
DRAFT

Initial Study and Mitigated Negative Declaration

HIGH DESERT SOLAR PROJECT

Case Number PLAN18-00048

May 2019

Lead Agency:



City of Victorville

14343 Civic Drive

Victorville, CA 92393

Prepared by:



215 North Fifth Street

Redlands, CA 92374

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DRAFT MITIGATED NEGATIVE DECLARATION HIGH DESERT SOLAR PROJECT

Lead Agency: City of Victorville

Project Proponent: HDSI, LLC

Project Location: The Proposed Project is located in the City of Victorville, in Township 6 North, Range 5 West, San Bernardino Base and Meridian. The project site would be located mostly east of Helendale Road and west of Floreate Road/Mojave River directly north and east of the Southern California Logistics Airport (SCLA) and to the west of the Victor Valley Wastewater Reclamation Authority (VWVRA).

Project Description:

The High Desert Solar Project (HDSP or Proposed Project) would be a nominal 108-megawatt (MWac) solar photovoltaic (PV) power facility and related substation with an integrated battery energy storage system (BESS), located in the City of Victorville, San Bernardino County, California. The HDSP would provide renewable energy and critically needed flexibility attributes needed to advance California's Renewable Portfolio Standard (RPS) goals, climate policies, and to enhance electrical grid reliability.

The Proposed Project would be developed on a total of approximately 624 acres (project site) consisting of an approximately 581-acre solar PV field, BESS, substation, and balance of system, collectively referred to as the **Solar Field Area**, and an approximately 35-acre corridor consisting of a 2.3-mile 230-kilovolt (kV) Gen-Tie line that would run east and then south in a defined and studied corridor to connect to the existing Victor-Caldwell 230kV line, upstream of the first pole on the Southern California Edison system. Additionally, a 1.7-mile 12.47kV Service Line would connect to the Victorville Municipal Utility Services (VMUS) system. This line would run as underbuilt with the 230kV line for the first mile and then diverge to the west and run on standard distribution utility poles to connect to the VMUS system at the Victorville Industrial Wastewater Treatment Facility south of the Solar Field Area. The Gen-Tie line and Service Line are collectively referred to as the **Interconnection Facilities**. The Interconnection Facilities would be located within linear corridors, 120 feet and 40 feet wide respectively, covering a total area of approximately 35 acres of which only a small portion would actually be disturbed. An approximately 8-acre **Gen-Tie Laydown Area** would be located on a vacant parcel of land adjacent and to the west and north of the existing High Desert Power Plant.

Public Review Period: May 28, 2019 to June 26, 2019

Mitigation Measures Incorporated into the Project to Avoid or Minimize Significant Effects:

Air Quality

AQ-1: During solar facility installation activities all off-road mobile construction equipment such as rubber-tired dozers, graders, scrapers, excavators, and tractors shall be California Air

Resources Board (CARB) Tier 4 Certified. On-site pick-up trucks used to traverse the construction site and equipment used for site grading, and road construction activities are exempted from this requirement.

Biological Resources

BIO-1: Joshua Trees: Prior to seeking approval from the City's Director of Community Services (or the Director's designee) for Joshua tree removal and/or relocation, a Joshua tree health assessment and final inventory will be performed to document the size, location, and general health of all Joshua trees that will be affected by the project. Authorization to remove and/or relocate Joshua trees will be obtained in accordance with the City's Joshua Tree Ordinance (Ordinance Number 1224; Municipal Code Chapter 13.33; 2018).

BIO-2: Compensatory Mitigation for Impacts to Habitat for Listed Species: The project area provides suitable habitat in the native vegetation communities for both desert tortoise and MGS. A total of 567.75 acres of occupied desert tortoise and presumed occupied MGS habitat will be directly affected as a result of the project. Impacts to occupied desert tortoise and MGS habitat will be offset through acquisition of compensatory land within suitable and occupied desert tortoise and MGS habitat and/or monetary contributions to other recovery efforts in the West Mojave. Impacts to occupied MGS habitat will be mitigated for at a ratio of 2:1, occupied desert tortoise habitat will be nested within the MGS mitigation requirement, with occupied desert tortoise habitat mitigated for at a ratio of 1:1. Final mitigation acreage are subject to the approval of the state and federal wildlife agencies.

BIO-3: Desert Tortoise Translocation: Pre-construction desert tortoise clearance surveys will be performed prior to ground-breaking project activities occurring. All desert tortoises encountered during clearance surveys and subsequent monitoring efforts will be permanently removed from the project area and translocated to an off-site recipient site. The Applicant's site-specific Desert Tortoise Translocation Plan will provide details on the proposed recipient site, desert tortoise clearance surveys and relocation, definitions for Authorized Biologists and qualified desert tortoise biologists, exclusion fencing guidelines, protocols for managing desert tortoise found during active versus inactive seasons, protocols for incidental tortoise death or injury, and will be consistent with project permits and current USFWS guidelines (USFWS 2009; USFWS 2018a). The Plan will also include a requirement for communication and coordination with the BLM regarding the desert tortoise recipient site. Prior to construction, the Plan will be subject to the approval of the CDFW and the USFWS.

BIO-4: Biological Monitoring: A qualified biologist (biological monitor) with experience monitoring for and identifying sensitive biological resources known to occur in the area will be present during all ground-disturbing activities related to the project. As required by project permits, the qualifications of a biological monitor may need to be submitted to appropriate wildlife agencies for approval based on the resources the biologist will be monitoring. Biological monitoring duties will include, but are not limited to, conducting worker education training, verifying compliance with project permits, ensuring project activities stay within designated work areas, and inspection

of desert tortoise exclusion fencing. The biological monitor will have the right to halt all activities in the area affected if a special-status species is identified in a work area and is in danger of injury or mortality. If work is halted in the area affected as determined by the biological monitor, work will proceed only after the hazards to the individual is removed and the animal is no longer at risk, or the individual has been moved from harm's way in accordance with the project's permits and/or management/translocation plans. The biological monitor will take representative photographs of the daily activities and will also maintain a daily log that documents general project activities and compliance with the project's permit conditions. Non-compliances will also be documented in the daily log, including any measures that were implemented to rectify the issue.

BIO-5: Worker Environmental Awareness Program: Prior to the start of construction, a Worker Environmental Awareness Program (WEAP) will be developed by the Applicant. A qualified biologist with experience with the sensitive biological resources in the region will present the WEAP to all personnel working in the project area (either temporarily or permanently) prior to the start of project activities. The WEAP may be videotaped and used to train newly hired workers or those not present for the initial WEAP. The WEAP could include, but will not be limited to: discussions of the sensitive biological resources associated with the project, project-specific measures to avoid or eliminate impacts to these resources, consequences for not complying with project permits and agreements, and contact information for the lead biologist. Logs of personnel who have taken the training will be kept on the site at the construction or project office.

BIO-6: Burrowing Owl Management Plan: Prior to the start of construction, a Burrowing Owl Management Plan will be prepared in consultation with CDFW that will outline protection and avoidance and minimization measures that will be implemented for the project. These measures may include, but are not limited to, definition of qualified burrowing owl biologists, survey methodology and timing, methods for exclusion and burrow excavation, disturbance limit buffers, and seasonal restrictions for work activities in the vicinity of active burrows. The Burrowing Owl Management Plan will be subject to the approval of CDFW.

BIO-7: Desert Kit Fox and American Badger Management Plan: Prior to the start of construction, a Desert Kit Fox and American Badger Management Plan will be developed in consultation between the Applicant and CDFW and will be subject to approval by CDFW. The Plan could include, but may not be limited to, qualified desert kit fox/American badger biologist definitions, pre-construction clearance survey methods and timing, disturbance limit buffer distances around active burrows based on construction activity and sensitivity of dens/foxes, and measures for avoidance, exclusion, and/or passive relocation.

BIO-8: Nesting Bird Management and Bird Protection Plan: Prior to the start of construction, a Nesting Bird Management and Bird Protection Plan will be developed in consultation between the Applicant, CDFW, and USFWS and will be subject to the approval of CDFW and USFWS. The Plan could include but may not be limited to: pre-construction clearance survey methods and timing, buffer distances based on construction activity and sensitivity of nests/birds, measures for avoidance of impact during nesting season (e.g., seasonal work restrictions), implementation of

construction noise and dust minimization measures, biological monitoring, acceptable methods for nest deterrents (i.e., netting/covering equipment, supplies, or perches), implementing anti-perching devices and avian visual deterrents, and using emerging technologies such as antireflective film overlays on the panels and/or chemosensory and sonic deterrents. The Plan will be in compliance with the MBTA and California Fish and Game Code Sections 3503, 3503.5 and 3513.

BIO-9: Regulatory Permitting: Prior to the commencement of project construction activities that will impact the jurisdictional features on the project site, authorization for impacts shall be acquired through the permitting process from the USACE, RWQCB, and CDFW pursuant to the CWA Section 404 and 401 and California Fish and Game Code Section 1600, respectively. Project specific mitigation for impacts to features jurisdictional to state and federal agencies will be determined during the permitting process.

Cultural Resources

- CUL-1:** A qualified archaeologist and a tribal representative shall monitor all ground disturbing activities within native sediments. If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 100-foot radius of the discovery. The archaeologist shall evaluate the significance of the find and shall have the authority to modify the no-work radius as appropriate, using professional judgment. Depending on the nature of the find, the following notifications may be required:
- If the professional archaeologist determines that the find does not represent a cultural resource, then work may resume immediately, and no agency notifications are required.
 - If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, then the archaeologist shall immediately notify the City of Victorville and applicable landowner. The City of Victorville shall make a finding of eligibility and implement appropriate treatment measures, if the find is determined to be Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Work cannot resume within the no-work radius until the City, through consultation as appropriate, determines that the site either: 1) is not a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to their satisfaction.
 - If the find includes human remains, or remains that are potentially human, then the archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the San Bernardino County Coroner (per Section 7050.5 of the Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. Work cannot resume within the no-work radius until the City, through consultation as appropriate, determines that the treatment measures have been completed to their satisfaction.

- CUL-2:** A qualified paleontologist shall be retained to determine if the older Quaternary sediments are being disturbed during deep excavations of ten feet below the ground surface or greater. If so, the paleontologist shall establish a monitoring program to recover any significant fossils that may be encountered. Sediment samples shall be collected and processed to determine the small fossil potential in the project area. Any fossils recovered during mitigation shall be deposited in an accredited and permanent scientific institution in consultation with the City of Victorville.

Hazards and Hazardous Materials

- HAZ-1:** Prior to demolition of buildings or structures and removal of illegal dump sites, a survey for building-related hazardous materials shall be conducted by qualified and properly certified individuals. Asbestos surveys must be conducted by a California Division of Occupational Safety and Health-certified asbestos consultant or site surveillance technician. Surveys for lead-based/bearing substances and lead-containing surface coatings must be conducted by a California Department of Health Service-certified lead inspector/risk assessor. If present, all recommendations regarding the removal and disposal of hazardous materials in accordance with federal, state, and local regulations shall be observed.

A Health and Safety Plan (HASP) shall be prepared prior to any work conducted on site in accordance with OSHA and California Occupational Safety and Health Administration (Cal/OSHA) standards.

- HAZ-2:** All asbestos disturbance and/or removal operations shall be conducted by a Cal/OSHA registered and State licensed asbestos removal contractor. All disturbance and/or abatement operations shall be under the direction of a California Certified Asbestos Consultant. At no time shall identified or suspect asbestos-containing materials be drilled, cut, sanded, scraped, or otherwise disturbed by untrained personnel.
- HAZ-3:** All construction activities that may affect asbestos-containing materials shall be conducted in accordance with Title 8 of the California Code of Regulations, Section 1529.
- HAZ-4:** For all abatement activities that will involve the removal of asbestos-containing materials, notification shall be made to the Mojave Desert Air Quality Management District (MDAQMD), in accordance to MDAQMD Rule 302 and to Cal/OSHA. Notification to both entities shall occur 10 working days prior to the initiation of such activities.
- HAZ-5:** Notification to employees and contractors working within the buildings/structures shall be made in accordance with the California Health and Safety Code Section 25915 et seq. and Proposition 65.
- HAZ-6:** All demolition involving potential and identified lead-containing surfaces shall be conducted in accordance with 8 CCR 1532.1 and 29 CFR 1926.62. In addition, all activities involving identified lead-based paints shall be conducted in accordance with 17 CCR, Division 1, Chapter 8, Sections 35001 through 36100.

- HAZ-7:** Any welding, cutting, or heating of interior metal surfaces containing lead surface coating shall be conducted in accordance with 29 CFR 1926.354.
- HAZ-8:** Proper waste characterization and disposal of lead contaminated debris shall be conducted in accordance with Title 22 of the California Code of Regulations and the California Health and Safety Code.

Tribal Cultural Resources

TCR-1: Potential Impact to Archaeological Resources: Due to the potential impact to a significant archaeological site currently only known to exist outside of the project area and known to be a Historical Resource pursuant to CEQA, CA-SBR-72, subsurface archaeological presence/absence testing shall be conducted by at least one archaeologist with at least 3 years of regional experience in archaeology and a Tribal monitor representing the San Manuel Band of Mission Indians near this resource within the area of concern identified by the Tribe during consultation. Testing shall be conducted prior to project implementation and may be conducted via the employ of a number of subsurface investigative methods, including shovel test probes, and/or deep testing via controlled units, augers or trenching to confirm presence or absence of subsurface material and to delineate site boundaries. The area of concern will be determined in the testing plan and shall be dug and dry-sifted through 1/8-inch mesh screens, prior to any ground-disturbing activity. A Testing Plan shall be created by the archaeologist and submitted to the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) and the Lead Agency for review at least 10 business days prior to implementation, so as to provide time to review/modify the Plan, if needed. The Plan shall outline the protocol of presence/absence testing and contain a treatment protocol detailing that 1) no collection of artifacts or excavation of features shall occur during testing, and 2) all discovered resources confirmed to be associated with site CA-SBR-72 shall be properly recorded and reburied *in situ*. The results of testing shall be presented to the applicant, Lead Agency, and SMBMI in the format of a report, which shall include details regarding testing methodology, soil assessment, and photographs. If the results of testing, as approved by SMBMI, are positive, then SMBMI and the Lead Agency shall, in good faith, consult concerning appropriate treatment of the resource(s), guidance for which is outlined in CUL-2. If the results of testing, as approved by SMBMI, are negative, then SMBMI will determine that no further action is needed unless and until any discoveries are made during project implementation. Any and all discoveries made during project implementation shall be subject to the treatment protocol outlined within the Testing Plan, as well as the treatment guidelines within CUL-2.

TCR-2: Treatment of Non-Funerary Archaeological Discoveries: If a pre-contact cultural resource confirmed by the Lead Agency through consultation with the Project Archaeologist and SMBMI to be associated with site CA-SBR-72 and therefore a Historical Resource is discovered during archaeological presence/absence testing, the discovery shall be properly recorded and then reburied *in situ*. In the event that material associated with historic-age Euro-American occupation of the area is identified during testing, the protocols for unanticipated discoveries in CUL-3 will be implemented.

If a pre-contact cultural resource is discovered during project implementation, ground disturbing activities shall be suspended 100 feet around the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. Representatives from the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI), a qualified archaeologist/applicant, and the Lead Agency shall confer regarding treatment of the discovered resource(s). As outlined in CEQA, the applicant shall make a good faith effort to redesign the project area in such a way that impacts to the identified resource(s) can be avoided/preserved in place. Should any resource(s) not be a candidate for avoidance/preservation in place, and therefore the removal of the resource(s) is necessary to mitigate impacts, a research design shall be developed in consultation with SMBMI.

In the event that an unanticipated discovery is considered potentially significant and cannot be assumed to be eligible for the California Register of Historical Resources, a research design will be prepared by the Project Archaeologist, through consultation with the Lead Agency and the SMBMI. The research design will include a plan to formally evaluate the resource(s) for significance under CEQA criteria, as well as to formally address the resource(s) place within the landscape identified as a Tribal Cultural Resource (TCR) by the SMBMI. Additionally, the research design shall include a comprehensive discussion of sampling strategies, resource processing, analysis, and reporting protocols/obligations. Removal of any cultural resource(s) shall be conducted with the presence of a Tribal monitor representing the Tribe, unless otherwise decided by SMBMI. All plans for analysis shall be reviewed and approved by the applicant, Lead Agency, and SMBMI prior to implementation, and all removed material shall be temporarily curated on-site or other mutually agreed upon location.

It is the preference of SMBMI that removed cultural material be reburied as close to the original find location as possible. However, should reburial within/near the original find location during project implementation not be feasible, then a reburial location for future reburial shall be decided upon by SMBMI, the landowner, and the Lead Agency, and all finds shall be reburied within this location. Additionally, in the case of a single reburial area, reburial shall not occur until all ground-disturbing activities associated with the project have been completed, all cataloguing and basic recordation of cultural resources have been completed, and a final report has been approved by SMBMI and the Lead Agency. All reburials are subject to a reburial agreement that shall be developed between the landowner and SMBMI outlining the determined reburial process/location, and shall include measures and provisions to protect the reburial area from any future impacts (vis a vis project plans, conservation/preservation easements, etc.).

Should it occur that avoidance, preservation in place, and on-site reburial are not an option for treatment, the landowner shall relinquish all ownership and rights to this material and confer with SMBMI to identify an American Association of Museums (AAM)-accredited facility within the County that can accession the materials into their permanent collections and provide for the proper care of these objects in accordance with the 1993 CA Curation Guidelines. A curation agreement with an appropriate qualified repository shall be developed between the landowner and museum that legally and physically transfers the collections and associated records to the

facility. This agreement shall stipulate the payment of fees necessary for permanent curation of the collections and associated records and the obligation of the project developer/applicant to pay for those fees. Mitigation would be considered complete upon the completion of the site documentation and artifact curation.

Construction can resume in the ESA boundary once the Lead Agency, through consultation with the Project Archaeologist and SMBMI, has determined that either the find is not significant or the fieldwork portion of the data recovery is complete.

All draft archaeological records/reports created throughout the life of the project shall be prepared by the archaeologist and submitted to the applicant, Lead Agency, and SMBMI for their review and approval. After approval from all Parties, the final reports and site/isolate records are to be submitted to the local CHRIS Information Center, the Lead Agency, and SMBMI.

TCR-3: Inadvertent Discoveries of Human Remains/Funerary Objects: In the event that any human remains are discovered within the project area, ground disturbing activities shall be suspended 100 feet around the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. The on-site lead/foreman shall then immediately notify SMBMI, the applicant/developer, and the Lead Agency. The Lead Agency and the applicant/developer shall then immediately contact the San Bernardino County Coroner regarding the discovery. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the Native American Heritage Commission (NAHC) within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. Work cannot resume within the no-work radius until the City, through consultation as appropriate, determines that the treatment measures have been completed to their satisfaction.

Reburial of human remains and/or funerary objects (those artifacts associated with any human remains or funerary rites) shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The landowner in consultation with the NAHC identified Most Likely Descendant (MLD), shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains and funerary objects. All Parties are aware that the MLD may wish to rebury the human remains and associated funerary objects on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. To the extent feasible the applicant/developer/landowner should accommodate on-site reburial in a location mutually agreed upon by the Parties.

It is understood by all Parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, Parties, and Lead Agency, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

CONTENTS

Draft Mitigated Negative Declaration – High Desert Solar Project.....	1
Mitigation Measures Incorporated into the Project to Avoid Significant Effects	1
SECTION 1.0 Background	1-1
1.1 Summary.....	1-1
1.2 Introduction.....	1-7
1.3 Project Site Description	1-7
SECTION 2.0 Project Description	2-1
2.1 Project Objectives	2-1
2.2 Site Selection Criteria	2-2
2.3 Project Components	2-3
2.4 Site Design and Engineering	2-14
2.5 Interconnection and Network Upgrades	2-18
2.6 Project Construction	2-19
2.7 Project Operations and Maintenance	2-27
2.8 Regulatory Requirements, Permits, and Approvals	2-29
2.9 Consultation With California Native American Tribe(s)	2-29
SECTION 3.0 Environmental Factors Potentially Affected and Determination.....	3-1
3.1 Environmental Factors Potentially Affected.....	3-1
SECTION 4.0 Environmental Checklist and Discussion	4-1
4.1 Aesthetics	4-1
4.2 Agriculture and Forestry Resources.....	4-6
4.3 Air Quality	4-8
4.4 Biological Resources	4-20
4.5 Cultural Resources.....	4-50
4.6 Energy	4-55
4.7 Geology and Soils	4-58
4.8 Greenhouse Gas Emissions	4-62
4.9 Hazards and Hazardous Materials.....	4-67
4.10 Hydrology and Water Quality	4-74
4.11 Land Use and Planning	4-81
4.12 Mineral Resources.....	4-83
4.13 Noise	4-84
4.14 Population and Housing	4-92
4.15 Public Services	4-93

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

4.16	Recreation	4-96
4.17	Transportation/Traffic.....	4-97
4.18	Tribal Cultural Resources	4-103
4.19	Utilities and Service Systems	4-110
4.20	Mandatory Findings of Significance	4-113
SECTION 5.0	List of Preparers	5-1
5.1	City of Victorville	5-1
5.2	ECORP Consulting, Inc.	5-1
5.3	Ellison Schneider Harris & Donlan LLP.....	5-1
SECTION 6.0	Bibliography	6-1
SECTION 7.0	List of Appendices	7-1

Appendix A – Air Quality and Greenhouse Gas Assessment
Appendix B – Comprehensive Biological Technical Report
Appendix C – Biological Impact Analysis and Mitigation Report
Appendix D – Aquatic Resources Delineation
Appendix E – Cultural Resources Inventory
Appendix F – Paleontological Resources Records Search
Appendix G – Phase I Environmental Site Assessment
Appendix H – Preliminary Drainage Study

LIST OF TABLES

Table 1-1. Land Uses for the Project Site and Immediately Adjacent Areas	1-8
Table 2-2. Water Usage During Construction and Operation.....	2-16
Table 2-3. Estimated Construction Workforce.....	2-24
Table 2-4. Delivery Truck Type by Project Component	2-25
Table 2-5. Projected Number and Length of Daily Truck Deliveries	2-26
Table 2-6. Construction Traffic Specifications.....	2-26
Table 2-7. Construction Vehicles and Equipment.....	2-26
Table 4.3-1. Proposed Project Displaced Criteria Pollutant Emissions (Tons)	4-10
Table 4.4-1. Vegetation Communities within the Project Site	4-21
Table 4.4-2 Desert Tortoise Habitat Impact Acreages	4-27

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Table 4.4-3. Burrowing Owl Habitat Impact Acreages.....	4-36
Table 4.4-4. Solar Array Jurisdictional Features Impacts (Permanent Impacts).....	4-46
Table 4.6-1. Electricity Consumption in San Bernardino County 2013-2017	4-55
Table 4.6-2. Natural Gas Consumption in San Bernardino County 2013-2017	4-55
Table 4.6-3. Automotive Fuel Consumption in San Bernardino County 2014-2018	4-56
Table 4.6-4. Proposed Project Construction-Related Fuel Consumption.....	4-57
Table 4.10-1. Water Usage During Construction and Operation.....	4-77
Table 4.11-1. Land Use and Zoning Designations.....	4-81
Table 4.13-1. Typical Noise Levels from Construction Equipment.....	4-87
Table 4.13-2. Summary of On-Site Stationary Equipment Noise Levels.....	4-88
Table 4.13-3. Typical Construction Equipment Vibration Levels.....	4-90

LIST OF FIGURES

Figure 1-1. Project Vicinity.....	1-3
Figure 1-2. Project Location	1-5
Figure 1-3. Looking Southeast towards Solar Field Area from Helendale Road	1-9
Figure 1-4. Looking South at Refuse Dump Site within Solar Field Area	1-9
Figure 2-1. Site Plan	2-5
Figure 4.17-1. Construction Access to the Solar Field Area.....	4-99

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACM	Asbestos-containing Materials
AHJ	Authority Having Jurisdiction
amsl	Above Mean Sea Level
APCD	Air Pollution Control District
APE	Area of Potential Effect
AQMD	Air Quality Management District
ATV	All-Terrain Vehicle
BESS	Battery Energy Storage System
BIC	Battery-integrated Cabinet
BMPs	Best Management Practices
BMS	Battery Management System

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

BTU	British Thermal Units
CAISO	California Independent System Operator
CalEEMod	California Emissions Estimator Model
Cal/OSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CH ₄	Methane
CI	Coccidioides immitis
CLUP	Comprehensive Land Use Plan
CM	Coccidioidomycosis
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CO Plan	Federal Attainment Plan for Carbon Monoxide
CPUC	California Public Utilities Commission
CREC	Controlled RECs
CRHR	California Register of Historic Places
CRO	Control Room Operation
CUP	Conditional Use Permit
DPM	Diesel Particulate Matter
EIR	Environmental Impact Report
EPC	Engineering, Procurement, and Construction
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FLIR	Forward-looking Infrared Imaging
gCO ₂ /kWh _e	Grams of Carbon Dioxide Equivalent Per Unit of Busbar Electricity
GHGs	Greenhouse Gases
GIR	Generator Interconnection Request
GSU	Generator Step-up (Transformer)
HDPP	High Desert Power Plant
HDSP	High Desert Solar Project
HREC	Historical RECs
IWWTP	Industrial Waste Water Treatment Plant
ISO	International Organization for Standardization
kV	Kilovolt
LBP	Lead-based Paint
LID	Low Impact Development
LORS	Laws, Ordinances, Regulations, and Standards

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

LOS	Level of Service
MBTA	Migratory Bird Treaty Act
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
MLD	Most Likely Descendent
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone
MSDS	Material Safety Data Sheets
MVA	Mega Volt Amp
MWac	Megawatt (alternating current)
NAHC	Native American Heritage Commission
ND	Negative Declaration
NFPA	National Fire Protection Association
NHMLAC	Natural History Museum of Los Angeles County
NPDES	National Pollutant Discharge Elimination System
N ₂ O	Nitrous Oxide
NO _x	Nitrogen Oxides
NRCS	Natural Resources Conservation Service
NREL	National Renewable Energy Laboratory
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OEHHA	Office of Environmental Health Hazard Assessment
OPGW	Optical Ground Wire
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PCS	Plant Control System
POI	Point of Interconnection
PM ₁₀ and PM _{2.5}	Particulate Matter
PV	Photovoltaic
RECs	Recognized Environmental Conditions
ROG	Reactive Organic Gases
ROW	Right-of-Way
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBCFD	San Bernardino County Fire Department
SCADA	Supervisory Control and Data Acquisition
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCLA	Southern California Logistics Airport
SIS	System Impact Study
SO ₂	Sulphur Dioxide

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

SPCC	Spill Prevention, Control, and Countermeasure (Plan)
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminant
TCE	Trichloroethylene
TCRs	Tribal Cultural Resources
TSPs	Tubular Steel Poles
USACE	United States Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VFD	Victorville Fire Department
VMUS	Victorville Municipal Utility Services
VVWRA	Victor Valley Wastewater Reclamation Authority

SECTION 1.0 BACKGROUND

1.1 Summary

Project Title:	High Desert Solar Project (Proposed Project)
Lead Agency Name and Address:	City of Victorville 14343 Civic Drive Victorville, CA 92393
Contact Person and Phone Number:	Michael Szarzynski Senior Planner (760) 955-5135
Case Number:	PLAN18-00048
Project Location:	The Proposed Project is located in the City of Victorville, in Township 6 North, Range 5 West, San Bernardino Base and Meridian. The project site would be located mostly east of Helendale Road and west of Floreate Road/Mojave River directly north and east of the Southern California Logistics Airport (SCLA) and to the west of the Victor Valley Wastewater Reclamation Authority (VWRA) (Figures 1-1 and 1-2).
General Plan Designation:	Solar Field Area <ul style="list-style-type: none">• Specific Plan Interconnection Facilities (Gen-Tie and Service Line) <ul style="list-style-type: none">• Specific Plan• Open Space Gen-Tie Laydown Area <ul style="list-style-type: none">• Specific Plan
Zoning:	Solar Field Area <ul style="list-style-type: none">• Specific Plan (SP) Interconnection Facilities (Gen-Tie and Service Line) <ul style="list-style-type: none">• Specific Plan (SP)• Exclusive Agricultural (AE) Gen-Tie Laydown Area <ul style="list-style-type: none">• Specific Plan (SP)

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Location: N:\2017\2017-062-001 Victorville Solar Project\MAPS\location_vicinity\SP_Vicinity_V1_CEOA.mxd (MAG) mapping_quest 12/20/2018

Map Date: 12/20/2018
Service Layer Credits: Sources: Esri, USGS, NOAA

Figure 1-1. Project Vicinity

2017-062 Victorville Solar Project

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Location: N:\2017\2017-062.001 Victorville Solar Project\MAPS\ceqa\High_Desert_Solar_Project_Components_CEQA.mxd (Aguirre)-mapping_quest 5/17/2019

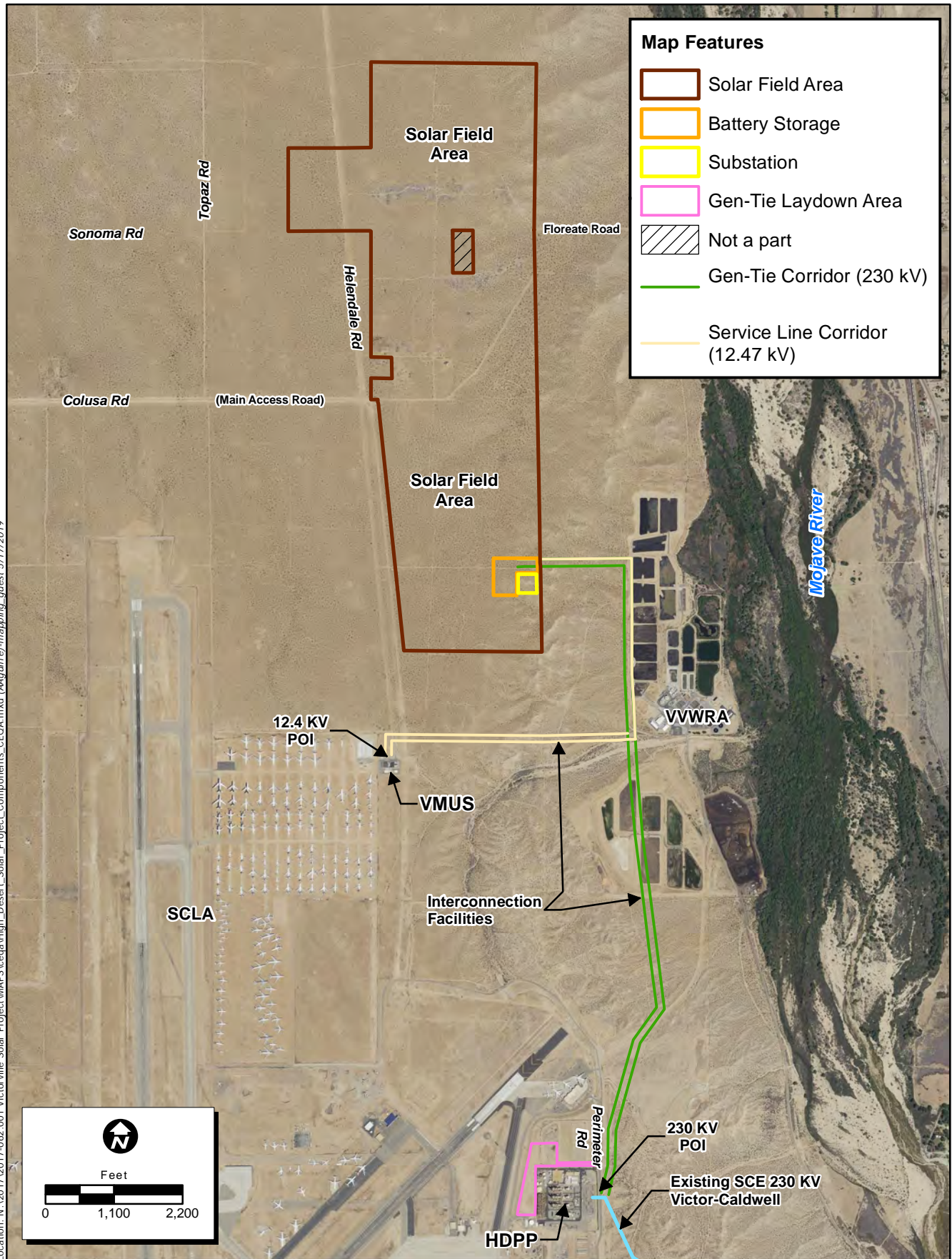


Figure 1-2. Project Location

2017-062.001 High Desert Solar Project

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1.2 Introduction

The City of Victorville is the Lead Agency for this Initial Study. The Initial Study has been prepared to identify and assess the anticipated environmental impacts of the High Desert Solar Project (Proposed Project). This document has been prepared to satisfy the California Environmental Quality Act (CEQA) (Pub. Res. Code, Section 21000 *et seq.*) and CEQA Guidelines (14 CCR 15000 *et seq.*). CEQA requires that all state and local government agencies consider the potential environmental consequences of projects over which they have discretionary authority before acting on those projects. A CEQA Initial Study is generally used to determine which CEQA document is appropriate for a project (Negative Declaration [ND], Mitigated Negative Declaration [MND], or Environmental Impact Report [EIR]).

1.3 Project Site Description

The Proposed Project would be developed on a total of approximately 624 acres (project site) consisting of an approximately 581-acre solar photovoltaic (PV) field, battery energy storage system (BESS), substation, and balance of system, collectively referred to as the **Solar Field Area**, and a corridor consisting of a 2.3-mile 230-kilovolt (kV) generation tie (Gen-Tie) line that would run east and then south in a defined and studied corridor to connect to the existing Victor-Caldwell 230kV line, upstream of the first pole on the Southern California Edison (SCE) system. The Gen-Tie corridor would be approximately 120 feet wide. Additionally, a 1.7-mile 12.47kV service line (Service Line) would connect to the Victorville Municipal Utility Services (VMUS) system. This line would run as underbuilt with the 230kV line for the first mile and then diverge to the west and run on standard distribution utility poles to connect to VMUS at the Victorville Industrial Wastewater Treatment Facility south of the Solar Field Area. The Service Line corridor would be approximately 40 feet wide. The Gen-Tie line and Service Line are collectively referred to as the **Interconnection Facilities**. The linear corridors for the Interconnection Facilities would cover a total area of approximately 35 acres, of which only a small portion would actually be disturbed. An approximately 8-acre **Gen-Tie Laydown Area** would be located on a vacant parcel of land adjacent and to the west and north of the existing High Desert Power Plant (HDPP). Figure 1-2 illustrates the location of Solar Field Area, Interconnection Facilities, and Gen-Tie Laydown Area.

1.3.1 Existing Site Conditions

The Solar Field Area is bound by Desert Flower Road along its northern boundary, Helendale Road along most of the western boundary, and undeveloped land along its southern and eastern boundaries. The Solar Field Area contains several previously disturbed areas consisting of old, abandoned structures and concrete foundations, illegal dumping sites, and large areas of undeveloped land characterized by desert scrub vegetation. Figures 1-3 and 1-4 depict the existing site conditions.

The Interconnection Facilities are surrounded by undeveloped land to the north (location of proposed Solar Field Area); undeveloped land, the SCLA, and the HDPP to the west; undeveloped land and the VVWRA facility to the east; and undeveloped land to the south. The corridors of the Interconnection Facilities contain previously disturbed areas consisting of unpaved roads, monitoring wells, and undeveloped land characterized by desert scrub vegetation. The Gen-Tie Laydown Area is undeveloped disturbed land located to the north and west of the HDPP.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

There are identified underground utilities that cross and/or run adjacent the Solar Field Area or the Interconnection Facilities, including: natural gas pipelines, a petroleum products pipeline, reclaimed water pipeline(s), raw water pipelines, telecommunications cables, and a SCE distribution line.

1.3.2 Existing Land Uses

The Proposed Project is located within the SCLA Specific Plan (SP1-92). "Power or Power Generating Plant" is a permitted use allowed through a Conditional Use Permit (CUP) process in areas designated as Industrial in the SCLA Specific Plan. The 230kV Gen-Tie would also traverse areas zoned as "Exclusive Agricultural". Power lines of 100kV or more are a permitted use with a CUP in the Exclusive Agricultural zone per Table 7-1 of the City's Development Code.

Land uses for the project site and immediately adjacent areas are summarized in Table 1-2.

Table 1-1. Land Uses for the Project Site and Immediately Adjacent Areas

	Land Use Designation	Existing Land Use
<i>Project Site</i>		
Solar Field Area	Industrial ¹	Undeveloped/Disturbed
Interconnection Facilities	Industrial ¹ Open Space ² Exclusive Agricultural	Undeveloped/Disturbed
Gen-Tie Laydown Area	Airport and Support Facilities	Undeveloped/Disturbed
<i>Immediately Adjacent Areas</i>		
North	Desert Living (DL-9) ³	Undeveloped
East	Industrial ¹	Undeveloped, VVWRA
South	Industrial, Airport and Support Facilities, and Runway Protection Zone ¹	Undeveloped, SCLA
West	Industrial, Airport and Support Facilities, and Runway Protection Zone ¹	Undeveloped, SCLA

Notes: 1 = SCLA Specific Plan, 2 = Victorville General Plan, 3 = City of Adelanto General Plan Land Use & Zoning Map

Source: City of Victorville 2004 and 2008a, City of Adelanto 2018



Figure 1-3. Looking Southeast towards Solar Field Area from Helendale Road



Figure 1-4. Looking South at Refuse Dump Site within Solar Field Area

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SECTION 2.0 PROJECT DESCRIPTION

2.1 Project Objectives

The Proposed Project's basic objectives are to construct and operate a renewable energy resource with integrated energy storage that would help California achieve its ambitious Renewable Portfolio Standard (RPS) and greenhouse gas (GHG) reduction goals and enhance grid reliability through the provision of key operational flexibility and dispatchability attributes. The Proposed Project objectives are summarized as follows:

- ***Maximize renewable energy generation through construction of a large-scale, nominal 108-MWac solar energy facility to help meet California's renewable energy and climate goals.*** California's stated RPS goal is to serve 33 percent of its electric load with renewable energy by 2020, 50 percent by 2026, and 60 percent by 2030. Senate Bill (SB) 100 (see below) also requires that retail sellers (investor-owned utilities, publicly-owned utilities, electric service providers, and community choice aggregators) procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. The RPS was established in 2002 under SB 1078, accelerated by SB 107 (2006), expanded by SB 2(1x) (First Extraordinary Session 2011), expanded to increase procurement from eligible renewable energy resources to 50 percent of total procurement by 2026 by SB 350 (2015) as modified by SB 100 (2018), and further expanded to increase procurement from eligible renewable energy resources to 60 percent of total procurement by 2030 by SB 100 (2018). Additionally, in 2006, the state legislature passed the California Global Warming Solutions Act (Assembly Bill [AB] 32), which mandates, for the first time ever in the U.S., the reduction of GHG emissions to 1990 levels by 2050. The Proposed Project would advance California's RPS and GHG reduction policy objectives by providing renewable energy and storage.
- ***Help enhance grid reliability through construction of a power facility that provides local area capacity BESS for electrical system reliability.*** The BESS would allow for the storage of electricity during solar production peak hours when this energy is not needed to allow for quick response when the regional electrical system is demanding additional energy when the solar production is winding down or not available. The BESS storage component of the Proposed Project would enhance grid reliability by adding rapid response dispatchable electricity and preferred resources capacity that are much needed for grid operations, thereby enhancing grid reliability and enabling increasing amounts of intermittent renewable energy generating sources to be integrated. The Proposed Project would help meet the State and regional transmission systems need for new (renewable) energy sources for voltage support, frequency regulation, power quality, ancillary services (regulation up and regulation down), and peak capacity support. The Proposed Project's BESS would provide flexible, preferred resource capacity to the grid that would store energy during times of over-generation and deliver it back to the grid when needed.

- **Locate the facility in a high solar resource area.** The siting of a renewable facility is critical to its success. Average year-round levels of direct normal solar radiation greater than or equal to 5 kilowatt hours per square meter per day (kWh/m²/day) are generally required for the viability of utility-scale solar PV systems according to the U.S. Environmental Protection Agency (USEPA) and the National Renewable Energy Laboratory (NREL), a laboratory of the U.S. Department of Energy (USEPA 2017). The solar resource at the High Desert Solar site is rated at 5.9 kWh/m²/day. The high solar resource means that during times of peak solar energy production, the Proposed Project would be able to store excess energy in the BESS system for later use.
- **Minimize potential environmental impacts by locating the facility on a site with access to existing infrastructure, including access to available transmission.** The California Public Utilities Commission (CPUC) has identified transmission congestion as a major barrier to achieving the RPS goal. Renewable resources are often far from existing transmission lines and load centers, requiring extensive and expensive transmission upgrades. Because of this identified transmission barrier, locating renewable generating facilities on sites that have easy access to existing electrical transmission lines with available capacity is an important component of the viability of a solar facility. A SCE 230kV transmission line is located approximately two miles from the Solar Field Area and has available 100 MW of excess capacity to connect to the California Independent System Operator (CAISO)-controlled grid without requiring system upgrades. The Proposed Project would also provide VMUS with access to RPS-qualifying renewable energy and storage.
- **Minimize potential impacts on the community and the environment by locating the facility in an undeveloped location, on previously disturbed land with compatible topography, and outside of sensitive habitat and conservation areas.** The most efficient large-scale solar PV project requires relatively level and flat land; thus, it is desirable to have topography with less than a 3-percent slope. Siting a solar PV project on previously disturbed land away from urban population centers, sensitive receptor uses, and outside of parkland and designated habitat conservation areas would reduce or eliminate potential environmental effects.
- **Achieve commercial operations as soon as practicable (targeted for the end of 2020).** The Project Proponent's (HDSI, LLC's) goal is to complete construction on schedule to ensure the timely delivery and procurement of renewable energy to California utilities.

2.2 Site Selection Criteria

The primary site-selection criterion for the Proposed Project was access to available electrical transmission capacity within SCE's service territory. Additional site-selection considerations included solar resource availability, land/topography suitability, environmental constraints, and the feasibility of acquiring site control. The site-selection criteria are summarized below.

- **Transmission Line Access and Capacity.** The Applicant is affiliated with the HDPP, a natural gas-fired combined cycle power plant located south of the proposed Solar Field Area that owns an interconnection facility that currently has available capacity. Based on various Transmission System Studies and discussions with HDPP, CAISO, and SCE (the transmission system owner), the

Applicant has confirmed that the Proposed Project can be safely and reliably interconnected to the SCE system.

- **Solar Resource Availability.** The solar resource is determined by the amount of insolation (solar radiation energy) received on a given unit surface area per unit time. Factors that influence the amount of solar energy available include the following:
 - Latitude – solar energy increases as one moves south towards the equator. Lower latitudes have a higher inclination angle to the sun resulting in higher insolation.
 - Elevation – at higher elevations there is less atmosphere to absorb and scatter sunlight, so available solar energy is greater than at lower elevations.
 - Climate – in drier climates with fewer cloudy, foggy, and humid days, more solar energy is available at ground level.
 - Haze – in remote areas with little intensive agriculture or industrial operations there are less dust particles and fewer aerosols in the air, which allows more solar energy to reach the ground.

The project site is at a latitude of 34 degrees, which is in the range of latitudes within which large-scale PV systems operate efficiently. The project site ranges in elevation from approximately 2,750 feet to 2,815 feet above mean sea level (amsl). The Solar Field Area is generally at an elevation of 2,800 and is relatively flat. The project site is located within a generally undeveloped area. There are no agricultural operations within the project vicinity. A composting facility and two sewage treatment facilities are located in the vicinity. These conditions are well suited for solar PV generation requirements.

- **Land Use.** An ideal site for a large solar facility would be relatively flat and with no intensive land uses. The project site is located on nearly flat terrain, aiding constructability. In addition, no subsurface mineral resources are located at the site. Based on landowner interviews, the site has primarily been vacant for the past several decades. None of the parcels on the project site are under contract for agriculture under the Williamson Act. The Proposed Project is consistent with the City's land use and zoning designations.
- **Feasibility of Site Control.** In order to proceed with the Proposed Project, the Applicant needed to acquire site control. As set forth in the Site Plan and CUP Application, the Applicant has site control through a combination of a letter of intent from the City of Victorville (SCLA) for leased lands and purchase options for privately owned parcels.

2.3 Project Components

High Desert Solar would comprise the following project components located within an approximate footprint of 624 acres:

- Approximately 320,000 to 370,000 solar PV modules
- A single axis tracker system

- Electrical inverters and transformers
- Battery energy storage system (BESS)
- On-site electrical substation
- Meteorological stations
- Remote monitoring system (SCADA)
- Site access roads and maintenance access roads
- Security fencing and desert tortoise exclusion fencing
- Gen-Tie line structures to interconnect with the SCE 230kV transmission line south of the site and a 12.47kV Service Line to interconnect to the VMUS electrical system southwest of the site
- Gen-Tie Laydown Area

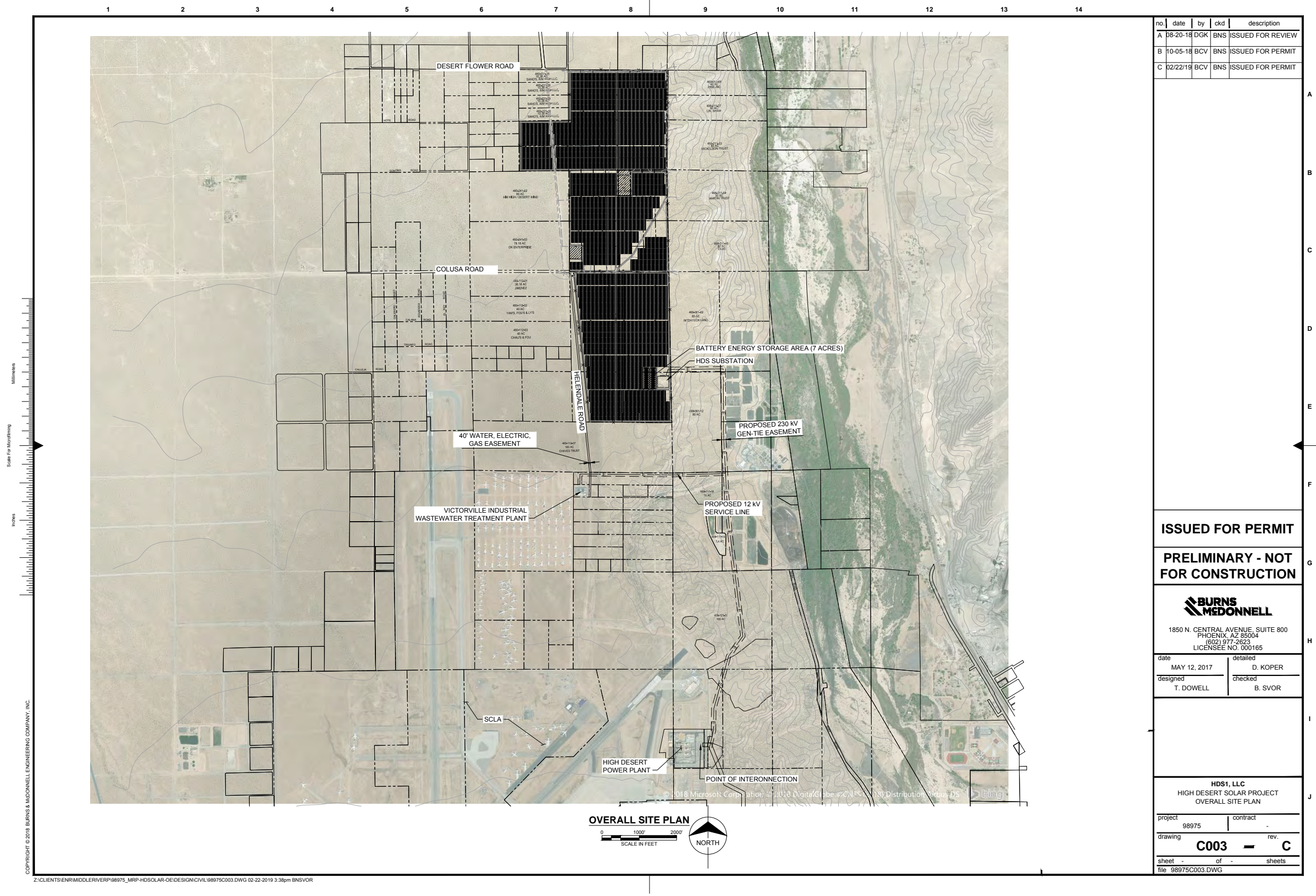
These components are described in more detail below. The Site Plan is included as Figure 2-1.

2.3.1 PV Modules and Tracker System

The Proposed Project would require installation of approximately 320,000 to 370,000 PV modules. The total number of PV panels would depend on the technology ultimately selected for the Proposed Project during final design. While all technologies would have similar potential environmental effects as discussed herein, the technology ultimately selected during detailed design would depend on engineering, market conditions, economic considerations, and environmental factors.

Technologies that may be used include, but are not limited to:

- Crystalline silicon PV technology: various silicon technologies may be used; all would be reviewed for future recyclability.
- Single axis tracking technology: would allow solar modules to move and track the sun; this would allow for greater efficiency of land used for the Solar Field Area. Tracking technology would require tracker units that would track the sun daily from east to west.
- Each PV module is expected to be approximately 3.25 feet by 6.5 feet. Tracker rows would run in a north-south orientation such that the PV modules would track the daily sun movement from east to west to maximize solar energy production efficiency. Module surfaces would be non-reflective and black or blue in color.
- Rows of trackers/modules would be spaced between 15 and 30 feet apart depending on tracker technology selected, terrain, and other site conditions to optimize energy production and minimize shading of adjacent rows. Rows of modules would be ordered into strings and power blocks with a centrally located inverter-transformer station (or Skid) located at each block. Each power block is estimated to be 600 feet by 1,100 feet and would contain sufficient modules required to match the inverter station power rating. The number of modules would depend on the wattage of the modules ultimately selected for the final design. The number of rows per power block is estimated to be between 110 and 130.



Source: Burns McDonnell 2019

Figure 2-1 Site Plan
2017-062.004 High Desert Solar Project

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- The single axis trackers would be mounted on direct-driven steel support piles that would be embedded in the ground to a depth that would be determined during the detailed engineering phase (typically between 7 and 10 feet). The top of the piles would be between 4 and 8 feet above grade. The steel support structures would be fabricated using corrosion-resistant galvanized coating. The piles would be inserted/driven directly into the ground, so concrete foundations would not be required. A small number of piles may require an alternative method of installation such as pilot hole or drilled hole and grout due to unknown subsurface conditions.

2.3.2 Electricity Collection System and Inverter Stations (Skids)

Solar energy is converted into electrical energy in the form of direct current (DC) by the PV modules. The PV modules would be organized into "blocks." Each block would encompass approximately 15 acres of PV modules (approximately 3 to 5 MWdc each) and would include an inverter station (Skid). The size of each block would depend upon the capacity of the block's inverter station, which in turn would depend upon the type and size of inverters available for purchase and other detailed electrical design considerations. Within each block, the PV modules are connected in series which are called "strings." Typically, a string would have between 27 and 32 modules connected together to reach the 1,500V (DC) operating voltage of the system.

The modules in each string are connected in series by prefabricated electrical cables that are hung under the PV modules and extend, in some cases, underground to a combiner box. A combiner box is an electrical enclosure, which would be mounted on, or next to, the PV tracking system and would allow multiple strings to be connected in parallel, increasing the amount of current going to the inverter without increasing the voltage. Multiple strings would then be combined in combiner boxes and routed in cable-trays and/or underground to the block central inverter station (Skid). Inverters take the DC output of the PV modules in the solar field and convert it to alternating current (AC) for delivery to the transmission grid via the Project medium voltage AC collection system. The inverter Skid would also contain tracker controls, monitoring/communication equipment, and a step-up transformer specific to each block. The Skid step-up transformer would be liquid insulated and cooled, outdoor rated, and would step up the AC electricity voltage from the inverter output level to the AC collection system voltage level (e.g., 480V to 34.5kV). Transformer liquid would be vegetable based environmentally benign FR3 type.

From each inverter Skid transformer electricity would be conveyed via the AC collection system circuits to the Project's substation. Inverter Skids would be centrally located at each block and internal access roads would be constructed for maintenance access. The Project would use between 15 and 25 combiner boxes per power block depending on the technology used. The Project would also have approximately 20 to 25 inverter Skids. Each Skid would be mounted on concrete piers or footings, with the entire structure being approximately 12 feet wide by 35 feet long by 15 feet high.

2.3.3 Battery Energy Storage System (BESS)

The purpose of the BESS is to store excess energy during peak solar production and deliver it later during peak demand. The BESS would provide grid operators with flexibility to manage peak loads and provide a fast response to power shortages or brownouts and enhance grid stability and reliability. The BESS would

be designed to deliver up to approximately 50 MW and store up to 200 megawatt hours (MWh) of electricity for delivery into the local SCE grid via the nearby existing Victor Substation.

The BESS would be comprised of power conversion hardware, including battery charging controller, storage batteries, battery management system, DC to AC (bi-directional) inverters/rectifiers, MV/HV power transformers and reactive power (VAR) management equipment. The BESS would be located in fully enclosed containers that would each house battery modules mounted in racks, associated electrical and electronic battery management equipment, as well as integrated heating, ventilation, and air conditioning (HVAC) and fire suppression systems. BESS containers would likely be made from converted International Organization for Standardization (ISO) shipping containers and would measure approximately 20 to 50 feet in length, 8 feet in width, and 9 feet in height. Each battery container would be accessible by a drive aisle. An alternate design of the BESS would be housing the batteries and associated balance of system in one or more large building(s). The decision whether to use containers or building(s) would depend on final detailed engineering design and Project economic considerations. The entire BESS site would occupy approximately 5 to 7 acres inside the Solar Field Area and would be fenced for security and to restrict access. The BESS modules and associated infrastructure (e.g., inverters, switches, transformers) would be serviced on an "as needed" basis by qualified technicians.

Battery Modules, Lithium-Ion Battery Technology, and Fire Protection

Each battery module rack would be located within a metal shipping container (or similar structure), retrofitted to add insulation, air-conditioning, and fire suppression with separate enclosures for the electronic controls, inverters, and rectifiers. Due to the positive pressure required within each storage container to ensure functionality of the fire suppression system, the containers would not be vented. Each storage container would utilize a supply and return air conditioning system; this system has a fresh air closed loop system. The mechanics of this type of air conditioning system make it compatible with a positive pressure environment and do not require venting. The primary storage components would consist of self-contained electrochemical battery systems (e.g., lithium-ion) using conventional storage technologies with proven safety and performance records. The battery storage containers are designed such that the periodic maintenance and replacement of underperforming battery components can be easily performed on an as-needed basis without replacing the entire module. Because the battery storage containers are not vented, to enhance worker safety, an Occupational Safety and Health Administration- (OSHA) approved Confined Space Entry Procedure would be used whenever service technicians enter the containers.

The lithium-ion battery is a high energy-density battery that is rechargeable. Due to the energy density levels of lithium-ion batteries along with their charge and discharge profiles, these batteries are ideal for a project of this size due to space constraints and commercial viability. These batteries would allow a safe and effective installation in a shipping container (or similar structures) and perform well under rigorous demand to provide grid stability. The containers would include a built-in fire protection system, utilizing suppression through cooling, isolation, and containment. Each battery storage container would likely include a gaseous fire suppressant agent (e.g., 3M™ Novec™ 1230 Fire Protection Fluid) and an automatic fire extinguishing system with sound and light alarms. The system would be designed in accordance with National Fire Protection Association (NFPA) safety standards and approved by the Authority Having

Jurisdiction (AHJ), including an automatic shut-down system for fans that keep the container sealed when the fire extinguishing system is activated. The fire suppressant agent is deployed by a releasing panel that uses an aspirating smoke detection system. In addition, each container would also have a manual release. A disable switch would be provided for maintenance to prevent accidental discharge while the system is being serviced.

Direct Current electricity would be collected from the batteries via a battery management system (BMS) and conveyed to the inverters. Each battery module would be connected with a BMS to form a rack-mountable module assembly. Multiple module assemblies are then combined into a rack, or battery-integrated cabinet (BIC) to optimize battery voltage and battery current. A number of series circuits are combined together to form an individual parallel circuit; parallel circuits are grouped together in individual BICs which are sized appropriately, and each BIC contains a rack-level BMS. The number of BICs would vary according to final project specifications and can be sized to accommodate electrical design. BICs combine multiple parallel circuits through a fused bus system to collect the energy into one set of direct current collection cables. The fuses within the BIC cables provide additional protection from overcurrent. These cables run from the BICs to the inverters, where they would terminate in the direct current side of the inverter. The BESS would have a SCADA system that would allow for remote monitoring and control of inverters and other system components. The SCADA would be able to monitor BESS output and availability, and to run diagnostics on the equipment. The BESS would also have a local overall plant control system (PCS) that would provide monitoring as well as control of the balance of plant systems.

2.3.4 Project Electrical Substation

The electrical substation is the central hub for the 34.5kV (AC) collection system and where the produced solar electricity voltage would be stepped up from 34.5kV to 230kV to match the transmission grid voltage at the point of interconnection (POI). The Proposed Project's substation would be located inside the Solar Field Area (see Figure 1-2 for solar substation location). A new, on-site, access road would be constructed to serve the substation. The substation would cover an approximately two acre area and would include the following major components:

- 34.5kV bus and associated switchgear and protection devices
- 230kV bus and associated switchgear and protection devices
- 125 Mega Volt-Ampere (MVA), 34.5/230kV Generator Step-up Transformer (GSU)
- 34.5kV capacitor bank
- Revenue meter and protection equipment
- Steel support and dead-end structures up to 90 feet in height
- Grounding grid
- Prefabricated modular control building (unoccupied)
- Perimeter chain link fence topped with 3 strands of barbed wire per AHJ/SCE specifications

The substation equipment would range in height from 8 feet to 30 feet; the dead-end steel structure may be up to 90 feet tall. The substation area would be graded and compacted to an approximately flat and level grade. Precast and/or cast in place concrete pads would be used as foundations for substation equipment, and the remaining area would be graveled per industry standards. Electrical transformers, switchgear, and related substation facilities would be designed and constructed to transform medium-voltage power from the Project's collection system 34.5kV to the 230kV transmission grid voltages. The substation GSU transformer would contain approximately 10,000 gallons of environmentally benign, vegetable based (FR3) insulating oil, and the transformer foundation would be designed to accommodate an accidental spill of transformer oil by the use of secondary containment. No polychlorinated biphenyl (PCB)-containing fluids would be used. A modular prefabricated control building would be installed in the substation, where metering, control, communications, protection equipment, and battery backup systems would be located.

2.3.5 *Meteorological (Met) Stations*

Meteorological stations (Met Stations) are used to collect weather and solar radiation data. Met Station information would be used to optimize the energy production of the Project. Typical instrumentation on a Met Station includes sensors for ambient air temperature, relative humidity, wind speed and direction, barometric pressure, a rain gauge, and global horizontal and plane of array solar irradiance using pyranometers in a horizontal position and at an orientation consistent with the solar modules. A PV reference cell may also be installed at the Met station(s) to be used for performance optimization. Met Stations can have an instrument mast approximately 20 feet tall and would be located across the site. Up to four Met Stations are anticipated to be installed for this Project.

2.3.6 *Solar Facility Monitoring System*

A monitoring system is an essential part of a solar PV project. Automatic data acquisition and monitoring technology is utilized during the operational phase in order to maintain a high level of performance, reduce downtime, and ensure rapid detection of faults or system/component failure. For High Desert Solar the monitoring would be done using a remote monitoring station that would likely be located in the nearby HDPP.

The monitoring system allows the actual yield of the Proposed Project to be monitored and compared with theoretical calculated yield on a real-time basis and if performance is not meeting expectations issues can be detected and performance optimized quickly before they have an appreciable effect on production. Without a reliable monitoring system, it could take months for a poorly performing system or element to be identified.

The key to a reliable monitoring and fault detection methodology is to have good simultaneous measurements of the solar irradiance, environmental conditions, and plant power output. This monitoring is achieved by incorporating one or more meteorological (met) station(s) on site to measure the plane of array irradiance, module temperature, and global horizontal irradiance, ambient air temperature, relative humidity, wind speed, and direction. Actual voltage and current would typically be monitored at the inverter, combiner box or string level, each offering more granularity than the previous.

Data from the Met Station(s), inverters, combiner boxes, meters, and transformers would be collected in data loggers and transmitted, in real time, to the remote monitoring station, typically via wireless or fiber-optic link. A separate SCADA system would be installed at the Proposed Project's substation to monitor and control the required revenue metering and transmission system protection equipment. This system would be specified and monitored by the transmission provider (SCE) and the CAISO.

2.3.7 Access Roads and Site Maintenance Roads

Solar Field Area Internal Roads

Three types of roadways would be utilized for the Solar Field Area: a site entrance road, interior access/maintenance roads, and perimeter roads. The site entrance road would connect to Colusa Road and would be the primary point of access to the site. The site entrance road, perimeter road, and central fire road would be 26 feet wide and constructed of compacted native soil per the City's specifications and approved engineering drawings. A security gate would be installed. The interior access/maintenance roads would be designed to meet City requirements for emergency vehicles, which consists of in-situ soil, compacted to a minimum of 85 percent standard proctor. See Figure 2-1 for proposed alignments for the on-site roadways.

Perimeter access roads would be located inside the Solar Field Area and adjacent to the perimeter fence surrounding the site and would also run north/south through the middle of the site. These perimeter and center roads are required by the City's fire department to allow them to readily access all areas of the site. The perimeter roads would be 26 feet wide and constructed of compacted native soil. Internal access roads would be provided to access critical equipment for ongoing operations and maintenance activities. These roadways would be 20 feet wide and constructed of compacted native soil. Site access roads would provide adequate ingress and egress to and from the project site for emergency vehicles.

Solar Field Area Construction Access Road

Construction access to the Proposed Project's Solar Field Area would be via Highway 395 to Colusa Road. This segment of Colusa Road is an unpaved public roadway, measures approximately three miles, and is under the jurisdiction of the cities of Victorville and Adelanto and the County of San Bernardino. Portions of this segment of Colusa Road would be improved to allow pothole free and safe access for large trucks and heavy loads to facilitate delivery of equipment and materials to the Solar Field Area and the new Colusa substation. Proposed improvements would be limited to blading, adding road base material, and compacting, as needed. Proposed improvements would only occur where the existing road condition is deteriorated, such as areas that contain potholes, ruts, soft and unstable road surfaces, and/or corrugation (washboarding). All road improvements would occur within the existing improved portion of the unpaved roadway and would not extend into undisturbed areas. Proposed improvements would likely require encroachment permits from the cities of Victorville and Adelanto and the County of San Bernardino. During the construction phase the contractor would water this segment of Colusa Road to prevent fugitive dust.

Gen-Tie Roads

Roads are required to access each Gen-Tie structure/pole. Foundation auger equipment, loaded materials

trucks, cranes, and specialized line construction equipment would be required for construction, maintenance, and emergency restoration activities. Periodic ground-based inspections require vehicular access using 4-wheel drive (4x4) pickup trucks or 4x4 all-terrain vehicles (ATVs) to each structure site. To accommodate the necessary equipment, the road specifications require a 12-foot-wide travel way and up to 20-foot-wide road width in turns. The road and travel way in areas of rolling through hilly terrain may require additional cuts and fills for travel and turning radii, and/or where vehicles are required to pass one another while traveling in opposite directions. Access roads would encompass approximately 10 acres.

Gen-Tie access roads would consist of compacted native soil surface. Where localized conditions require, a road base or temporary Geo-Mats may be used. The following summarizes the road types needed for the Gen-Tie line structure access:

- **Existing roads requiring routine maintenance** – Well-maintained paved or gravel roads that have sufficient width and integrity to support construction and operation. The roads are typically maintained by other entities. Routine road repairs may be required within the existing roads.
- **Existing roads requiring improvement** – Existing roads of varying condition that may require blading and widening to allow safe and suitable construction access. After construction, these roads would be restored to the extent that they remain suitable for safe travel for period inspections with 4x4 trucks or 4x4 ATVs. During infrequent maintenance or repair events that require heavier construction equipment, these roads may require additional improvements for construction access.
- **New spur roads** – New roads would be constructed and graded as necessary in order to travel from the existing roads to pole sites. After construction, these roads would only be maintained to a level that is suitable for safe travel for periodic inspections with 4x4 trucks or 4x4 ATVs. During infrequent maintenance events that require construction equipment, these roads may require additional improvements for temporary construction access, then again only maintained to the level required for period inspections.
- **Temporary roads** – Required to access temporary use areas including wire stringing sites, work areas, and staging areas. Temporary roads would be restored after use.

Gen-Tie access road construction would minimize disruption to natural drainage patterns. For analysis purposes, there are two types of crossings considered – drive through and dry wash crossings. Culverts are not anticipated for Gen-Tie access roads.

- **Drive through** – Crossing washes with only minimal vegetation trimming and no cut or fill needed. This is typical for areas that are improved to the point where topographic modifications are not necessary for crossing. Geo-mats may be used to stabilize the crossing and reduce disturbance.
- **Dry wash crossing** – Crossing of an ephemeral stream channel that includes grading and potentially stabilization. Approaches would be graded to allow more efficient vehicle passage and may be stabilized with rock or other erosion control devices including geo-mats, if needed. In some areas, the crossings may be reinforced with coarse rock material to support vehicle loads, prevent erosion, and minimize sedimentation. The rock would be installed so as to not block natural storm water flow, thus allowing continued movement of water. There would be no wet

stream crossings. No stream crossings would occur during storm events.

2.3.8 Site Security and Fencing

Primary ingress/egress for the Solar Field Area would be from Colusa Road, which is an unpaved public roadway. Secondary or emergency access would be from Helendale Road, which is an existing unpaved road along a public utility right-of-way (ROW) easement (Figure 1-2).

The Solar Field Area would be surrounded by a perimeter chain link security fence measuring 7 feet in height with a 1-foot barbed wire section with a gate at each site entrance. The fencing would consist of chain link fence topped with a one-foot-high (3 strands) barbed-wire section per AHJ specifications. Storm water runoff would flow through the fencing. Additionally, the Project would install desert tortoise exclusion fencing including agency-approved desert tortoise grates at access gates to prevent tortoises from entering the site. Fencing may also include elevated gates to facilitate desert kit fox access post-construction if required.

Security lighting for the Solar Field Area would be minimal. Shoebox type light fixtures mounted on poles would be installed at the primary site entrance as well as at the substation entrance. There would be no lighting within the solar arrays or around the perimeter fence. Portable lights would be used for maintenance activities at inverter skids that occur at night. Additional fencing would be constructed around the substation per SCE and AHJ standards, and temporary fencing would be placed around construction staging areas. All materials would be industrial-grade galvanized steel.

2.3.9 Fire Protection

The Applicant met with the San Bernardino County Fire Department, Victorville Division (SBCFD) as part of the Pre-Submittal Review process with the City during the initial planning stages for the Proposed Project. As of March 30, 2019 the City of Victorville Fire Department (VFD) provides fire protection services to the City. As part of the Pre-Submittal Review the SBCFD recommended implementation of the following measures: 1) The project should comply with all current Building and Fire Code requirements based on occupancy classification; 2) The project should provide a twenty-six-foot-wide fire access road down the center and around perimeter of the Project and twenty-foot interior around array blocks; 3) The project's minimum road construction should be native material or gravel, compacted to a minimum of 85 percent; and 4) The project should provide a twelve-inch address sign on the main gate, provide a Knoxbox™ or switch at the main access gates, and provide a secondary emergency egress gate with Knoxbox™. The VFD concurs with these recommendations. These recommendations have been incorporated into the Proposed Project design. Fire response access to the Solar Field Area from the VFD Fire Station 319 located at SCLA would be available via Perimeter Road and Helendale Road.

2.3.10 Gen-Tie Line and Service Line (Interconnection Facilities)

The 230kV electricity from the Proposed Project site facilities would be conveyed to the SCE POI near the existing HDPP using an overhead Gen-Tie line (Figures 1-2 and 2-1). The Gen-Tie poles would be tubular steel structures approximately 130 feet tall placed approximately 800 feet to 900 feet apart along the Gen-Tie route. Gen-Tie line routing would ensure that the SCLA retains sufficient clearances to not restrict

any flight operations. A manual disconnect (air) switch would be located on the last pole of the Gen-Tie to provide means of manually isolating the Gen-Tie and solar facility from the SCE transmission line.

A 12.47kV Service Line would also be built to connect to the VMUS system at the industrial wastewater treatment plant on Helendale Road south of the Solar Field Area. This Service Line would be constructed partially as an underbuilt, sharing poles where feasible with the 230kV Gen-Tie. The 12.47kV Service Line would have its own poles from the point where it diverges from the 230kV, to the VMUS POI. The 12.47kV service poles would be standard wood distribution utility poles at a height of 30 to 40 feet installed approximately 400 feet apart.

2.4 Site Design and Engineering

2.4.1 Site Disturbance

Solar Field Area

Permanent disturbance to the Solar Field Area would result from construction of internal roads, the substation, the BESS, equipment pads, PV tracker steel piles, fencing, and grading of areas with slopes greater than 5 percent. Temporary disturbance to the site would result from trenching for electrical conductors, construction staging areas, and temporary access roads.

The Proposed Project design confines the solar arrays, BESS, substation, and internal access roads to a footprint of approximately 581 acres, for a total disturbance of approximately 95 percent. The remaining areas within the Solar Field Area would be left undeveloped. Undeveloped areas would include on-site drainages and riparian buffer zones.

Only limited grading is expected to be required because of the low impact development (LID) approach and nearly flat terrain. Grading would be required on slopes greater than 5 percent for PV power blocks. Project grading requirements are anticipated to be approximately 116 acres, mainly along the eastern side of the Solar Field Area and in the locations of the substation, BESS, and laydown areas, resulting in approximately 355,000 cubic yards of cut-and-fill and no cubic yards of export. The Proposed Project may utilize some or all of the old concrete foundation slabs that would be removed during site clearing, as road base aggregate.

Interconnection Facilities

Permanent disturbance to the Interconnection Facilities area would result from the placement of Gen-Tie tower structure foundations, Service Line poles, and access road construction.

Temporary disturbance would result from tower construction work areas at each Gen-Tie tower site and at each Service Line pole site. Temporary disturbance would also result from the maintenance of existing access roads.

Gen-Tie Laydown Area

No permanent disturbance to the Gen-Tie Laydown Area is anticipated because no permanent structures are proposed. Temporary disturbance would occur from the staging of material and equipment.

2.4.2 Erosion Control

A Storm Water Pollution Prevention Plan (SWPPP) outlining the various Best Management Practices (BMPs) for minimizing erosion and runoff would be prepared prior to Proposed Project construction. Typical erosion control BMPs would be used. The site would be stabilized according to the SWPPP requirements. Existing vegetation would remain in place and be mowed and kept to a height of less than 18 inches.

2.4.3 Utilities

Electricity during construction and operations would be obtained by a metered tap of the local existing 12kV power grid and/or from portable, fuel-powered on-site generators. Water would be trucked in from nearby water agencies. Portable sanitary facilities would be required during construction. Sanitary waste would be hauled off site to appropriate treatment facilities by a properly licensed contractor. Solid waste/rubbish would be hauled to appropriate recycling centers or landfills by the contractor. Hazardous waste is described in further detail in Sections 5.7 (Hazardous Materials/Waste Handling). A SCADA/monitoring system would be used for Proposed Project communications. This system would allow for complete control and access to the Inverter Skids, weather stations, site security, solar substation, telecom system, and all other systems of communication.

2.4.4 Water

Construction Water Requirements

Water usage for the project site for construction related activities would be approximately 200 acre-feet total during the 10- to 14-month construction period with most of it being used for dust control, grading, and compaction purposes including dust control for the main access road. To the extent practicable, the Proposed Project would use reclaimed water for dust control and earthwork purposes and all other uses except for drinking and sanitation.

Potable water would be trucked in to the site during the construction period for drinking water, hand washing, and other personal uses. It is estimated that approximately 1,000-1,250 gallons/day would be needed for about 200-250 workers during the peak construction period. Potable water would be provided for personnel use only.

- Drinking water – 4 gallon/person/day (800-1,250 gallons/day at peak)
- Hand washing/miscellaneous – 1 gallon/person/day (200-250 gallons/day at peak)

Portable (chemical) toilets would be used for sanitary facilities during construction.

Operational Water Requirements

Water use during facility operation would be for cleaning of the PV modules. It is anticipated that cleaning would occur once annually, if warranted, due to excessive soiling resulting in degrading performance. Module cleaning would use approximately 175,000 gallons of potable water per cycle, assuming approximately 350,000 modules and would be trucked to the site. Because the facility would not be

staffed, there would be no restrooms or need for a permanent water supply to the site. Module cleaning requires water that is low in minerals and dissolved solids to prevent spotting and hazing on module surfaces to keep module efficiency at optimal level. Module cleaning water would be delivered to the site by truck. No module cleaning water would be stored on site.

Potential Water Sources

Possible water sources for construction include:

- Reclaimed and potable water agencies in the Proposed Project vicinity and trucked to the project site

Estimated total water consumption during construction and operation is shown in Table 2-2.

Table 2-2. Water Usage During Construction and Operation

	Daily Demands (gallons)	Monthly Demand (gallons)	Annual Water Demand (acre-feet/year)
Construction Phase			
Site preparation and improvement	350,000	8,750,000	80
Solar field installation	174,000	4,350,000	60
Start-up and commissioning	174,000	4,350,000	60
Operational Phase			
1 (108 MW nominal)	0	0	0.5

2.4.5 Site Traffic Circulation

The design and construction of all internal maintenance roads (perimeter and interior) would be approved by the City: a total of (26 and 20 feet respectively) in width, native soil compacted to 85 percent. Internal power-block aisle ways would be 12 feet in width. Overhead obstructions, if any, would have a minimum vertical clearance of 15 feet. Figure 2-1 depicts permanent site access and internal roads.

Outside of the perimeter fence for the Solar Field Area, the Proposed Project would improve a section of Colusa Road to be used as the main access road. Existing roads that are currently used for the groundwater monitoring program implemented by the United States Air Force would be used to service and maintain the Interconnection Facilities. All road and access designs would be reviewed and approved by the AHJ and the Fire Department prior to final design submittal/approval.

2.4.6 General Safety

Site-specific emergency response plans would be developed for construction and operations. On-going training for construction, materials handling, and operations would occur per OSHA regulations. All emergency response plans would be developed in consultation with the Fire Department, City of Victorville Public Health Department, and any additional local, State, or federal agencies with jurisdiction over emergency response at the project site.

2.4.7 Hazardous Materials/Waste Handling

A Spill Prevention, Control, and Countermeasure (SPCC) Plan for project construction and for facility operation would be prepared for the Proposed Project. The SPCC Plan for project construction would address fuels, lubricants, and hydraulic fluids expected to be used for construction equipment. Such equipment would be properly maintained to minimize leaks, and to prevent spills, vehicle service and repair would be performed offsite at an appropriate facility. The SPCC Plan for facility operation would address the oil that may be contained in each transformer. The SPCC Plan for facility operation would be updated on a regular basis as new equipment is commissioned and turned over from construction to operations. The oil contained in each transformer would be FR3, vegetable based, environmentally benign and does not require regular replacement. If needed, replacement would be accomplished by either transporting the entire transformer off-site or by transferring the FR3 oil to a tanker truck for transport off-site. Oil disposal would be managed in accordance with Department of Toxic Substances Control hazardous waste regulations.

The PV modules and inverters produce no waste during operation. However, the PV panels may include solid materials that are considered to be hazardous. To address management of such materials, the Applicant's contract with the selected PV panel manufacturer would include a provision requiring the manufacturer to receive and recycle or dispose of any broken or defective modules. Because such materials are in a solid and non-leachable state, broken PV panels would not be a source of pollution to storm water.

Similar to the PV modules, the BESS batteries produce no waste during operation, but may contain solid materials that are considered hazardous. Also, the fire suppressant agent used for the BESS enclosures may be considered hazardous, although most commonly used suppressant agents in the marketplace today are considered to be environmentally friendly. To address management of such materials, the Applicant's contract with the selected BESS vendors and suppliers would include a provision requiring the vendor or supplier to receive and recycle or properly dispose of any such components or materials that were taken out of service for any reason.

The facility does not present significant potential for introducing pollution to storm water, and operation of a solar PV facility is not subject to stormwater permitting authority.

All use, storage, transport, and disposal of hazardous materials used in construction or operation of the solar facility would be in strict accordance with federal, State, and local laws, ordinances, regulations, and standards (LORS). No extremely hazardous materials (i.e., governed under 40 CFR 335) are anticipated to be produced, used, stored, transported, or disposed of as a result of the Proposed Project. During construction and operation of the Proposed Project, Safety Data Sheets (SDS) for all applicable materials present on-site would be kept on site and made readily available to on-site personnel and regulatory agencies and inspectors.

During construction of the facility, non-hazardous construction debris would be generated. Such debris would be recycled or disposed of in local facilities and landfills consistent with required salvage and recycling LORS. During construction of the facility, sanitary waste would be managed using portable toilets and hand washing stations located at reasonably accessible on-site locations.

2.4.8 Fire Safety

Project Substation

Substation building fire suppression would follow SCE standards for fire suppression, subject to local permit official approval.

BESS Enclosures

All battery, electrical, and instrumentation enclosures and structures would be provided with an integral (built-in) fire suppression system that is appropriate for the type of equipment inside. Fire suppression systems would be subject to review and approval of the AHJ.

2.5 Interconnection and Network Upgrades

2.5.1 Interconnection Facilities

The primary interconnection facility for the Proposed Project would be a 230kV 3-line tap to the existing 230kV line at a location near the HDPP (Caldwell) substation south of the Proposed Project (Figures 1-2 and 2-1). Routing the Gen-Tie circuit to the Victor-Caldwell transmission line would require approximately 18 new Gen-Tie tubular steel poles, each of which would be between 90 and 130 feet in height and placed 800 to 900 feet apart.

In addition to the 230kV interconnection to the SCE grid, the Proposed Project would also connect, with a separate dedicated circuit, to the VMUS distribution system at 12.47kV. The VMUS connection would be at the City's industrial wastewater treatment facility located just south of the Solar Field Area. The 12.47kV circuit would be routed as an underbuilt with the 230kV for about a mile, at which point it would diverge and have its own route to the POI. The 12.47kV service poles would be standard wood utility poles at a height of 30 to 40 feet installed at approximately 400 feet apart.

The design details of the Interconnection Facilities would be developed in consultation with SCE. The substation is likely to cover an area of approximately 2 acres within the Solar Field Area fence line. The substation would be built to accommodate the entire Proposed Project production with the nominal 100 MWac connecting to the SCE 230kV system and approximately 8 MW connecting to the VMUS 12.47kV system.

At build-out, the solar substation would include 230kV circuit breaker(s) and related equipment arranged in a "Tap, single breaker" configuration. The substation would also include a GSU transformer, switchgear, a prefabricated substation control building, and dead-end steel structures that would be approximately 90 feet in height. Additionally, the substation would include a step-down transformer and associated 12.47kV bus, switchgear, and protection equipment for the VMUS Service Line.

2.5.2 Secondary Communication Circuit Routing

In addition to the primary communication circuit that will be routed with the 230kV Gen-Tie line via an Optical Ground Wire (OPGW), a secondary communication circuit will be connected to the Project's proposed substation. This secondary circuit would be designed to handle all the communication data

traffic associated with system protection and monitoring and control required by the Transmission Provider (Southern California Edison), and the California Independent System Operator (CAISO). In addition to providing backup communications for the Transmission Provider and the CAISO, the secondary communication circuit would also handle primary communications for the Supervisory Control and Data Acquisition (SCADA) data traffic for the plant's remote Operator Station located off-site.

The intent of the Project is to route the secondary communication circuit using a route that is mostly diverse from the primary communication circuit to maintain reliable communication in the event of a physical disturbance, severing or other failure of the primary circuit OPGW. The secondary communication circuit route will be determined during the detailed engineering design for the Project. There are three alternatives for the secondary communication circuit route:

1. Use a wireless, cellular connection using the existing cellular infrastructure in the area (preferred).
2. Use a fiberoptic cable underground in existing conduit(s) owned by SCLA that run from an existing telephone equipment room in the airport's operations area and goes to the existing Industrial Waste Water Treatment Plant (IWWTP) on the north edge of the airport, and the use a wireless microwave link from the IWWTP to the Project's proposed substation, approximately 0.7 miles away.
3. In case alternatives 1 and 2 are not acceptable to the Transmission Provider or the CAISO, the secondary communication circuit would run in a second and distinct fiberoptic strand in the same OPGW as the primary circuit.

2.5.3 Transmission System Upgrades

The Proposed Project would interconnect to the regional electricity grid at the Victor-Caldwell 230kV transmission line near the project site. The Applicant submitted a Generator Interconnection Request (GIR) to interconnect the nominal 100 MWac of the Proposed Project's output to the SCE 230kV HDPP transmission line.

Under the GIR process, the CAISO conducted a System Impact Study (SIS). The SIS showed that the transmission system has adequate capacity and concluded that "the Project causes no overloads or voltage violations. Dynamic stability study results indicated that the transmission system's transient performance would not be significantly affected by the Project." Also "the downstream substation evaluation found no overstressed equipment by the interconnection of the Project." The SIS did not identify any needed network upgrades, and none are proposed.

Since the Proposed Project would utilize available capacity at the existing interconnection, no upgrades to the SCE system would be required to accommodate the electrical generation of the Proposed Project.

2.6 Project Construction

2.6.1 Pre-Construction

Prior to construction there would be activities occurring at the site to support detailed design and to prepare for construction. Geotechnical study would be performed at the Solar Field Area and along the

Interconnection Facilities approximately 8 months prior to construction and would include borings up to depths of 50 feet, thermal and electrical resistivity testing, soil corrosivity testing, possibly a few test pits about 10 feet deep, some potholing to verify exact locations of existing underground utilities and services, and pile pull tests. Topographic and boundary surveys of the same areas would be performed approximately 12 months prior to construction. A few weeks prior to commencement of grading activities the following pre-construction activities would be performed:

- A pre-construction meeting that includes safety and environmental training would be held on-site for pertinent project staff, all construction personnel, and environmental monitors
- The site would be surveyed and marked/staked for construction
- Biological and cultural resources monitors, as appropriate

2.6.2 Construction Sequence

Construction of the facility is estimated to be completed over a 10 to 22-month period and would require a peak workforce of approximately 200-250 management, supervisory, and craft workers. Temporary construction staging/laydown would include craft worker parking, office trailers, storage CONEX boxes, and equipment laydown areas. Temporary workspaces would be graded and graveled to mitigate fugitive dust and mud during rain events. Temporary sanitary facilities (portable toilets) would be provided during construction. The sanitary facilities would be serviced by a licensed contractor and waste would be disposed off-site. The temporary construction workspaces would likely be located near the primary site entrance inside the fencing of the Solar Field Area off Colusa Road; additional temporary staging areas may be located throughout the Solar Field Area to facilitate a phased construction approach. As construction of the site is nearing completion, the temporary construction facilities would be removed and the area(s) would be utilized as part of the solar field. A separate laydown area for construction of the Gen-Tie would also be designated. The Gen-Tie Laydown Area would encompass approximately 8 acres, be temporarily fenced, and would be located on a vacant parcel of land adjacent and to the west and north of the existing HDPP.

During the estimated 10 to 22-month construction period, activities would include:

- Installation of perimeter security fence and desert tortoise exclusion fence
- Construction of substation and Gen-Tie line
- Simultaneous grading of the site to include: construction of staging areas, grading of access roads, solar field, and substation, BESS, as well as stormwater facilities
- Shakeout and insertion of the steel support piles
- Shakeout and installation of tracker system
- Shakeout and installation of PV modules
- Installation of the AC and DC collection system and monitoring system

- Installation of central inverter and transformer stations (one per block)
- Start-up, commissioning, and testing activities
- Restoration of temporary laydown areas
- Restoration of temporary Gen-Tie construction roads

All materials for construction of the Proposed Project would be delivered to the site by trucks. The majority of truck traffic would occur on designated truck routes and major streets in consultation with the City's Public Works Department. It is anticipated that delivery trucks traveling south along Interstate 15 would exit at North D Street and travel to Colusa Road via major streets. Delivery trucks traveling north along Interstate 15 would exit at Highway 395 which would take them directly to Colusa Road. Most deliveries would enter the project site from Colusa Road. The remaining deliveries for the Gen-Tie and Service Line would be made to the Gen-Tie Laydown Area off Perimeter Road. It is anticipated that there could be up to 30 deliveries per day during the peak of construction.

Construction activities would generally be performed Monday through Friday from 6 a.m. to 6 p.m.; work over the weekend may be performed as well in order to meet the Proposed Project's schedule. Construction would be conducted block by block and would be sequenced or staggered to allow multiple crews to work simultaneously on the site.

Following are the anticipated number of pieces of major equipment that would be delivered to the site:

- PV modules – 320,000 to 370,000
- Trackers – 4,000
- Steel support piles – 65,000
- Inverter Skids with associated equipment – 34
- Combiner boxes – 500
- 34.5/230kV transformer – 1
- 34.5/12.47kV transformer – 1
- Pre-fabricated substation control building – 1
- Tubular steel pole structures for the Gen-Tie – 18
- Wood pole structures for the Service Line – 16

2.6.3 Substation Construction

The substation would be constructed by a contractor selected by the Applicant in accordance with its Engineering, Procurement, and Construction (EPC) contract specifications. The substation would occupy an area of approximately 2 acres and would be graded flat and level. Four to 6 inches of gravel would be installed on the entire area to keep down dust and mud and make for easier housekeeping. Precast or cast in place concrete foundations would be built for the substation equipment and structures.

Foundation would be drilled pier or spread footing. Foundations type and size would be determined during the detailed engineering phase. The substation would be enclosed with a security fence and would be within the Solar Field Area.

2.6.4 Gen-Tie and Service Line Construction

The Gen-tie and Service Line would be constructed by a contractor selected by the Applicant in accordance with its Engineering, Procurement, and Construction (EPC) contract specifications. Gen-Tie and Service Line construction would generally follow the sequence outlined below, but may vary depending on final engineering designs:

- Contractor mobilization of equipment and personnel
- Staging yard preparation
- Access road construction and site preparation
- Foundation construction and anchor installation
 - The Gen-Tie would typically consist of drilled pier reinforced concrete foundations. No guys or anchors would be installed on the Gen-Tie.
 - The Service Line would typically consist of direct embed foundations with native or engineered backfill. Some structures would require guys and anchors to support the structure.
- Assembly and erection of tubular steel poles for the Gen-Tie and wood poles for the Service Line
- Wire stringing and sagging
- Testing and commissioning
- Cleanup and restoration

Construction would require heavy equipment including, but not limited to, pick-up trucks, water trucks, haul trucks, bucket trucks, bulldozers, graders, compactors, backhoe, excavator, drill rig, concrete trucks, cranes, puller and tensioner, reel trailer, splice trailer, and air compressors. Helicopters may also be utilized to support wire stringing operations.

2.6.5 Battery Energy Storage System (BESS)

The BESS would be constructed by a contractor selected by the Applicant in accordance with its EPC contract specifications. The BESS would occupy an area of approximately 5 to 7 acres and would be graded flat and level. Precast or cast in place concrete foundations would be built for the BESS equipment and container/structures. Foundations type and size would be determined during the detailed engineering phase. The BESS would be enclosed with a security fence, within the Solar Field Area.

2.6.6 Tracker and Modules Installation

The tracking system components would arrive on site, at an estimated rate of approximately 10 to 20 MW per month, to be assembled and installed at the site. PV modules would arrive on site and be placed in a

staging area inside shipping containers. Modules would be distributed out to the blocks and put in place manually and secured to the tracker per vendor specifications and approved engineering plans. Each tracker would be populated with modules, wired in series, to create strings, and connected to a DC combiner box, which would deliver DC power to the block's inverter station.

2.6.7 Laydown Areas, Staging Areas, Work Areas, and Stringing Sites

The main laydown area would be near the main site entrance at Colusa Road and would have the contractor site trailers/offices as well as fabrication areas, worker break area, sanitation and parking, material staging area, and storage (CONEX) boxes. This area would cover approximately 10 to 15 acres. Temporary power for the main laydown area would be provided by a temporary drop from the nearby 12kV VMUS system or from temporary mobile generators. Potable water for drinking and sanitation would be trucked in as needed. Secondary materials staging/laydown areas may be located closer to work areas and would be moved periodically as the site builds out.

The Gen-Tie and Service Line would have work areas around each structure location which may require grading and vegetation removal for various construction activities. Stringing sites would support required equipment to perform wire stringing and sagging operations.

Gen-Tie Laydown Area

The Gen-Tie Laydown Area is a separate temporary construction laydown area that would be designated and used for the construction of the Interconnection Facilities. This area would encompass approximately 8 acres and would be located on a vacant parcel of land adjacent and to the west and north of the existing HDPP. This area would be used by the contractor for staging equipment and materials as well as job trailers, tool and storage CONEX containers, fabrication areas, and sanitary facilities. Temporary power and potable water would be provided from the HDPP adjacent to this laydown area. The area would be fenced (temporary) and secured to prevent theft and vandalism.

2.6.8 Construction Personnel

Construction personnel over the 10 to 22-month construction period would include:

- Civil/earthwork personnel
- Fencing personnel
- Tracker support pile driver personnel
- Tracker and PV mechanical installation personnel
- PV electrical personnel
- Monitoring system personnel
- Project management personnel
- Biological and archaeological monitors

- Start-up, commissioning, and testing personnel
- Substation mechanical personnel
- Substation electrical personnel
- Substation start-up and testing personnel
- Gen-Tie and Service Line access road construction personnel
- Gen-Tie and Service Line foundation construction personnel
- Gen-Tie and Service Line construction personnel

The workforce projection is based on assembling and installing arrays at an average rate of approximately 10 MW per month. The peak number of construction personnel is expected to be approximately 200 workers per day. Table 2-3 presents the anticipated on-site construction workforce for each quarter.

Table 2-3. Estimated Construction Workforce

Quarter	Workers
1	50-95
2	155-250
3	155-250
4	50-75

On-site work hours would generally be daylight hours, typically 6:00 a.m. to 7:00 p.m., or as specified by the building permit and according to applicable city ordinance. During the installation period, construction would be performed five days per week (weekend work may occur occasionally if construction milestones are not met on schedule), year-round, except for standard U.S. holidays. Security personnel would be on site 24/7 during construction, working in 8- or 10-hour shifts. The Proposed Project could be operational (block by block) as early as 9 months into the installation period, with each subsequent block coming online as start-up and commissioning activities progresses. There would be no on-site temporary workforce housing, and parking of employee recreational vehicles or trailers would be prohibited.

2.6.9 Construction Traffic

Construction of the Proposed Project substation may require temporary street closure, or partial closure, of Perimeter Road around the HDPP line tap site.

Personnel Traffic

An average construction workforce of 165 workers per day is anticipated, and the peak number of workers is estimated at 250 workers. If all construction personnel were to use personal vehicles, construction-related traffic would include an estimated one round trip per worker per day on average during the 10- to 22-month construction period. The Applicant would work with the EPC contractor to encourage worker carpooling to the extent possible.

It is anticipated that the majority of construction jobs for the Proposed Project would be filled by workers from the High Desert region (Adelanto, Apple Valley, Barstow, Hesperia, and Victorville) with some specialty trade contractors likely coming from the Inland Empire or Los Angeles regions. This assumption is based on labor and demographic data showing the High Desert region having a construction workforce surplus. Furthermore, approximately 71 percent of the High Desert labor force commutes outside of the region for job opportunities in the greater Inland Empire, Los Angeles, and San Diego areas because of the jobs-housing imbalance of the region (City of Hesperia Economic Development Department 2016). These data show that the High Desert has the capacity to supply workers for the temporary construction jobs that would be created by the Proposed Project.

Commute distances for construction workers originating from within the High Desert region can be up to 25 miles (one-way). Commute distances for construction workers originating from out of region workers (Inland Empire and Los Angeles) can be approximately 50 miles (one-way).

The main Proposed Project staging area would accommodate employee parking, delivery trucks, construction equipment, office trailer, and other activities. Ingress and egress to the site would be located at each laydown area along Helendale Road and Colusa Road.

Delivery Traffic

Routes for trucks hauling materials and construction equipment would primarily follow the Highway 395 corridor to Colusa Road, allowing for safe travel by larger container trucks and wide-load trucks carrying heavy equipment. Material delivery would include all components of the substation, control building, fencing, PV modules, support piles, tracker components, inverters, and additional miscellaneous items. Material deliveries would originate at manufacturing sources within California and neighboring states, and from shipping ports along California's coast. Some specialty equipment may be sourced throughout the country and possibly Canada or Mexico and would be delivered to the site overland via truck or rail. It is anticipated that material deliveries would occur via Interstate 15, U.S. Highway 395, and surface streets.

Material deliveries would be on-going throughout construction. Much of the heavy construction equipment would arrive to the site early and stay for the duration of construction. Table 2-4 describes the delivery truck type for each Proposed Project component. Table 2-5 describes the projected number and length of daily truck deliveries. Table 2-6 describes the daily and average traffic trips during construction for each Proposed Project component that would require transport to or from the project site.

Table 2-4. Delivery Truck Type by Project Component

Project Component	Truck Type
Solar panels	Standard width, 53' van/container
Inverters	Standard width, 48' flatbed /lowboy trailer
Steel mounts	Standard width, 48' flatbed trailer
Gen-Tie and Service Line poles	Standard width, 48' flatbed trailer/oversize
Substation steel	Standard width, 48' flatbed trailer

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Project Component	Truck Type
Substation circuit breakers	Standard width, 48' flatbed trailer
Substation transformers	48' lowboy trailer with pilot cars
Auxiliary substation equipment	Standard width 48' flatbed trailer
Crane (35-ton)	48' lowboy trailer with pilot cars
Crane (60- to 100-ton)	Wide-load self-propelled trucks with 2 jib companion flat beds
Ready-mix concrete	Concrete mixer

Table 2-5. Projected Number and Length of Daily Truck Deliveries

Description and Purpose (Miles)	Approximate Distance (Miles)	One-Way Trips Per Day (Trips)
Material Delivery	40-500	30
Worker Vehicle	10-60	310-400

Table 2-6. Construction Traffic Specifications

Traffic Type	Total One-Way During Construction	Average Daily One-Way Construction	Remote ≥ 40 miles
Water trucks, dust control	16,500	47	Local
Concrete raw material	495	1.5	Local
PV panel delivery	2,063	6	Remote
Substation equipment	300	1	Remote
Electrical materials	825	2.5	Remote
Total During Construction	20,183	58	—

Onsite Vehicle Movement During Installation

Vehicles Entering and Traversing the Site. During construction, traffic would enter the site at the specified areas access along Helendale Road and Colusa Road. Table 2-7 describes construction vehicles and equipment that would generate emissions.

Table 2-7. Construction Vehicles and Equipment

Vehicle Traffic Use	Vehicle Type	Max Weight (lbs)	Max Power (hp)	Tread Type	Frequency of Use (hrs/day)	Quantity Onsite
On-road equipment (grading & travel on main roads)	Scraper	77,800	313	Dual Axle	8	1
	Grader	30,000	174	Dual Axle	6	1
	Dozer	44,582	357	Tractor	6	1
	Backhoe loader	13,046	108	Dual Axle	8	1

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High Desert Solar Project**

Vehicle Traffic Use	Vehicle Type	Max Weight (lbs)	Max Power (hp)	Tread Type	Frequency of Use (hrs/day)	Quantity Onsite
	Roller	27,340	95	Dual Axle	8	1
	4,000-gallon water truck	55,000	189	Triple Axle	8	3
Off-road equipment (between PV power blocks and for panel installation)	Excavator	36,000	168	Tractor	8	4
	Roller	27,340	95	Dual Axle	8	1
	Backhoe loader	13,046	108	Tractor	8	1
	Trencher	5,500	63	Dual Axle	8	1
	Pile driver	55,000	291	Track	8	4
	Crane	28,800	399	Dual Axle	8	1
	Forklifts	20,000	93	Dual Axle	8	4
	Generators	n/a	549	n/a	8	3
	Multiple Grader	30,000	174	Dual Axle	6	1
	Plate compactor	n/a	8	Pad	8	2
	Pickup trucks	10,000	250	Dual Axle	16-24	8
	Welders	n/a	45	n/a	8	2

Solar Field Installation. Vehicles needed for installation of solar field components would travel on both permanent and temporary maintenance roads of compacted native soil. These vehicles would include buggies, pickup trucks, bobtail flatbed trucks, pile-driver rigs, fork-lifts, water trucks, and cranes for lifting inverters onto piers/foundations.

Drainage Crossings within the Project Area

Roads that require a drainage crossing would be engineered to the specifications that allow for the weight of vehicles to cross without causing destabilization in the drainage areas and riprap would be placed on the downstream side of the road to minimize erosion. Drainage crossings would be kept to a minimum.

2.7 Project Operations and Maintenance

The entire Proposed Project is expected to be operational in late 2020 or early 2021 and would require an estimated three to five permanent employees. The Proposed Project is expected to be in operation for at least 25 to 35 years.

2.7.1 Operations

Operations Personnel. The Proposed Project would outsource the Control Room Operations (CRO) to a third party to locate the facilities and personnel necessary to monitor and operate the Proposed Project.

The Proposed Project would be operated according to the requirements of the party or parties that contract for the output of the solar facility and the BESS, independent from the operations of the existing HDPP. The full-time staff of the Proposed Project is expected to consist of one electrical engineer to plan and coordinate operations and maintenance (O&M) activities, and two to three instrumentation and controls technicians to perform maintenance and troubleshooting/repair activities. Periodic module cleaning would be contracted to a specialty contractor as well as any high voltage work in the High Desert Solar substation. The operations staff would consist of approximately three to five persons.

The current plan is for the Proposed Project to operate seven days per week to produce electricity during daylight hours and using the BESS to keep sending energy to the grid during peak demand time after daylight hours. Operational activities would consist of monitoring system operational status, performance, and diagnostics from the solar facility control console. System production forecasting and scheduling with SCE and CAISO will be implemented as directed by the party or parties receiving the output of the solar project and the BESS, along with operational planning and required reporting for all federal and state agencies. Operations activities would include meter reading and production reporting by the monitoring system/SCADA, production analytics, troubleshooting, along with updating O&M manuals and periodic predictive maintenance (PM) activities.

Security. The Solar Field Area would be fenced to prevent public access to ensure public safety and protect equipment from theft and vandalism. Gates would be installed at all site access roads. The Applicant would provide maintenance personnel capable of responding to any upset conditions or other emergencies. The Proposed Project would be equipped with security measures appropriate for the site conditions, such as day/night closed-circuit security cameras monitored in the HDPP control room.

2.7.2 Maintenance

Once construction is complete and the site is operational, all traffic would enter the site at the main site access along Colusa Road. Access to the facility would be restricted to O&M staff, authorized contractors, and security personnel only. The O&M staff would use light-duty vehicles and all-terrain vehicles for traversing the site along on-site access roads.

Preventative Maintenance. The solar PV field would be inspected quarterly for degrading wires, modules, and combiner boxes. The SCADA/monitoring system would also identify underperforming system components. These components would be inspected and repaired as required. Industry standard measures, like forward-looking infrared imaging (FLIR), would also be used to detect hot spots in the solar field and point out electrical issues not visible to operators. There would also be preventative maintenance on the substation equipment (e.g., transformers, breakers, inverters, and batteries).

Routine Maintenance. Damaged or underperforming PV modules and mechanical fasteners would be replaced as required. Under-performing inverters would be repaired or replaced as required. Inverters are generally guaranteed by their manufacturers for ten years; however, inverters are expected to be operational for a longer duration.

Module cleaning. To optimize performance of the Proposed Project, the PV modules surfaces are expected to be cleaned annually during the dry season. Performance monitoring may prompt more

frequent module cleaning in case of adverse atmospheric events such as dust storms or other conditions that may increase soiling. The module cleaning would be performed by an outside specialty contractor. Cleaning crews would traverse the site in small all-terrain vehicles, or light pickup trucks which would be fitted with a water tank and pump to operate a high-pressure sprayer.

Lighting. During construction, localized, portable lighting (light plants) would be used when work has to be done at night. Lighting would be powered by portable generators. During operation, constant low-level lighting may be required at the solar substation per safety requirements. This would include a single lamp source near the entrance and at the control building, which would be activated by a timer and/or photocell. All lighting would include a power switch to conserve energy when the lighting is not required. All lighting would point downward and be shielded to preserve dark skies and would adhere to the City of Victorville's Lighting Ordinance. For any maintenance work done at night a temporary work light would be used.

2.8 Regulatory Requirements, Permits, and Approvals

The following approvals and regulatory permits would be required for implementation of the Proposed Project:

- Site Plan and Conditional Use Permit from the City of Victorville;
- Encroachment Permit from the cities of Victorville and Adelanto and the County of San Bernardino for use of Colusa Road for construction access;
- U.S. Army Corps of Engineers (USACE) – Clean Water Act Section 404 Permit;
- Regional Water Quality Control Board (RWQCB), Lahontan Region – Clean Water Act Section 401 Permit and National Pollutant Discharge Elimination System's (NPDES) California General Permit for Storm Water Discharges Associated with Construction Activity;
- Section 1600 Streambed Alteration Agreement with CDFW;
- Section 2081 Incidental Take Permit with CDFW;
- Incidental Take Permit under Section 7 with USFWS;
- Incidental Take Permit under Section 10 with USFWS; and
- Federal Aviation Administration (FAA) Form 7460-1 Notice of Proposed Construction or Alteration.

2.9 Consultation With California Native American Tribe(s)

The following California Native American tribes traditionally and culturally affiliated with the project area have been notified of the Proposed Project:

- Morongo Band of Mission Indians;

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

- Cabazon Band of Mission Indians;
- San Manuel Band of Mission Indians; and
- Twenty-Nine Palms Band of Mission Indians.

The San Manuel Band of Mission Indians and the Twenty-Nine Palms Band of Mission Indians have requested consultation pursuant to Public Resources Code section 21080.3.1. A summary of the consultation process is provided in Section 4.18 of this Initial Study.

SECTION 3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

Determination

On the basis of this initial evaluation:


I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. ☐

I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. ☒

I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. ☐

I find that the Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. ☐

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

 FOR
Michael Szarzynski
Senior Planner

5/22/19
Date

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SECTION 4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

Regional Setting

The Proposed Project would be located in the City of Victorville located in southwestern San Bernardino County. The City of Victorville is located in a geographic sub-region of the southwestern Mojave Desert known as the Victor Valley and commonly referred to as the "High Desert". The City of Victorville is bound by the City of Adelanto to the west, unincorporated San Bernardino County areas to the north and east, the Town of Apple Valley to the east, and the City of Hesperia to the south.

The project site is located in the northern portion of the City of Victorville; this area is characterized by undeveloped land with a few prominent existing land uses, which include the SCLA and the VVWRA facilities. The undeveloped land in the project area is characterized by desert scrub habitat (creosote) with generally flat topography. Moderate slopes are also present near the Mojave River, which is located approximately 0.5 mile to the east of the project site. Major transportation facilities in the project area include Interstates 15 (I-15) located approximately five miles south of the project site and U.S. Highway 395 located approximately three miles west of the project site and National Trails Highway (Route 66) located approximately 1.5 mile east of the project site on the eastern side of the Mojave River.

State Scenic Highways

The California Scenic Highway Program protects and enhances the scenic beauty of California's highways and adjacent corridors. A highway can be designated as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view (Caltrans 2018). There are no state scenic highways in the vicinity of the project site.

Visual Character of the Project Site

The Proposed Project is composed of a Solar Field Area (solar PV field, BESS, substation, and balance of system), Interconnection Facilities (230kV Gen-Tie line and a 12.47kV Service Line), and the approximately 8-acre Gen-Tie Laydown Area. The location of all of the Proposed Project's components make up the project site.

The Solar Field Area contains several previously disturbed areas consisting of old, abandoned structures and concrete foundations, illegal dumping sites, and large areas of undeveloped land composed of desert scrub habitat. The project site is crisscrossed by multiple local unpaved roadways.

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High Desert Solar Project**

4.1.2 Aesthetics (I) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

For the purpose of determining significance under CEQA, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Scenic vistas can be officially designated by public agencies, or informally designated by the public. A substantial adverse effect to a scenic vista is one that degrades the view of the scenic vista from a public viewpoint.

As previously discussed, the Proposed Project would be located in the City of Victorville, which is located in a geographic sub-region of the southwestern Mojave Desert known as the Victor Valley and commonly referred to as the "High Desert". Victor Valley is separated from other urbanized areas in Southern California by the San Bernardino and San Gabriel Mountains. Surrounding areas of high aesthetic sensitivity that provide southerly vistas to the City of Victorville (but not located within the City) are the San Bernardino and San Gabriel Mountain ranges located approximately ten miles to the south. Quartzite Mountain, located northeast of the City, provides scenic vistas to the northern areas of the City of Victorville. Other areas of high visual sensitivity within/adjacent to the City include the Mojave River, the rocky bluffs of the Mojave River Narrows, and the Mojave Narrows Regional Park. The Mojave River is located approximately 0.5 mile east of the project site. The Mojave River Narrows and Mojave Narrows Regional Park are located approximately 3 and 6 miles, respectively, to the southeast of the project site and are not directly visible from the project site.

There are several industrial land uses in the vicinity of the project site including VVWRA, SCLA, and HDPP. Beyond the Mojave River to the east there is a cement facility (CalPortland) which also includes mining operations. All of these facilities are located less than two miles to the west, south, and east of the Solar Field Area and less than one mile from the Interconnection Facilities.

Solar Field Area

Public views of the San Bernardino and San Gabriel Mountain ranges near the Solar Field Area are available to the public travelling on adjacent roadways including Helendale Road and Colusa Road. Public views of the San Bernardino and San Gabriel Mountain ranges would not be affected by the Proposed Project because they are located in an opposite direction from the Solar Field Area.

Public views of Quartzite Mountain and the Mojave River near the Solar Field Area are available to the public traveling on adjacent roadways including Helendale Road and Colusa Road. It should be noted that due to topography only portion of the Mojave River (riparian vegetation) is within the viewshed available from public viewpoints west of the Solar Field Area. Public viewpoints from Helendale Road and Colusa Road would change with the construction of the Proposed Project. Foreground and middle ground views of the Solar Field Area would be visible. This would include views of built elements including the solar array and project site fencing. However, scenic background vistas of Quartzite Mountain and the Mojave

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High Desert Solar Project**

River would continue to be visible from public viewpoints. The introduction of built elements into the project area is not anticipated to contrast with existing industrial uses in the project area, which include the SCLA, VVWRA, and CalPortland cement plant. As such, impacts to scenic vistas from the Solar Field Area are anticipated to be less than significant.

Interconnection Facilities

The Interconnection Facilities are located in areas where public roadways and public areas are limited due to private property and industrial operations (SCLA, VVWRA). As such, the availability of public views of scenic vistas from a close proximity to the Interconnection Facilities is limited to a few roadways. Public views of scenic resources including the San Bernardino and San Gabriel Mountains, Quartzite Mountain, and the Mojave River near the Interconnection Facilities are available to the public traveling on Perimeter Road near the HDPP and Shay Road near the VVWRA. These scenic resources provide distant background views. The tallest structures that would be constructed as part of the Interconnection Facilities would be the tubular steel poles (TSPs) of the Gen-Tie line. TSPs would be 130 feet tall placed approximately 800 feet to 900 feet apart along the Gen-Tie route. TSPs would not create obstructions to vistas of scenic resources because each structure is composed of one pole and due to their spacing their visual footprint is low reducing their ability to obstruct or degrade the expansive views of the San Bernardino and San Gabriel Mountains, Quartzite Mountain, and the Mojave River. As such, a less than significant impact to scenic vistas from the construction of the Interconnection Facilities would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project is not located adjacent to a state scenic highway (Caltrans 2018). No impacts would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The existing visual character of the Solar Field Area can be described as disturbed areas containing old, abandoned structures and concrete foundations, illegal dumping sites, unpaved roadways, and large areas of undeveloped land composed of desert scrub habitat. The existing visual character of the corridors for the Interconnection Facilities can be described as developed areas with water reclamation ponds, disturbed areas consisting of unpaved roads, monitoring wells, and undeveloped land characterized by desert scrub vegetation.

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High Desert Solar Project**

Development of the Proposed Project would change the undeveloped and disturbed nature of the project site by adding built elements including a solar PV field, BESS, substation, balance of system, and Gen-Tie and Service Line. The addition of these built structures would change the existing visual character of the site and its surroundings. However, the proposed facilities would be located in an area with other prominent industrial uses including the SCLA and the VVWRA. The development of the project site into an industrial use (solar PV power generating facility) would be compatible with existing land uses in the area. Furthermore, the Proposed Project would be consistent with the planned uses for the area as guided by the SCLA Specific Plan (SP1-92). Impacts would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Lighting Impacts

During construction, localized, portable lighting (light plants) would be used when work has to be done at night. Lighting would be powered by portable generators. During operation, constant low-level lighting may be required at the solar substation per safety requirements. This would include a single lamp source near the entrance and at the control building, which would be activated by a timer and/or photocell. There would be no lighting within the solar arrays or around the perimeter fence. All lighting would include a power switch to conserve energy when the lighting is not required. All lighting would point downward and be shielded to preserve dark skies and would adhere to the City of Victorville's Lighting Ordinance. For any maintenance work done at night a temporary work light would be used. Lighting impacts would be less than significant.

Potential Glare Impacts

Glare from the solar PV modules is not anticipated because a solar PV panel by its purpose is designed to absorb light and not reflect it. Recent improvements in PV technology have led to even greater light absorption efficiency through the use of non-reflective coatings applied directly to solar cells that allow the cells to absorb light from virtually the entire solar spectrum. The intent of solar technology is to increase the efficiency by absorbing as much light as possible which further reduces reflection and glare. Most solar glass sheets (the glass layer that covers the PV panels) are typically tempered glass that is treated with an anti-reflective or diffusion coating that further diffuses (scatters) the intensity of glare produced. This type of diffused glare loses intensity as the distance from the reflection source increases. As such, the proposed solar PV field is not expected to generate substantial glare.

Glare impacts could also potentially occur from the Proposed Project's other built components including: the single axis tracker system; electrical inverters and transformers; BESS; on-site electrical substation; meteorological stations; security fencing and desert tortoise exclusion fencing; and Gen-Tie line

structures. The previous components would either be finished with paint exhibiting low glare properties or be made of materials with dull finishes (e.g., galvanized steel with a dulled finish).

For the reasons stated above the reflection of light and glare from project components is not anticipated to adversely affect day or nighttime views in the area. Impacts would be less than significant.

Even though substantial glare from the solar panels is not expected, the solar panels would still polarize light which could create the appearance of a lake from the air; this phenomenon is referred to as the lake effect. Researchers hypothesize that birds may mistake these reflective surfaces for bodies of water and may result in collisions that could cause blunt force trauma which could kill or severely injure individual birds and raptors. Fortunately, recent studies have demonstrated that avian collisions with manmade structures can be reduced substantially with the implementation of certain best management practices (BMPs) and installation of mechanisms that discourage bird use. Mortality or injury of individual birds and raptors as a result of the Proposed Project may be a significant impact. Prior to the start of construction activities, a Nesting Bird Management and Bird Protection Plan would be prepared that includes details on implementing anti-perching devices and avian visual deterrents, trash abatement, and using emerging technologies such as antireflective film overlays on the panels and/or chemosensory and sonic deterrents. Implementation of **Mitigation Measure BIO-8**, included in Section 4.4 Biological Resources of this Initial Study, would reduce potential impacts from attracting birds to the project area to a less than significant level.

Another potential issue with the lake effect is the attraction of birds and the potential for bird/plane collisions. According to the SCLA Comprehensive Land Use Plan (CLUP) land uses that attract birds (e.g. golf courses with water hazards, drainage detention and retention basins) should be kept at least 10,000 feet away from the runways at SCLA to prevent attracting birds. Project features that could be considered a bird attractant, as defined by the CLUP, include the solar panels (lake effect) and retention basins. The discussion above regarding the preparation of a Nesting Bird Management and Bird Protection Plan addresses the lake effect created by the solar panels acting as a bird attractant. With the implementation of **Mitigation Measure BIO-8**, bird deterrents would be included in the Proposed Project to minimize the attraction of birds thereby reducing the possibility of bird/plane collisions.

The Proposed Project would include four retention basins throughout the Solar Field Area (Burns & McDonnell 2019a). The closest retention basin to an SCLA runway would be located approximately 5,600 feet away. Retention basins on the project site would be mostly dry year-round except during and immediately after storm events. The VVWRA ponds, located approximately 7,500 feet to the east, have a water presence year-round and would be more attractive to a bird than the Proposed Project's retention basins. As such, it is not anticipated that the Proposed Project's retention basins would substantially increase the attraction of birds in the project area. Furthermore, bird deterrents as included in **Mitigation Measure BIO-8** would further minimize the potential attraction of birds to the project area. Impacts would be less than significant.

Glare generated by the Proposed Project could pose a potential hazard to pilots. The effect of transient glare from a solar panel can produce a sudden increase, or flash of light. Sudden changes in the appearance or the presentation of new stimuli at a point within the visual field are known to capture

attention, including interrupting attention allocated to another task (FAA 2015). A particularly notable cue for the capture of visual attention is a sudden change in brightness within a point of the visual field (FAA 2015). The pulling of attention away from a primary task (such as flying) produces some level of distraction and introduces a secondary task (noting a source of glare). Flooding the cockpit of an aircraft with glare will likely decrease visibility for the pilot thereby making it more difficult to control the aircraft. The increased difficulty will likely be reflected by increased cognitive load as the pilot will now have to work a bit harder to maintain visual contact with the runway, instruments, and the management of their aircraft (FAA 2015). An evaluation of glare as a hazard to general aviation pilots conducted by the FAA concluded that the presence of glare was associated with the most impairment in the pilot's ability to see their instruments and to fly their airplane when the glare was straight ahead, as well as slightly to the side. The more forward the glare is and the longer the glare duration, the greater the impairment to the pilots' ability to see their instruments and to fly the aircraft (FAA 2015).

To determine the Proposed Project's potential to result in glare impacts on SCLA operations a glint and glare analysis was conducted (CAG 2019). The glint and glare analysis considered impacts on aircraft approaching to land on Runways 03/21 and 17/35. Since SCLA is a controlled airport, the analysis also considered potential impacts on air traffic control tower personnel (CAG 2019). The study concluded that there is no predicted glare from the solar array for aircraft making approaches to Runway 03/21 or 17/35. Furthermore, no glare was predicted for air traffic control personnel in the tower (CAG 2019). As such, glare impacts on SCLA air operations would be less than significant.

4.1.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures in addition to **Mitigation Measure BIO-8** are required.

4.2 Agriculture and Forestry Resources

4.2.1 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no areas classified as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance within the project site (California Department of Conservation 2017). No impact would occur.

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High Desert Solar Project**

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project is consistent with existing zoning for agricultural uses. The majority of the project site is zoned Specific Plan – SP1-92. A portion of the Gen-Tie corridor, near the VVWRA ponds, is located within an area zoned Exclusive Agricultural (AE) by the City of Victorville. The proposed uses are consistent with uses for these zones, and there are no existing agricultural operations within parcels zoned Exclusive Agricultural (AE) and encompassed within the Gen-Tie corridor. Furthermore, there are no parcels within the project site under a Williamson Act Contract. No impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The majority of the project site is zoned Specific Plan (SP) within an Industrial District (I). A portion of the project site is zoned Exclusive Agricultural (AE) (City of Victorville 2004 and 2008a). The Proposed Project is consistent with the City's land use and zoning designations. No impact to areas zoned forest land or timberland would occur.

Would the project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is not zoned for forest land, timberland, or timberland production (City of Victorville 2004 and 2008a). The project site is located on a vacant undeveloped and surrounded by areas with sparse industrial developments including the SCLA and VVWRA. The Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The California Department of Conservation has mapped the project site and surrounding areas as *Grazing Land* or *Urban and Built-Up Land* (California Department of Conservation 2017). The project site is not mapped as farmland or forest land. The project site is not currently being used for agriculture. As such, the Proposed Project would not result in the conversion of farmland to a non-agricultural use. No impact would occur.

4.2.2 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.3 Air Quality

An Air Quality and Greenhouse Gas Assessment report was prepared for the Proposed Project (ECORP 2018a; Appendix A). The results of the report are summarized in this section.

4.3.1 Environmental Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the Mojave Desert Air Basin (MDAB), which encompasses the project site, pursuant to the regulatory authority of the Mojave Desert Air Quality Management District (MDAQMD).

Mojave Desert Air Basin

The MDAB is comprised of four air districts, the Kern County Air Pollution Control District (APCD), the Antelope Valley AQMD, the MDAQMD, and the eastern portion of the South Coast AQMD. The Kern County APCD consists of the eastern portion of Kern County; the Antelope Valley AQMD consists of the northeastern portion of Los Angeles County; the MDAQMD includes San Bernardino County and the most eastern portion of Riverside County; and the portion of the South Coast AQMD includes the eastern part of Riverside County.

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada mountains to the north; air masses pushed onshore in southern California by differential heating

are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevadas in the north by the Tehachapi Pass (3,800 feet elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 feet). The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriels by the Cajon Pass (4,200 feet). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley). The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Geronio Pass (2,300 feet) between the San Bernardino and San Jacinto Mountains.

Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O₃), coarse particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂) are considered to be local pollutants because they tend to accumulate in the air locally. Particulate matter is also considered a local pollutant.

4.3.2 Air Quality (III) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

As previously mentioned, the project site is located within the MDAB, which is under the jurisdiction of the MDAQMD. The MDAQMD is required, pursuant to the federal Clean Air Act, to reduce emissions of criteria pollutants for which the air basin is nonattainment for Clean Air Act standards. In order to reduce such emissions, the MDAQMD adopts and enforces rules and regulations concerning sources of air pollution, issues permits for stationary sources of air pollution, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the federal Clean Air Act and Clean Air Act Amendments. The MDAQMD also assists CARB in preparing the State Implementation Plan by preparing Attainment Plans that demonstrate how the ambient air quality standards will be achieved. The Attainment Plans describe the rules that will be developed and other means by which the MDAQMD will manage the emissions within its jurisdiction.

A project is conforming with the MDAQMD Attainment Plans if it complies with all applicable district rules and regulations and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). A project is nonconforming if it conflicts with or delays implementation of any

applicable attainment or maintenance 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 would 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).

The project site is located within the SCLA Specific Plan, which allows for "Power or Power Generating Plant" with a CUP. The 230kV Gen-Tie would traverse through areas zoned, "Exclusive Agricultural". Power lines of 100kV or more are a permitted use with a CUP in the Exclusive Agricultural for the Gen-Tie per the City's Development Code. The Proposed Project and its components are consistent with the City's land use ordinances. In addition, there would be no increase in population as a result of the Proposed Project. Therefore, the Proposed Project would not exceed the population or job growth projections used by the MDAQMD to develop its air quality attainment plans.

Furthermore, the operation of the Proposed Project would create renewable energy over its planned lifetime and decrease the need for energy from fossil fuel-based power plants in the state, which is considered a beneficial impact to statewide air quality. The energy produced by the Proposed Project would displace the criteria pollutant emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas and coal). The Proposed Project would generate a maximum of 108 MW of electricity at any one time, or approximately 316,700.3 megawatt-hours of electricity each year.¹

Table 4.3-1 shows the emissions that would be *displaced* by the Proposed Project. Note that this estimate only includes displacement that is associated with the combustion of fossil fuels for power generation; it does not include the vehicle trips associated with the Proposed Project's operations, and it similarly does not include operational employee trips associated with natural gas or coal combustion nor the emissions associated with extracting and transporting those power sources. In addition, this estimate only includes the displacement of that portion of the California market that comes from fossil fuels and does not include the approximate 45 percent of the California electricity generated by non-combustion sources (wind, solar, nuclear, hydro-electric) (CEC 2017). Displacement of fossil fuel emissions has a direct beneficial effect on human health for those receptors downwind of the location of the fossil fuel power plants.

Table 4.3-1. Proposed Project Displaced Criteria Pollutant Emissions (Tons)

	Emissions (Tons)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Emissions Displaced Annually (tons)						
Displaced Natural Gas-Source Emissions	0.0	7.0	2.1	4.8	6.7	2.7

¹ This calculation assumes the Proposed Project solar generating system is operating just under 25 percent of the time, for a total of 2,190 hours per year.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

	Emissions (Tons)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Displaced Coal-Source Emissions	0.0	83.2	3.5	3.9	0.6	0.4
Total	0.0	90.2	5.6	8.7	7.3	3.1
Emissions Displaced over 30 Years (tons)						
Displaced Natural Gas-Source Emissions	0	210	63	144	201	81
Displaced Coal-Source Emissions	0	2,496	105	117	18	12
Total	0	2,706	168	261	219	93

Source: Displaced emissions calculated by ECORP Consulting, Inc. using USEPA's AP-42 Fifth Edition Compilation of Air Emissions Factors 1995; 2015.

Notes: In order to provide a conservative analysis, the Proposed Project is assumed to generate electricity 25 percent of the time available (2,190 hours annually), which equates to a heat rate/efficiency of 10,000 British Thermal Units (BTU) per kilowatt hour. 108 megawatts (316,700,300 annual kilowatt hours) x 10,000 heat rate = 3,167,003 million BTU displaced from fossil fuel production. Fossil fuel-based energy consumption in California is predominately derived from natural gas (89.49%). Coal constitutes 10.13% of all fossil fuel-based energy consumption in California. Therefore, 2,834,151 million of the displaced BTU is displaced natural gas consumption and 332,852 million of the displaced BTU is displaced coal. The heat content of coal is assumed at 24 million BTU per ton of coal burned. At a rate of 24 million BTU per ton of coal burned, the project would displace 13,869 tons of burned coal annually.

As shown, the Proposed Project would potentially displace approximately 2,706 tons of NO_x, 168 tons of CO, 261 tons of SO₂, 219 tons of PM₁₀, and 93 tons of PM_{2.5} over the course of 30 years (the Proposed Project is expected to be in operation for at least 25 to 35 years). Furthermore, as demonstrated under question b) below, the Proposed Project would not exceed the applicable MDAQMD significance thresholds for construction or operational-source emissions.

The Proposed Project would be consistent with the emission-reduction goals of the MDAQMD Attainment Plans and there is no impact.

The City of Victorville adopted a community-wide climate action plan (CAP) in September 2015. Consistency with the Victorville CAP is discussed in the response to question b) of Section 4.8, Greenhouse Gas Emissions, of this Initial Study.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Construction Impacts

Construction-generated emissions are temporary and short term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Proposed Project: operation of the construction vehicles (i.e., excavators, earthmovers, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and construction worker commutes. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive particulate matter emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts.

Actual construction of the proposed facility is estimated to be completed over a 10- to 22-month period and would require a peak workforce of approximately 250 management, supervisory, and craft workers.

It is anticipated that there could be up to 500 one-way worker commutes per day during the peak of construction traveling between 10 and 60 miles. Temporary construction staging/laydown would include craft worker parking, office trailers, storage CONEX boxes, and equipment laydown areas. Temporary workspaces, likely located near the primary site entrance off Colusa Road, would be graded and graveled to mitigate fugitive dust and mud during rain events. As construction of the site is nearing completion, the temporary construction facilities would be removed and utilized as part of the solar field. The dry climate of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to MDAQMD Rule 403 (Fugitive Dust). The purpose of this rule is to prohibit visible dust beyond the property line of the emission source, require "every reasonable precaution" to minimize fugitive dust emissions, and prevent track-out of materials onto public roadways.

All materials for construction of the Proposed Project would be delivered to the site by trucks. It is anticipated that there could be up to 30 deliveries per day during the peak of construction traveling between 40 and 500 miles.

The MDAQMD's (2016) *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines* identifies both annual and daily construction significance thresholds for Reactive Organic Gasses (ROG), CO, and NO_x, SO₂, PM₁₀, and PM_{2.5}. Construction-generated ozone precursor emissions associated with the Proposed Project were calculated using CalEEMod. Predicted maximum annual and daily construction-generated emissions of criteria air pollutants for the Proposed Project are summarized in Table 4.3-2. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but may be considered a significant air quality impact if the volume of pollutants generated exceeds the MDAQMD's thresholds of significance.

Table 4.3-2. Construction-Related Emissions Before Mitigation (Regional Significance Analysis)

Construction Year	Maximum Pollutants					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Annual (Maximum Tons per Year)						
Grading & Road Construction - 2019	0.8	6.0	6.4	0.0	2.1	0.7

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Construction Year	Maximum Pollutants					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Grading, Road Construction & Facility Installation - 2020	3.0	23.3	21.6	0.1	4.8	1.8
Facility Installation - 2021	1.2	8.8	8.9	0.0	1.9	0.7
<i>MDAQMD Annual Significance Threshold</i>	25	25	100	25	15	12
Exceed MDAQMD Annual Threshold?	No	No	No	No	No	No
Daily (Maximum Pounds per Day)						
Grading & Road Construction - 2019	14.54	106.49	131.65	0.51	38.95	13.01
Grading & Road Construction - 2020	13.15	93.88	119.42	0.50	38.72	12.69
Facility Installation - 2020	24.49	186.32	187.48	0.72	36.53	14.07
Facility Installation - 2021	22.42	160.97	177.54	0.71	35.46	13.05
<i>MDAQMD Daily Significance Threshold</i>	137	137	548	137	82	65
Exceed MDAQMD Daily Threshold?	No	Yes	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs. **Bolded** values equal threshold exceedances.

Notes: Emission estimates account for the grading of 116 acres as well as the on-site movement of 354,335 cubic yards of soil. Specific construction equipment is derived from the Initial Study completed for the Proposed Project, as is the number of construction workers commute trips (500 daily) and delivery trips (60 one-way trips daily).

As shown in Table 4.3-2, emissions generated during facility installation would exceed the MDAQMD's daily threshold of significance for NO_x emissions. This would be considered a potentially significant impact and require mitigation to reduce emissions to a level below the established threshold. NO_x emissions are primarily associated with the use of diesel-powered construction equipment (e.g., graders, excavators, rubber-tired dozers, tractors, loaders, backhoes). The Clean Air Act of 1990 directed the USEPA to study, and regulate if warranted, the contribution of off-road internal combustion engines to urban air pollution. The first federal standards (Tier 1) for new off-road diesel engines were adopted in 1994 for engines over 50 horsepower and were phased in from 1996 to 2000. In 1996, a Statement of Principles pertaining to off-road diesel engines was signed between the USEPA, CARB, and engine makers (including Caterpillar, Cummins, Deere, Detroit Diesel, Deutz, Isuzu, Komatsu, Kubota, Mitsubishi, Navistar, New Holland, Wisconsin, and Yanmar). On August 27, 1998, the USEPA signed the final rule reflecting the provisions of the Statement of Principles. The 1998 regulation introduced Tier 1 standards for equipment under 50 horsepower and increasingly more stringent Tier 2, Tier 3, and Tier 4 standards for all equipment with phase-in schedules from 2000 to 2015. As a result, all off-road, diesel-fueled construction equipment manufactured from 2006 to 2015 has been manufactured to Tier 3 standards. The Tier 3 standards can reduce NO_x and PM emissions by as much as 64 and 39 percent, respectively. All off-road, diesel-fueled construction equipment manufactured in 2015 or later has been manufactured to Tier 4 standards. The Tier 4 standards require that emissions of PM and NO_x be further reduced by about 90 percent. By requiring the use of Tier 4 construction equipment during the facility installation phase of Proposed

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Project construction, **Mitigation Measure AQ-1** would reduce temporary NO_x emissions impacts generated during project construction to a less than significant level, as shown in Table 4.3-3.

Table 4.3-3. Construction-Related Emissions After Mitigation (Regional Significance Analysis)

Construction Year	Maximum Pollutants					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Annual (Maximum Tons per Year)						
Grading & Road Construction - 2019	0.8	6.0	6.4	0.0	2.1	0.7
Grading, Road Construction & Facility Installation - 2020	2.1	15.9	26.6	0.1	4.5	1.5
Facility Installation - 2021	0.8	6.1	11.3	0.0	1.8	0.6
<i>MDAQMD Annual Significance Threshold</i>	<i>25</i>	<i>25</i>	<i>100</i>	<i>25</i>	<i>15</i>	<i>12</i>
Exceed MDAQMD Annual Threshold?	No	No	No	No	No	No
Daily (Maximum Pounds per Day)						
Grading & Road Construction - 2019	14.54	106.49	131.65	0.51	38.95	13.01
Grading & Road Construction - 2020	13.15	93.88	119.42	0.50	38.72	12.69
Facility Installation - 2020	17.06	121.67	231.18	0.72	33.70	11.49
Facility Installation - 2021	15.89	110.52	222.54	0.71	33.21	11.02
<i>MDAQMD Daily Significance Threshold</i>	<i>137</i>	<i>137</i>	<i>548</i>	<i>137</i>	<i>82</i>	<i>65</i>
Exceed MDAQMD Daily Threshold?	No	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs. **Bolded** values equal threshold exceedences.

Notes: Emission estimates account for the grading of 116 acres as well as the on-site movement of 354,335 cubic yards of soil. Specific construction equipment is derived from the Initial Study completed for the Project, as is the number of construction workers commute trips (500 daily) and delivery trips (60 one-way trips daily).

As shown, with implementation of **Mitigation Measure AQ-1**, NO_x emissions would be reduced to a maximum daily emission rate below the MDAQMD threshold. As a result, criteria pollutant emissions generated during Proposed Project construction would not result in a violation of air quality standards and thus would be considered less than significant with the implementation of **Mitigation Measure AQ-1**.

Long-Term Operational Impacts

Implementation of the Proposed Project would result in a negligible amount of long-term operational emissions of criteria air pollutants. Project-generated increases in emissions would be predominantly associated with motor vehicle use for routine maintenance work.

The MDAQMD's (2016) *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines* identifies both annual and daily operational significance thresholds for ROG, CO, and NO_x, SO₂, PM₁₀, and

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

PM_{2.5}. Operational-generated criteria air pollutant emissions associated with the Proposed Project were calculated using CalEEMod. Predicted maximum annual and daily operational-generated emissions of criteria air pollutants for the Proposed Project are summarized in Table 4.3-4.

Table 4.3-4. Operational-Related Emissions (Regional Significance Analysis)

Construction Year	Maximum Pollutants (pounds per day)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Annual (Maximum Tons per Year)						
Area Source	2.7	0.0	0.0	0.0	0.0	0.0
Energy Use	0.0	0.0	0.0	0.0	0.0	0.0
Mobile Source	0.0	0.1	0.3	0.0	0.1	0.0
Total	2.7	0.1	0.3	0.0	0.1	0.0
<i>MDAQMD Annual Significance Threshold</i>	<i>25</i>	<i>25</i>	<i>100</i>	<i>25</i>	<i>15</i>	<i>12</i>
Exceed MDAQMD Annual Threshold?	No	No	No	No	No	No
Daily (Maximum Pounds per Day)						
Area Source	14.57	0.00	0.00	0.00	0.00	0.00
Energy Use	0.0	0.00	0.00	0.00	0.00	0.00
Mobile Source	0.09	0.69	2.02	0.00	0.57	0.15
Total	14.66	0.69	2.08	0.00	0.57	0.15
<i>MDAQMD Daily Significance Threshold</i>	<i>137</i>	<i>137</i>	<i>548</i>	<i>137</i>	<i>82</i>	<i>65</i>
Exceed MDAQMD Daily Threshold?	No	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.

Notes: Emission estimates account for more than 12 permanent employee trips daily.

As indicated in Table 4.3-4, operational-generated emissions would not exceed MDAQMD significance thresholds. Long term operational impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The cumulative setting for air quality includes San Bernardino County and the MDAB. The region is designated as a nonattainment area for the federal O₃ and PM₁₀ standards and is also a nonattainment area for the state standards for O₃, PM₁₀, and PM_{2.5} standards (CARB 2017). Cumulative growth in population, vehicle use, and industrial activity could inhibit efforts to improve regional air quality and

attain the ambient air quality standards. Thus, the setting for this cumulative analysis consists of the MDAB and associated growth and development anticipated in the air basin.

The MDAQMD's approach to assessing cumulative impacts is based on whether a project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations. In other words, the MDAQMD considers the impact of a project to be less than cumulatively considerable if it does not exceed significance thresholds under project-level conditions and does not conflict with the MDAQMD's air quality plans. As identified above in Table 4.3-3 and Table 4.3-4, the Proposed Project would not exceed MDAQMD construction or operational significance thresholds. Additionally, as previously described the Proposed Project would not conflict with any MDAQMD air quality plans. Thus, the Proposed Project would result in less than significant cumulative air quality impacts.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor is a single-family residence located approximately 4,100 feet west of the site (generally upwind from the site).

Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term project-generated emissions of diesel particulate matter (DPM) from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; and other miscellaneous activities. For construction activity, DPM is the primary toxic air contaminant (TAC) of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. Accordingly, DPM is the focus of this discussion.

Based on the emission modeling conducted the maximum construction-related emissions of exhaust PM_{2.5}, considered a surrogate for DPM, would be 3.63 pounds per day (see Appendix A) during construction activities (PM_{2.5} is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 micrometer in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., PM_{2.5}), according to CARB. Most PM_{2.5} derives from combustion, such as use of gasoline and diesel fuels by motor vehicles). Furthermore, even during the most intense month of construction,

emissions of DPM would be generated from different locations on the project site, rather than a single location, because different types of construction activities (e.g., site preparation, grading,) would not occur at the same place at the same time.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-, 30-, or 9-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the Proposed Project. Consequently, an important consideration is the fact that construction of the Proposed Project is anticipated to last between 10 and 22 months. Therefore, considering the relatively low mass of DPM emissions that would be generated during even the most intense season of construction, the relatively short duration of construction activities (approximately a year) required to develop the site, the highly dispersive properties of DPM, and the lack of nearby sensitive receptors, construction-related TAC emissions would not expose sensitive receptors to substantial amounts of air toxics.

Valley Fever

Coccidioidomycosis (CM), often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Valley fever (*Coccidioidomycosis*) is found in California, including San Bernardino County. In about 50 to 75 percent of people, valley fever causes either no symptoms or mild symptoms and those infected never seek medical care; when symptoms are more pronounced, they usually present as lung problems (cough, shortness of breath, sputum production, fever, and chest pains). The disease can progress to chronic or progressive lung disease and may even become disseminated to the skin, lining tissue of the brain (meninges), skeleton, and other body areas.

The California Department of Public Health (2014) considers San Bernardino County a moderately endemic area for valley fever. When soil containing this fungus is disturbed by ground-disturbing activities such as digging or grading, by vehicles raising dust, or by the wind, the fungal spores get into the air. When people breathe the spores into their lungs, they may get valley fever. Fungal spores are small particles that can grow and reproduce in the body. The highest infection period for valley fever occurs during the driest months in California, between June and November. Infection from valley fever during ground-disturbing activities can be partially mitigated through the control of Project-generated dust.

Project-generated dust would be controlled by adhering to MDAQMD dust-reducing measures (Rule 403), which requires "every reasonable precaution" to minimize fugitive dust emissions and prohibits greater than 100 micrograms per cubic meter $\mu\text{g}/\text{m}^3$ difference between upwind and downwind particulate concentrations. Dust suppression techniques include periodic watering of disturbed areas, maximum speed limits for all equipment traveling across dirt areas, and the minimization of clearing and grading to the maximum extent feasible. With minimal site grading and conformance with MDAQMD Rule 403, dust from the construction of the Proposed Project would not add significantly to the existing exposure level of people to this fungus, including construction workers.

Operational Air Contaminants

The Proposed Project involves the construction of a solar energy generation facility. The Proposed Project would not include the provision of new permanent stationary or mobile sources of emissions, and therefore, by its very nature, would not generate quantifiable air toxic emissions from Proposed Project operations.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the CO standard in California is a maximum of 3.4 grams per mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations across the state have steadily declined.

Accordingly, with the steadily decreasing CO emissions from vehicles, even very busy intersections do not result in exceedances of the CO standard. The analysis prepared for CO attainment in the SCAQMD 1992 *Federal Attainment Plan for Carbon Monoxide* (1992 CO Plan) in Los Angeles County can be used to demonstrate the potential for CO exceedances. The SCAQMD CO hot spot analysis was conducted for

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the level of service in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be level of service (LOS) E at peak morning traffic and LOS F at peak afternoon traffic (LOS E and F are the two least efficient traffic LOS ratings). Even with the inefficient LOS and volume of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992).

The Proposed Project would not increase traffic volumes at any intersection to more than 100,000 vehicles per day, there is no likelihood of the Proposed Project traffic exceeding CO values.

For the reasons described, the Proposed Project would result in less than significant impacts in terms of exposing sensitive receptors to substantial amounts of toxic air pollutant concentrations.

Would the Project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant

reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Construction

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and would rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would result in a less than significant impact related to odor emissions.

Operations

CARB's *Air Quality and Land Use Handbook* (2005) identifies the sources of the most common operational odor complaints received by local air districts. Typical sources include facilities such as sewage treatment plants, landfills, recycling facilities, petroleum refineries, and livestock operations. The Proposed Project does not contain any of the land uses identified as typically associated with emissions of objectionable odors. As such, a less than significant impact would occur.

4.3.3 Mitigation Measures

AQ-1: During solar facility installation activities all off-road mobile construction equipment such as rubber-tired dozers, graders, scrapers, excavators, and tractors shall be California Air Resources Board (CARB) Tier 4 Certified. On-site pick-up trucks used to traverse the construction site and equipment used for site grading, and road construction activities are exempted from this requirement.

4.4 Biological Resources

A Comprehensive Biological Technical Report (ECORP 2018b; Appendix B), a Biological Impact Analysis and Mitigation Report (ECORP 2019; Appendix C), and an Aquatic Resources Delineation Report (ECORP 2018c; Appendix D) were completed for the Proposed Project.

The previously listed biological studies included the following tasks:

- Literature review
- Biological reconnaissance survey
- Mohave ground squirrel (*Xerospermophilus mohavensis*) habitat assessment
- Focused, protocol-level surveys for special-status plant species (Spring 2017 and 2018)
- Special-status plant habitat assessment (Fall 2018)
- Protocol surveys for desert tortoise (*Gopherus agassizii*)
- Focused surveys for burrowing owl (*Athene cunicularia*) (Spring and Summer 2017 and 2018)

- Burrowing owl habitat assessment and burrow survey (Fall 2018)

The results of these studies are summarized in this section.

4.4.1 Environmental Setting

The project site consists of desert scrub vegetation communities typical of the Mojave Desert. The northern portion of the project site is surrounded by open land that consists primarily of Mojave creosote bush scrub and is bounded by Desert Flower Road along the northern border, undeveloped open land along the southern and eastern borders, and Helendale Road along most of the western border. The Mojave River is located less than one mile east of the Solar Field Area. The southern portion of the project site is also surrounded by open land consisting of Mojave creosote bush scrub with the VVWRA facility to the east, SCLA to the west, and multiple basins towards the south. Surrounding land uses consist of industrial developments, government land, residential developments, the VVWRA facility, the SCLA, and previously disturbed land. Large amounts of trash including debris from abandoned buildings (i.e., wood, concrete), furniture, toys, drink containers, and clothing are scattered throughout the Solar Field Area with the majority located in the northern half of the Solar Field Area.

Vegetation Communities

The project site supports several different vegetation communities with varying levels of disturbance. Vegetation communities and other land cover types observed throughout the project site were typical of those found in the Mojave Desert: desert scrub communities, desert wash communities (vegetated and unvegetated drainages), disturbed lands, and developed areas (industrial). Some portions of the project site are disturbed from unauthorized off-highway vehicle (OHV) use, trash dumping, and abandoned/dilapidated housing structures and remnant foundations.

Vegetation communities and land cover types identified during the biological reconnaissance survey included Mojave creosote bush scrub, which was the dominant vegetation community within the project site, desert saltbush scrub, Mojave Desert wash scrub, disturbed land, and urban/developed land. No special-status habitats or vegetation communities were observed within the project boundaries. Table 4.4-1 provides the acres of each vegetation community that was mapped during the biological reconnaissance survey.

Table 4.4-1. Vegetation Communities within the Project Site

Vegetation Community Name	Acreage Mapped within Project and Gen-Tie Alignment*
Mojave Creosote Bush Scrub	566.2
Mojave Creosote Bush Scrub (Disturbed)	3.7
Desert Saltbush Scrub	1.1
Mojave Desert Wash Scrub	0.3
Disturbed	41.6
Developed	4.9
TOTAL	617.8

*Note that these acreages do not represent exact impact acreages

Wildlife

Wildlife species observed or detected within the project site were characteristic of desert scrub and disturbed communities in the region. Common reptile species observed throughout the project site include zebra-tailed lizard (*Callisaurus draconoides*), side-blotched lizard (*Uta stansburiana*), long-nosed leopard lizard (*Gambelia wislizenii*), western whiptail (*Aspidoscelis tigris*), red racer (*Coluber flagellum piceus*), and gopher snake (*Pituophis melanoleucus*). Bird species that were commonly observed include common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), black-throated sparrow (*Amphispiza bilineata*), horned lark (*Eremophila alpestris*), cactus wren (*Campylorhynchus brunneicapillus*), and loggerhead shrike (*Lanius ludovicianus*). Common mammal species observed included white-tailed antelope squirrel (*Ammospermophilus leucurus*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), and coyote (*Canis latrans*). All wildlife species observed or detected in the project boundaries are listed in Appendix B (ECORP 2018b).

Special-Status Plants

Special-status plants were not identified within or in the vicinity of the project site during focused surveys conducted in 2006 within the area surveyed for the VV2 Project (a prior iteration of the Proposed Project proposed by the City). However, according to the CNDDDB, numerous special-status plant species have been recorded within five miles of the project site. Of all available records, a total of 10 species were identified as those with the potential for occurrence within the project site. Of the 10 special-status plant species identified during the literature search, three have a high potential to occur, two have a moderate potential to occur, and five have a low potential to occur in the project site (see Table 2 of Appendix B; ECORP 2018b).

Species with a high potential to occur include: short-joint beavertail cactus (*Opuntia basilaris* var. *brachyclada*); white pygmy-poppy (*Canbya candida*); and Beaver Dam breadroot (*Pedimelum castoreum*) (ECORP 2018b). Species with a moderate potential to occur in the project site include: Mojave monkeyflower (*Mimulus mohavensis*) and Mojave fishhook cactus (*Sclerocactus polyancistrus*) (ECORP 2018b).

Special-Status Wildlife

Several special-status wildlife species, including six desert tortoises and four burrowing owls, were identified within or in the vicinity of the project site during focused surveys conducted in 2006 within the area surveyed for the VV2 Project (a previous iteration of the Proposed Project). Trapping studies for Mohave ground squirrel were negative within the area surveyed for the VV2 Project in 2006. Additionally, according to the CNDDDB, numerous other special-status wildlife species observations were recorded within five miles of the project site. Of all available records, a total of eight species were identified as having potential for occurrence within the project site. Of the eight special-status wildlife species identified during the literature search, four were determined to be present, one has a high potential to occur, one has a moderate potential to occur, and two have a low potential to occur in the project boundaries (see Table 3 of Appendix B; ECORP 2018b).

Species determined to be present include: desert tortoise (*Gopherus agassizii*); burrowing owl (*Athene cunicularia*); loggerhead shrike (*Lanius ludovicianus*); and desert kit fox (*Vulpes macrotis arsipus*). Mohave ground squirrel (*Xerospermophilus mohavensis*; MGS) was determined to have a high potential to occur. Swainson's hawk (*Buteo swainsoni*) was determined to have a moderate potential to occur.

Wildlife Movement Corridors

The concept of habitat corridors addresses the linkage between large blocks of habitat that allow the safe movement of mammals and other wildlife species from one area of habitat to another. The definition of a corridor varies, but corridors include greenbelts, refuge systems, underpasses, and biogeographic land bridges, for example. In general, a corridor is described as a linear habitat, embedded in a dissimilar matrix, which connects two or more large blocks of habitat. Wildlife movement corridors are critical for the survival of ecological systems for several reasons. Corridors can connect water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides the potential for genetic exchange between wildlife populations, thereby maintaining genetic variability and adaptability to maximize the success of wildlife responses to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. Naturally, the extent of corridor use and wildlife movement patterns varies greatly among species.

The project site currently provides wildlife movement opportunities because it consists of open and relatively unimpeded land. However, it would not be considered a wildlife movement corridor that would need to be preserved to allow wildlife to move between important natural habitat areas due to the lack of conserved natural lands in the vicinity and the project site's proximity to industrial and residential areas. The project site is mostly surrounded by additional open unimpeded land, functioning as a single contiguous block of habitat rather than a corridor. The area within the project site is exposed and does not contain any major features that would be considered critical movement corridors for wildlife. Although the dirt roads and desert washes located within the project site are likely utilized by wildlife moving through the area, these features would not be considered necessary linkages between conserved natural habitat areas or critical for wildlife movement because of the nearby open space surrounding the project site. Existing development in the vicinity of the project site, the Mojave River located to the east, and presence of anthropogenic uses throughout the area (e.g., trash dumping, OHV use) further limit ability for wildlife to use the project for travel and regional movement.

Soils

According to the Web Soil Survey, six soil units, or types, have been mapped within the project site: Bryman Loamy Fine Sand, 0 to 2 percent slopes (105), Bryman Loamy Fine Sand, 2 to 5 percent slopes (106), Cajon Sand, 0 to 2 percent slopes (112), Cajon Sand, 2 to 9 percent slopes (113), Cajon Sand, 9 to 15 percent slopes (114), Haplargids – Calciorthids Complex, 15 to 50 percent slopes (130), and Mohave Variant Loamy Sand, 0 to 2 percent slopes (150) (ECORP 2018c).

Potential United States Army Corps of Engineers Jurisdiction

ECORP conducted an aquatic resources delineation within all of the project features (Solar Field Area, Interconnection Facilities, Gen-Tie Laydown Area, and adjacent areas; these areas are cumulatively considered as the Delineation Area (DA). The DA is larger than that encompassed by the Proposed Project footprint on purpose to show context for the drainages crossing project features. The DA is based on the requirements to construct the proposed solar array and Interconnection Facilities, as well as the long-term, permanent footprint of the facility.

A total of 0.431 acre of potential Waters of the U.S. was mapped within the DA, consisting of nearly 100 separate drainage features. No wetlands were identified within the DA (ECORP 2018c).

The Solar Field Area supports one natural feature that is considered a Water of the U.S. and corresponds with a mapped waterway in the National Wetland Inventory (NWI) data. A second mapped waterway in the NWI data crosses the solar array but no Waters of the U.S. were identified along its length. Instead an isolated ephemeral pond that is considered to only be CDFW jurisdictional was the only aquatic resource found in that location. There are other drainage features that were mapped within the Solar Field Area, but not considered to be Waters of the U.S. due to a lack of connection with the Mojave River.

In the Interconnection Facilities (Gen-Tie and Service Line), several Waters of the U.S. features were mapped. One Water of the U.S. feature mapped was associated with an unnamed waterway that connects directly with the Mojave River as depicted on the USGS 7.5-minute "Victorville" topographic quadrangle (USGS 2015) and on NWI mapping. The remaining Waters of the U.S. features identified, along the Gen-Tie and Service Line, were not located on any public record.

Within the proposed Gen-Tie Laydown Area, no Waters of the U.S. were mapped (ECORP 2018c).

Potential State Water Resources Control Board Jurisdiction

A total of 0.659 acre of CDFW jurisdiction is present within the DA consisting of ephemeral wash, vegetated streambed, ephemeral pond, and ditches, under California Fish and Game Code § 1600. This overlaps with the 0.391 acre mapped as Waters of the U.S. The vegetated streambed present was comprised of a sparse mix of common native shrubs including creosote bush and white bursage. Within the mapped features, there was one area in the largest wash that supported some western sycamore trees and mule fat in association with the streambed. These vegetation types would be considered to be jurisdictional to the CDFW, as mentioned below (ECORP 2018c).

Potential California Department of Fish and Wildlife Jurisdiction

Most of the waterways within the DA are considered to be single-thread channels, having little to no defined banks, but with a streambed defined by a sandy, dry bed that differs in texture from the surrounding landscape. Out-of-channel flow was not indicated in the field. It is unknown to what extent the sand deposits within most of these channels were due to sediment deposition during fluvial transport processes or due to Aeolian sand movements. Because the features were linear depressions, it is assumed that some level of stream activity is present within each feature.

Within the Solar Field Area, there was one such streambed and an additional isolated ephemeral pond. The streambed is localized along the eastern portion of the site, running for approximately 700 feet from the interior of the site to the eastern boundary. This feature was barely perceptible in the field except in terms of its overall topography being shaped into a linear gully. The ephemeral pond is located in the southern half of the Solar Field Area and supported a layer of alkali soils that may be semi-impervious. The pond was shallow, less than one foot in depth, and had a cracked soil surface similar to that of a desert playa when dry.

A total of 0.659 acre of CDFW jurisdiction is present within the DA, consisting of ephemeral wash, vegetated streambed, ephemeral pond and ditches under California Fish and Game Code Section 1600. This overlaps with the 0.391 acre mapped as Waters of the U.S. The vegetated streambed present was comprised of a sparse mix of common native shrubs, including creosote bush and white bursage. Within the mapped features, there was one area within the largest wash that supported western sycamore trees in association with the streambed.

Vegetated areas within a streambed are jurisdictional to the CDFW, where they are dependent on the stream's hydrology. Both the areas of western sycamore and of mule fat would be considered to be jurisdictional to the CDFW (ECORP 2018c).

4.4.2 Biological Resources (IV) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Development of the Proposed Project may result in direct and indirect impacts that may be either "permanent" or "temporary" in nature:

- **Temporary impacts (short-term):** impacts considered having reversible impacts to biological resources can be viewed as temporary. For the purposes of impact analyses, consultation with state and federal wildlife agencies, and compensatory mitigation calculations, temporary impacts to habitat/vegetation communities within the Mojave Desert would be treated as permanent impacts due to the extensive amount of time it takes for desert scrub communities to recover. The temporary and permanent impact acreages are identified separately to maintain consistency with the description of project activities.
- **Permanent impacts (long-term):** impacts that result in the irreversible removal of biological resources are considered permanent.

Examples of direct, permanent Proposed Project impacts include grading, clearing, disking, and paving, where a permanent change (land conversion) would occur. Direct, permanent project impacts to biological resources would result from the Solar Field Area, the Interconnection Facilities, and operations and maintenance (O&M) of the Proposed Project.

Special-Status Plant Species

Special-status plant species, including federally and state-listed species, were neither observed nor detected on or adjacent to the project site (Solar Field Area, Interconnection Facilities, Gen-Tie Laydown Area) during focused surveys. Therefore, no impacts to special-status plant species are expected (ECORP 2019).

Branched pencil cholla (*Cylindropuntia ramosissima*), silver cholla (*Cylindropuntia echinocarpa*), and beavertail cactus (*Opuntia basilaris* var. *basilaris*) were identified within the project site. Under certain circumstances, a harvesting permit from the Commissioner or the Sheriff of the county in which the native plants are growing under the Food and Agricultural Code Division 23: California Desert Native Plants Act may be required. However, the California Desert Native Plants Act provides that a landowner or agent of the landowner, upon 10 days' notice to the Commissioner, may clear or remove these plants from a building site or road, or other ROW, if the plants are not transported from the land or offered for sale (Food and Agricultural Code 80117(c)).

No impacts to special-status plant species or cactus species would occur.

Joshua Trees

The City of Victorville has a Joshua Tree (*Yucca brevifolia*) Ordinance that provides for the protection and preservation of Joshua trees in all areas of the City (Ordinance Number 1224; Municipal Code Chapter 13.33). Written consent from the City's Director of Parks and Recreation (or the Director's designee) is required prior to removal. An estimated total of 352 Joshua trees would likely have to be removed for the Proposed Project, and direct impacts to Joshua trees in the form of removal would be considered significant if not avoided or mitigated. In order to mitigate any potentially significant impacts, the Applicant would obtain written permission from the City's Director of Parks and Recreation prior to removal of the Joshua trees. Prior to seeking approval, a Joshua tree health assessment and final inventory would need to be conducted to document the size, location, and general health of all Joshua trees that may be affected by the Proposed Project. Implementation of **Mitigation Measure BIO-1** would reduce impacts to Joshua trees in the form of removal to a less than significant level.

Special-Status Wildlife

As previously stated the following special-status wildlife species are present on the project site: desert tortoise; Mohave ground squirrel; burrowing owl; and desert kit fox. Impacts to these special-status wildlife species are discussed below. Impacts are discussed as direct and indirect.

Desert Tortoise

Desert tortoises and their sign (i.e., burrows, scat, tracks, carcasses) were identified within and adjacent to the project site during surveys conducted in 2017 and 2018 (ECORP 2018b). Suitable habitat for desert

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

tortoise is present in the project area in the form of desert saltbush scrub, Mojave creosote bush scrub, Mojave creosote bush scrub (disturbed), and Mojave desert wash scrub; however, the quality of the habitat is considered low due to the presence of existing disturbances and development and the lack of continuity with higher quality habitat areas in the region (ECORP 2018b). Disturbed rabbitbrush scrub within the project site was determined to not be suitable for desert tortoise due to its extremely disturbed nature and because it is isolated from existing suitable habitat in the vicinity of the Proposed Project.

No designated critical habitat for desert tortoise is present within the project site (ECORP 2019). The Fremont-Kramer Desert Wildlife Management Area (DWMA) is the nearest designated Critical Habitat unit for desert tortoise and is located approximately three miles (4.8 kilometers) north. No permanent or temporary impacts would occur to desert tortoise Critical Habitat.

Direct Impacts

Direct impacts to desert tortoise may occur in the form of loss of occupied habitat, mortality, injury, and disease. These impacts are described in detail below.

Habitat Loss

Suitable desert tortoise habitat that would be permanently or temporarily affected by the project is used by desert tortoise for foraging, movement throughout the region, sheltering (burrow sites), and/or reproduction. Table 4.4-2 lists the acreage of desert tortoise habitat that would be permanently and temporarily affected by project activities.

Table 4.4-2 Desert Tortoise Habitat Impact Acreages

Project Component	Vegetation Community*	Permanent Impacts (Acres)	Temporary Impacts (Acres)	Total Acres
Solar Field Area				
	Mojave Creosote Bush Scrub	547.23	0.00	547.23
Interconnection Facilities (includes Gen-Tie Laydown Area)				
	Desert Saltbush Scrub	0.00	0.48	0.48
	Mojave Creosote Bush Scrub	0.02	9.58	9.60
	Mojave Creosote Bush Scrub (Disturbed)	0.01	4.12	4.13
	Mojave Desert Wash Scrub	0.00	0.09	0.09
	<i>Interconnection Facilities Subtotal</i>	<i>0.03</i>	<i>14.27</i>	<i>14.30</i>
Access Roads				
	Desert Saltbush Scrub	0.03	0.19	0.22
	Mojave Creosote Bush Scrub	1.99	2.86	4.85
	Mojave Creosote Bush Scrub (Disturbed)	0.18	0.97	1.15
	<i>Access Roads Subtotal</i>	<i>2.20</i>	<i>4.02</i>	<i>6.22</i>
Total		549.46	18.29	567.75

Permanent Impacts

Permanent impacts to occupied desert tortoise habitat would occur during construction of the Solar Field Area, installation of the power poles associated with the Interconnection Facilities, and construction of new spur roads to access the power poles where vegetation would be permanently removed from these areas. Direct, permanent impacts to desert tortoise in the form of loss of occupied habitat is a significant impact. However, the habitat present in the project site is of lower quality than in other areas throughout the desert tortoise's range and continuity with higher quality habitat in the region is constrained due to existing development and the Mojave River. With these factors in mind, discussions with the state and federal wildlife agencies have concluded that translocating desert tortoises present in the project site is preferable to reduce impacts to the desert tortoise, including impacts to the species relating to habitat loss. Implementation of **Mitigation Measures BIO-2 and BIO-3** would reduce these impacts to a less than significant level.

Permanent impacts in the form of habitat loss can also occur due to the presence of non-native and invasive plant species introduced into adjacent areas once the Proposed Project has been constructed. Seeds can be introduced to desert tortoise habitat by the entering and exiting of construction equipment contaminated by invasive species, the inclusion of invasive species in seed mixtures and mulch, and by the improper removal and disposal of invasive species. Project Design Features include developing a vegetation management and weed abatement program to control vegetation within work zones and access roads, and avoidance and minimization measures have been developed to guide the content of the Project Design Features. Impacts to desert tortoise in the form of disturbances from non-native and invasive plant species would be less than significant.

Temporary Impacts

Temporary impacts to occupied desert tortoise habitat would occur along the Interconnection Facilities and access roads due to assembly areas adjacent to each of the proposed new tower sites, wire stringing sites, and surface disturbance activities associated with access roads. Activities associated with the Interconnection Facilities and access roads may result in the crushing or trampling of vegetation by equipment, vehicles, and personnel. These impacts are considered temporary because the temporary impact areas would be stabilized with sediment erosion control measures and a one-time native seeding process after use. These areas are not planned for use during O&M activities. Direct, temporary impacts to desert tortoise in the form of loss of habitat is a significant impact; however, implementation of **Mitigation Measure BIO-2** would reduce these impacts to a less than significant level.

Mortality, Injury, and Disease

Desert tortoises encountered during clearance surveys and monitoring activities conducted prior to and during the construction of the Proposed Project would be permanently removed and translocated to an off-site location (recipient site). Direct and permanent impacts to desert tortoise may occur in the form of mortality, injury, and disease as a result of translocation activities. In order to offset these potentially significant impacts, a Desert Tortoise Translocation Plan would be developed in consultation with the state and federal wildlife agencies that contains specific methods and protocols to reduce or eliminate the

potential for impacts to desert tortoise. Implementation of **Mitigation Measure BIO-3** would reduce these impacts to a less than significant level.

Mortality and/or injury to desert tortoises is not expected to occur during the construction or O&M phase of the Proposed Project because desert tortoises encountered during clearance surveys and subsequent monitoring efforts would be permanently removed from the project site. Furthermore, Proposed Project measures implemented to exclude desert tortoises from the work areas would also facilitate avoidance of potentially significant impacts to desert tortoise in the form of mortality and/or injury. Prior to the start of construction, permanent desert tortoise fencing would be installed around the Solar Field Area and protocol-level clearance surveys for desert tortoise would occur again inside the exclusion fencing. Pre-construction desert tortoise clearance surveys would also be conducted in the Interconnection Facilities and access roads work areas. Following desert tortoise translocation activities, a biological monitor would be present during Proposed Project construction activities. Implementation of **Mitigation Measures BIO-3, BIO-4, and BIO-5** would reduce impacts related to desert tortoise mortality and injury to a less than significant level.

Although desert tortoise mortality and/or injury is not expected because of the aforementioned Project Design Features to exclude desert tortoises from the work area, there is potential for resident tortoises located in the vicinity of the project site to move into the newly unoccupied habitat surrounding the project site following the translocation activities. These tortoises would not have been detected during pre-project focused surveys conducted in 2017 and 2018 or during pre-construction surveys because they would be located outside the survey areas. Although possible, this is expected to be unlikely because of the low density of the regional desert tortoise population in the vicinity of the project site and the expanded effort to move all tortoises detected during clearance surveys and monitoring activities. Nevertheless, direct impacts in the form of mortality and/or injury may occur to nearby resident tortoises as a result of the Proposed Project. Mortality and/or injury to desert tortoises may occur during construction and O&M of the Interconnection Facilities and access roads. Newly created roads and increased traffic resulting from project construction would result in an increased potential for desert tortoise injury and/or mortality associated with vehicle travel and may improve the ability for some desert tortoise predators (such as coyotes) to secure prey by traveling along newly constructed roads.

Although safety and precautionary measures would be in place, there is an increased potential for accidental wildfire associated with construction and O&M of the Interconnection Facilities and access roads. Furthermore, maintenance of previously unused roads during construction and O&M in the area may allow the general public to gain access to areas that were inaccessible prior to the Proposed Project. Human actions associated with the general public's use of newly maintained roads can be possibly detrimental to desert tortoises in the form of illegal collection activities and collision with off-highway vehicle use. These temporary impacts could be significant and would occur during project construction and O&M phases of the Proposed Project. Adherence to the measures in the project permits regarding desert tortoise injury or mortality would reduce the likelihood of this impact occurring to desert tortoises. The Desert Tortoise Translocation Plan would outline appropriate measures to take if a desert tortoise is observed during O&M activities and a worker education program would be implemented to inform

workers on what to do if a desert tortoise is encountered. Implementation of **Mitigation Measures BIO-3, BIO-4, and BIO-5** would reduce these impacts to a less than significant level.

Mortality and/or injury of nearby resident desert tortoises during O&M of the Solar Field Area is not anticipated because the permanent desert tortoise fencing would remain in place and would be maintained to prevent desert tortoise entry into the Solar Field Area and any tortoises found during clearance and construction monitoring efforts would be translocated, including those along the Interconnection Facilities and access roads. Furthermore, desert tortoise grates at access gates to the Solar Field Area would also be installed to prevent tortoises from entering the site. No impacts to nearby resident tortoises are expected to occur during O&M of the Solar Field Area.

Introduction of disease to desert tortoises may occur as a result of the Proposed Project; however, it is expected to be a low possibility because all desert tortoises encountered during the clearance surveys and subsequent construction monitoring efforts would be translocated to the recipient site. There is potential for the Proposed Project to expose nearby resident desert tortoises to disease through the presence of pets (including captive tortoises) and unauthorized handling of desert tortoises. This is a potentially significant impact to nearby resident tortoises and may be a permanent impact to the local desert tortoise population. In order to reduce this possibility, pets (including captive tortoises) would not be allowed in the work areas during construction or O&M, so the possibility of introduction of disease, such as upper respiratory tract disease (URTD), would not affect nearby resident desert tortoises. Furthermore, project personnel would not be allowed to touch or handle desert tortoises that may wander in the vicinity of or on the site. These project-specific measures would be incorporated into the worker education awareness program. Implementation of **Mitigation Measures BIO-3, BIO-4, and BIO-5** would reduce impacts to tortoise in the form of disease to a less than significant level.

Predation

The Proposed Project may provide subsidies to predators (e.g., common raven, coyote, domestic dogs and cats). Trash and food waste, standing water, and perching and nesting substrates may be associated with the Proposed Project during construction and O&M and can draw predators to the project area or support local populations of these predators in the vicinity of the project site. Impacts resulting from predation are not expected to have a significant impact with the implementation of the Project Design Features (see Appendix C; ECORP 2019), which would reduce predator attraction to the site. In addition, the translocation of desert tortoises is expected to reduce the desert tortoise population in the area, thereby further reducing the impact of increased predation potential. Impacts from predation would be less than significant.

Indirect Impacts

Indirect impacts to desert tortoises are not expected because tortoises observed during pre-construction clearance surveys would be moved to a recipient site and would not be exposed to the potential indirect impacts associated with the Proposed Project. However, there is potential for nearby resident tortoises to move into the newly unoccupied areas following translocation. This section addresses the potential indirect impacts to nearby resident desert tortoises.

Noise and Ground Vibrations

Noise and ground vibrations from activities associated with the implementation of the Proposed Project has the potential to indirectly affect behavior of nearby resident tortoises. The use of large pieces of equipment with running engines, compaction equipment, and drilling has the potential to affect the natural behavior of the desert tortoise. Construction noise may also disrupt the communication and damage the auditory system in desert tortoises or mask the sounds of an approaching predator (ECORP 2019).

Construction-related vibrations resulting from the Proposed Project may temporarily displace a tortoise, prompt a desert tortoise to leave its burrow, and may affect courtship/breeding activities of desert tortoises located in the vicinity of the project site. Impacts to desert tortoise in the form of noise and ground vibrations are expected to be a temporary, indirect impacts that would occur only during construction and periodic maintenance of the Proposed Project. Furthermore, densities of desert tortoise in the areas surrounding the project site are low, meaning that few, if any, desert tortoises would be exposed to this impact. Permanent desert tortoise exclusion fencing would be established around the Solar Field Area and the area would be cleared for desert tortoise, thereby reducing the presence of tortoise and potential for indirect impacts. Additionally, any desert tortoises found in survey buffer areas and construction monitoring areas (where land access is granted) around the Proposed Project would be cleared and all desert tortoises found would be translocated per the Desert Tortoise Translocation Plan. This would further reduce the presence of desert tortoises and the potential for indirect impacts. Once the Solar Field has been constructed, noise and vibrations are not expected during the O&M phase. Potential noise and ground vibration impacts would not be considered significant because desert tortoises are not expected to be in the immediate project vicinity due to translocation activities and the low desert tortoise population density of the surrounding areas.

Increased Human Activity and Visual Disturbances

Increased human activity and visual disturbances would be associated with construction and O&M of the Proposed Project. A permanent increase in human activity and visual disturbances may affect desert tortoises located in habitat adjacent to the Proposed Project once it has been constructed. This increase in human activity and visual disturbances could affect desert tortoises by altering normal behavior. Over time, it is possible that nearby resident tortoises would become accustomed to the O&M activities. Impacts to desert tortoise due to human activity and visual disturbances would not be considered significant because desert tortoises are not expected to be in the immediate project vicinity due to translocation activities and the low population density of the surrounding areas.

Habitat Fragmentation and Degradation

The Proposed Project has the potential to fragment desert tortoise habitat, specifically to areas south of the Solar Field Area because of the narrow band of suitable habitat that would remain after construction of the Proposed Project. Beginning with the installation of the permanent tortoise fencing around the Solar Field Area prior to construction, there would be an approximate 3,000-foot corridor containing suitable tortoise habitat between the southwest corner of the Solar Field Area and the SCLA, separated by Helendale Road. On the east side of the Solar Field Area, there would be an approximate 2,000-foot

corridor containing suitable tortoise habitat between the Solar Field Area and the Mojave River. These corridors would present the only two areas where desert tortoises may live and travel between areas north or south of the Solar Field Area. Opportunities for east-west travel would be limited once the Proposed Project has been constructed.

Desert tortoise habitat fragmentation is not expected to affect translocated desert tortoises, but there is a low potential for resident tortoises located in the vicinity of the Proposed Project to move into the newly unoccupied habitat surrounding the project site. These nearby resident tortoises would not have been detected during pre-project focused surveys conducted in 2017 and 2018 or during pre-construction surveys or construction monitoring efforts because they would be located outside the survey areas. Although possible, this is expected to be unlikely because of the low density of the regional desert tortoise population and the low quality of the habitat surrounding the Proposed Project. Nevertheless, indirect impacts in the form of habitat fragmentation may occur to nearby resident tortoises as a result of the project and would be a permanent, significant impact. Implementation of **Mitigation Measures BIO-2 and BIO-3** would reduce impacts to tortoise to a less than significant level.

Degradation of habitat in the vicinity of the Proposed Project may also occur. Newly constructed roads and maintenance of previously unused roads in the area may allow the general public to gain access to areas that were inaccessible prior to the Proposed Project. Human actions associated with the general public's use of newly constructed and maintained roads can degrade the habitat in the vicinity of the Proposed Project through unauthorized trash dumping, off-highway vehicle use, introduction of nonnative plant species, and increased dust. These factors can degrade the habitat in the vicinity of the Proposed Project by reducing available forage plants, creating disturbances in areas that were previously undisturbed, and contributing to a general deterioration of the quality of the habitat. Habitat degradation in the areas outside of the project boundaries paired with the temporary and permanent loss of desert tortoise habitat could be a permanent and significant impact. The weed management program that would be implemented as part of a Project Design Feature would reduce or eliminate impacts to habitat degradation from nonnative plant species, and implementation of **Mitigation Measures BIO-2, BIO-3, and BIO-4** would reduce impacts to desert tortoise to a less than significant level.

Increased Dust

A temporary increase in fugitive dust from construction activities within the Proposed Project would likely occur. Dust may result in impacts to desert tortoise in the form of altered behavior by tortoises taking shelter or avoiding overly dusty conditions arising from the Proposed Project. Furthermore, increased dust has the potential to coat the leaves of forage plants and inhibiting growth or killing the plant, thus reducing the availability of forage for nearby resident desert tortoises. This impact would occur during construction and O&M; however, dust control measures incorporated into the project design and those required by the Mojave Desert Air Quality Management District would minimize dust related to Proposed Project activities; this impact is not expected to be significant to desert tortoise.

Lighting

Minimal lighting is proposed for the Proposed Project to accommodate nighttime project activities. Nighttime lighting is not expected to be an impact to desert tortoise because the animal is generally only

active during daylight hours when nighttime lighting would not be necessary. Impacts would be less than significant.

Mohave Ground Squirrel

Suitable habitat for the MGS is present in the project area and is composed of the same vegetation communities that provide suitable habitat for desert tortoise (i.e., desert saltbush scrub, Mojave creosote bush scrub, Mojave creosote bush scrub (disturbed), and Mojave desert wash scrub) (ECORP 2018b). The quality of the habitat is considered low due to the presence of existing disturbances and development and the lack of continuity with higher quality habitat areas in the region (ECORP 2018b). The Applicant has elected to assume presence of this state-listed species within all potentially suitable habitat affected by the Proposed Project.

Direct Impacts

Direct impacts to MGS habitat may occur in the form of loss of presumed occupied habitat, mortality, and injury. These impacts are described in more detail below.

Habitat Loss

Habitat that would be permanently or temporarily affected is considered suitable for MGS foraging, movement throughout the region, sheltering (burrow sites), and/or reproduction. Table 4.4-2, lists the acreage of each suitable vegetation type that would be permanently and temporarily affected by Proposed Project activities.

Permanent Impacts

Permanent impacts to MGS habitat are expected to be the same as those described for desert tortoise habitat. Implementation of **Mitigation Measure BIO-2** would reduce these impacts to a less than significant level.

Temporary Impacts

Temporary impacts to MGS habitat are expected to be the same as those described above for desert tortoise habitat. Implementation of **Mitigation Measure BIO-2** would reduce these impacts to a less than significant level.

Mortality and Injury

There is potential for construction-related injury or mortality to individual squirrels during the construction and O&M for all project components. Although the Solar Field Area would be fenced, the type of fencing that would be used (desert tortoise exclusion fencing) would not necessarily exclude MGS. Although it is unlikely, MGS have the ability to climb up and over the fence. Mortality by vehicle strikes and entombment in burrows during vegetation removal, grading, and maintenance activities may occur during the construction and operation of the Proposed Project. Newly created roads and increased traffic from the Proposed Project would result in an increased potential for MGS injury and/or mortality associated with vehicle travel. Although safety and precautionary measures would be in place, there is an increased potential for accidental wildfire associated with construction and O&M of the Interconnection

Facilities and access roads. Loss or injury of individual MGS could be significant to regional populations of MGS. Implementation of the avoidance and minimization measures in the Proposed Project's Section 2081 Incidental Take Permit (ITP) would reduce the potential for MGS mortality and injury. Biological monitoring and education of workers on MGS identification and ecology would further reduce the significance of these impacts. Implementation of **Mitigation Measures BIO-4 and BIO-5** would reduce these impacts to a less than significant level.

Indirect Impacts

Indirect impacts to MGS may occur during construction and O&M of all project components in the form of noise, ground vibrations, habitat degradation and fragmentation, increased human activity and visual disturbances, increased dust, and nighttime lighting. These indirect impacts are described in more detail below.

Noise and Ground Vibrations

Indirect impacts to MGS in the form of noise and ground vibrations are expected to be the same as those described for desert tortoise; however, these impacts to MGS may be significant because animals in the vicinity of the project area would not be translocated prior to construction activities. These impacts would be temporary, occurring during construction and periodic maintenance. MGS incidentally observed or aurally detected during clearance and pre-construction surveys for other special-status species would be documented, and conditions in project permits regarding incidental observations of MGS would be adhered to during project construction. Conditions pertaining to MGS may include temporarily stopping work activities and establishing a disturbance limit buffer around active burrows. Implementation of **Mitigation Measures BIO-4**, biological monitoring, and **BIO-5**, worker education program, would reduce these impacts to a less than significant level.

Habitat Fragmentation and Degradation

The Proposed Project has the potential to permanently fragment MGS habitat, as described in the desert tortoise section above. Habitat fragmentation could result in indirect impacts to MGS by affecting reproduction, population gene flow, and dispersal of young. MGS inhabiting areas that are separated by development are essentially cut off from one another and are unable to reproduce with the animals in other areas, thus disrupting gene flow in the local populations. Furthermore, dispersal of young may be affected in that juveniles have limited areas for dispersing, which also affects future reproductive activities and subsequent gene flow through local populations. Indirect impacts to MGS in the form of habitat fragmentation could be significant to location populations; however, implementation of **Mitigation Measure BIO-2** would reduce impacts to MGS to a less than significant level.

Degradation of habitat for MGS in the vicinity of the project area may also occur and is consistent with what was described for desert tortoise. Habitat degradation in the areas outside of the project boundaries paired with the temporary and permanent loss of MGS habitat as a result of the Proposed Project is considered a permanent and significant impact. Implementation of **Mitigation Measures BIO-2, BIO-4, and BIO-5** would reduce impacts to MGS to a less than significant level.

Increased Human Activity and Visual Disturbances

Increased human activity and visual disturbances would be associated with construction and O&M of all project components, and although the potential impacts are similar to those described for desert tortoise, the effects are different to MGS. A permanent increase in human activity and visual disturbances may affect MGS located in habitat adjacent to the project area once it has been constructed. This increase in human activity and visual disturbances may result in a temporary significant impact to MGS during construction activities by altering normal behavior and can lead to MGS leaving the areas in the vicinity of the project area for habitat with little to no human activity and visual disturbances. Over time and during O&M activities, it is likely that MGS would either become accustomed to the increased human activity and visual disturbances or animals would leave the area in search of less disturbed habitat, thus reducing the effects on MGS to a less than significant level. Conditions in the Section 2081 ITP that address incidental observations of MGS in the vicinity of work areas, which may include stopping work activities that may harm live MGS (if present), would be implemented and would reduce the effects of increased human activity and visual disturbances to MGS. A worker education program would also be implemented that would inform workers on the appropriate procedures to take should an MGS be encountered during project activities. Implementation of **Mitigation Measures BIO-4 and BIO-5**, biological monitoring and worker education training, respectively, would further reduce impacts to MGS during construction activities to a less than significant level.

Increased Dust

A temporary increase in fugitive dust from construction activities within the project area would likely occur. Impacts to MGS from fugitive dust are similar to those described for desert tortoise and these impacts are not expected to be significant to MGS.

Lighting

Minimal lighting is proposed for the project to accommodate nighttime project activities. Nighttime lighting is not expected to affect MGS because the animal is only active during the daylight hours when nighttime lighting would not be necessary. Impacts would be less than significant.

Burrowing Owl

Burrowing owls were not found to be occupying the project area during protocol breeding season surveys conducted in 2017 and 2018; however, a single adult burrowing owl individual was observed during a habitat assessment conducted in the southeastern portion of the Solar Field Area in October 2018 and was likely a migrating individual (ECORP 2018b). Although burrowing owls were not documented using the project area for breeding purposes in 2017 or 2018, the presence of multiple burrows with sign of previous burrowing owl use (i.e., occupied burrows) were documented throughout the project site and surrounding areas. Due to the presence of occupied burrows and the live individual observed, the project site is considered occupied by burrowing owl.

Suitable habitat for burrowing owl in the form of desert saltbush scrub, disturbed rabbitbrush scrub, Mojave creosote bush scrub, Mojave creosote bush scrub (disturbed), and Mojave desert wash scrub was

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

identified throughout the majority of the project boundaries. Areas that were classified as disturbed are also considered suitable habitat for burrowing owl.

Direct Impacts

Impacts to burrowing owl individuals are expected to be low due to the presumed low population density of burrowing owls in the vicinity of the project area based on the results of the focused surveys conducted in 2017 and 2018. Direct impacts to burrowing owl may occur in the form of habitat loss, mortality, and injury. These impacts are described in detail below.

Habitat Loss

Habitat that would be permanently or temporarily affected by the Proposed Project is considered suitable for burrowing owl foraging, migration, sheltering (burrow sites), and/or reproduction. Table 4.4-3 lists the acreage of burrowing owl habitat that would be permanently and temporarily affected by project activities.

Table 4.4-3. Burrowing Owl Habitat Impact Acreages

Project Component	Vegetation Community*	Permanent Impacts (Acres)	Temporary Impacts (Acres)	Total Acres
Solar Field Area				
	Mojave Creosote Bush Scrub	547.23	0.00	547.23
	Disturbed	33.64	0.00	33.64
	<i>Solar Field Area Subtotal</i>	<i>580.87</i>	<i>0.00</i>	<i>580.87</i>
Interconnection Facilities				
	Desert Saltbush Scrub	0.00	0.48	0.48
	Disturbed Rabbitbrush Scrub	0.00	0.03	0.03
	Mojave Creosote Bush Scrub	0.02	9.58	9.60
	Mojave Creosote Bush Scrub (Disturbed)	0.01	4.12	4.13
	Mojave Desert Wash Scrub	0.00	0.09	0.09
	Disturbed	0.01	15.69	15.70
	<i>Interconnection Facilities Subtotal</i>	<i>0.04</i>	<i>29.99</i>	<i>30.03</i>
Access Roads				
	Desert Saltbush Scrub	0.03	0.19	0.22
	Mojave Creosote Bush Scrub	1.99	2.86	4.85

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Project Component	Vegetation Community*	Permanent Impacts (Acres)	Temporary Impacts (Acres)	Total Acres
	Mojave Creosote Bush Scrub (Disturbed)	0.18	0.97	1.15
	Disturbed	0.30	2.76	3.06
	<i>Access Roads Subtotal</i>	<i>2.50</i>	<i>6.78</i>	<i>9.28</i>
Total		583.41	36.77	620.18

*The vegetation communities included in this table provide suitable habitat to burrowing owl. Subtotals and total acreages do not match Tables 4.4-1 and 4.4-2 because not all communities provide suitable habitat for this species.

Permanent Impacts

Permanent impacts to burrowing owl habitat are similar to those described for desert tortoise. Direct permanent impacts to burrowing owl in the form of loss of habitat is a potentially significant impact to burrowing owl. Burrowing owl occupy many of the same habitats as desert tortoise and MGS; therefore, implementation of **Mitigation Measure BIO-2** would reduce permanent habitat loss impacts to burrowing owl to a less than significant level.

Temporary Impacts

Temporary impacts to burrowing owl habitat are similar to those described for desert tortoise with the addition of acreage associated with the disturbed rabbitbrush scrub vegetation community. Direct temporary impacts to burrowing owl in the form of loss of habitat is a potentially significant impact. Implementation of **Mitigation Measure BIO-2** for desert tortoise and MGS would reduce temporary habitat loss impacts to burrowing owl to a less than significant level because these species occupy many of the same habitats.

Mortality and Injury

Impacts associated with mortality and injury to burrowing owls are similar to those described for MGS. Loss or injury of individual burrowing owls could be a significant impact to regional populations. Prior to the start of project activities, a Burrowing Owl Management Plan would be developed in consultation with CDFW that would include protection, avoidance, and minimization measures for burrowing owl. Implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-6** would reduce these impacts to a less than significant level.

Indirect Impacts

Although burrowing owls located within the Solar Field Area and within the disturbance areas of the Interconnection Facilities and access roads would be passively relocated and excluded from burrows in the project disturbance footprints, burrowing owls may remain in the vicinity of the Proposed Project. Therefore, indirect impacts to burrowing owl may occur during construction and O&M of all project components in the form of noise, ground vibrations, habitat degradation and fragmentation, increased human activity and visual disturbances, increased dust, and nighttime lighting.

Noise and Ground Vibrations

Indirect impacts to burrowing owl in the form of noise and ground vibrations, habitat degradation and fragmentation, and increased human activity and visual disturbances are expected to be the same as those described for MGS, above. A Burrowing Owl Management Plan would also be prepared and would have specific conditions pertaining to burrowing owls that would reduce project effects on burrowing owls, including, but not limited to, seasonal restrictions to work activities around burrows and disturbance limit buffers. Implementation of **Mitigation Measures BIO-2, BIO-4, BIO-5, and BIO-6** would reduce these impacts to a less than significant level.

Habitat Fragmentation and Degradation

The Proposed Project has the potential to permanently fragment and degrade habitat for burrowing owl in a similar way as described for desert tortoise, above (i.e., construction of and use of existing dirt roads may lead to introduction of nonnative plant species, increased dust, unauthorized trash dumping, and off-highway vehicle use). The degradation and fragmentation of habitat surrounding the project area is not expected to affect resident burrowing owls in the project area because those individuals would be passively relocated and excluded from their burrows in accordance with the Proposed Project's Burrowing Owl Management Plan. Indirect impacts could occur to migrating or dispersing burrowing owls by driving individuals to exert more energy in search of higher quality habitat to use as a migratory stopover or to reside in for the season. However, due to the highly mobile nature of the burrowing owl and with the large amount and availability of habitat in the surrounding region that can be used for migratory stopover and dispersal activities, this impact would be less than significant.

Increased Dust

A temporary increase in fugitive dust from construction activities within the project area would likely occur. Potential impacts to burrowing owl from fugitive dust are similar to those described for desert tortoise and are not expected to be significant to burrowing owl.

Lighting

Minimal lighting is proposed for the Proposed Project to accommodate nighttime project activities. Shoebox type light fixtures mounted on poles would be installed at the primary site entrance to the Solar Field as well as at the substation entrance. There would be no lighting within the solar arrays or around the perimeter fence. Although the burrowing owl is known to be primarily nocturnal during foraging and migration activities, lighting associated with the Proposed Project is not expected to be an impact to burrowing owls. Project design of nighttime lighting would reduce or eliminate any potential impacts to burrowing owl. Impacts would be less than significant.

Desert Kit Fox and American Badger

Desert kit foxes and evidence of desert kit fox presence were documented in the project area and surrounding areas during biological surveys (ECORP 2018b). Based on these findings, desert kit fox is considered present in the project area. Although evidence of American badger was not documented during biological surveys of the site in 2017 and 2018, the project area is located within the known range

of the species and it is known to occur in the vicinity (ECORP 2018b). Project impacts to desert kit fox and American badger are expected to be similar, so impacts to the two species are addressed in this section. These two species are known to occupy the same habitats as burrowing owl, including desert saltbush scrub, disturbed rabbitbrush scrub, Mojave creosote bush scrub, Mojave creosote bush scrub (disturbed), Mojave desert wash scrub, and disturbed areas.

Direct Impacts

Direct impacts to desert kit fox and American badger may occur in the form of habitat loss, mortality, injury, disease, and predation. These impacts are described in more detail below.

Habitat Loss

Habitat that would be permanently or temporarily affected is considered suitable for foraging, movement throughout the region, sheltering (burrow sites), and/or reproduction for both the desert kit fox and American badger. Table 4.4-3, above, lists the acreage of each suitable vegetation type for these species that would be permanently and temporarily affected by project activities.

Permanent Impacts

Permanent impacts to desert kit fox and American badger habitat are expected to be the same as those described for desert tortoise habitat because they occupy the same habitats. Permanent, direct impacts to desert kit fox and American badger in the form of loss of habitat is a potentially significant impact. Implementation of **Mitigation Measure BIO-2** would reduce these impacts to a less than significant level.

Temporary Impacts

Temporary impacts to desert kit fox and American badger habitat would be similar to those described for desert tortoise with the addition of acreage associated with the disturbed rabbitbrush scrub vegetation community. Direct, temporary impacts to desert kit fox and American badger in the form of loss of habitat is a potentially significant impact. Implementation of **Mitigation Measure BIO-2** would reduce these impacts to a less than significant level.

Mortality, Injury, and Disease

Impacts to desert kit fox and American badger in the form of mortality and injury would be expected to be similar as those described for desert tortoise and MGS (i.e., vehicle/equipment strikes and potential entombment in burrows). These species would be passively relocated and excluded from the Solar Field Area prior to the start of construction; however, they are expected to remain in the project vicinity following relocation efforts. Loss or injury of individual desert kit foxes and/or American badgers could be significant to regional populations. Implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-7** would reduce these impacts to a less than significant level.

Introduction of disease to desert kit fox and American badger may occur as a result of the Proposed Project. There is potential for the Proposed Project to expose individuals of these species to disease through the presence of pets (including domestic dogs). Furthermore, the project site may provide subsidized resources (e.g., food, water, shelter) that attract or support feral dogs or coyotes and these

animals could transmit diseases to healthy individuals in the area that would not have come into contact with these individuals prior to the Proposed Project. This is a potentially significant impact and could be a permanent impact to the local population. In order to reduce this possibility, pets (including domestic dogs) would not be allowed in the work areas during construction or O&M, so the possibility of introduction of disease would not affect desert kit foxes or American badgers. Furthermore, the Proposed Project would have requirements that control trash and other subsidized resources that may attract feral dogs and coyotes in the area. A Desert Kit Fox and American Badger Management Plan would be prepared and would address the exclusion and passive relocation of these species as well as the management measures to minimize the potential for transmission of diseases. Implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-7** would reduce impacts to a less than significant level.

Predation

The Proposed Project may provide subsidized resources to predators to desert kit fox, namely coyotes. Trash and food waste and standing water may be associated with the Proposed Project during construction and O&M and can draw coyotes to the project area or support local populations in the vicinity of the project site. These impacts are permanent and potentially significant. Measures to reduce or eliminate increased predation associated with the Proposed Project would be described in the Desert Kit Fox and American Badger Management Plan and would be implemented during project activities accordingly. Implementation of **Mitigation Measure BIO-7** would reduce these impacts to a less than significant level.

Indirect Impacts

Although desert kit fox and American badgers located within the Solar Field Area and within the disturbance areas of the Interconnection Facilities and access roads would be passively relocated and excluded from burrows in the project disturbance footprints, they may remain in the vicinity of the project site. Therefore, indirect impacts to desert kit fox and American badger may occur during construction and O&M of all project components in the form of noise, ground vibrations, habitat degradation and fragmentation, increased human activity and visual disturbances, increased dust, and nighttime lighting.

Noise and Ground Vibrations

Noise from activities associated with the implementation of the Proposed Project has the potential to indirectly affect desert kit fox and American badger in the same way as described for MGS. Impacts to these species in the form of noise and ground vibrations are expected to be a temporary, indirect impacts that would occur only during construction and periodic maintenance of project components and would be considered potentially significant. However, implementation of the **Mitigation Measures BIO-4, BIO-5, and BIO-7** would reduce impacts to desert kit fox and American badger to a less than significant level.

Habitat Fragmentation and Degradation

The Proposed Project has the potential to permanently fragment and degrade available habitat for desert kit fox and American badger in the same way as described for desert tortoise and MGS, above. Indirect impacts in the form of habitat fragmentation are potentially significant for location populations; however,

implementation of **Mitigation Measures BIO-2, BIO-4, BIO-5, and BIO-7** would reduce impacts to a less than significant level.

The desert kit fox is known to be highly mobile in nature, often traveling long distances in short periods of time in search of new den sites and/or foraging areas, and the species has been documented utilizing solar fields post-construction for foraging activities. Because of these behaviors, the Proposed Project has the potential to fragment the desert kit fox's ability to travel freely in the area where the Proposed Project resides. Indirect impacts in the form of altered behavior may result. However, impacts related to fragmented travel abilities would be reduced to a less than significant level through post-construction project design of elevated gates at the Solar Field Area where found necessary and as described in the project description.

Increased Human Activity and Visual Disturbances

Increased human activity and visual disturbances would be associated with construction and O&M of all project components and are expected to affect desert kit fox and American badger in the same way as described for MGS. Implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-7** would reduce impacts to desert kit fox and American badger to a less than significant level.

Increased Dust

A temporary increase in fugitive dust from construction activities within the project area would likely occur. Both of these species are most active at night (nocturnal) when construction activities would not be occurring. They are expected to remain in or near their burrows during most construction activities when fugitive dust may be present. Potential impacts associated with fugitive dust are not expected to be significant to these species.

Lighting

Potential impacts to desert kit fox and American badger associated with lighting are similar to those described for burrowing owl and are not expected to be significant to these species.

Raptors and Nesting Birds

Active nests belonging to birds protected by the federal Migratory Bird Treaty Act (MBTA; USFWS 1918) were observed within and adjacent to the project area (ECORP 2018b). Potential nesting habitat for migratory birds was present throughout the entire project area and in the vicinity. Raptors and nesting birds are known to occupy the same habitats as burrowing owl, including desert saltbush scrub, disturbed rabbitbrush scrub, Mojave creosote bush scrub, Mojave creosote bush scrub (disturbed), and Mojave desert wash scrub vegetation communities. Disturbed and developed lands generally do not provide suitable habitat due to the lack of vegetation; however, some disturbed and developed lands may provide suitable nesting substrates for common species such as house finch (*Haemorrhous mexicanus*) and mourning dove (*Zenaida macroura*). Shrubs, Joshua trees, and structures throughout the project area provide habitat for nesting birds. Raptors typically breed between February and August, while non-raptor birds generally nest between March and August. Native, non-game avian species are protected under the MBTA and California Fish and Game Code.

Direct Impacts

Direct impacts to nesting birds and raptors may occur in the form of habitat loss, mortality, injury, and predation. These impacts are described below.

Habitat Loss

Habitat that would be permanently or temporarily affected is considered suitable for foraging and nesting habitat for birds and raptors protected under the MBTA (USFWS 1918).

Permanent Impacts

Permanent impacts to potential nesting and foraging habitat for bird and raptor species are expected to be the same as those described for desert tortoise and may be significant. Implementation of **Mitigation Measure BIO-2** for desert tortoise and MGS would protect suitable nesting and foraging habitat in perpetuity because nesting birds occupy the same habitats as these species.

Temporary Impacts

Temporary impacts to nesting and foraging habitat for bird and raptor species are expected to be the same as those described for desert tortoise and may be significant. Implementation of **Mitigation Measure BIO-2** for desert tortoise and MGS would protect in perpetuity suitable nesting and foraging habitat because nesting birds occupy the same habitats as these species.

Mortality and Injury

There is potential for construction-related injury or mortality to individual nesting birds and raptors during the construction and O&M for the Proposed Project. Destruction of nests and mortality by vehicle strikes during vegetation removal, grading, and maintenance activities may occur during the construction and operation of the Proposed Project. Newly created roads and increased traffic from the Proposed Project would result in an increased potential for injury and/or mortality to nesting birds and raptors associated with vehicle travel. Failure of active nests or mortality/injury to individual nesting birds or raptors as a result of the Proposed Project may be a significant impact. Prior to the start of construction activities, a Nesting Bird Management and Bird Protection Plan would be prepared that includes details on, but is not limited to, survey methodology and timing, definitions of qualified biologists, monitoring of active nests, and disturbance limit buffer sizes. Implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-8** would reduce these impacts to a less than significant level.

The Interconnection Facilities and substations during O&M have the potential to electrocute nesting birds and raptors. Raptors and other large aerial perching birds are most susceptible to electrocutions because of their size, distribution, and behavior (APLIC 2006). Electrocution may take place when a bird touches two-phase conductors or one conductor and a grounded device simultaneously. Species frequently affected by electrocution seem to involve birds of prey, common ravens, and thermal soarers. The Proposed Project would meet minimum clearance guidelines between phase conductors or between phase conductors and grounded hardware, as recommended by APLIC (2006) that is sufficient to protect even the largest birds and therefore would present little to no risk of bird electrocution. Therefore, any impacts to nesting birds and raptors would be minimal and considered less than significant.

There is potential for project related injury or mortality to individual birds and raptors during the construction and O&M for the Proposed Project due to collision. Birds have the potential to collide with buildings, transmission and distribution lines, chain link fence, and other similar structures. Additionally, flat reflective surfaces (e.g. PV panels) polarize light and researchers hypothesize that birds may mistake these reflective surfaces for bodies of water, a phenomenon referred to as the lake effect. These types of collisions could cause blunt force trauma which could kill or severely injure individual birds and raptors. Fortunately, recent studies have demonstrated that avian collisions with manmade structures can be reduced substantially with the implementation of certain best management practices (BMPs) and installation of mechanisms that discourage bird use. Mortality or injury of individual birds and raptors as a result of the Proposed Project may be a significant impact. Prior to the start of construction activities, a Nesting Bird Management and Bird Protection Plan would be prepared that includes details on implementing anti-perching devices and avian visual deterrents, trash abatement, and using emerging technologies such as antireflective film overlays on the panels and/or chemosensory and sonic deterrents. Implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-8** would reduce these impacts to a less than significant level.

Predation

The Proposed Project may provide subsidized resources to predators (e.g., common raven, coyote, domestic dogs and cats). These impacts are permanent and may be significant to nesting birds. However, implementation of the Project Design Features described in Appendix C would reduce the attraction of the site to predators and reduce these impacts to a less than significant level.

Indirect Impacts

Indirect impacts to nesting birds in the form of increased human and vehicular activity, noise and ground vibrations, habitat degradation and fragmentation, dust, and nighttime lighting may result in failure or abandonment of nests. These impacts are detailed below.

Noise and Ground Vibrations

Impacts to nesting birds and raptors in the form of construction-related noise and ground vibrations in all project components are expected to be the same as those described for burrowing owl. Exposure to these indirect impacts may temporarily displace nesting birds or raptors, prompt birds and/or raptors to abandon their nests and may affect foraging and reproduction activities. Impacts to nesting birds and raptors in the form of noise and ground vibrations are expected to be a temporary, indirect impact that would occur only during construction and periodic maintenance of project components. Impacts to nesting birds in the form of noise and ground vibrations may be significant; however, implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-8** would reduce these impacts to a less than significant level.

Habitat Fragmentation and Degradation

The Proposed Project has the potential to permanently fragment and degrade habitat for nesting birds and raptors in the same way as described for burrowing owl, above. Indirect impacts in the form of habitat

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

fragmentation are potentially significant; however, implementation of **Mitigation Measures BIO-2, BIO-4, BIO-5, and BIO-8** would reduce impacts to a less than significant level.

Increased Human Activity and Visual Disturbances

Increased human activity and visual disturbances would be associated with construction and O&M of all Project Components and are expected to be the same as those described for burrowing owl.

Implementation of **Mitigation Measures BIO-4, BIO-5, and BIO-8** would reduce impacts to nesting birds and raptors to a less than significant level.

Increased Dust

A temporary increase in fugitive dust from construction activities within the project area would likely occur. Potential impacts to nesting birds and raptors from fugitive dust are similar to those described for desert tortoise and these impacts are not expected to be significant to these species.

Lighting

Potential impacts to nesting birds and raptors associated with lighting are similar to those described for burrowing owl and are not expected to be significant to these species.

Other Special-Status Species

Five additional special-status wildlife species were detected within the project area during focused survey efforts in 2017 and 2018 (ECORP 2018b). The following special-status wildlife species were observed: Swainson's hawk, northern harrier, peregrine falcon, loggerhead shrike, and yellow-headed blackbird. The Swainson's hawk is a state-listed threatened species, the peregrine falcon is a CDFW Fully Protected species; and northern harrier, loggerhead shrike, and yellow-headed blackbird are classified as CDFW Species of Special Concern (SSC). The five sensitive bird species that were incidentally observed during the surveys are also protected under the MBTA. The project area provides foraging habitat for all five species observed; however, it only provides nesting habitat for loggerhead shrike and northern harrier.

Additional special-status species were found to have potential to occur on the project site or in the vicinity and are discussed in the Comprehensive Biological Technical Report (ECORP 2018b). Project impacts to the five special-status species listed above and those found with potential to occur are expected to be the same as those analyzed for the species addressed above. Direct impacts may occur in the form of habitat loss, mortality, and injury. Indirect impacts may occur in the form of increased human and vehicular activity, noise, dust, ground vibrations, and habitat fragmentation and degradation. Implementation of the mitigation measures listed above for impacts to desert tortoise, MGS, burrowing owl, desert kit fox, and nesting birds would reduce impacts to less than significant levels.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				

No riparian habitat was observed within the project site (ECORP 2018c). No special-status habitats or vegetation communities were observed within the project site (ECORP 2018b). No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impacts to jurisdictional resources would be due to either temporary or permanent activities of the Proposed Project. Temporary activities include those associated with construction access, pull lines needed for installation of power poles, stockpile areas, laydown areas, and other areas needed over the construction period of the Proposed Project, but not needed for the operation of the Proposed Project. Permanent impacts include permanent facilities which are the entire solar array, substation, pole locations along both the Service Line and Gen-Tie Line, and guy-wire locations.

For the Proposed Project, there would also be long-term maintenance impacts associated with maintenance of the solar array, Service Line, and Gen-Tie. The maintenance activities would use the same access points and roads identified as temporary impacts for the purpose of this impact analysis. The intent is to use these roads, improving them to allow maintenance access, but to restore drainages that cross them to their previous state after maintenance has been conducted. Some of the dirt roads cross small ephemeral washes, and where these washes are crossed, geo-mats or another type of measure would be utilized to allow vehicles to cross the features. This procedure does not apply to the paved roads, which would not be modified for access purposes.

Jurisdictional features that would be affected are described in the Aquatic Resources Delineation Report (ECORP 2018c; Appendix D) completed for the Proposed Project. The total acreage of impact to Waters of the U.S. associated with the Proposed Project includes 0.039 acre of permanent impacts and 0.77 acre of temporary impacts. The total acreage of impact to CDFW Jurisdiction associated with the Proposed Project includes 0.732 acre of permanent impacts and 0.97 acre of temporary impact.

Permanent Impacts

Permanent impacts for the Proposed Project are only associated with the solar array. The permanent acreages of impact to each jurisdictional feature are depicted below in Table 4.4-4.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Table 4.4-4. Solar Array Jurisdictional Features Impacts (Permanent Impacts)

Feature¹	Length (USACE Only) (linear feet)	Waters of the U.S. Acreage (Non-Wetland)² (acres)	Cowardin Class	CDFW Jurisdictional Areas (acres)²
EP-01	N/A	0	PUB3	0.100
EW-01	789	0.039	R4SBJ	0.039
EW-02	N/A	0	R4SBJ	0.001
EW-03	N/A	0	R4SBJ	0.483
EW-04	N/A	0	R4SBJ	0.003
EW-09	N/A	0	R4SBJ	0.001
EW-09	N/A	0	R4SBJ	0.001
EW-11	N/A	0	R4SBJ	0.014
EW-12	N/A	0	R4SBJ	0.048
EW-14	N/A	0	R4SBJ	0.042
TOTALS:	789	0.039	-	0.732

¹EW=ephemeral wash, EP=ephemeral pond

²Acreages represent a calculated estimation and are subject to modification following the USACE, SWRCB or CDFW verification process.

Temporary Impacts

Temporary impacts due to the Proposed Project are associated with construction access, stockpiles, and other equipment along the Gen-Tie and Service Line and within the proposed Gen-Tie Laydown Area. The temporary acreages of impact to each jurisdictional feature are identified per feature segment and per impact type; there are more than 100 different feature segments impacts, all of very small size, summarized in the Aquatic Resources Delineation Report (ECORP 2018c; Appendix D).

The Proposed Project would result in 0.34 acre of temporary impact to Waters of the U.S. (4,953 linear feet) and 0.58 acre of impact to CDFW jurisdiction.

There is a need for regulatory permitting for both the temporary and permanent impacts of the Proposed Project if impacts cannot be completely avoided. With the implementation of **Mitigation Measure BIO-9** impacts to jurisdictional resources would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The project site provides wildlife movement opportunities because it consists of open and relatively unimpeded land. However, it would not be considered a wildlife movement corridor that would need to be preserved to allow wildlife to move between important natural habitat areas due to the absence of

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

conserved natural lands in the vicinity, presence of anthropogenic disturbances, and the project site's proximity to industrial and residential areas. The project site is also mostly surrounded by open unimpeded land, functioning as a single contiguous block of habitat rather than a corridor. The project site is exposed and does not contain any major features that would be considered critical movement corridors for wildlife. Although the dirt roads and desert washes located within the project site are likely utilized by wildlife moving through the area, these features would not be considered necessary linkages between conserved natural habitat areas or critical for wildlife movement because of the nearby open space surrounding the Proposed Project. Although the project area does not generally provide nursery site habitat, it does provide nesting habitat for birds protected under the MBTA. Potential impacts related to nesting birds are discussed in the response to question a) of this section. Construction and O&M of the Proposed Project would not impede or significantly affect any existing wildlife corridor or nursery sites. Impacts would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impacts to Joshua trees which are protected by the City of Victorville's Joshua Tree Ordinance (Ordinance Number 1224; Municipal Code Chapter 13.33) are discussed in the response to question a) of this section. Implementation of **Mitigation Measure BIO-1** would reduce impacts to Joshua tree in the form of removal to a less than significant level.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The project site is not located within the planning area of any existing Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). A Habitat Conservation Plan under Section 10 of the federal Endangered Species Act is currently being prepared to address project-related impacts to desert tortoise. Therefore, the Proposed Project would not result in a significant impact to existing HCPs or NCCPs.

4.4.3 Mitigation Measures

BIO-1: Joshua Trees: Prior to seeking approval from the City's Director of Community Services (or the Director's designee) for Joshua tree removal and/or relocation, a Joshua tree health assessment and final inventory will be performed to document the size, location, and general health of all

Joshua trees that will be affected by the project. Authorization to remove and/or relocate Joshua trees will be obtained in accordance with the City's Joshua Tree Ordinance (Ordinance Number 1224; Municipal Code Chapter 13.33; 2018).

BIO-2: Compensatory Mitigation for Impacts to Habitat for Listed Species: The project area provides suitable habitat in the native vegetation communities for both desert tortoise and MGS. A total of 567.75 acres of occupied desert tortoise and presumed occupied MGS habitat will be directly affected as a result of the project. Impacts to occupied desert tortoise and MGS habitat will be offset through acquisition of compensatory land within suitable and occupied desert tortoise and MGS habitat and/or monetary contributions to other recovery efforts in the West Mojave. Impacts to occupied MGS habitat will be mitigated for at a ratio of 2:1, occupied desert tortoise habitat will be nested within the MGS mitigation requirement, with occupied desert tortoise habitat mitigated for at a ratio of 1:1. Final mitigation acreage are subject to the approval of the state and federal wildlife agencies.

BIO-3: Desert Tortoise Translocation: Pre-construction desert tortoise clearance surveys will be performed prior to ground-breaking project activities occurring. All desert tortoises encountered during clearance surveys and subsequent monitoring efforts will be permanently removed from the project area and translocated to an off-site recipient site. The Applicant's site-specific Desert Tortoise Translocation Plan will provide details on the proposed recipient site, desert tortoise clearance surveys and relocation, definitions for Authorized Biologists and qualified desert tortoise biologists, exclusion fencing guidelines, protocols for managing desert tortoise found during active versus inactive seasons, protocols for incidental tortoise death or injury, and will be consistent with project permits and current USFWS guidelines (USFWS 2009; USFWS 2018a). The Plan will also include a requirement for communication and coordination with the BLM regarding the desert tortoise recipient site. Prior to construction, the Plan will be subject to the approval of the CDFW and the USFWS.

BIO-4: Biological Monitoring: A qualified biologist (biological monitor) with experience monitoring for and identifying sensitive biological resources known to occur in the area will be present during all ground-disturbing activities related to the project. As required by project permits, the qualifications of a biological monitor may need to be submitted to appropriate wildlife agencies for approval based on the resources the biologist will be monitoring. Biological monitoring duties will include, but are not limited to, conducting worker education training, verifying compliance with project permits, ensuring project activities stay within designated work areas, and inspection of desert tortoise exclusion fencing. The biological monitor will have the right to halt all activities in the area affected if a special-status species is identified in a work area and is in danger of injury or mortality. If work is halted in the area affected as determined by the biological monitor, work will proceed only after the hazards to the individual is removed and the animal is no longer at risk, or the individual has been moved from harm's way in accordance with the project's permits and/or management/translocation plans. The biological monitor will take representative photographs of the daily activities and will also maintain a daily log that documents general project activities and compliance with the project's permit conditions. Non-compliances will also

be documented in the daily log, including any measures that were implemented to rectify the issue.

BIO-5: Worker Environmental Awareness Program: Prior to the start of construction, a Worker Environmental Awareness Program (WEAP) will be developed by the Applicant. A qualified biologist with experience with the sensitive biological resources in the region will present the WEAP to all personnel working in the project area (either temporarily or permanently) prior to the start of project activities. The WEAP may be videotaped and used to train newly hired workers or those not present for the initial WEAP. The WEAP could include, but will not be limited to: discussions of the sensitive biological resources associated with the project, project-specific measures to avoid or eliminate impacts to these resources, consequences for not complying with project permits and agreements, and contact information for the lead biologist. Logs of personnel who have taken the training will be kept on the site at the construction or project office.

BIO-6: Burrowing Owl Management Plan: Prior to the start of construction, a Burrowing Owl Management Plan will be prepared in consultation with CDFW that will outline protection and avoidance and minimization measures that will be implemented for the project. These measures may include, but are not limited to, definition of qualified burrowing owl biologists, survey methodology and timing, methods for exclusion and burrow excavation, disturbance limit buffers, and seasonal restrictions for work activities in the vicinity of active burrows. The Burrowing Owl Management Plan will be subject to the approval of CDFW.

BIO-7: Desert Kit Fox and American Badger Management Plan: Prior to the start of construction, a Desert Kit Fox and American Badger Management Plan will be developed in consultation between the Applicant and CDFW and will be subject to approval by CDFW. The Plan could include, but may not be limited to, qualified desert kit fox/American badger biologist definitions, pre-construction clearance survey methods and timing, disturbance limit buffer distances around active burrows based on construction activity and sensitivity of dens/foxes, and measures for avoidance, exclusion, and/or passive relocation.

BIO-8: Nesting Bird Management and Bird Protection Plan: Prior to the start of construction, a Nesting Bird Management and Bird Protection Plan will be developed in consultation between the Applicant, CDFW, and USFWS and will be subject to the approval of CDFW and USFWS. The Plan could include but may not be limited to: pre-construction clearance survey methods and timing, buffer distances based on construction activity and sensitivity of nests/birds, measures for avoidance of impact during nesting season (e.g., seasonal work restrictions), implementation of construction noise and dust minimization measures, biological monitoring, acceptable methods for nest deterrents (i.e., netting/covering equipment, supplies, or perches), implementing anti-perching devices and avian visual deterrents, and using emerging technologies such as antireflective film overlays on the panels and/or chemosensory and sonic deterrents. The Plan will be in compliance with the MBTA and California Fish and Game Code Sections 3503, 3503.5 and 3513.

BIO-9: Regulatory Permitting: Prior to the commencement of project construction activities that will impact the jurisdictional features on the project site, authorization for impacts shall be acquired through the permitting process from the USACE, RWQCB, and CDFW pursuant to the CWA Section 404 and 401 and California Fish and Game Code Section 1600, respectively. Project specific mitigation for impacts to features jurisdictional to state and federal agencies will be determined during the permitting process.

4.5 Cultural Resources

4.5.1 Environmental Setting

Cultural Resources

A Cultural Resources Inventory Report was prepared by ECORP Consulting, Inc. (ECORP 2018d; Appendix E) for the Proposed Project to determine if cultural resources were present in or adjacent to the Area of Potential Effects (APE) and assess the sensitivity of the APE for undiscovered or buried cultural resources. The APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if present. The APE for the Proposed Project includes all of the Proposed Project components described in the Project Description as well as additional temporary impact areas. The cultural context of the project area including regional and local prehistory, ethnography, and regional and project area histories can be found in the Cultural Resources Inventory Report in Appendix E.

In March 2018, a cultural resources records search was conducted at the South Central Coastal Information Center at California State University, Fullerton; and in April 2018 a search of the Sacred Lands File was requested from the Native American Heritage Commission (NAHC). The records search results indicated that two prehistoric (pre-contact) resources, 21 historic-period resources, and one multi-component resource were previously recorded within the APE. An additional 65 resources have been documented within a one-mile radius of the APE. Fifty-three cultural resources investigations were conducted within the one-mile records search radius between 1967 and 2014. The results of the search of the Sacred Lands File by the NAHC did not indicate the presence of any Native American Sacred Lands within one mile of the APE.

As a result of the field survey, a total of 45 resources were identified within the APE. These include the 24 previously recorded resources noted above, 13 newly recorded sites, and eight newly recorded isolated finds within the APE. The 13 newly recorded sites consist of 12 historic-period (i.e., 50 years old or older) home sites and one historic-period refuse deposit. Of the eight newly recorded isolated finds, seven consist of historic-period refuse, and one consists of a pre-contact lithic flake.

Paleontological Resources

A paleontological database search of the paleontology locality and specimen collection records for the project site was requested from the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County (NHMLAC) on April 26, 2018 (NHMLAC 2018; Appendix F). The results of the records search are summarized in the response to question c) of this section.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

4.5.2 Cultural Resources (V) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In March 2018, a cultural resources records search was conducted at the South Central Coastal Information Center at California State University, Fullerton; and in April 2018 a search of the Sacred Lands File was requested from the Native American Heritage Commission (NAHC). The records search results indicated that 24 resources (two prehistoric (pre-contact) resources, 21 historic-period resources, and one multi-component resource) were previously recorded within the APE. An additional 65 resources have been documented within a one-mile radius of the APE. The results of the search of the Sacred Lands File by the NAHC did not indicate the presence of any Native American Sacred Lands within one mile of the APE.

As a result of the field survey conducted as part of the Cultural Resources Inventory, a total of 45 resources were identified within the APE. These include the 24 previously recorded resources noted above, 13 newly recorded sites, and eight newly recorded isolated finds within the APE. The 13 newly recorded sites consist of 12 historic-period (i.e., 50 years old or older) home sites and one historic-period refuse deposit. Of the eight newly recorded isolated finds, seven consist of historic-period refuse, and one consists of a pre-contact lithic flake.

Of the 24 previously recorded resources within the APE, 20 were previously evaluated in 2006 using California Register of Historic Resources (CRHR) eligibility criteria and were evaluated as not eligible for listing in the CRHR under any criteria. As part of the Cultural Resources Inventory, ECORP reviewed and concurred with the results of the previous evaluations. As part of the Cultural Resources Inventory, 13 newly recorded sites, two previously recorded pre-contact sites, eight newly recorded isolated finds and one previously recorded isolated find were evaluated using CRHR eligibility criteria and are evaluated as not eligible for listing in the CRHR under any criteria. In addition to the CRHR evaluations, all 24 previously recorded resources and all 21 newly recorded resources were evaluated using National Register of Historic Places (NRHP) eligibility criteria and are evaluated as not eligible for the NRHP under any criteria (ECORP 2018d).

All cultural resources in the APE were evaluated using NRHP and CRHR eligibility criteria and are evaluated as not eligible for listing in the NRHP or CRHR under any criteria. Because no Historic Properties as defined by regulations implementing Section 106 of the National Historic Preservation Act (NHPA) and no Historical Resources, as defined by CEQA, were identified in the APE, the Proposed Project would result in no impact to Historic Properties or Historical Resources.

Although no Historical Resources, as defined by CEQA, or Historic Properties, as defined by Section 106 of the NHPA, were identified within the APE, the project site is located 0.5 mile east of the Mojave River, in

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

an area known to have been used by both pre-contact and historic occupants. The potential for the project site to contain subsurface cultural resources is considered high. Therefore, ground-disturbing construction activities could expose unknown subsurface cultural resources. If previously unrecorded cultural resources are encountered during construction that could potentially be affected, implementation of **Mitigation Measure CUL-1** would reduce impacts to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As previously mentioned in the response to question a) of this section, the records search conducted for the Proposed Project revealed that two prehistoric (pre-contact) resources were previously identified within the APE. As a result of the field survey conducted as part of the Cultural Resources Inventory, 13 newly recorded sites, and eight newly recorded isolated finds within the APE. All of the 13 newly recorded sites were of historic-age. Only one of the newly recorded isolate finds consists of a pre-contact lithic flake (ECORP 2018d).

The two previously recorded pre-contact sites (P36-003618 and P36-010952) were tested to determine the presence or absence of subsurface cultural material. Testing consisted of the excavation of 23 shovel test pits. As a result of testing, both sites were found to be negative for subsurface pre-contact cultural material. P36-003618 had a few surface artifacts, but had no subsurface cultural components. P36-010952 had no surface artifacts or subsurface components within the previously recorded site boundaries (ECORP 2018d).

Neither of the two pre-historic resources previously recorded or the newly recorded pre-contact isolate lithic flake were found eligible for listing in the NRHP or CRHR under any criteria. As such, the Proposed Project would result in no impact to known archaeological resources. However, the project site is located 0.5 miles to the east of the Mojave River in an area known to have been used by both pre-contact and historic occupants. The potential for the project site to contain subsurface archaeological resources is considered high. Therefore, ground disturbing construction activities could potentially expose unknown subsurface archaeological resources. If previously unrecorded archaeological resources are encountered during construction that could potentially be affected, implementation of **Mitigation Measure CUL-1** would reduce impacts to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

A paleontological records search was completed for the Proposed Project at the NHMLAC (NHMLAC 2018). The NHMLAC has no records of vertebrate fossil localities that lie within the project site; however, the NHMLAC has records of localities nearby from the same sedimentary units that occur within the project site.

The surface deposits in most of the project (top of the bluffs west of the Mojave River) consist of soil on top of older Quaternary Alluvium, derived as fluvial deposits from the ancestral Mojave River (NHMLAC 2018). In this vicinity these deposits typically do not contain significant vertebrate fossils in the uppermost layers, but they may well contain significant fossil vertebrate remains at depth. NHMLAC's closest fossil vertebrate locality in these older Quaternary deposits is LACM 7786, which is located just west and south of the western-most portion of the project site between Adelanto and the former George Air Force Base (AFB). LACM 7786 produced a fossil specimen of meadow vole (*Microtus*) at a depth of ten to eleven feet below the surface (NHMLAC 2018).

On the slopes in the central eastern portion of the project site there are exposures of even older Quaternary deposits that have produced vertebrate fossils. NHMLAC's closest fossil vertebrate locality from the older Quaternary deposits is LACM (CIT) 209 located immediately east of north of the eastern-most border of the project site southwest of Bryman. LACM (CIT) 209 produced fossil specimens of horse (*Equus*) and mammoth (*Mammuthus columbi*). NHMLAC's next closest fossil vertebrate localities from these deposits are LACM 3352-3353 and 3498, which are located further southeast of the project site on the slopes on the west side of the Mojave River centered around Interstate 15. Specimens of fossil horse (*Equus occidentalis*) and bison (*Bison latifrons*) were recovered from these sites.

Shallow excavations in the uppermost layers of soil and older Quaternary Alluvium exposed in most of the project site are unlikely to encounter significant fossil vertebrate remains. Deeper excavations that extend down into older Quaternary sediments, or any excavations in the older Quaternary deposits exposed on the slopes in the central eastern portion of the project site, however, may well encounter significant vertebrate fossils. Deep excavations may expose and directly or indirectly destroy fossil remains, which would result in a significant impact. With the implementation of **Mitigation Measure CUL-2** impacts would be less than significant.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d)	Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No formal cemeteries are located within the project site. However, near a newly recorded historic period home site (HD-020), a cross is present. Due to the age of this home site, constructed sometime after 1958 and prior to 1968, it is unlikely that the cross represents a marker for a human burial. It is not possible to ascertain with absolute certainty that remains are not present without either test excavation or use of ground-penetrating radar; however, the likelihood of this representing a human burial is deemed low. No impacts to human remains are anticipated; however, if any are encountered during ground-disturbing

construction activities, impacts would be significant. Implementation of **Mitigation Measure CUL-1** would reduce potential impacts to a less than significant level.

4.5.3 Mitigation Measures

- CUL-1:** A qualified archaeologist and a tribal representative shall monitor all ground disturbing activities within native sediments. If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 100-foot radius of the discovery. The archaeologist shall evaluate the significance of the find and shall have the authority to modify the no-work radius as appropriate, using professional judgment. Depending on the nature of the find, the following notifications may be required:
- If the professional archaeologist determines that the find does not represent a cultural resource, then work may resume immediately, and no agency notifications are required.
 - If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, then the archaeologist shall immediately notify the City of Victorville and applicable landowner. The City of Victorville shall make a finding of eligibility and implement appropriate treatment measures, if the find is determined to be Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines. Work cannot resume within the no-work radius until the City, through consultation as appropriate, determines that the site either: 1) is not a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines; or 2) that the treatment measures have been completed to their satisfaction.
 - If the find includes human remains, or remains that are potentially human, then the archaeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the San Bernardino County Coroner (per Section 7050.5 of the Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. Work cannot resume within the no-work radius until the City, through consultation as appropriate, determines that the treatment measures have been completed to their satisfaction.
- CUL-2:** A qualified paleontologist shall be retained to determine if the older Quaternary sediments are being disturbed during deep excavations of ten feet below the ground surface or greater. If so, the paleontologist shall establish a monitoring program to recover any significant fossils that may be encountered. Sediment samples shall be collected and processed to determine the small fossil potential in the project area. Any fossils recovered during mitigation shall be deposited in an accredited and permanent scientific institution in consultation with the City of Victorville.

4.6 Energy

4.6.1 Environmental Setting

To better integrate the energy analysis with the rest of CEQA, the Governor's Office of Planning Research (OPR) has added relevant questions regarding potential energy impacts to the sample environmental CEQA checklist in Appendix G. Thus, energy consumption is analyzed in this Initial Study due to the potential direct and indirect environmental impacts associated with the Project.

Electricity/Natural Gas Services

SCE provides electrical services to Victorville through State-regulated public utility contracts. The Southern California Gas Company provides natural gas services to Victorville. Electricity and natural gas service are available to locations where commercial land uses could be developed. Utility companies are bound by contract to update energy systems to meet any additional demand.

Energy Consumption

Electricity use is measured in kilowatt-hours (kWh), and natural gas use is measured in therms. Vehicle fuel use is typically measured in gallons (e.g. of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh.

The electricity consumption in San Bernardino County from 2013 to 2017 is shown in Table 4.6-1. As indicated, the demand has increased since 2013.

Table 4.6-1. Electricity Consumption in San Bernardino County 2013-2017

Year	Electricity Consumption (kilowatt hours)
2017	15,273,000,000
2016	14,950,000,000
2015	14,759,000,000
2014	14,749,000,000
2013	14,367,000,000

Source: ECDMS 2018

The natural gas consumption attributable to San Bernardino County, including the City of Victorville, from 2013 to 2017 is shown in Table 4.6-2. As shown, the demand has decreased since 2013.

Table 4.6-2. Natural Gas Consumption in San Bernardino County 2013-2017

Year	Natural Gas Consumption (therms)
2017	493,000,000
2016	494,000,000
2015	469,000,000
2014	452,000,000
2013	503,000,000

Source: ECDMS 2018

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Automotive fuel consumption in San Bernardino County from 2014 to 2018 is shown in Table 4.6-3. As shown, on-road automotive fuel consumption has increase since 2014 while construction equipment fuel consumption have decreased in the county since 2014.

Table 4.6-3. Automotive Fuel Consumption in San Bernardino County 2014-2018

Year	On-Road Fuel Consumption (gallons)	Construction Equipment Fuel Consumption (gallons)
2018	1,190,103,670	495,753,585
2017	1,202,670,620	497,506,315
2016	1,203,111,540	492,763,140
2015	1,194,273,795	483,089,180
2014	1,184,194,685	511,891,560

Source: CARB 2014

4.6.2 Energy (VI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project's objectives are to construct and operate a renewable energy resource with integrated energy storage that would help California achieve its ambitious Renewables Portfolio Standard goals and enhance grid reliability through the provision of key operational flexibility and dispatchability attributes. Additional basic project objectives include maximizing renewable energy generation and helping to enhance grid reliability through construction of a battery energy storage system. The operation of the Proposed Project would create renewable energy over its planned lifetime and decrease the need for energy from fossil fuel-based power plants in the state, which is considered a beneficial impact to statewide air quality. The energy produced by the Proposed Project would displace the pollutant emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas and coal). The Proposed Project would generate a maximum of 108 MW of electricity at any one time, or approximately 316,700.3 megawatt-hours of electricity each year, from a renewable resource. For this reason, operation of the Proposed Project would not be considered a wasteful, inefficient, or unnecessary consumption of energy resources.

Construction of the Proposed Project would require the consumption of gasoline to power construction equipment. The amount of total construction-related fuel use was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1, and shown in Table 4.6-4. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

project. For the purpose of this analysis, the amount of fuel necessary for Proposed Project construction is calculated and compared to that consumed in San Bernardino County.

Table 4.6-4. Proposed Project Construction-Related Fuel Consumption

Energy Consumption	Construction Fuel Consumption	Percentage Increase Countywide
Project Construction	1,415,074 gallons	0.28%

Source: Construction-related fuel consumption calculated by ECORP Consulting based on ratios provided by the Climate Registry 2016.

Notes: The Proposed Project increases in construction fuel consumption over the course of 22 months are compared with the countywide construction equipment fuel consumption in 2018, the most recent full year of data.

As shown, the Proposed Project's gasoline fuel consumption during the construction period is estimated to be 1,415,074 gallons of fuel, which would increase the annual construction-related gasoline fuel use in the county by 0.28 percent, compared with the construction-related fuel consumed in the year 2018. As such, Proposed Project construction would have a nominal effect on local and regional energy supplies, especially over the long-term. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and require recycling of construction debris, would further reduce the amount of transportation fuel demand during Proposed Project construction. For these reasons, it is expected that construction fuel consumption associated with the Proposed Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

For the reasons described, this impact would be considered less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

As described above, the Proposed Project would generate a maximum of 108 MW of electricity at any one time, or approximately 316,700.3 megawatt-hours of electricity each year, from a renewable resource. The primary objective of the Proposed Project is to construct and operate a renewable energy resource with integrated energy storage that will help California achieve its ambitious Renewables Portfolio Standard goals and enhance grid reliability through the provision of key operational flexibility and dispatchability attributes. Thus, the Proposed Project would represent a beneficial impact to the state's goal of increasing renewable energy.

4.6.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.7 Geology and Soils

4.7.1 Environmental Setting

Geomorphic Setting

The project site is located on the central portion of the Mojave Desert Geomorphic Province, bordering the Transverse Ranges. The Mojave Desert Geomorphic Province is characterized by broad expanses of desert with localized mountains and dry lakebeds. The province is bounded by the San Bernardino Mountains and the Pinto Fault to the south, the San Andreas Fault to the west, the Garlock Fault to the north, and the Basin and Range Province to the east. Most of the faults within the central Mojave Desert trend to the northwest, parallel to the San Andreas Fault Zone, and truncate against the Garlock Fault, trending to the northeast (AECOM 2018). The closest known fault to the project site is the Helendale Fault located approximately eight miles northeast of the project site.

Soils

According to the Web Soil Survey, six soil units, or types, have been mapped within the project site: Bryman Loamy Fine Sand, 0 to 2 percent slopes (105), Bryman Loamy Fine Sand, 2 to 5 percent slopes (106), Cajon Sand, 0 to 2 percent slopes (112), Cajon Sand, 2 to 9 percent slopes (113), Cajon Sand, 9 to 15 percent slopes (114), Haplargids – Calciorthids Complex, 15 to 50 percent slopes (130), and Mohave Variant Loamy Sand, 0 to 2 percent slopes (150) (ECORP 2018d).

4.7.2 Geology and Soils (VII) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii)	Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii)	Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv)	Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- i) The project site is not located within an Alquist-Priolo earthquake fault zone (California Department of Conservation 2018; City of Victorville 2008b). The closest known fault to the project site is the Helendale Fault located approximately eight miles northeast of the project site. Ground rupture as a result of an earthquake fault traversing the project site would not be likely. A less than significant impact would occur.
- ii) Just like most of Southern California, in the event of an earthquake strong ground shaking is expected to occur on the project site. The design and construction of the Proposed Project would adhere to all applicable provisions of the California Building Code and all grading and construction plans would be reviewed and approved by the City of Victorville. This would ensure that all proposed structures are adequately designed and constructed to reduce the risk of loss, injury, or death resulting from strong ground shaking. A less than significant impact would occur.
- iii) Liquefaction is a phenomenon where water-saturated granular soil loses shear strength during strong ground shaking produced by earthquakes. The loss of top soil strength occurs when cyclic pore water pressure increases below the groundwater surface. Potential hazards due to liquefaction include the loss of bearing strength beneath structures, possibly causing foundation failure and/or significant settlements. Portions in the region near the Mojave River are susceptible to liquefaction (City of Victorville 2008b). The primary factors for increased liquefaction susceptibility include areas subject to high seismicity, shallow groundwater, and young, poorly consolidated sandy alluvium. When this type of sandy alluvium is present, liquefaction susceptibility is generally considered high if groundwater depth is less than ten feet beneath the ground surface, moderate if ground water depth is between ten and thirty feet, and low if groundwater is between thirty and fifty feet deep. Liquefaction is usually not considered a hazard if the groundwater table is greater than fifty feet in depth. The Mojave River is located approximately 0.5 mile east of the Solar Field Area and approximately 0.25 mile east of the Gen-Tie corridor. A geotechnical investigation conducted at the SCLA wastewater treatment plant site located approximately 2,000 feet south of the Solar Field Area concluded that the liquefaction potential for that site was considered low because the shallowest groundwater level was estimated to have been 95 feet below ground surface. Due to the distance to the Mojave River and the depth to groundwater it is anticipated that the liquefaction potential of the project site is low. Furthermore, design and construction of the Proposed Project would adhere to all applicable provisions of the California Building Code and all grading and construction plans would be reviewed and approved by the City of Victorville. This would ensure that all proposed structures are adequately designed and constructed to minimize impacts from seismic-related ground failure, including liquefaction. Impacts would be less than significant.
- iv) The project site is located on relatively flat land with elevation ranging from 2,750 feet above msl to 2,815 feet above msl. Steeper topography is located on limited portions of the Solar Field Area near the southeaster border of the project site, where the BESS and substation would be located. Grading would be required within these steeper areas to allow construction of proposed structures. Project grading plans would adhere to the California Building Code and would be reviewed by the City of Victorville to ensure proposed topographical modifications to the project site do not create the potential for landslides. Impacts would be less than significant.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Implementation of the Proposed Project would require ground-disturbing activities, such as grading, that could potentially result in soil erosion or loss of topsoil. The Proposed Project would use Low Impact Development (LID) approach where only portions of the site that have slopes greater than five percent would be graded (approximately 116 acres). In the large majority of the site there would be no grading and existing vegetation would be left in place and mowed and maintained to a height of less than 18 inches to help in preventing soil erosion. Construction of the Proposed Project would be required to comply with the Construction General Permit, either through a waiver or through preparation and implementation of a SWPPP. Best Management Practices (BMPs) would be included as part of the SWPPP prepared for the Proposed Project and would be implemented to manage erosion and the loss of topsoil during construction-related activities (see Section 4.9 Hydrology and Water Quality). The Proposed Project's grading plan would also ensure that the proposed earthwork is designed to avoid soil erosion. Soil erosion impacts would be reduced to a less than significant impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As discussed in the response to question a) (iii and iv) of this section (4.6 Geology and Soils), the potential for landslides or liquefaction is considered low. The City of Victorville also determined that subsidence due to groundwater withdrawal in the project area is considered unlikely (City of Victorville 2008b). However, it has been determined that portions of the City of Victorville's Planning Area have the potential to contain collapsible soils (City of Victorville 2008b). Alluvial soils in arid and semi-arid environments have the tendency to possess characteristics that make them prone to collapse with increase in moisture content. To address the potential for unstable soils that are prone to collapse the design and engineering of the Proposed Project would adhere to the California Building Code and incorporate recommendations from the Proposed Project's site specific geotechnical investigation. As such, impacts would be less than significant.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Expansive soils are soils with a significant amount of clay particles that have the ability to give up water (shrink) or take on water (swell). Fine-grained soils, such as silts and clays, may contain variable amounts of expansive clay minerals. When these soils swell, the change in volume exerts significant pressures on loads that are placed on them. This shrink/swell movement can adversely affect structure foundations, often causing them to crack or shift, with resulting damage to the structures they support.

Soils in most of the City of Victorville are composed mainly of sands, silty sands, and sand with silt. For that reason, the expansion potential of the soil is generally low (City of Victorville 2008b). Furthermore, a geotechnical investigation conducted at the SCLA wastewater treatment plant site located approximately 2,000 feet south of the Solar Field Area determined that soil within the SCLA wastewater treatment plant site had an Expansion Index of 0, meaning a very low expansion potential (Leighton Consulting, Inc. 2008).

According to the Web Soil Survey, six soil units, or types, have been mapped within the project site including: Bryman Loamy Fine Sand, 0 to 2 percent slopes (105); Bryman Loamy Fine Sand, 2 to 5 percent slopes (106); Cajon Sand, 0 to 2 percent slopes (112); Cajon Sand, 2 to 9 percent slopes (113); Cajon Sand, 9 to 15 percent slopes (114); Haplargids – Calciorthids Complex, 15 to 50 percent slopes (130); and Mohave Variant Loamy Sand, 0 to 2 percent slopes (150). None of the mapped soil series are considered hydric or conducive to flooding, pooling, ponding, or other water features (NRCS 2018).

Soils within the project site are not anticipated to be expansive. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Because the facility would not be staffed, there would be no restrooms or need for a permanent water supply to the site. The Proposed Project does not include septic tanks or alternative waste water disposal systems. No impact would occur.

4.7.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.8 Greenhouse Gas Emissions

4.8.1 Environmental Setting

Greenhouse gases (GHGs) are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH₄ traps more than 25 times more heat per molecule than CO₂, and N₂O absorbs 298 times more heat per molecule than CO₂. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO₂e). Expressing GHG emissions in CO₂e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

4.8.2 Greenhouse Gas Emissions (VIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The MDAQMD's (2016) *California Environmental Quality Act (CEQA) And Federal Conformity Guidelines* identifies both annual and daily construction significance thresholds for GHG emissions. The Proposed Project is compared to the MDAQMD annual threshold of 100,000 metric tons of CO₂e annually as well as the MDAQMD daily threshold of 578,000 pounds of CO₂e daily.

Construction

Construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying supplies and materials to and from the project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 4.8-1 illustrates the specific construction-generated GHG emissions that would result from construction of the Proposed Project.

Table 4.8-1. Construction-Related Greenhouse Gas Emissions

Emissions Source	CO ₂ e (Metric Tons/Year)
Annual (Maximum Tons per Year)	
Grading & Road Construction – Year 2019	2,539
Grading, Road Construction & Facility Installation - Year 2020	8,302
Facility Installation - Year 2021	3,522

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Emissions Source	CO₂e (Metric Tons/Year)
<i>MDAQMD Annual Threshold</i>	<i>100,000 metric tons/year</i>
Exceed Annual Threshold?	No
Daily (Maximum Pounds per Day)	
Grading & Road Construction - Year 2019	53,475
Grading & Road Construction - 2020	52,461
Facility Installation - Year 2020	74,589
Facility Installation – Year 2021	73,770
<i>MDAQMD Daily Threshold</i>	<i>548,000 pounds/day</i>
Exceed Daily Threshold?	No

Source: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.

Notes: Emission estimates account for the grading of 116 acres as well as the on-site movement of 354,335 cubic yards of soil. Specific construction equipment is derived from the Initial Study completed for the Proposed Project, as is the number of construction workers commute trips (500 daily) and delivery trips (60 one-way trips daily).

As shown in Table 4.8-1, construction-generated emissions would not exceed MDAQMD significance thresholds. A less than significant impact would occur.

Operations

Operation of the Proposed Project would result in GHG emissions associated with minimal worker trips and equipment usage associated with ongoing operations, maintenance, repair, and security. Additionally, the Proposed Project is expected to use 175,000 gallons of water per year, the pumping of which will require electricity. Proposed Project construction is expected to consume approximately 65,170,287 gallons of water and this quantify has been amortized over the life of the Proposed Project. Resultant emissions have been added to the operational totals identified in Table 4.8-2, which summarizes all the direct and indirect annual GHG emissions level associated with the Project.

Table 4.8-2. Operational Greenhouse Gas Emissions

Emissions Source	CO₂e (Metric Tons/ Year)
Annual (Maximum Tons per Year)	
Area Source (landscaping, hearth)	0
Energy	86
Mobile	116
Waste	0
Water	7
Total	209
<i>MDAQMD Annual Threshold</i>	<i>100,000 metric tons/year</i>
Exceed Annual Threshold?	No
Summer Daily (Maximum Pounds per Day)	
Area Source (landscaping, hearth)	0.14
Energy	0.00
Mobile	749.79
Waste	0.00
Water	0.00
Total	749.93

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Emissions Source	CO₂e (Metric Tons/ Year)
<i>MDAQMD Daily Threshold</i>	<i>548,000 pounds/day</i>
Exceed Daily Threshold?	No
Winter Daily (Maximum Pounds per Day)	
Area Source (landscaping, hearth)	0.14
Energy	0.00
Mobile	694.29
Waste	0.00
Water	0.00
Total	694.43
<i>MDAQMD Daily Threshold</i>	<i>548,000 pounds/day</i>
Exceed Daily Threshold?	No

Source: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.

Notes: Emission estimates account for more than 12 permanent employee trips daily, the pumping of 175,000 gallons of water annually for operations, and the pumping of 65,170,287 gallons of water during construction, amortized over the 30-year lifespan of the Proposed Project.

As shown in Table 4.8-2, operational-generated emissions would not exceed MDAQMD significance thresholds, resulting in a less than significant impact. Additionally, the Proposed Project would contribute to reductions in GHG emissions from energy generation, as discussed in question b, below, resulting in a beneficial impact.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The City of Victorville adopted a community-wide climate action plan (CAP) in September 2015. A climate action plan is a comprehensive strategy for a community to reduce emissions of GHGs, which, according to scientific consensus, are primarily responsible for causing climate change. The 2015 CAP presents GHG inventories, identifies the effectiveness of California initiatives to reduce GHG emissions, and identifies local measures to reduce GHG emissions and achieve a City-identified GHG reduction target. The City participated in the San Bernardino County Regional GHG Reduction Plan, which presents the collective results of all local efforts Countywide to reduce GHG emissions consistent with statewide GHG targets expressed in AB 32. The City of Victorville used the technical information within the County Regional GHG Reduction Plan to develop the City CAP. The CAP builds on this regional work and refines it to provide City-specific information and to develop the local implementation plan for Victorville-centric GHG reduction measures. The CAP identifies how the GHG reduction measures will be implemented and monitored by the City to ensure that progress is being made toward the GHG reduction target.

Specifically, the CAP establishes a GHG emissions reduction target for the year 2020 that is 29 percent below projected year 2020 emission levels. The GHG Plan is consistent with AB 32 and sets the City on a path to achieve a more substantial long-term reduction in the post-2020 period. Achieving this level of

emissions would ensure that the contribution to GHG emissions from activities covered by the CAP would not be cumulatively considerable. Applicants are required to use the Victorville CAP GHG Emissions Screening Tables as a tool to assist with calculating GHG reduction measures and the determination of a significance finding. Projects that garner 45 or more points on the Screening Tables are considered less than significant. (The point system was devised to ensure compliance with the reduction measures in the CAP such that the GHG emissions from new development, when considered together with those from existing development, would allow the City to meet its year 2020 target and support longer-term reductions in GHG emissions beyond year 2020.)

As previously described, the Proposed Project proposes a 108-MW PV solar power plant, BESS, substation, and Interconnection Facilities. GHG emissions generated by energy sources account for all stages of the life-cycle (including mining, construction, etc.), which are referred to as the cumulative GHG emissions and are usually expressed in grams of carbon dioxide equivalent per unit of busbar electricity (i.e., gCO₂e/kWh_e). When comparing various fossil-fueled energy generators, the GHG emissions generated are dependent on the type of fuel (i.e., gas, oil, coal). GHG emissions generated by some of the more common types of fossil-fueled plants and solar power plants are summarized in Table 4.8-3.

Table 4.8-3. Life-Cycle Greenhouse Gas Emissions for Various Types of Energy Generators^{1,2}

Fossil Fuels	GHG Emissions
Coal	950 to 1,250 gCO ₂ e/kWh _e
Oil	500 to 1,200 gCO ₂ e/kWh _e
Gas	440 to 780 gCO ₂ e/kWh _e
Solar	43 to 73 ³ gCO ₂ e/kWh _e

Source: Weisser 2007

Notes:

¹ gCO₂e/kWh_e = grams of carbon dioxide equivalent per unit of busbar electricity.

² Emissions are based on lifecycle of energy source including mining, construction, operation, etc.

³ Solar PV life-cycle emissions result from using fossil-fuel-based energy to produce the materials for solar cells, modules, and systems, as well as directly from smelting, production, and manufacturing facilities.

As shown in Table 4.8-3, solar plants generate far less GHG life-cycle emissions (approximately 83 to 94 percent less) than fossil-fueled energy plants. Therefore, the Proposed Project would contribute to the continued reduction of GHG emissions in the interconnected California and western United States electricity systems, as the energy produced by the Proposed Project would displace GHG emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas, coal, arid renewable combustion resources). The Proposed Project would generate a maximum of 108 MW of electricity at any one time. Therefore, over a 30-year lifespan approximately 8,754,842 megawatt-hours of electricity would be produced or approximately 316,700 megawatt-hours of electricity each year (see footnotes under Table 4.8-4). Table 4.8-4 shows the emissions that would be displaced by the Proposed Project. Note that this estimate only includes that associated with the combustion of fossil fuels; it does not include the vehicle trips associated with the Proposed Project's operations, and it similarly does not include operational employee trips associated with natural gas or coal combustion nor the emissions associated with extracting and transporting those power sources. In addition, this estimate only includes the displacement of that portion of the California market that comes

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

from fossil fuels and does not include the approximate 45 percent of the California electricity generated by non-combustion sources (wind, solar, nuclear, hydro-electric) (CEC 2017).

Table 4.8-4. Proposed Project Displaced GHG Emissions (Metric Tons)

	Emissions (Metric Tons)			
	Carbon Dioxide (CO ₂)	Methane (CH ₄)	Nitrous Oxide (N ₂ O)	Carbon Dioxide Equivalent (CO ₂ e)
Emissions Displaced Annually (metric tons)				
Displaced Natural Gas-Source Emissions	141,410	0	0	141,410
Displaced Coal-Source Emissions	37,997	0.3	0.2	38,064
Total	179,407	0.3	0.2	179,474
Emissions Displaced over 30 Years (metric tons)				
Displaced Natural Gas-Source Emissions	4,242,300	0	0	4,242,300
Displaced Coal-Source Emissions	1,139,910	9	6	1,141,923
Total	5,382,210	9	6	5,384,223

Source: Displaced emissions calculated by ECORP Consulting, Inc. using USEPA's AP-42 Fifth Edition Compilation of Air Emissions Factors 1995; 2015.

Notes: In order to provide a conservative analysis, the Proposed Project is assumed to generate electricity 25 percent of the time available (2,190 hours annually), which equates to a heat rate/efficiency of 10,000 British Thermal Units (BTU) per kilowatt hour. 108 megawatts (316,700,300 annual kilowatt hours) x 10,000 heat rate = 3,167,003 million BTU displaced from fossil fuel production. Fossil fuel-based energy consumption in California is predominately derived from natural gas (89.49%). Coal constitutes 10.13% of all fossil fuel-based energy consumption in California. Therefore, 2,834,151 million of the displaced BTU is displaced natural gas consumption and 332,852 million of the displaced BTU is displaced coal. The heat content of coal is assumed at 24 million BTU per ton of coal burned. At a rate of 24 million BTU per ton of coal burned, the project would displace 13,869 tons of burned coal annually.

As shown, the Proposed Project would potentially displace approximately 179,474 metric tons of CO₂e per year, and approximately 5,384,223 metric tons of CO₂e over the course of 30 years.

While the Proposed Project would emit some GHG emissions during construction and a very small amount during operations, the contribution of renewable resource energy production to meet the goals of the Renewable Portfolio Standard (AB 32 Scoping Plan Measure E-3) and would result in a net cumulative reduction of GHG emissions, a key environmental benefit. (AB 32 Scoping Plan Measure E-3, Renewable Portfolio Standard, of the AB 32 Climate Change Scoping Plan requires that all investor-owned utility companies generate 33 percent of their energy demand from renewable sources.) Therefore, the short-term minor generation of GHG emissions during construction which is necessary to create this new, low-GHG-emitting power-generating facility, as well as the negligible amount generated during ongoing maintenance operations, would be more than offset by GHG emission reductions associated with solar-generated energy during operation.

Increasing sources of solar energy is one of the measures identified under AB 32 to reduce statewide GHG emissions. The Proposed Project would reduce GHG emissions in a manner consistent with AB 32 and other California GHG-reducing legislation by creating a new source of solar power to replace the current use of fossil fuel power and reduce GHG emissions power generation and use. For these reasons, the

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Proposed Project would result in the generation of more than 100 percent of the power needs of the Project, achieving 60 points when compared to the Victorville CAP GHG Emissions Screening Tables. Therefore, the Proposed Project would conform with the City CAP. No impact would occur.

4.8.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.9 Hazards and Hazardous Materials

4.9.1 Hazards and Hazardous Materials (IX) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The construction phase of the Proposed Project may include the transport, storage, and short-term use of petroleum-based fuels, lubricants, and other similar materials. The transport of hazardous materials by truck is regulated by federal safety standards under the jurisdiction of the U.S. Department of Transportation. Additionally, a Spill Prevention, Control, and Countermeasure (SPCC) Plan for project construction and for facility operation would be prepared for the Proposed Project. The SPCC Plan for project construction would address fuels, lubricants, and hydraulic fluids expected to be used by construction equipment. Such equipment would be properly maintained to minimize leaks, and to prevent spills, vehicle service and repair would be performed off-site at an appropriate facility. The SPCC Plan for facility operation would address the oil that may be contained in each transformer. The SPCC Plan for facility operation would be updated on a regular basis as new equipment is commissioned and turned over from construction to operations. The oil contained in each transformer would be FR3 fluid, vegetable based, environmentally benign and does not require regular replacement. If needed, replacement would be accomplished by either transporting the entire transformer off-site or by transferring the FR3 fluid to a tanker truck for transport off-site. Oil disposal would be managed in accordance with Department of Toxic Substances Control hazardous waste regulations.

The PV panels may include solid materials that are considered to be hazardous. To address management of such materials, the Applicant's contract with the selected PV panel manufacturer would include a provision requiring the manufacturer to receive and recycle or dispose of any broken or defective modules. Because such materials are in a solid and non-leachable state, broken PV panels would not be a source of pollution to stormwater.

BESS batteries may contain solid materials that are considered hazardous. Additionally, the fire suppressant agent used for the BESS enclosures may be considered hazardous, although most commonly used suppressant agents in the marketplace today are considered to be environmentally friendly. To address management of such materials, the Applicant's contract with the selected BESS vendors and

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

suppliers would include a provision requiring the vendor or supplier to receive and recycle or properly dispose of any such components or materials that were taken out of service for any reason.

All use, storage, transport, and disposal of hazardous materials used in construction or operation of the solar facility would be in strict accordance with federal, State, and local laws, ordinances, regulations, and standards. No extremely hazardous materials (i.e., governed under 40 CFR 335) are anticipated to be produced, used, stored, transported, or disposed of as a result of the Proposed Project. During construction and operation of the Proposed Project, Safety Data Sheets (SDS) for all applicable materials present on-site would be kept on the site and made readily available to on-site personnel and regulatory agencies and inspectors. Additionally, an inventory and contingency plan for all hazardous materials in reportable quantities will be maintained onsite and submitted to the local Certified Unified Protection Agency annually, as appropriate.

All transport, handling, use, and disposal of substances such as petroleum products, paints, and solvents related to the operation and maintenance of the Proposed Project would comply with all Federal, State, and local laws regulating management and use of hazardous materials. Therefore, the use of such material would not create a significant hazard to the public and impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

On-site storage and/or use of large quantities of hazardous materials capable of affecting soil and groundwater are not proposed. However, during construction some hazardous materials, such as diesel fuel, would be used. As stated in the response to question a) of this section, a SPCC Plan for construction and for facility operation would be prepared for the Proposed Project. The SPCC Plan for project construction would address fuels, lubricants, and hydraulic fluids expected to be used for construction equipment. The SPCC Plan for facility operation would address the oil that would be contained in each transformer. With the implementation of the SPCC Plan, the Proposed Project would not create a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the release of hazardous materials. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

There are no schools located within a one-quarter mile radius of the project site. The closest school to the project site is the Riverside Preparatory High School located approximately 1.3 miles east of the Gen-Tie interconnection point at the High Desert Power Plant. No impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d)	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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A Phase I Environmental Site Assessment (ESA) was completed for the Proposed Project (AECOM 2018; Appendix G). The purpose of the Phase I ESA was to gather information concerning the project site and surrounding areas in order to identify conditions indicative of releases or threatened releases of hazardous substances, pollutants, contaminants, petroleum or petroleum products, and controlled substances in order to identify and evaluate Recognized Environmental Conditions (REC) affecting the project site.

As part of the Phase I ESA a review was completed of agency databases and other reasonably ascertainable records regarding past and current land use for indications of the manufacture, generation, use, storage and/or disposal of hazardous substances at the project site. The Solar Field Area was not identified on any of the databases searched by Environmental Data Resources, Inc. (EDR). Two known RECs were identified in the area of the Interconnection Facilities (Gen-Tie and Service Line corridors) including:

- Operating Unit 1 (OU1), a dissolved-phase trichloroethylene (TCE) plume, was identified in groundwater beneath the portion of the Gen-Tie and Service Line corridors within the former George AFB area of the project site. A Groundwater Extraction and Treatment System (GETS) was installed in December 1991 and operated until March 2003. A Record of Decision (ROD) Amendment is reportedly in progress to evaluate how the selected remedy should be altered. Groundwater monitoring data indicate that the total area of the TCE plume is stable and that TCE concentrations are decreasing. Concentrations of TCE in groundwater exceed the TCE cleanup Maximum Contaminant Level (MCL) of 5 micrograms per liter (µg/L). The current remedial process is reportedly protective of human health and the environment because exposure to site contamination has been controlled. On-site worker inhalation hazards for on-site conditions are deemed protective for commercial/industrial land use (AECOM 2018).
- OU3 Site LF014 was identified within a portion of the Gen-Tie within the former George AFB area. Site LF014 is a landfill area that covers approximately 50 acres and is located in an unpaved, undeveloped area, some of which is traversed by the Gen-Tie. The site is fenced, and a landfill cover has been installed. Site LF014 was reportedly used for disposal of municipal and industrial wastes. Industrial wastes may have included lube oil, paint, lacquer, naphthalene, TCE, PD-680,

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

cleaning compounds, hydraulic fluids, firefighting foams, batteries, oil spill absorbent, and general refuse. The volume of material disposed at the landfill is unknown. Removal actions were completed at the landfill between June 1996 and April 1997, including removing surface debris; rehabilitating the existing soil cover to an estimated thickness of 12 to 18 inches; grading the surface to promote surface runoff and decrease infiltration of surface water into the landfill; installing perimeter drainage ditches to minimize surface water from running onto the landfills and control surface water run-off from the landfills; installing site perimeter fencing to control site access; restricting land use to prohibit subsurface development; and reestablishing native plant species on the graded surface. Extensive cover repairs and improvements at Site LF014 were completed in April 2014 to address chronic erosion issues. Annual groundwater monitoring indicates potential degradation to groundwater from the landfill. The remedy at Site LF014 is reportedly protective of human health and the environment because the landfill covers and land-use restrictions effectively mitigate risk (AECOM 2018).

The Phase I ESA revealed no evidence of Controlled RECs (CREC), Historical RECs (HREC), or de minimis conditions in connection with the project site (AECOM 2018). The previously listed RECs (OU1 and OU3) are being assessed and remediated by the US Air Force and would not be affected by the Proposed Project. As such, impacts associated with these two RECs would be less than significant.

There is the potential for asbestos-containing materials (ACM) and lead-based paint (LBP) to be located within the abandoned residences, structures, and dump sites located within the Solar Field Area of the project site. Existing abandoned residences and structures would be demolished and dumps sites removed as part of the Proposed Project, which could expose construction personnel and the public to hazardous materials if ACM/LBP materials are present. This exposure would constitute a significant hazard to the public and the environment. With the implementation of **Mitigation Measures HAZ-1 through HAZ-8** impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is located adjacent to the SCLA. The project site is located within the SCLA Specific Plan (City of Victorville 2004). The Specific Plan describes a commercial air facility and related uses for an approximately 8,703-acre site with the majority of the site (5,350 acres) within the realigned George AFB. A Comprehensive Airport Land Use Plan has been developed in conjunction with the Specific Plan to minimize potential land use conflicts (City of Victorville 2008c).

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

"Power or Power Generating Plant" is a permitted use allowed through a CUP process in areas designated as Industrial in the SCLA Specific Plan. The 230kV Gen-Tie would also traverse areas zoned as "Exclusive Agricultural". Power lines of 100kV or more are a permitted use with a CUP in the Exclusive Agricultural zone per Table 7-1 of the City's Development Code. According to the Comprehensive Land Use Plan (CLUP) and Airport Master Plan, the Proposed Project would be a compatible land use with the SCLA (SCLA 2008a; 2008b).

The project site is located adjacent to the SCLA; therefore, the FAA has conducted an aeronautical study to determine if the Proposed Project would be a hazard to air navigation. The aeronautical study concluded that the structures included in the Proposed Project would not exceed obstruction standards and would not be a hazard to air navigation, issuing a No Hazard Determination for the Proposed Project (FAA 2018).

To determine the Proposed Project's potential to result in glare impacts on SCLA operations a glint and glare analysis was conducted (CAG 2019). The glint and glare analysis considered impacts on aircraft approaching to land on Runways 03/21 and 17/35. Since SCLA is a controlled airport, the analysis also considered potential impacts on air traffic control tower personnel (CAG 2019). The study concluded that there is no predicted glare from the solar array for aircraft making approaches to Runway 03/21 or 17/35. Furthermore, no glare was predicted for air traffic control personnel in the tower (CAG 2019).

No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is not located within the vicinity of a private airstrip; therefore, the proposed development would not result in a safety hazard for people residing or working on the project site. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The City of Victorville Emergency Plan identifies emergency responses and actions. The Plan identifies the available emergency shelters in the event of an evacuation, including schools, fire stations, police stations, hospitals, casualty collection points, emergency operations center, and emergency command center. The Plan directs that persons living or working in an area adversely affected by a disaster should report to the appropriate shelters, as directed by local public safety officials. It also explains that persons injured or ill

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

be taken to a casualty collection point (such as Victor Valley College) to obtain triage medical services (City of Victorville 2008b). The project site does not include any emergency or public facilities that would be used during emergency response and would not involve closures of emergency routes. As such, the Proposed Project would not impair or interfere with an adopted emergency response plan. No impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Due to the large amount of vacant undeveloped land in and surrounding the Planning Area of the City of Victorville and high winds that frequently occur in the Victor Valley, there is a potential for wildland fires to occur (City of Victorville 2008b). To address the possibility of fire within the project site the Applicant met with San Bernardino County Fire Department (SBCFD) as part of the Pre-Submittal Review process with the City during the initial planning stages for the Proposed Project. As of March 30, 2019 the VFD provides fire protection services to the City. As part of the Pre-Submittal Review the SBCFD recommended implementation of the following measures: 1) The Proposed Project should comply with all current Building and Fire Code requirements based on occupancy classification; 2) The Proposed Project should provide a twenty-six foot wide fire access road down the center and around perimeter of project and twenty foot interior around array blocks; 3) The Proposed Project's minimum road construction should be native material or gravel, compacted to a minimum of 85 percent; and 4) The Proposed Project should provide a twelve inch address sign on the main gate, provide a KNOXBOX™ or switch at the main access gates, and provide a secondary emergency egress gate with KNOXBOX™. The VFD concurs with these recommendations. These recommendations have been incorporated into the Proposed Project's design. Fire response access to the Solar Field Area from the VFD Fire Station 319 located at SCLA would be available via Perimeter Road and Helendale Road. As such impacts from the exposure of people or structures to a significant risk of loss, injury or death involving wildland fires would be less than significant.

It should also be noted that the Proposed Project would introduce project components (lithium ion batteries) that could potentially increase the risk of fire. To reduce the risk of fire from lithium ion batteries each battery module rack would be located within a metal storage container, retrofitted to add insulation, air-conditioning, and fire suppression with separate enclosures for the electronic controls, inverters, and rectifiers. The built-in fire protection system would utilize suppression through cooling, isolation, and containment. Each battery storage container would likely include a gaseous fire suppressant agent (e.g., 3M™ Novec™ 1230 Fire Protection Fluid) and an automatic fire extinguishing system with sound and light alarms. The system would be designed in accordance with the National Fire Protection Association (NFPA) safety standards and approved by the Authority Having Jurisdiction (AHJ), including an automatic shut-down system for fans that keep the container sealed when the fire extinguishing system is activated. The

fire suppressant agent is deployed by a releasing panel that uses an aspirating smoke detection system. In addition, each container would also have a manual release. A disable switch would be provided for maintenance to prevent accidental discharge while the system is being serviced. As such, the risk of fire from lithium ion batteries would be reduced to a less than significant level.

4.9.2 Mitigation Measures

HAZ-1: Prior to demolition of buildings or structures and removal of illegal dump sites, a survey for building-related hazardous materials shall be conducted by qualified and properly-certified individuals. Asbestos surveys must be conducted by a Cal/OSHA-certified asbestos consultant or site surveillance technician. Surveys for lead-based/bearing substances and lead-containing surface coatings must be conducted by a California Department of Health Service-certified lead inspector/risk assessor. If present, all recommendations regarding the removal and disposal of hazardous materials in accordance with federal, state, and local regulations shall be observed.

A Health and Safety Plan (HASP) shall be prepared prior to any work conducted on site in accordance with OSHA and Cal/OSHA standards.

HAZ-2: All asbestos disturbance and/or removal operations shall be conducted by a Cal/OSHA-registered and State-licensed asbestos removal contractor. All disturbance and/or abatement operations shall be under the direction of a California Certified Asbestos Consultant. At no time shall identified or suspect asbestos-containing materials be drilled, cut, sanded, scraped, or otherwise disturbed by untrained personnel.

HAZ-3: All construction activities that may affect asbestos-containing materials shall be conducted in accordance with Title 8 of the California Code of Regulations, Section 1529.

HAZ-4: For all abatement activities that will involve the removal of asbestos-containing materials, notification shall be made to the Mojave Desert Air Quality Management District, in accordance to MDAQMD Rule 302 and to Cal/OSHA. Notification to both entities shall occur 10 working days prior to the initiation of such activities.

HAZ-5: Notification to employees and contractors working within the buildings/structures shall be made in accordance with the California Health and Safety Code Section 25915 et seq. and Proposition 65.

HAZ-6: All demolition involving potential and identified lead-containing surfaces shall be conducted in accordance with 8 CCR 1532.1 and 29 CFR 1926.62. In addition, all activities involving identified lead-based paints shall be conducted in accordance with 17 CCR, Division 1, Chapter 8, Sections 35001 through 36100.

HAZ-7: Any welding, cutting, or heating of interior metal surfaces containing lead surface coating shall be conducted in accordance with 29 CFR 1926.354.

HAZ-8: Proper waste characterization and disposal of lead contaminated debris shall be conducted in accordance with Title 22 of the California Code of Regulations and the California Health and Safety Code.

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

Regional Hydrology

The project site is located within the Mojave River Watershed (HUC 18090208), encompassing 276 square miles within San Bernardino County; the main waterbody of the watershed is the Mojave River. The Mojave River's headwaters are located in the San Bernardino Mountains, south of the City of Hesperia, and the river flows in a mostly northerly direction to terminate near Baker, California. The main impoundment along the river's length is at Silverwood Lake, a reservoir created in 1971 as a part of the State Water Project that is currently managed for recreation and water supply. The Mojave Forks Dam is another impoundment along the river's length located approximately 20 miles south of the City. The river flows 26 miles from the Cedar Springs Dam (Silverwood Lake) in a northerly direction before passing to the east of the project site through a natural canyon. The Mojave River is approximately 0.5 mile east of the project site. Major tributaries to the Mojave River near the project site include largely unnamed desert washes. All of the drainages in the project site flow in a west to east direction towards the Mojave River.

The subwatersheds present within the project site include the Town of La Delta-Mojave River (HUC 180902080707, USGS 1978), South Lake-Fremont Wash (HUC 180902080603, USGS 1978,) and Burkhardt Lake-Mojave River (HUC 180902080706, USGS 1978) subwatersheds. All three of these subwatersheds share a connection with the Mojave River. The Solar Field Area is within the Town of La Delta-Mojave River and South Lake-Fremont Wash subwatersheds, while the Interconnection Facilities are within the Town of La Delta-Mojave River and Burkhardt Lake-Mojave River subwatersheds.

Site Hydrology

The project site and surrounding areas are mostly vacant desert land with sparse desert scrub vegetation. The project site also contains several previously disturbed/developed areas consisting of old dilapidated structures and illegal refuse dumping sites. The Solar Field Area is divided by a small ridge running north to south. To the west of the ridge, the project site slopes gradually toward the northwest with grades between 0 to 2 percent. To the east of the ridge, the project site slopes east toward the Mojave River with varying grades up to 10 percent (Burns & McDonnell 2019a; Appendix H. The topography is more varied within the Interconnection Facilities area, with several dendritic canyons sloping from west to east towards the Mojave River, and consolidating into small gullies and canyons. The Interconnection Facilities also traverse the graded and leveled VVWRA facility.

The Solar Field Area contains an ephemeral drainage channel and an isolated ephemeral pond. The Interconnection Facilities corridor traverses several ephemeral drainage channels along with some developed features associated with the SCLA and VVWRA. Most of these features flow east towards the Mojave River away from the Proposed Project (ECORP 2018c).

4.10.2 Hydrology and Water Quality (X) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction Impacts

During construction of the Proposed Project water quality impacts could occur without proper controls. Soils loosened during grading, as well as spills of fluids or fuels from vehicles and equipment, if mobilized or transported offsite in overland flow, have the potential to degrade water quality. Because the area of disturbance affected by construction of the Proposed Project exceeds one acre, the Proposed Project would be subject to the requirements of the statewide National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (General Permit). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation. During construction, to comply with the General Permit the applicant would be required to implement a SWPPP, which would include BMPs to prevent construction pollutants and products from violating any water quality standards or any waste discharge requirements. Compliance with the provisions of the NPDES General Permit would reduce impacts associated with water quality standards and discharge requirements during construction to a less than significant level.

Operational Impacts

Post-development conditions on the project site could affect the quality and quantity of stormwater discharges originating from the project site. To meet the requirements of California State Water Resources Control Board Order No. 2013-0001-DWQ, a Water Quality Management Plan (WQMP) has been prepared for the Proposed Project. The WQMP is intended to comply with the requirements of the City of Victorville and the Municipal Separate Storm Sewer Systems Permit (Phase II Small MS4 General Permit) for the Mojave River Watershed. The WQMP details stormwater treatment and other stormwater quality and quantity control measures that would be implemented to manage stormwater during project operations.

The solar racking system throughout the project site would be elevated above the ground, supported on vertical posts driven into the ground with no excavation or concrete foundations. The ground surfaces beneath the solar cells would remain with native on-site soil and vegetation. Vegetation would remain in non-graded areas and would be mowed to a maximum height of 18 inches. Precipitation would fall on the solar cells, run off the lower edges onto the ground surface, sheet flow across the site under the solar cells, and infiltrate into the ground similar to the pre-developed conditions. Concrete equipment foundations for inverter skids and substation equipment would be located sporadically throughout the project site. Excess runoff would primarily be shallow sheet-like flows across the surfaces of the site. After flowing across the site, the runoff would enter new on-site retention basins along the downstream site

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

perimeters, and then would overtop these basins as wide, shallow flow. The basins would be designed and constructed to overtop in a manner so as to preserve the existing runoff characteristics and locations to the greatest extent practical. As part of final designs, erosion control would be needed where flows enter and exit the retention basins. In general, existing runoff locations and characteristics entering and leaving the site would be preserved to the greatest extent practical (Burns & McDonnell 2018a; 2018b). The Proposed Project also includes the construction of a Gen-Tie Line and a Service Line. As stated in Section 2.3.7, Access Roads and Site Maintenance Roads, Gen-Tie access road construction would minimize disruption to natural drainage patterns. Where access roads cross a natural drainage two types of crossings would be considered: a drive through or dry wash crossing. BMPs included in the WQMP would help maintain water quality and waste discharge requirements during project operation.

Compliance with the provisions of the WQMP and the MS4 Permit would reduce impacts associated with water quality standards and discharge requirements during operations to a less than significant level.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Water would be required during construction for site preparation and dust control. Possible water sources for construction include reclaimed and potable water agencies in the project vicinity and trucked to the project site.

Water would also be required during operations for cleaning of the PV modules. It is anticipated that cleaning would occur once annually, if warranted, due to excessive soiling resulting in degraded performance. Module cleaning would use approximately 175,000 gallons of potable water per cycle, assuming approximately 350,000 modules, and would be trucked to the site. Because the facility would not be staffed, there would be no restrooms or need for a permanent water supply to the site. Module cleaning requires water that is low in minerals and dissolved solids to prevent spotting and hazing on module surfaces to keep module efficiency at optimal level. No module cleaning water would be stored onsite.

Estimated total water consumption during construction and operation is shown in Table 4.10-1.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Table 4.10-1. Water Usage During Construction and Operation

	Daily Demands (gallons)	Monthly Demand (gallons)	Annual Water Demand (acre-feet/year)
Construction Phase			
Site preparation and improvement	350,000	8,750,000	80
Solar field installation	174,000	4,350,000	60
Start-up and commissioning	174,000	4,350,000	60
Operational Phase			
(108 MWac nominal)	0	0	0.5

As shown in Table 4.10-1, the greatest demand for water by the Proposed Project would occur during construction. However, construction would be temporary (10 to 22 months). Operational water demand would be minimal and would be trucked in from offsite sources. For these reasons water needs for the Proposed Project during construction and operation are anticipated to be minimal and are not anticipated to substantially decrease water supplies. Impacts to groundwater supplies would be less than significant.

The Proposed Project would result in a minimal increase of impervious surfaces on the project site. The net gain of impervious areas due to the construction of the Proposed Project was estimated to be approximately 0.3 percent (Burns & McDonnell 2019a). As previously explained in the response to question a) of this section, stormwater originating from the project site would sheet flow across the site under the solar cells, and infiltrate into the ground similar to the pre-developed conditions. Excess runoff would be directed to onsite retention basins where water would be allowed to infiltrate into the groundwater. For these reasons, the Proposed Project is not anticipated to interfere with groundwater recharge. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Permanent disturbance to the project site would result from construction of roads, the substation, the BESS, equipment pads, PV tracker steel piles, and grading of areas with slopes greater than 5 percent within the Solar Field Area. Temporary disturbance to the site would result from trenching for electrical conductors, construction staging areas, and temporary access roads.

The project design confines the solar arrays, BESS, substation, and access roads to a footprint of approximately 581 acres, for a total disturbance of approximately 95 percent. The remaining areas within

the project boundary would be left undeveloped. Undeveloped areas would include on-site drainages and riparian buffer zones.

Limited grading is expected to be required because of the low impact development (LID) approach and nearly flat terrain. Grading would be required on slopes greater than 5 percent for PV power blocks. Project grading requirements are anticipated to be approximately 116 acres, mainly along the eastern side of the Solar Field Area and in the locations of the substation, BESS, and laydown areas, resulting in approximately 354,335 cubic yards of cut-and-fill and no cubic yards of export.

The preliminary grading design, retention areas, and basins were designed to maintain the pre-developed flow rates, volumes, locations, and characteristics leaving the site in order to avoid adverse impacts downstream. Rip rap would be used to protect outfall locations from erosion. Grading would be minimized to the greatest extent practical; and existing drainage patterns on the site would be kept as close as possible to their existing conditions (Burns & McDonnell 2019a).

Gen-Tie access road construction would minimize disruption to natural drainage patterns. Where the Gen-Tie access road is intercepted by an ephemeral stream channel the Proposed Project would utilize a drive through or dry wash crossing. Features of the dry wash crossings include:

- Drive-through crossings would include minimal vegetation trimming and no cut or fill. This type of crossing would be used for areas that are improved to the point where topographic modifications are not necessary. Geo-mats may be used to stabilize the crossing and reduce disturbance.
- Dry wash crossings are crossings of an ephemeral stream channel that includes grading and potentially stabilization. Approaches would be graded to allow more efficient vehicle passage and may be stabilized with rock or other erosion control devices including geo-mats, if needed. In some areas, the crossings may be reinforced with coarse rock material to support vehicle loads, prevent erosion, and minimize sedimentation. The rock would be installed so as to not block natural storm water flow, thus allowing continued movement of water. There would be no wet stream crossings. No stream crossings would occur during storm events.

Furthermore, SWPPP outlining various BMPs for minimizing erosion and runoff would be prepared prior to project construction. Typical erosion control BMPs would be used. The site would be stabilized according to the SWPPP requirements. Existing vegetation would be left in place and mowed and maintained to a height of less than 18 inches to help in preventing soil erosion. As such, impacts from erosion or siltation from the altering of drainage patterns would be less than significant.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:

- 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 that would result in flooding on- or off-site?

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

☐ ☐ ☒ ☐

Proposed modifications to the drainage patterns of the site would be minimal as discussed in the response to question c) of this section. The Proposed Project would result in a minimal increase of impervious surfaces on the project site. The net gain of impervious areas due to the construction of the Proposed Project was estimated to be approximately 0.3 percent (Burns & McDonnell 2019a). Stormwater originating from the project site would sheet flow across the site under the solar cells, and infiltrate into the ground similar to the pre-developed conditions. Excess runoff due to the addition of impervious surfaces would be directed to onsite basins where water would be allowed to infiltrate. As such impacts from flooding on- or off-site resulting from alterations of drainage patterns would be less than significant.

Would the Project:

- e) 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 with Mitigation Incorporated Less than Significant Impact No Impact

☐ ☐ ☒ ☐

The Proposed Project would result in a slight increase impervious surfaces, approximately 0.3 percent, on the site which could result in alterations to the quantities and velocity of stormwater discharges relative to existing conditions. Proposed alterations to the project site have been designed to maintain the pre-development flow rates, volumes, locations, and characteristics leaving the site in order to avoid adverse impacts downstream. All stormwater runoff originating on the project site would be conveyed to onsite basins replicating existing drainage patterns. The proposed basins would allow water to infiltrate on the project site. Furthermore, implementation of BMPs as part of the SWPPP and WQMP would minimize polluted runoff during project construction and operation. Impacts would be less than significant.

Would the Project:

- f) Otherwise substantially degrade water quality?

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

☐ ☐ ☒ ☐

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Please refer to the response to question a) of this section. The Proposed Project would not degrade water quality. Implementation of BMPs identified in the SWPPP and WQMP and compliance with conditions set forth in the General Permit and MS4 Permit would reduce impacts to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Numbers 06071C5150J and 06071C5125H covers the project site. The effective dates of these are August 28, 2008, with FIRM 06071C5150J last revised on September 2, 2016. The entire project site (Solar Field Area, Gen-Tie, Service Line, Gen-Tie Laydown Area, and access roads) falls within Zone X, which is defined as "areas determined to be outside the 0.2 percent annual chance floodplain." The Zone X is not regulated by FEMA nor the local floodplain administrator (Burns & McDonnell 2019a). The Proposed Project is also not proposing housing. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Please see the response to question g) in this section (4.9 Hydrology and Water Quality). The entire project site (Solar Field Area, Gen-Tie, Service Line, Gen-Tie Laydown Area, and access roads) is not located within a 100-year flood hazard area as shown on FIRM maps 06071C5150J and 06071C5125H. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
i) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Mojave River and its tributaries have three dams that store water and provide some flood control for the reaches in the Mojave Desert. A reach is a length of a stream or river, usually suggesting a level, uninterrupted stretch. Potential threats of dam inundation to the Victorville Planning Area could occur if the dams at Silverwood or Arrowhead Lakes failed and emptied into the Mojave River through Deep

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Creek. However, due to the distance to the nearest developed areas, and precautions built into the holding basins below Lake Silverwood and in the Deep Creek area just before the water enters the Mojave River, the probability of extreme flood is unlikely. Flood control improvements, including numerous levees and the West Fork Dam, reduce the potential for flooding (City of Victorville 2008b). The entire project site is also located outside of the 100-year flood zone and is situated at a higher elevation than the Mojave River. Therefore, no impacts due to flooding as a result of failure of levees or dams upstream of the Mojave River would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
j)	Be subject to inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

No major surface water bodies are located within the City of Victorville; therefore, the project site would not be subject to inundation from seiches. Additionally, the project site is located in the Mojave Desert and, due to distance to the Pacific Ocean and intervening mountains, the project site is not be subject to tsunamis. The project site is in a relatively flat area; therefore, it is not an area subject to mudflows. No impact would occur.

4.10.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.11 Land Use and Planning

4.11.1 Environmental Setting

Land use and zoning designations for the project site, which is composed of the land encompassed by the Solar Field Area, Interconnection Facilities, and Gen-Tie Laydown Area (and associated access roads) are listed in Table 4.11-1.

Table 4.11-1. Land Use and Zoning Designations

Project Component	Land Use Designation	Zoning Designation	Existing Land Use
Solar Field Area	SCLA Specific Plan – Industrial	Specific Plan – SP1-92	Undeveloped/Disturbed
Interconnection Facilities	SCLA Specific Plan – Industrial General Plan – Open Space	Specific Plan – SP1-92 Exclusive Agricultural (AE)	Undeveloped/Disturbed
Gen-Tie Laydown Area	SCLA Specific Plan – Airport and Support Facilities	Specific Plan – SP1-92	Undeveloped/Disturbed

Source: City of Victorville 2004 and 2008a

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

4.11.2 Land Use and Planning (XI) Environmental Checklist and Discussion

Would the Project:

- a) Physically divide an established community?

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project would be located on lands that are currently undeveloped and adjacent to other prominent industrial uses including the SCLA and the VVWRA. The development of the project site into an industrial use (solar PV power generating facility) would be compatible with existing land uses in the area and would not divide an established community. No impact would occur.

Would the Project:

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

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is located within the SCLA Specific Plan (SP1-92). The proposed power generating use is a permitted use ("Power or Power Generating Plant") allowed through a Conditional Use Permit (CUP) process in areas designated as Industrial in the SCLA Specific Plan. The 230kV Gen-Tie and 12.47kV Service Line would also traverse areas zoned as "Exclusive Agricultural". Power lines of 100kV or more are a permitted use with a CUP in the Exclusive Agricultural zone, per Table 7-1 of the City's Development Code. As such, the Proposed Project would be a compatible use and allowed under the SCLA Specific Plan and City of Victorville General Plan and zoning ordinance. The Proposed Project would also be required conform to all of the conditions set forth in the CUP. No impact would occur.

The SCLA Comprehensive Land Use Plan (CLUP) is intended to promote compatible land uses and restrict incompatible land uses near SCLA. CLUP compatibility is concerned only with the potential impacts related to:

- a) Exposure to aircraft noise;
- b) Land use safety with respect to both occupants of aircraft and to people on the ground;
- c) Protection of airport airspace; and
- d) General concerns related to aircraft overflights (SCLA 2008a).

Potential SCLA aircraft noise impacts on staff working at the Proposed Project is described in the response to question e) of Section 4.13, Noise, of this Initial Study. The project site is located outside of the 55-dBA

noise contour. This noise level is below National Institute for Occupational Safety and Health (NIOSH) worker-related noise level threshold of 85 dBA for an 8-hour period.

The project site is located within the CLUP's Compatibility Review Area 3. Table 3A of the CLUP depicts land use compatibility standards for the SCLA environs. Utilities are a "Normally Acceptable" land use within Compatibility Review Area 3. The Proposed Project would be categorized as a utility land use and, therefore, would be a compatible land use.

As detailed in the response to question d) of Section 4.1, Aesthetics, of this Initial Study, a glint and glare study was completed for the Proposed Project (CAG 2019). The study concluded that there is no predicted glare from the solar array for aircraft making approaches to Runway 03/21 or 17/35. Furthermore, no glare was predicted for air traffic control personnel in the tower. As explained in the response to question c) of Section 4.17, Traffic, of this Initial Study, the FAA also conducted an aeronautical study to determine if the Proposed Project would be a hazard to air navigation. The aeronautical study concluded that the structures included in the Proposed Project would not exceed obstruction standards and would not be a hazard to air navigation, issuing a No Hazard Determination for the Proposed Project (FAA 2018).

The Proposed Project would conform with the CLUP. No impact would occur.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is not located within the planning area of any existing HCP or NCCP. A Habitat Conservation Plan under Section 10 of the federal Endangered Species Act is currently being prepared to address project-related impacts to desert tortoise. Therefore, the Proposed Project would not result in impacts to existing HCPs or NCCPs.

4.11.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.12 Mineral Resources

4.12.1 Environmental Setting

Naturally occurring mineral resources within the City of Victorville include sand, gravel, and stone deposits that are suitable as sources of concrete aggregate. These resources are located primarily along the Mojave River. The project site is located within mineral resource zone (MRZ) 3A, which are areas containing known mineral occurrences of undetermined mineral resource significance (City of Victorville 2008b).

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

4.12.2 Mineral Resources (XII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is located in an area with a mineral resource zone designation of MRZ-3A. The Proposed Project would develop a solar PV power generating facility and is expected to be in operation for at least 25 to 35 years. At the end of the Proposed Project's life expectancy the project site could be available for the exploration and extraction of mineral resources if a need is identified and if it is economically viable. As such, implementation of the Proposed Project is not anticipated to result in the loss of a known mineral resource. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Please see the response to question a), above. No impact would occur.

4.12.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.13 Noise

4.13.1 Environmental Setting

Noise Fundamentals

Noise is generally defined as sound that is loud, disagreeable, or unexpected. The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the average hourly noise level (in L_{eq}) and the average daily noise levels/community noise equivalent level (in $L_{dn}/CNEL$).

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks, and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Mobile transportation sources, such as highways, and hard and flat surfaces, such as concrete or

asphalt, have an attenuation rate of 3.0 A-weighted decibels (dBA) per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance from the source. Noise generated by stationary sources typically attenuates at a rate of approximately 6.0 to 7.5 dBA per doubling of distance from the source (USEPA 1971).

Sound levels can be reduced by placing barriers between the noise source and the receiver. In general, barriers contribute to decreasing noise levels only when the structure breaks the “line of sight” between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise but are less effective than solid barriers.

Effects of Noise on People

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60- to 70-dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected.
- A 10 dBA change is subjectively heard as an approximate doubling in loudness and would in most cases be considered an adverse change in community response outside of commercial and industrial zoned area.

Vibration Fundamentals

Ground vibration can be measured several ways to quantify the amplitude of vibration produced. This can be through peak particle velocity or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

Existing Ambient Noise Levels

Victorville Municipal Code Section 13.01.030 and 13.01.040 limit noise at any location on a residential property at a maximum 65 dBA from 7 a.m. to 10 p.m. and 55 dBA from 10 p.m. to 7 a.m. Section 13.01.030 limits noise at any location on an industrial land use, such as the properties immediately surrounding the project site, at a maximum 75 dBA.

According to the Victorville General Plan Noise Element (2008a), aircraft noise is the predominate source of noise in the Proposed Project vicinity. The project site is positioned beyond the identified noise contours created by aircraft operations and therefore can be expected to experience noise levels of less than 55 dBA CNEL.

4.13.2 Noise (XIII) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction Noise Impacts

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for on-site construction activities. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., building construction, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts).

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Table 4.13-1. Typical Noise Levels from Construction Equipment

Equipment	Typical 8-Hour Noise Level (dBA) at 50 Feet from Source
	L_{eq}
Air Compressor	73.7
Backhoe	73.6
Compactor (Ground)	76.2
Concrete Mixer Truck	74.8
Concrete Mixer (Vibratory)	73.0
Concrete Pump Truck	74.4
Concrete Saw	82.6
Crane	72.6
Dozer	77.7
Drill Rig Truck	72.2
Excavator	76.7
Front End Loader	75.1
Generator	77.6
Gradall®	79.4
Grader	81.0
Hydraulic Break Ram	80.0
Jackhammer	81.9
Impact Hammer/Hoe Ram (Mounted)	83.3
Pavement Scarifier/Roller	82.5
Paver	74.2
Pneumatic Tools	82.2
Pumps	77.9
Roller	73.0
Truck (Dump/Flat Bed)	72.5

Source: Federal Highway Administration, Roadway Construction Noise Model (FHWA-HEP-05-054), dated January 2006.

There are no sensitive receptors in the immediate vicinity to the project site. The nearest is a residence located approximately 4,100 feet west of the site. Therefore, construction of the Proposed Project would not negatively affect exterior noise levels any sensitive receivers. As shown in Table 4.13-1, L_{eq} noise levels associated with individual construction equipment used for typical construction projects can reach levels of up to approximately 83.3 dBA L_{eq} at a distance of 50 feet. Considering an average noise attenuation rate of 6 dB per doubling of distance from the source (USEPA 1971), predicted maximum 8-hour noise levels at the loudest (the loudest equipment at the property line closest to the receptor) would be approximately 45.6 dBA L_{eq} at the nearest residence, as construction activities would occur throughout the project site and would not be concentrated at one point. As previously described, Victorville Municipal Code Section 13.01.030 and 13.01.040 limit noise at any location on a residential property at a maximum

65 dBA from 7 a.m. to 10 p.m. and thus the noise levels would be below the standard set forth in the Municipal Code.

Furthermore, the City and the SCLA are developing areas, and construction noise is generally accepted by urban residents as a reality within the urban environment. Section 13.01.060 of the City Municipal Code exempts construction activities on private properties that are essential to the completion of a project from all noise limits.

Noise associated with construction activities would not exceed applicable noise standards and would thus have a less than significant impact.

Operational Noise Impacts

Stationary Sources

The Proposed Project would operate continuously, seven days per week. Noise generated by Proposed Project operations would be associated with on-site transformers and inverters.

Representative noise levels for on-site stationary noise sources were obtained from noise studies and measurement data obtained from similar solar farm projects and related equipment. Table 4.13-2 summarizes representative operational noise levels for on-site noise sources.

Table 4.13-2. Summary of On-Site Stationary Equipment Noise Levels

Source	Distance (feet)	Noise Level (dBA L_{eq})
Substation Transformer Noise Levels	3	70
Inverters	10	55
Transmission Line Corona Discharge ¹	25	25
Battery Energy Storage System ²	10	103
Horizontal Single-Axis Tracker (HSAT) Systems	400	37
On-site Maintenance ³	50	70

Sources: Imperial County 2014; San Benito County 2010; San Luis Obispo County 2011, unless indicated otherwise.

Notes:

¹ Transmission Line Corona Discharge is conservatively based on a 230kV line. Corona discharge noise generated by lower-rated lines would be less.

² Operation of the industrial-grade air conditioning equipment used to cool the batteries would be the dominant source of noise associated with the BESS. Noise calculations assume 20 air conditioning units per 30 megawatts of storage capacity (Santa Paula 2017), which equates to 132 air conditioning units for the proposed 200 megawatts of energy storage capacity. Noise calculations account for all 132 units operating simultaneously at a distance of 10 feet when located in an exterior location with no barriers.

³ Assumes 70 dBA L_{eq} at 50 feet based on typical operational noise levels for portable equipment (e.g., portable generators and compressors) (FHWA 2006).

As previously described, sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary source. As a result, activities such as on-site maintenance, which produce noise levels of up to 70 dBA at 50 feet, would result in noise levels below 32.3 dBA at the nearest sensitive receptor located approximately 4,100 feet from the site (when conducted at the western-most Project fence line which is the nearest portion of the Project site to a sensitive receptor). 32.3 dBA is below both the daytime and nighttime standards for residential land uses. Lastly, Section 13.01.060 of the City Municipal Code exempts

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

from noise standards the construction, operation, maintenance and repairs of equipment, apparatus or facilities of public works-related services and facilities such as the Proposed Project.

The primary source of on-site Project noise, the proposed Battery Energy Storage System (BESS), would span up to 7 acres and be comprised of power conversion hardware, including battery charging controller, storage batteries, DC to AC (bi-directional) inverters/rectifiers, MV/HV power transformers and reactive power (VAR) management equipment, battery modules mounted in racks, electrical and electronic battery management equipment, as well as integrated heating, ventilation, and air conditioning (HVAC) and fire suppression systems; to be fully enclosed in converted International Organization for Standardization (ISO) shipping containers or one large building. Operation of the air conditioning equipment used to cool the batteries would be the dominant source of noise associated with the BESS. During summer, when ambient air temperatures are exceedingly high, there would be potential for all air conditioning units to operate concurrently. As shown in Table 4.13-2, the operation of 132 industrial-grade air conditioning units functioning simultaneously would generate up to 103 dBA at a distance of 10 feet when located in an exterior location with no barriers. The closest sensitive receptor to the proposed BESS is a residence located approximately 7,135 feet (1.3 miles) to the west on Colusa Road. Accounting for an attenuation rate of 6 dB for each doubling of distance from the BESS, this residence could be expected to experience 46.7 dBA of noise in the case that 132 air conditioning units are operating concurrently. (While this level of noise would be below the City's daytime and nighttime noise limit standards, it is noted that noise levels would most likely be even lower than 46.7 dBA as this calculation conservatively does not account for any intervening structures between the residence and individual air conditioning units that would exist within the BESS area itself.)

Noise associated with on-site Proposed Project operations would not exceed applicable noise standards and would thus have a less than significant impact.

Traffic Sources

The full-time staff of the Proposed Project is expected to consist of one electrical engineer to plan and coordinate operations and maintenance activities, and two to three instrumentation and controls technicians to perform maintenance and troubleshooting/repair activities. According to the 2013 Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, doubling of traffic on a roadway would result in an increase of 3 dB (a barely perceptible increase). The Proposed Project's daily trips would be nominal compared to the vehicle trips currently experienced at SCLA, and thus, would not result in a perceptible increase traffic noise levels. As a result, less than significant impacts would occur with regard to long-term exposure to increased traffic noise during Proposed Project operations.

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b)	Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction Impacts

Construction operations have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. The ground vibration levels associated with various types of construction equipment are summarized in Table 4.13-3. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels.

Table 4.13-3. Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)	Peak Particle Velocity at 100 Feet (inches per second)
Typical Pile Driver	0.644	0.08
Typical Sonic Pile Driver	0.170	0.02
Vibratory Roller	0.210	0.03
Hoe Ram	0.089	0.01
Large Bulldozer	0.042	0.01
Caisson Drilling	0.042	0.01
Loaded Trucks	0.035	0.00
Jackhammer	0.016	0.00
Small Bulldozer/Tractor	0.001	0.00

Source: FTA 2018

The City does not regulate vibration associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans's (2004) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

The nearest structure to the construction area is a residence located approximately 4,100 feet west of the site. Based on the vibration levels presented in Table 4.13-3, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.08 inches per second peak particle velocity at 100 feet. Therefore, Proposed Project construction would not exceed the Caltrans standard of 0.2 inches per second peak particle velocity and this impact is less than significant.

Operational Impacts

Once operational, the Proposed Project would not be a source of groundborne vibration. No impact would occur.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As previously described, on-site Proposed Project activities would, at a maximum, result in noise levels below 32.3 dBA at the nearest sensitive receptor located approximately 4,100 feet distant. This noise would be associated with intermittent maintenance activities occurring only sporadically and furthermore, is likely lower than existing ambient noise levels already experienced. Additionally, the Proposed Project's off-site daily trips would be nominal compared to the vehicle trips currently experienced at SCLA, and thus, would not result in a perceptible increase traffic noise levels. This impact is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Predicted maximum 8-hour construction-generated noise levels would be approximately 45.6 dBA L_{eq} at the nearest residence. As previously described, noise levels of quiet, suburban, residential neighborhoods are generally around 40 dBA. Therefore, Proposed Project construction would result in a nominal temporary increase in noise levels and is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project would be located north of the SCLA. "Power or Power Generating Plant" is a permitted use allowed through a CUP process on the project site. As previously stated, the full-time staff of the Proposed Project is expected to consist of one electrical engineer to plan and coordinate operations and maintenance activities, and two to three instrumentation and controls technicians to perform maintenance and troubleshooting/repair activities. The National Institute for Occupational Safety and Health (NIOSH), a division of the US Department of Health and Human Services, identifies a worker-related noise level threshold based on the duration of exposure to the source. The worker-related noise

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

level threshold starts at 85 dBA for more than 8 hours per day; for every 3 dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day.

The SCLA contains noise contours for the airport, and as depicted by these noise contours, the project site is located outside of the 55-dBA noise contour. This noise level is below NIOSH's worker-related noise level threshold of 85 dBA for an 8-hour period. This impact is less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no private airstrips within the vicinity of the project site. No noise-related impact would occur in this regard.

4.13.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.14 Population and Housing

4.14.1 Population and Housing (XIV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

An average construction workforce of 158 workers per day is anticipated, and the peak number of workers is estimated at 250 workers. It is anticipated that the majority of construction jobs for the Proposed Project would be filled by workers from the High Desert region (Adelanto, Apple Valley, Barstow, Hesperia, and Victorville) with some specialty trade contractors likely coming from the Inland Empire or Los Angeles regions. This assumption is based on labor and demographic data showing the High Desert region having a construction workforce surplus. Furthermore, approximately 71 percent of the High Desert labor force commutes outside of the region for job opportunities in the greater Inland Empire, Los Angeles, and San Diego areas because of the jobs-housing imbalance of the region (City of Hesperia Economic

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Development Department 2016). This data shows that the High Desert has the capacity to supply workers for the temporary construction jobs that would be created by the Proposed Project.

The full-time staff of the Proposed Project is expected to consist of one electrical engineer to plan and coordinate O&M activities, and two to three instrumentation and controls technicians to perform maintenance and troubleshooting/repair activities. Periodic module cleaning would be contracted to a specialty contractor as well as any high voltage work in the High Desert Solar substation. The operations staff would consist of approximately three to five persons.

The Proposed Project does not include the construction of new housing or large employers and, therefore, is not anticipated to directly or indirectly induce population growth in the area. The Proposed Project is not expected to generate a substantial permanent increase in employment opportunities in the area capable of inducing population growth. A less than significant impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project would be located on undeveloped land and would not displace housing. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project does not include the removal of housing; therefore, it would not displace people. No impact would occur.

4.14.2 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.15 Public Services

4.15.1 Environmental Setting

Fire Services

As of March 30, 2019 fire protection and emergency medical services for the City of Victorville are provided by the City of Victorville's Fire Department. Within the City limits there are four fire stations. A

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

fifth station is located at SCLA (Fire Station 319). In addition, three County fire stations are located within the City's existing Sphere of Influence that provide fire protection services to the City and adjacent unincorporated areas. The Proposed Project would be served by the SCLA fire station, which has three dedicated personnel onsite (City of Victorville 2008b).

Police Services

Police protection for the City is provided by the Victorville Police Department, which is contracted with the San Bernardino County Sheriff. The Victorville Police Department is located at 14200 Amargosa Road, Victorville, California.

Schools

Currently, there are twenty-three public elementary schools, five public junior high/middle schools, three high schools, a community college and a university (extension), eight academy/preparatory schools and ten private schools located in the City of Victorville (City of Victorville 2008b). The closest school to the project site is the Riverside Preparatory High School located approximately 1.3 miles east of the Gen-Tie interconnection point at the HDPP.

Parks

Existing outdoor recreation resources in the City of Victorville include public parks, public golf courses, public access lakes, bicycle paths, pedestrian trails and linkages between recreation areas and urbanized places. The City maintains 409.9 acres of parkland (including golf courses). Greentree Golf Course (150 acres, 18-hole) is located within the City (City of Victorville 2008b).

4.15.2 Public Services (XV) Environmental Checklist and Discussion

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

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Other Public Facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Fire Protection

The Proposed Project would construct a 108-MWac solar PV power facility, related substation with an integrated BESS, and interconnection facilities on approximately 624 acres of undeveloped land which would add to the demand on fire protection services. The Applicant met with the SBCFD as part of the Pre-Submittal Review process with the City during the initial planning stages for the Proposed Project. As of March 30, 2019 the VFD provides fire protection services to the City. As part of the Pre-Submittal Review the SBCFD recommended implementation of the following measures: 1) The Proposed Project should comply with all current Building and Fire Code requirements based on occupancy classification; 2) The Proposed Project should provide a twenty-six foot wide fire access road down the center and around perimeter of project and twenty foot interior around array blocks; 3) The Proposed Project's minimum road construction should be native material or gravel, compacted to a minimum of 85 percent; and 4) The Proposed Project should provide a twelve inch address sign on the main gate, provide a KNOXBOX™ or switch at the main access gates, and provide a secondary emergency egress gate with KNOXBOX™. The VFD concurs with these recommendations. These recommendations have been incorporated into the Proposed Project's design. Furthermore, the Applicant would pay the City of Victorville Development Impact Mitigation Fees to cover its fair share of impacts to fire protection services. Fire response access to the Solar Field Area from the VFD Fire Station 319 located at SCLA would be available via Perimeter Road and Helendale Road. Impacts would be less than significant.

Police Services

The Proposed Project would develop a PV power facility on a currently undeveloped parcel which would add to the demand of police protection services. The Solar Field Area would be fenced to prevent public access to ensure public safety and protect equipment from theft and vandalism. Gates would be installed at all site access roads. The Applicant would provide maintenance personnel capable of responding to any spills or other emergencies. The Proposed Project would be equipped with security measures appropriate for the site conditions, such as day/night closed-circuit security cameras monitored in the control room. The Applicant would also pay the City of Victorville Development Impact Mitigation Fees to cover its fair share of impacts to police protection services. Impacts would be less than significant.

Schools

The Proposed Project is not anticipated to induce population growth; therefore, it would not create additional demand for schools. No impact would occur.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Parks

The Proposed Project is not anticipated to induce population growth; therefore, it would not create additional demand for parks. No impact would occur.

Other Public Facilities

The Proposed Project is not anticipated to induce population growth; therefore, it would not create additional demand for other public facilities, such as libraries. No impact would occur.

4.15.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.16 Recreation

4.16.1 Recreation (XVI) Materials Checklist

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site does not include recreational facilities. The Proposed Project would not involve residential uses or substantially increase permanent employment in the region. It is anticipated that full-time staff required to operate the Proposed Project would consist of one electrical engineer and two or three instrumentation and control technicians. The Proposed Project is not anticipated to cause a substantial increase in the population of the project region; therefore, no increase in demand or use of existing parks or recreational facilities would result from the implementation of the Proposed Project. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities because, as stated in the response to question a) above, the Proposed Project is not anticipated to increase the demand or use of existing facilities. No impact would occur.

4.16.2 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.17 Transportation/Traffic

4.17.1 Transportation/Traffic (XVII) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction Impacts

The Proposed Project would generate short term construction related vehicle trips. Construction traffic would include construction workers traveling to and from the project site and delivery of equipment and material to the project site. The primary point of access to the project site is along Colusa Road from the west via Highway 395 (please see Figure 4.17-1). Portions of Colusa Road from Highway 395 to the Solar Field Area would be improved where the existing road condition is deteriorated, such as areas that contain potholes, ruts, soft and unstable road surfaces, and/or corrugation (washboarding). Improvements would be limited to blading, adding road base material, and compacting.

An average construction workforce of 158 workers per day is anticipated, and the peak number of workers is estimated at 250 workers. If all construction personnel were to use personal vehicles, construction-related traffic would include an estimated one round trip per worker per day on average during the 10- to 22-month construction period. The EPC contractor may encourage or incentivize carpooling.

It is anticipated that the majority of construction jobs for the Proposed Project would be filled by workers from the High Desert region (Adelanto, Apple Valley, Barstow, Hesperia, and Victorville) with some specialty trade contractors likely coming from the Inland Empire or Los Angeles regions. This assumption is based on labor and demographic data showing the High Desert region having a construction workforce surplus. Furthermore, approximately 71 percent of the High Desert labor force commutes outside of the region for job opportunities in the greater Inland Empire, Los Angeles, and San Diego areas because of the jobs-housing imbalance of the region (City of Hesperia Economic Development Department 2016). This data shows that the High Desert has the capacity to supply workers for the temporary construction jobs that would be created by the Proposed Project.

Delivery Traffic

Routes for trucks hauling materials and construction equipment would primarily follow the Highway 395 corridor to Colusa Road, allowing for safe travel by larger container trucks and wide-load trucks carrying heavy equipment. Material delivery would include all components of the substation, control building, fencing, PV modules, support piles, tracker components, inverters, and additional miscellaneous items. Material deliveries would originate at manufacturing sources within California and neighboring states, and from shipping ports along California's coast. Some specialty equipment may be sourced throughout the country and possibly Canada or Mexico and would be delivered to the site overland via truck or rail. It is anticipated that material deliveries would occur via Interstate 15, U.S. Highway 395, and surface streets.

Material deliveries would be on-going throughout construction. Much of the heavy construction equipment would arrive to the site at the beginning of construction and be stored on the site for the duration of construction. Table 2-4 in Section 2.6.8 of the Project Description describes the delivery truck type for each project component. Table 2-5 describes the projected number and length of daily truck deliveries. Table 2-6 describes the daily and average traffic trips during construction for each project component that would require transport to or from the project site.

Traffic generated by construction of the Proposed Project would be temporary. As discussed in the response to question b) of Section 4.10 Land Use and Planning of this Initial Study, the Proposed Project would be consistent with the land use and zoning designation of the project site and would not conflict with the City of Victorville's Circulation Element. Impacts would be less than significant.

Operational Impacts

The Proposed Project is expected to be operational in late 2020 or early 2021 and would require an estimated three to five permanent employees. The Proposed Project is expected to be in operation for at least 25 to 35 years. The full-time staff of the Proposed Project is expected to consist of one electrical engineer to plan and coordinate O&M activities, and two to three instrumentation and controls technicians to perform maintenance and troubleshooting/repair activities. Periodic module cleaning would be contracted to a specialty contractor as well as any high voltage work in the High Desert Solar substation.

Once construction is complete and the site is operational, all traffic would enter the site at the main site access along Colusa Road. Access to the facility would be restricted to O&M staff, authorized contractors, and security personnel only. The O&M staff would use light-duty vehicles and all-terrain vehicles for traversing the site along on-site access roads. Fire response access to the Solar Field Area from the VFD Fire Station 319 located at SCLA would be available via Perimeter Road and Helendale Road.

While it is anticipated that the Proposed Project would require intermittent maintenance to be conducted by the Proposed Project staff or contractors, such maintenance would be minimal requiring a negligible amount of traffic trips on an annual basis. Operational impacts would be less than significant.

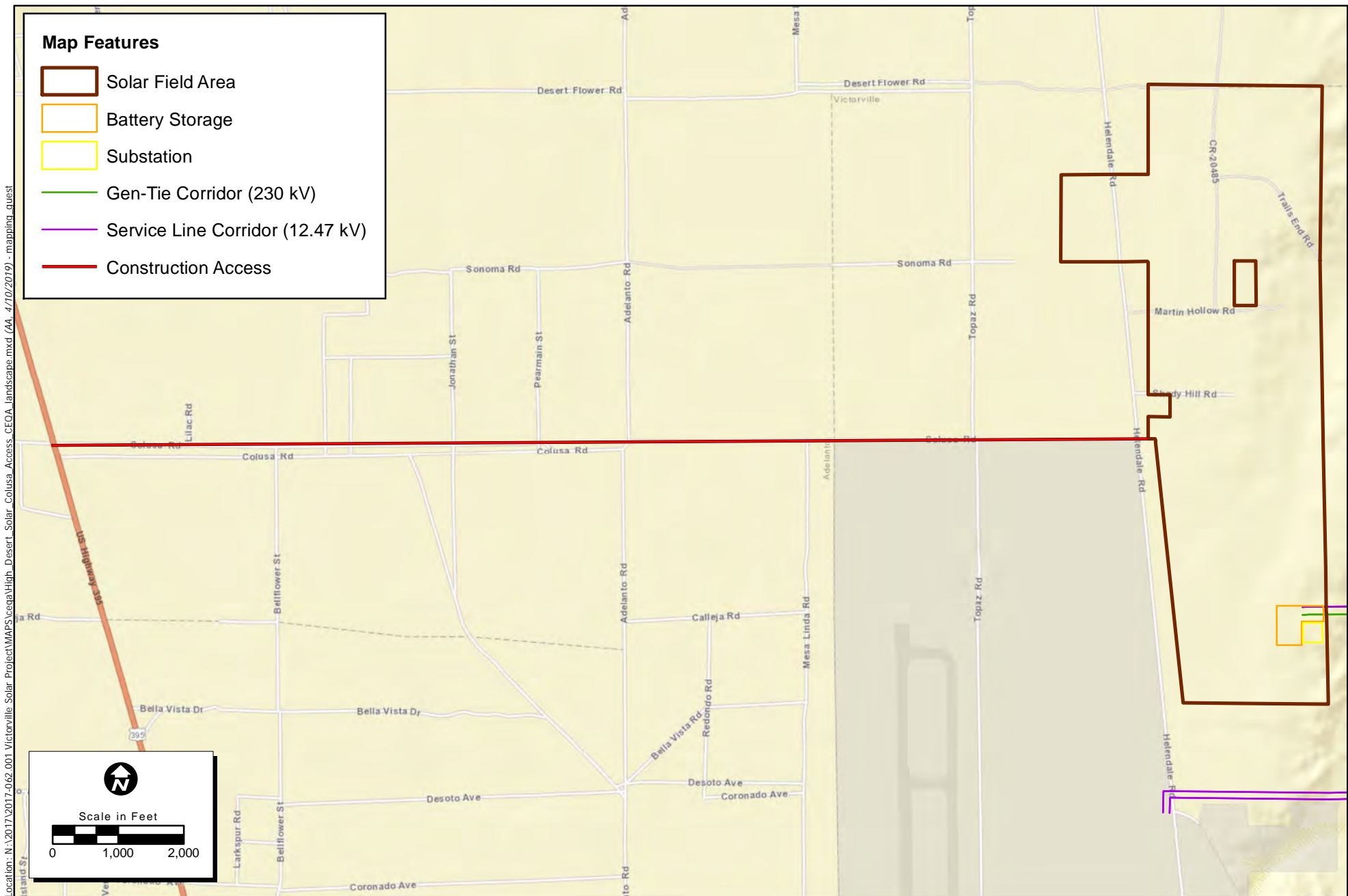


Figure 4.17-1. Solar Field Area Construction Access

2017-062.004 High Desert Solar Project

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**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please see the response to question a) above. Operation of the Proposed Project would not generate substantial traffic as compared to existing conditions. The Proposed Project would develop an allowed use on the site per the SCLA Specific Plan and City of Victorville's General Plan. Therefore, the Proposed Project is not anticipated to conflict with an applicable congestion management program. A less than significant impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project would include the construction of several structures with varying heights associated with the substation, Gen-Tie Line, and Service Line. The substation would include steel support and dead-end structures up to 90 feet in height at the substation. The Gen-Tie Line would include TSPs that would be approximately 130 feet tall and placed approximately 800 feet to 900 feet apart along the Gen-Tie route. The Service Line would include standard wood distribution utility poles that would be approximately 30 to 40 feet tall and placed approximately 400 feet apart. The project site is located adjacent to the SCLA; therefore, the FAA has conducted an aeronautical study to determine if the Proposed Project would be a hazard to air navigation. The aeronautical study concluded that the structures included in the Proposed Project would not exceed obstruction standards and would not be a hazard to air navigation, issuing a No Hazard Determination for the Proposed Project (FAA 2018). No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

The Solar Field Area's main entrance would be via Colusa Road near its intersection with Helendale Road. Colusa Road would remain open to the public through the project site. Public access to the parcel in the middle of the Solar Field Area that is not part of the Proposed Project would be provided via Floreate Road from the east side of the project site. Internal roadway improvements are discussed in *Section 2.3.7 Access Roads and Site Maintenance Roads* of the Project Description of this Initial Study. Routes for trucks hauling materials and construction equipment would primarily follow Colusa Road from Highway 395. Portions of Colusa Road from Highway 395 to the Solar Field Area would be improved where the existing road condition is deteriorated, such as areas that contain potholes, ruts, soft and unstable road surfaces, and/or corrugation (washboarding). Improvements would be limited to blading, adding road base material, and compacting. All road improvements would be designed by a registered civil engineer to meet City/County development standards, as applicable. Fire response access to the Solar Field Area from the VFD Fire Station 319 located at SCLA would be available via Perimeter Road and Helendale Road. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction of the Proposed Project may require temporary street closure, or partial closure, of Perimeter Road around the HDPP line tap site. Street closures have the potential to interfere with emergency access to areas near the project site. However, during temporary or partial street closures emergency access and traffic detours would be established. As such, impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project would not conflict with public transportation programs, plans, or policies. Public transit, bicycle, or pedestrian facilities do not exist on the project site and none would be affected. No impact would occur.

4.17.2 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.18 Tribal Cultural Resources

4.18.1 Environmental Setting

The project site is located within the territory known to have been occupied by the Serrano Native American group prior to contact with Europeans, as well as the Vanyume group of Native Americans. The Chemehuevi, whose main territory was in the eastern Mojave Desert and around the Colorado River, were occasional enemies or allies of the Serrano, and were sometimes found in Lucerne Valley and northern reaches of the San Bernardino Mountains in the early historic period. All three groups are discussed below.

The Serrano were mainly hunters and gatherers who occasionally fished. Game that was hunted included mountain sheep, deer, antelope, rabbits, small rodents, and various birds, particularly quail. Vegetable staples consisted of acorns, pinyon nuts, bulbs and tubers, shoots and roots, juniper berries, mesquite, barrel cacti, and Joshua tree (ECORP 2018d).

A variety of materials were used for hunting, gathering, and processing food, as well as for shelter, clothing, and luxury items. Shells, wood, bone, stone, plant materials, and animal skins and feathers were used for making baskets, pottery, blankets, mats, nets, bags and pouches, cordage, awls, bows, arrows, drills, stone pipes, musical instruments, and clothing (ECORP 2018d).

Settlement locations were determined by water availability, and most Serranos lived in villages near water sources. Houses and ramadas were round and constructed of poles covered with bark and tule mats. Most Serrano villages also had a ceremonial house used as a religious center. Other structures within the village might include granaries and sweatshouses (ECORP 2018d).

Serrano social and political units were clans, patrilineal exogamous territorial groups. Each clan was led by a chief who had both political and ceremonial roles. The chief lived in a principal village within the clan's territory. The clans were part of a moiety system such that each clan was either a wildcat or coyote clan and marriages could only occur between members of opposite moieties (ECORP 2018d). On the north side of the San Bernardino Mountains, clan villages were located along the desert-mountain interface on Deep Creek, on the upper Mojave River, in Summit Valley, and in Cajon Pass. The principal plant food available near these villages was juniper berries. These villages also had access to mountain resources, such as acorns and pinyon nuts.

Vanyume villages were located along the Mojave River from south of Victorville to Soda Lake. These river villages had populations of 40-80 people. Marriage ties between the Serrano foothill villages and Vanyume desert villages facilitated access to mountain resources, such as acorns and pinyon nuts, by the desert villages. The principal desert resources were mesquite beans, screw beans, tule reed roots, and Carrizo grass sugar (produced by aphids that lived on the Carrizo grass). Animal resources were rabbits, jackrabbits, desert bighorn sheep, pronghorn, and desert tortoise (ECORP 2018d). The Vanyume also collected salt from Soda Lake and from the Barstow-Daggett area to exchange for acorns and other resources from the mountains (ECORP 2018d).

Partly due to their mountainous and desert inland territory, contact between Serrano and European-Americans was minimal prior to the early 1800s. In 1819, an asistencia (mission outpost) was established near present-day Redlands and was used to help relocate many Serrano to Mission San Gabriel. However, small groups of Serrano remained in the area northeast of the San Geronio Pass and were able to preserve some of their native culture. Today, most Serrano live either on the Morongo or San Manuel reservations (ECORP 2018d).

The Chemehuevi are one of 16 identified Southern Paiute groups that at one time occupied a wide strip of territory extending across southern Utah and southern Nevada and following the Colorado River into California. The main territory occupied by the Chemehuevi group was west of the Colorado River, extending approximately from present-day Blythe to just north of Needles, and into California halfway to Twentynine Palms (ECORP 2018d).

The Chemehuevi hunted large game, but small animals were the chief source of protein and included rabbits, wood rats, mice, gophers, squirrels, chipmunks, and birds. Plant foods included piñon nuts, roots agave, seed, and berries. Some horticulture was being practiced at the time of Spanish contact in the 1770s. Settlement was mobile and scattered, with recurrent residence in specific locations. Individual households grouped together with others and traveled as units on hunting and gathering trips. Structures varied according to the season. During the winter, the Chemehuevi lived in earth-covered dwellings or caves. In warmer months, many lived under trees, sometimes with extra brush added for denser shade (ECORP 2018d).

As early as the end of the eighteenth century, Southern Paiute-Chemehuevis were being enslaved or baptized in the Spanish settlements. In response, some Chemehuevi raided travelers along the Old Spanish Trail from the 1850s to the early 1870s. During that time, efforts were made to settle the Chemehuevi on the Colorado River Reservation, but many did not agree to move there until the twentieth century. The early 1900s saw the establishment of a number of small reservations in Utah for the Southern Paiute. In 1980, the Southern Paiute-Chemehuevi numbered approximately 124 (ECORP 2018d).

4.18.2 Regulatory Setting

Assembly Bill 52

Effective July 1, 2015, AB 52 amended CEQA to require that: 1) a lead agency provide notice to those California Native American tribes that requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include Tribal Cultural Resources (TCRs), the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the Public Resources Code defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes.

Section 21074(a) of the Public Resource Code defines TCRs for the purpose of CEQA as:

1. Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - a. included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
 - b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
 - c. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria a and b also meet the definition of a historical resource under CEQA, a TCR may also require additional consideration as a historical resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant impact on the environment under CEQA, consultation is used to develop appropriate avoidance, impact minimization, and mitigation measures.

4.18.3 Summary of AB 52 Consultation

On December 12, 2018, the City sent project notification letters via mail to the following California Native American tribes, which had previously submitted general consultation request letters pursuant to 21080.3.1(d) of the Public Resources Code:

- Twenty-Nine Palms Band of Mission Indians
- Morongo Band of Mission Indians
- San Manuel Band of Mission Indians
- Cabazon Band of Mission Indians

Each recipient was provided a brief description of the Proposed Project and its location, the lead agency contact information, and a notification that the tribe has 30 days to request consultation. In addition, each recipient was provided a copy of the cultural resources study for the Proposed Project. The 30-day response period concluded on January 30, 2019.

As a result of the initial notification letters, the City received the following responses:

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

- Twenty-Nine Palms Band of Mission Indians - responded via a letter dated January 30, 2019 and stated that they are not aware of any additional cultural resources or Tribal Cultural Resources within the project area. However, the Proposed Project is within the Tribe's Traditional Use Area. The Tribe requested that both archaeological and Tribal monitors be present during all ground disturbing activities for the Proposed Project.
- San Manuel Band of Mission Indian - responded by email on January 10, 2019 requesting further communication and providing comments on the cultural resources study conducted by ECORP.

On January 17, 2018, the City initiated consultation via email with the San Manuel Band of Mission Indians. Through phone and email discussions, the San Manuel Band of Mission Indians identified potential impacts to a TCR known as the Oro Grande Archaeological Site (P36-000072). The Oro Grande site is a pre-contact occupation site listed on the National Register of Historic Places. The site is known to contain numerous artifacts, features, human remains, and preserved human and canine footprints found at depth. The known site boundaries are outside of the project area but are located near the proposed Gen-Tie line. The Tribe identified a larger area of concern in which unknown subsurface resources associated with this site may be present within the Gen-Tie line alignment.

On March 5, 2019, the San Manuel Band of Mission Indians provided the City via email with proposed mitigation measures that would bring impacts of the Proposed Project to TCRs to a less than significant level. Mitigation includes the development of a testing plan, subsurface testing of a portion of the Gen-Tie line near the Oro Grande site, and protocols for unanticipated discoveries during construction. The City accepted the suggested mitigation. The consultation was completed on March 5, 2019, after the parties agreed to appropriate mitigation measures, as specified in Section 4.18.5 below.

On May 14, 2019, the City closed consultation with the Twenty-Nine Palms Band of Mission Indians via a letter thanking the Tribe for its input and concerns and stating that, as requested Tribal monitoring has been added to the mitigation measures (MM CUL-1).

4.18.4 Tribal Cultural Resources (XVIII) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	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:				
i)	Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Public Resources Code Section 5020.1(k), or				
ii) 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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

i) As previously discussed in the response to question a) of *Section 4.5 Cultural Resources* of this Initial Study, all cultural resources identified within the APE were evaluated using NRHP and CRHR eligibility criteria and are evaluated as not eligible for listing in the NRHP or CRHR under any criteria (ECORP 2018d). The previously recorded, known boundaries of the Oro Grande Site (P36-000072) are near but not within the APE. No known impact would occur.

ii) The San Manuel Band of Mission Indians identified a TCR within the project area, specifically within the location of the Gen-Tie line. The TCR consists the Oro Grande Archaeological Site (P36-000072) and an area of concern which may contain unknown subsurface resources associated with the Oro Grande site. The San Manuel Band of Mission Indians expressed concern that there is unknown subsurface material associated with the identified TCR, currently only known to exist outside of the project area. Ground-disturbing activities associated with the construction of the Gen-Tie line could expose unknown subsurface TCRs. If previously unrecorded TCRs are encountered during construction that could potentially be affected, implementation of **Mitigation Measures TCR-1 through TCR-3** would reduce impacts to less than significant.

The Proposed Project is within the Twenty-Nine Palms Band of Mission Indians' Traditional Use Area. As such, the Tribe requested that both archaeological and Tribal monitors be present during all ground disturbing activities for the Proposed Project. Tribal monitoring is included as part of **Mitigation Measure CUL-1** and would reduce impacts to a less than significant level.

4.18.5 Mitigation Measures

TCR-1: Potential Impact to Archaeological Resources: Due to the potential impact to a significant archaeological site currently only known to exist outside of the project area and known to be a Historical Resource pursuant to CEQA, CA-SBR-72, subsurface archaeological presence/absence testing shall be conducted by at least one archaeologist with at least 3 years of regional experience in archaeology and a Tribal monitor representing the San Manuel Band of Mission Indians near this resource within the area of concern identified by the Tribe during consultation.

Testing shall be conducted prior to project implementation and may be conducted via the employ of a number of subsurface investigative methods, including shovel test probes, and/or deep testing via controlled units, augers or trenching to confirm presence or absence of subsurface material and to delineate site boundaries. The area of concern will be determined in the testing plan and shall be dug and dry-sifted through 1/8-inch mesh screens, prior to any ground-disturbing activity. A Testing Plan shall be created by the archaeologist and submitted to the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) and the Lead Agency for review at least 10 business days prior to implementation, so as to provide time to review/modify the Plan, if needed. The Plan shall outline the protocol of presence/absence testing and contain a treatment protocol detailing that 1) no collection of artifacts or excavation of features shall occur during testing, and 2) all discovered resources confirmed to be associated with site CA-SBR-72 shall be properly recorded and reburied *in situ*. The results of testing shall be presented to the applicant, Lead Agency, and SMBMI in the format of a report, which shall include details regarding testing methodology, soil assessment, and photographs. If the results of testing, as approved by SMBMI, are positive, then SMBMI and the Lead Agency shall, in good faith, consult concerning appropriate treatment of the resource(s), guidance for which is outlined in CUL-2. If the results of testing, as approved by SMBMI, are negative, then SMBMI will determine that no further action is needed unless and until any discoveries are made during project implementation. Any and all discoveries made during project implementation shall be subject to the treatment protocol outlined within the Testing Plan, as well as the treatment guidelines within CUL-2.

TCR-2: Treatment of Non-Funerary Archaeological Discoveries: If a pre-contact cultural resource confirmed by the Lead Agency through consultation with the Project Archaeologist and SMBMI to be associated with site CA-SBR-72 and therefore a Historical Resource is discovered during archaeological presence/absence testing, the discovery shall be properly recorded and then reburied *in situ*. In the event that material associated with historic-age Euro-American occupation of the area is identified during testing, the protocols for unanticipated discoveries in CUL-3 will be implemented.

If a pre-contact cultural resource is discovered during project implementation, ground disturbing activities shall be suspended 100 feet around the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. Representatives from the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI), a qualified archaeologist/applicant, and the Lead Agency shall confer regarding treatment of the discovered resource(s). As outlined in CEQA, the applicant shall make a good faith effort to redesign the project area in such a way that impacts to the identified resource(s) can be avoided/preserved in place. Should any resource(s) not be a candidate for avoidance/preservation in place, and therefore the removal of the resource(s) is necessary to mitigate impacts, a research design shall be developed in consultation with SMBMI.

In the event that an unanticipated discovery is considered potentially significant and cannot be assumed to be eligible for the California Register of Historical Resources, a research design will be prepared by the Project Archaeologist, through consultation with the Lead Agency and the

SMBMI. The research design will include a plan to formally evaluate the resource(s) for significance under CEQA criteria, as well as to formally address the resource(s) place within the landscape identified as a Tribal Cultural Resource (TCR) by the SMBMI. Additionally, the research design shall include a comprehensive discussion of sampling strategies, resource processing, analysis, and reporting protocols/obligations. Removal of any cultural resource(s) shall be conducted with the presence of a Tribal monitor representing the Tribe, unless otherwise decided by SMBMI. All plans for analysis shall be reviewed and approved by the applicant, Lead Agency, and SMBMI prior to implementation, and all removed material shall be temporarily curated on-site or other mutually agreed upon location.

It is the preference of SMBMI that removed cultural material be reburied as close to the original find location as possible. However, should reburial within/near the original find location during project implementation not be feasible, then a reburial location for future reburial shall be decided upon by SMBMI, the landowner, and the Lead Agency, and all finds shall be reburied within this location. Additionally, in the case of a single reburial area, reburial shall not occur until all ground-disturbing activities associated with the project have been completed, all cataloguing and basic recordation of cultural resources have been completed, and a final report has been approved by SMBMI and the Lead Agency. All reburials are subject to a reburial agreement that shall be developed between the landowner and SMBMI outlining the determined reburial process/location, and shall include measures and provisions to protect the reburial area from any future impacts (vis a vis project plans, conservation/preservation easements, etc.).

Should it occur that avoidance, preservation in place, and on-site reburial are not an option for treatment, the landowner shall relinquish all ownership and rights to this material and confer with SMBMI to identify an American Association of Museums (AAM)-accredited facility within the County that can accession the materials into their permanent collections and provide for the proper care of these objects in accordance with the 1993 CA Curation Guidelines. A curation agreement with an appropriate qualified repository shall be developed between the landowner and museum that legally and physically transfers the collections and associated records to the facility. This agreement shall stipulate the payment of fees necessary for permanent curation of the collections and associated records and the obligation of the project developer/applicant to pay for those fees. Mitigation would be considered complete upon the completion of the site documentation and artifact curation.

Construction can resume in the ESA boundary once the Lead Agency, through consultation with the Project Archaeologist and SMBMI, has determined that either the find is not significant or the fieldwork portion of the data recovery is complete.

All draft archaeological records/reports created throughout the life of the project shall be prepared by the archaeologist and submitted to the applicant, Lead Agency, and SMBMI for their review and approval. After approval from all Parties, the final reports and site/isolate records are to be submitted to the local CHRIS Information Center, the Lead Agency, and SMBMI.

TCR-3: Inadvertent Discoveries of Human Remains/Funerary Objects: In the event that any human remains are discovered within the project area, ground disturbing activities shall be suspended 100 feet around the resource(s) and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. The on-site lead/foreman shall then immediately notify SMBMI, the applicant/developer, and the Lead Agency. The Lead Agency and the applicant/developer shall then immediately contact the San Bernardino County Coroner regarding the discovery. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the Native American Heritage Commission (NAHC) within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. Work cannot resume within the no-work radius until the City, through consultation as appropriate, determines that the treatment measures have been completed to their satisfaction.

Reburial of human remains and/or funerary objects (those artifacts associated with any human remains or funerary rites) shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The landowner in consultation with the NAHC identified Most Likely Descendant (MLD), shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains and funerary objects. All Parties are aware that the MLD may wish to rebury the human remains and associated funerary objects on or near the site of their discovery, in an area that shall not be subject to future subsurface disturbances. To the extent feasible the applicant/developer/landowner should accommodate on-site reburial in a location mutually agreed upon by the Parties.

It is understood by all Parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, Parties, and Lead Agency, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

4.19 Utilities and Service Systems

4.19.1 Utilities and Service Systems (XIX) Environmental Checklist and Discussion

Would the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project does not include restrooms or permanent water supply because the site would not be staffed. Portable chemical toilets would be used during construction. As detailed in *Section 4.9 Hydrology and Water Quality* of this Initial Study, all stormwater originating on the site would be

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High Desert Solar Project**

infiltrated onsite via sheet flow across the site or proposed basins. As such, the Proposed Project would not generate wastewater that would need to be treated. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project does not include restrooms or permanent water supply. No impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project would not require or result in the construction or expansion of offsite stormwater drainage facilities. The Proposed Project would construct a stormwater drainage system to collect stormwater runoff originating on the project site and convey it to onsite basins. The stormwater drainage system is part of the Proposed Project and impacts associated with its construction have been evaluated throughout this Initial Study. A less than significant impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As previously discussed in *Section 4.9 Hydrology and Water Quality*, water would be required during construction for site preparation and dust control. Water would also be required during operations for cleaning of the PV modules. Estimated total water consumption during construction and operation is shown in Table 4.9-1 in *Section 4.9 Hydrology and Water Quality*. As shown in Table 4.9-1, the greatest demand for water by the Proposed Project would occur during construction. However, construction would be temporary (10 to 22 months). Operational water demand would be minimal. Possible water sources for construction include reclaimed and potable water agencies in the project vicinity. Both construction and operational water would be trucked to the project site from off-site sources. Impacts would be less than significant.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

As stated in the response to question a) of this section, the Proposed Project would not generate wastewater. As such, no impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

During construction of the facility, non-hazardous construction debris would be generated. Such debris would be recycled or disposed at the Victorville Sanitary Landfill consistent with required salvage and recycling laws, ordinances, regulations, and standards. During construction, sanitary waste would be managed using portable toilets and hand washing stations located at reasonably accessible on-site locations. The portable toilets would be serviced by an outside licensed contractor and waste would be hauled off site and disposed of in an appropriate facility.

During operation the PV modules and inverters produce no waste. However, the PV panels may include solid materials that are considered to be hazardous. To address management of such materials, the Applicant's contract with the selected PV panel manufacturer would include a provision requiring the manufacturer to receive and recycle or dispose of any broken or defective modules. Similar to the PV modules, the BESS batteries produce no waste during operation, but may contain solid materials that are considered hazardous. Also, the fire suppressant agent used for the BESS enclosures may be considered hazardous, although most commonly used suppressant agents in the marketplace today are considered to be environmentally friendly. To address management of such materials, the Applicant's contract with the selected BESS vendors and suppliers would include a provision requiring the vendor or supplier to receive and recycle or properly dispose of any such components or materials that were taken out of service for any reason.

As of May 5, 2009, the Victorville Sanitary Landfill had a remaining capacity of 81,510,000 cubic yards, a maximum permitted capacity of 83,200,000 cubic yards, and an estimated closure date of October 1, 2047 (CalRecycle 2018). It is not anticipated that the construction and operation of the Proposed Project would result in the Victorville Sanitary Landfill exceeding its design capacity. Impacts would be less than significant.

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Waste generated by the Proposed Project would comply with all applicable federal, state, and local statutes and regulations related to solid waste. No impact would occur.

4.19.2 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.20 Mandatory Findings of Significance

4.20.1 Mandatory Findings of Significance (XX) Environmental Checklist and Discussion

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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, 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impacts to biological resources and cultural resources are discussed in the respective sections of this Initial Study. Impacts would be less than significant with **Mitigation Measures BIO-1** through **BIO-9** and **CUL-1** and **CUL-2**.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Draft Initial Study and Mitigated Negative Declaration
High Desert Solar Project**

Impacts from the Proposed Project would not be cumulatively considerable with the implementation of the Mitigation Measures listed in this Initial Study.

Does the Project:		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c)	Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Direct and indirect impacts to human beings would be less than significant with the implementation of Mitigation Measures listed in this Initial Study.

SECTION 5.0 LIST OF PREPARERS

5.1 City of Victorville

Lead Agency

Scott Webb, City Planner

Michael Szarzynski, Senior Planner

5.2 ECORP Consulting, Inc.

CEQA Documentation/Air Quality/Biological Resources/Cultural Resources/Greenhouse Gas/Noise

Freddie Olmos, Project Manager

Alfredo Aguirre, AICP, Senior Environmental Planner

Wendy Blumel, Senior Archaeologist

Brant Brechbiel, Technical Editor

Robert Cunningham, Staff Archaeologist

Marc Guidry, Geographic Information System Specialist

Brad Haley, Senior Wildlife Biologist

Seth Myers, Senior Air Quality/GHG/Noise Analyst

Anne Surdzial, AICP, QA/QC

Scott Taylor, Senior Regulatory Specialist

Kristen Wasz, Senior Wildlife Biologist

5.3 Ellison Schneider Harris & Donlan LLP

Legal Review

Jeffery D. Harris, Partner

Samantha Neumyer, Associate

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SECTION 7.0 LIST OF APPENDICES

Appendix A – Air Quality and Greenhouse Gas Assessment

Appendix B – Comprehensive Biological Technical Report

Appendix C – Biological Impact Analysis and Mitigation Report

Appendix D – Aquatic Resources Delineation Report

Appendix E – Cultural Resources Inventory

Appendix F – Paleontological Resources Records Search

Appendix G – Phase I Environmental Site Assessment

Appendix H – Preliminary Drainage Study

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APPENDIX A

Air Quality and Greenhouse Gas Assessment

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APPENDIX B

Comprehensive Biological Technical Report

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APPENDIX C

Biological Impact Analysis and Mitigation Report

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APPENDIX D

Aquatic Resources Delineation Report

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APPENDIX E

Cultural Resources Inventory

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APPENDIX F

Paleontological Resources Records Search

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APPENDIX G

Phase I Environmental Site Assessment

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APPENDIX H

Preliminary Drainage Study

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