
Critical Slope 0.02606 ft/ft Velocity 3.22 ft/s Velocity Head 0.16 ft Specific Energy 1.42 ft Froude Number 0.59 Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description 0.00 ft Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Normal Depth	1.26	ft
Velocity 3.22 ft/s Velocity Head 0.16 ft Specific Energy 1.42 ft Froude Number 0.59 Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description 1.00 ft Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Critical Depth	0.92	ft
Velocity Head 0.16 ft Specific Energy 1.42 ft Froude Number 0.59 Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description 0.00 ft Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Critical Slope	0.02606	ft/ft
Specific Energy 1.42 ft	Velocity	3.22	ft/s
Froude Number 0.59 Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Velocity Head	0.16	ft
Flow Type Subcritical GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Specific Energy	1.42	ft
GVF Input Data Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Froude Number	0.59	
Downstream Depth 0.00 ft Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Cupstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Flow Type	Subcritical	
Length 0.00 ft Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	GVF Input Data		
Number Of Steps 0 GVF Output Data Upstream Depth 0.00 ft Profile Description 0.00 ft Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Downstream Depth	0.00	ft
GVF Output Data Upstream Depth 0.00 ft Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Length	0.00	ft
Upstream Depth 0.00 ft Profile Description 0.00 ft Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Number Of Steps	0	
Profile Description Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	GVF Output Data		
Profile Headloss 0.00 ft Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Upstream Depth	0.00	ft
Downstream Velocity Infinity ft/s Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Profile Description		
Upstream Velocity Infinity ft/s Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Profile Headloss	0.00	ft
Normal Depth 1.26 ft Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Downstream Velocity	Infinity	ft/s
Critical Depth 0.92 ft Channel Slope 0.00818 ft/ft	Upstream Velocity	Infinity	ft/s
Channel Slope 0.00818 ft/ft	Normal Depth	1.26	ft
	Critical Depth	0.92	ft
Critical Slope 0.02606 ft/ft	Channel Slope	0.00818	ft/ft
·	Critical Slope	0.02606	ft/ft

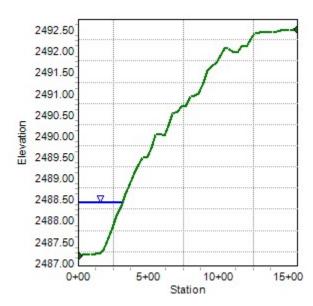
Cross Section for XS3-1

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 1.26 & \text{ft} \\ \text{Discharge} & 960.00 & \text{ft}^{3}/\text{s} \\ \end{array}$



Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Discharge} & 960.00 & \text{ft}^3\text{/s} \\ \end{array}$

Section Definitions

Station (ft)	Elevation (ft)
,,	
15+97	2492.45
16+28	2492.26
16+59	2492.20
16+90	2492.12
17+20	2491.91
17+51	2491.96
17+82	2492.15
18+12	2492.22
18+43	2492.28
18+74	2492.27
19+05	2492.25
19+35	2492.25
19+66	2492.27
19+97	2492.08
20+27	2492.18
20+58	2492.27
20+89	2492.32
21+20	2492.08
21+50	2491.99
21+81	2491.97
22+12	2491.77
22+42	2491.45
22+73	2491.37
23+04	2491.35
23+35	2491.60
23+65	2491.95
23+96	2492.04

Input Data

Station (ft)	Elevation (ft)
24+27	2492.21
24+57	2492.28
24+88	2492.29
25+19	2492.38
25+50	2492.44
25+80	2492.56
26+11	2492.47

Options

Current Rougnness vveignted Method
Open Channel Weighting Method
Closed Channel Weighting Method
Pavlovskii's Method
Pavlovskii's Method

Results

Normal Depth		1.21	ft
Elevation Range	2491.35 to 2492.56 ft		
Flow Area		474.18	ft²
Wetted Perimeter		1013.94	ft
Hydraulic Radius		0.47	ft
Top Width		1013.72	ft
Normal Depth		1.21	ft
Critical Depth		1.03	ft
Critical Slope		0.03389	ft/ft
Velocity		2.02	ft/s
Velocity Head		0.06	ft
Specific Energy		1.27	ft
Froude Number		0.52	
Flow Type	Subcritical		

GVF Input Data

Number Of Steps	0	
Length	0.00	ft
Downstream Depth	0.00	ft

GVF Input Data

GVF Output Da	ta
---------------	----

0.00 ft Upstream Depth Profile Description 0.00 ft Profile Headloss Infinity ft/s Downstream Velocity Infinity **Upstream Velocity** ft/s Normal Depth 1.21 ft 1.03 Critical Depth ft 0.00818 Channel Slope ft/ft 0.03389 ft/ft Critical Slope

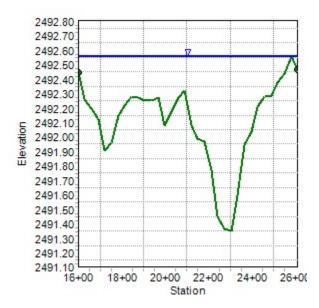
Cross Section for XS3-2

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 1.21 & \text{ft} \\ \text{Discharge} & 960.00 & \text{ft}^{3}/\text{s} \\ \end{array}$



Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.00818 ft/ft Discharge 365.00 ft 3 /s

Section Definitions

Station	(ft)	Elevation (ft)
	26+42	2492.42
	26+73	2492.43
	27+03	2492.50
	27+34	2492.79
	27+65	2493.07
	27+95	2493.21
	28+26	2493.42
	28+57	2493.43
	28+88	2493.33
	29+18	2493.24
	29+49	2493.27
	29+80	2493.55
	30+10	2493.67
	30+41	2493.93
	30+72	2494.15
	31+03	2494.20
	31+33	2494.19
	31+64	2493.91
	31+95	2493.77

Roughness Segment Definitions

5	Start Station	Ending Station	Roughness Coefficient	
	(26+42, 2492.42)	(31+95, 2493.77)		0.040

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Current Rougnness weighted Pavlovskii's Method Method Open Channel Weighting Method Pavlovskii's Method Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth		1.15	ft
Elevation Range	2492.42 to 2494.20 ft		
Flow Area		172.23	ft²
Wetted Perimeter		343.78	ft
Hydraulic Radius		0.50	ft
Top Width		342.62	ft
Normal Depth		1.15	ft
Critical Depth		0.92	ft
Critical Slope		0.03147	ft/ft
Velocity		2.12	ft/s
Velocity Head		0.07	ft
Specific Energy		1.22	ft
Froude Number		0.53	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth 0.00 ft 0.00 ft Length Number Of Steps 0

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.15	ft
Critical Depth	0.92	ft
Channel Slope	0.00818	ft/ft
Critical Slope	0.03147	ft/ft

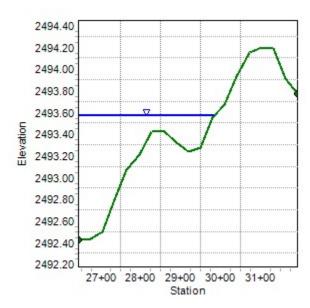
Cross Section for XS3-3

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

 $\begin{array}{ccc} \text{Channel Slope} & 0.00818 & \text{ft/ft} \\ \text{Normal Depth} & 1.15 & \text{ft} \\ \text{Discharge} & 365.00 & \text{ft}^{3}\text{/s} \\ \end{array}$



Appendix D – Scour Calculations



Scour Analysis

All Calcs based on FHWA HEC-18

Date: 17-Jan-18
Calculated/Checked by: BLJ/AMD

Project: Antelope Expansion 3 **Locality:** Los Angeles County

State California

Note: Flows based on Hydrologic and Hydraulic Calculations

from Appendicies B and C

Cross		Flow	Local
Section	Froude #	Depth	Scour ^{1,5}
		(ft)	(ft)
XS1-1	0.56	1.1	1.2
XS1-2	0.54	1.2	1.3
XS1-3	0.51	0.9	1.1
XS2-1	0.57	1.3	1.3
XS2-2	0.53	0.9	1.1
XS2-3	0.49	0.7	1.0
XS3-1	0.60	1.3	1.3
XS3-2	0.52	1.2	1.2
XS3-3	0.53	1.2	1.2
Diar Width	/in\		4
Pier Width	• •		4 6
Pier Length Pier Width	• •	2	0.33
	•	a	
Pier Length		L	0.5
	Square Nose		1.1
Angle (deg)			90
Angle (rad)			1.57
K2 ³	Square Nose		1.302
K3 ⁴	Plane Bed		1.1

¹ Equation 7.3 FHWA HEC 18

² Correction factor for pier nose shape Table 7.1

³ Correction factor for angle of attach Equation 7.4

⁴ Correction factor for bed condition Table 7.3

⁵ Local scour based on maximum depth of flow