Initial Study/ Mitigated Negative Declaration

Bear Valley Solar Energy Project

PREPARED FOR

EDF Renewables Distribution-Scale Power

DATE

13 October 2025

REFERENCE

0739207



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.	
DOCUMENT TITLE	Initial Study / Mitigated Negative Declaration
DOCUMENT SUBTITLE	Bear Valley Solar Energy Project
PROJECT NUMBER	0739207
DATE	13 October 2025
VERSION	06
AUTHOR	Ashley Dunne, Kate Thomas, Kevin Varzandeh, Linnea Hofstrom, Ricardo Alejandro Salido, Mat Carson
CLIENT NAME	EDF Renewables Distribution-Scale Power

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Version 01	001	Ashley Dunne, Kate Thomas, Kevin Varzandeh, Linnea Hofstrom, Ricardo Alejandro Salido, Mat Carson	Mat Carson, Ian Todd	Ian Todd	03 January 2025	
Version 02	001	Ashley Dunne, Kate Thomas, Kevin Varzandeh, Linnea Hofstrom, Ricardo Alejandro Salido, Mat Carson	Mat Carson, Ricardo Alejandro Salido, Linnea Hofstrom	Ian Todd	27 January 2025	Responses to comments on Version 01
Version 03	001	Ashley Dunne, Kate Thomas, Kevin Varzandeh, Linnea Hofstrom, Ricardo Alejandro	Mat Carson, Ricardo Alejandro Salido	Ian Todd	6 February 2025	Responses to comments on Version 02

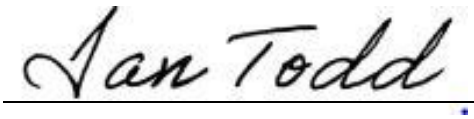
				ERM APPROVAL TO ISSUE		
		Salido, Mat Carson				
Version 04	001	Ashley Dunne, Kate Thomas, Kevin Varzandeh, Linnea Hofstrom, Ricardo Alejandro Salido, Mat Carson	Mat Carson, Linnea Hofstrom	Ian Todd	31 July 2025	Responses to County comments on Version 03
Version 05	001	Ashley Dunne, Kate Thomas, Kevin Varzandeh, Linnea Hofstrom, Ricardo Alejandro Salido, Mat Carson	Mat Carson	Ian Todd	24 September 2025	Response to County comments on Version 04
Version 06	001	Ashley Dunne, Kate Thomas, Kevin Varzandeh, Linnea Hofstrom, Ricardo Alejandro Salido, Mat Carson	Mat Carson, Linnea Hofstrom	Ian Todd	13 October 2025	Response to County comments on Version 05

SIGNATURE PAGE

Initial Study/ Mitigated Negative Declaration

Bear Valley Solar Energy Project

0739207



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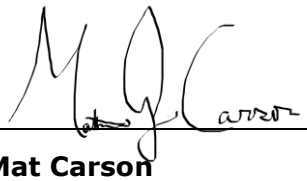

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
$\mu g/m^3$	Micrograms per cubic meter
AB	Assembly Bill
AC	Alternating current
AOC	Area of Concern
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
BAM	Best Available Maps
BBFD	Big Bear Fire Department
BMPs	Best Management Practices
BVES	Bear Valley Electric Service
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CALFIRE	California Department of Forestry and Fire Protection
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalents
CORE	Community-oriented renewable energy
CPUC	California Public Utilities Commission
CRECs	Controlled Recognized Environmental Conditions
CRHR	California Register of Historic Resources

Acronym	Description
CRPR	California Rare Plant Rankings
CSD	Community Services District
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dBA	Decibel A
DOC	California Department of Conservation
DPM	Diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EAP	Energy Action Plan
EDFR-DSP	EDF Renewables Distribution-Scale Power
EIR	Environmental Impact Report
ERM	Environmental Resources Management, Inc.
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FPPA	Federal Farmland Protection Policy Act
GHG	Greenhouse gas
HAP	Hazardous Air Pollutants
HRECs	Historical Recognized Environmental Conditions
IWMPs	Integrated Waste Management Plans
LOS	Level of service
MBTA	Migratory Bird Treaty Act
MLD	Most likely descendant
mph	Miles per hour
MT	Metric tons
$MTCO_2e$	25,000 MT of CO_2e
MW	Megawatt
N	No
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Community Conservation Pla

Acronym	Description
NFIP	National Flood Insurance Program
NO_x	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	or National Register of Historic Places
NWI	National Wetland Inventory
O&M	Operation and maintenance
PM_{10}	Particulate matter with diameter 10 microns or less
$PM_{2.5}$	Particulate matter with diameter 2.5funited states microns or less
ppm	Parts per million
Project	Bear Valley Solar Energy Project
PV	Photovoltaic
RC	Resource Conservation
RCRA	Resource Conservation and Recovery Act
RECs	Recognized Environmental Conditions
RL	Rural Living
RGHGRP	Regional Greenhouse Gas Reduction Plan
RPS	Renewable Portfolio Standard
RS-1	Residential Single – 1-acre minimum
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SF_6	Sulfur hexafluoride
SMARA	Surface Mining and Reclamation Act of 1975
STLC	Soluble Threshold Limit Concentration
SWRCB	State Water Resources Control Board
SWPPP	Stormwater Pollution Prevention Plan
TAC	Toxic air contaminants
TTLC	Total Threshold Limit Concentration
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Acronym	Description
Williamson Act	California Land Conservation Act of 1965
WOS	Waters of the State
WOUS	Waters of the United States
VMT	Vehicle miles traveled
VOC	Volatile organic compound
Y	Yes

1. INTRODUCTION

This form and the descriptive information in the application package constitute the contents of Initial Study pursuant to County Guidelines under Ordinance 3040 and Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines.

1.1.1 PROJECT LABEL

APN:	0314-401-29	***USGS Quad:***	Big Bear City
Applicant:	EDF Renewables Distribution-Scale Power	***T, R, Section:***	T2N, R2E, Section 17
Location:	2151 Erwin Ranch Road Big Bear, California 92314		
Project No:	2024-00236	***Community Action Guide:***	Bear Valley
Rep:	Ian Todd/Environmental Resources Management, Inc.	***LUC Zone:***	Very Low Density Residential
Proposal:	A Conditional Use Permit to allow for the construction and operation of a 5-megawatt alternating current solar photovoltaic facility and a General Plan Amendment to rezone the Project site from Residential Single - 1 acre minimum to Rural Living or similar zone.	***Overlays:***	Zone of Suspected Liquefaction Susceptibility Zone of low to moderate generalized landslide susceptibility Shay Meadow Open Space Policy Area Biotic resource overlays including southern rubber boa and meadow habitat

1.2 PROJECT CONTACT INFORMATION

Lead Agency:	County of San Bernardino Land Use Services Department 385 North Arrowhead Avenue, 1st Floor San Bernardino, California 92415-0182
Contact Person:	Delanie Garlick
Phone No:	(916) 903-2983
E-mail:	Delanie.Garlick@lus.sbcounty.gov

2. PROJECT DESCRIPTION

The Bear Valley Solar Energy Project (Project) proposes to construct a new, approximately 5-megawatt (MW) alternating current (AC) solar photovoltaic (PV) facility. The Project is owned by Bear Valley Electric Service, Inc. (BVES; Applicant) and being designed, permitted, and developed by EDF Renewables Distribution-Scale Power (EDFR-DSP).

The Project is situated within a 29.53-acre parcel, referred to as Assessor's Parcel Number 031440129, located at 2151 Erwin Ranch Road, near the City of Big Bear Lake in unincorporated San Bernardino County, California (Project site). Appendix A includes a series of figures and maps relevant to the Project. Figure 1 indicates the Project site vicinity. Figure 2 provides preliminary Project site plans. Figure 3 displays the current zoning designation of the Project site and surrounding properties. Figure 4 provides a map of three Key Observation Points (KOPs) used for visual renderings, which are shown as a series of photographs (Figures 5 through 10) displaying the existing conditions and a visual rendering of the final Project at each KOP location.

The Project is anticipated to require a Conditional Use Permit (CUP) and General Plan Amendment to rezone the Project site from Residential Single – 1-acre minimum (RS-1) to Rural Living (RL) or similar zone.

2.1 SITE AND SURROUNDING USES

The Project site parcel is undeveloped land located in unincorporated San Bernardino County, California, approximately 0.15 miles southeast of the unincorporated community of Big Bear City. The parcel's zoning is RS-1[1]. Local access is provided by Erwin Ranch Road and Lakewood Drive, and regional access is provided by State Route 38 (SR-38). The Project is in the United States Geological Survey (USGS) 7.5-minute quadrangle for Big Bear City, California, within Section 17 of Township 2 North, Range 2 East.

No current or historical uses of the Project site parcel have been identified. However, historic gold mining activities related to the Gold Hill Mine did occur within and adjacent to the Project site, as evidenced by existing small-scale infrastructure such as a ventilation shaft and production shaft. The Project site is relatively hilly on the northern boundary but is flat and gently sloping to the southwest. Wild donkeys also occasionally inhabit the Project site and graze.

The Project site is bounded on the north and east by undeveloped land, on the south by Erwin Ranch Road, and on the west by Lakewood Drive and two residences. Surrounding uses include dispersed rural residences zoned RS-1; undeveloped open space along the northern perimeter of the proposed Project site parcel zoned Resource Conservation (RC); and the Woodlands residential neighborhood to the south, which is zoned RS (accessed from SR-38) (Figure 3).

The proposed Project site parcel is visible from Erwin Ranch Road and Lakewood Drive and from the neighboring rural residences from the east, west, and south. The Project site is not visible from SR-38 or the Woodland residential neighborhood due to vegetation screening, topography, and existing residences.

[1] San Bernardino County. 2024. Code of Ordinances. Retrieved from: https://codelibrary.amlegal.com/codes/sanbernardino/latest/sanberncty_ca/0-0-0-146479.

Existing land uses and Land Use Zoning Districts on and adjacent to the proposed Project site are listed in Table 1.

TABLE 1 EXISTING LAND USE AND LAND USE ZONING DESIGNATIONS

Location	Existing Land Use	Land Use Zoning District
Project Site	Vacant	RS-1
North	Vacant/Open Space	RC
South	Erwin Ranch Road/Residential	RS-1
East	Vacant	RS-1
West	Lakewood Drive/Vacant/Residential	RS-1

2.2 LAND USE

The Project site occupies a parcel that is zoned as RS-1. The RS zoning district provides sites for single-family residential uses, incidental agricultural and recreational uses, and similar and compatible uses. Per the San Bernadino County Development Code [2], renewable energy facilities are not a permitted use at this site under its current zoning designation.

The Bear Valley Solar Energy Project requests a General Plan Amendment and rezone of the parcel to include the parcel in the Rural Living General Plan Land Use Designation and rezone the parcel to RL. San Bernadino County Development Code Section 84.29.020 Applicability and Land Use Zoning Districts lists RL as one of the zoning designations where San Bernadino County allows commercial renewable energy facilities.

The Renewable Energy and Conservation Element of the San Bernadino County General Plan (i.e., Countywide Plan)[3] contains goals and policies related to the development of renewable energy sources within the unincorporated regions of the County. The following goals from the Countywide Plan demonstrate an alignment among the objectives of the County, BVES, and EDFR-DSP:

- *Goal RE-2. Renewable Energy Systems:* The County will be home to diverse and innovative renewable energy systems that provide reliable and affordable energy to our unique Valley, Mountain, and Desert regions.
- *Goal RE-3. Community-Oriented Renewable Energy:* Community-oriented renewable energy facilities will be prioritized to complement local values and support a high quality of life in unincorporated communities.

[2] San Bernardino County. 2024. Code of Ordinances. Retrieved from: https://codelibrary.amlegal.com/codes/sanbernardino/latest/sanberncty_ca/0-0-0-146479.
[3] San Bernardino County. 2020. Countywide Plan. Retrieved from: https://countywideplan.sbcounty.gov/wp-content/uploads/sites/125/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf?x23421.

- Policy RE 3.2: Encourage community-oriented renewable energy (CORE) generation that primarily serves local uses in the county.
- Policy RE 3.3: Promote an adaptive distributed energy infrastructure that sustains local communities and improves resiliency to grid failures and increasing energy prices.
- Policy RE 3.5: Incorporate resident, business owner, and stakeholder input into the development and implementation of County policies for renewable energy.

- *Goal RE-4. Environmental Compatibility:* The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.

Additionally, the Project site parcel and surrounding area are within the Bear Valley Community, a subsection of unincorporated San Bernadino County. The Bear Valley Community Action Guide[4] contains values and action statements in order to provide a framework development within the local community. The following goal from the Community Action Guide represents another alignment between the goals of the community and the Project:

- *Community Focus Statement C:* Build human capital and promote enterprise, with a focus on environmentally friendly business, to strengthen the local economy and provide opportunities for residents and families to be self-reliant.

As the Project would be owned by BVES and connect to the local grid, the Project is consistent with these goals because it would provide local renewable energy generation, grid resiliency, and rate stability to residents and visitors. Therefore, to meet zoning and land use requirements, the Project is requesting a General Plan Amendment and rezone of the parcel to include the parcel in the Rural Living General Plan Land Use Designation and rezone the parcel to RL. Rezoning the parcel to RL will also allow the parcel to be used for future housing development after decommissioning the solar PV facility.

2.3 PROJECT OVERVIEW AND DESIGN

The Project would construct an approximately 5-MW AC distribution-scale solar PV facility, referred to as the Project. As the Applicant, BVES would own and operate the solar PV facility. One hundred percent of the power produced by the Project would be consumed locally, within BVES service territory.

The Project site would be accessed from Erwin Ranch Road. Facility setbacks, aboveground messenger wire system cabling or underground collection system cabling, and access drive designs would be designed in accordance with and comply with the San Bernardino County Building Department. An access drive within the Project site would be built to support construction and operation. Solar arrays would be arranged in a ground-mounted single-axis tracking system.

The development footprint would avoid the existing small-scale infrastructure from historic mining activities on the more sloped and wooded areas in the northern portion of the Project site

[4] San Bernardino County. 2020. Bear Valley Community Action Guide. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2020/08/09_Bear-Valley_CAG_2020.pdf.

parcel. The solar PV facility and associated gravel access drive, switchboard, and step-up transformer would occupy approximately 21 acres of the 29.53-acre parcel.

The Project would use approximately 8,680 bi-facial solar PV modules, which would be mounted on single-axis sun tracking systems mounted in rows running north-south. The modules are wired together and connected to inverters, which convert direct current into electrical AC. The Project would use approximately 20, 250-kilowatt string inverters (or equivalent technologies). The single axis tracking PV panels are mounted on steel columns approximately 5 feet above grade and tilt to a maximum height of approximately 8 feet above grade. Some systems may require a higher leading edge ground clearance to accommodate snow loads in which case the height at max tilt may reach up to ten feet above grade. Transformers will be located on concrete pads/skids and medium-voltage (MV) AC electrical conductors will run underground from the Project to Erwin Ranch Road, where a series of interconnection poles and/or pad-mounted equipment pads containing monitoring and metering equipment will interconnect the Project to the local distribution system along Erwin Ranch Road. The number of modules and inverters is subject to change depending on the final design and equipment availability. These technologies are proven, highly efficient, and widely accepted within the industry.

2.3.1 CONSTRUCTION SCHEDULE

EDFR-DSP estimates it would take approximately 9 months to construct the Project, utilizing an estimated 35 workers per day on average, with a construction workforce of about 30-50 workers during the peak period of construction. It is anticipated that the Project would be operational by Quarter 4 2026.

Construction for the Project can be broken into five buckets:

- Site Preparation
- Foundations
- Module Install
- Electrical Install
- Commissioning

Stormwater features, perimeter fencing, and gravel access drive installation all occur during the Site Preparation stage. Foundation work includes the installation of support posts, single-axis trackers, and an above-ground messenger wire cable management system or trenching for underground electrical cable and collection system. Electrical cables will be installed via an above-grade messenger wire cable management system or in trenches which will then be backfilled. Once the support posts and trackers are installed, crews will mount modules to the tracking system and begin connecting cables. Inverters, pad-mounted transformers, and combiner boxes will be installed during the Electrical Install phase. Following mechanical completion, the Project will undergo system commissioning and testing.

The Project would interconnect to an existing BVES Circuit adjacent to the Project site.

Pre-functional testing would involve an American National Standards Institute/International Electrical Testing Association - Acceptance Testing Specifications acceptance test for applicable electrical equipment and systems (i.e., grounding), in addition to visual checks to assure that the

equipment and systems (i.e., mechanical, electrical, and communications) have been received in good condition and have been installed according to applicable codes, standards, and manufacturer's requirements. Depending on the test, either qualified contractor staff or qualified third parties would be used for the testing, with reports made available to BVES.

EDFR-DSP would adhere to all applicable San Bernadino County Development Code statutes and ordinances when designing and constructing the Project.

2.3.2 WATER SUPPLY

A minimal amount of water would be required during construction for earthwork operations, primarily related to dust control for road construction, grading, and other site work. Water will be applied via water truck during construction activities, anticipated to last nine months. A minimal amount of water would also be required for construction workers' needs (e.g., drinking water, sanitation facilities). Bottled water and portable sanitation units would be used during construction.

For operational and maintenance activities, water would be needed for initial watering of plants associated with vegetative screening of the site. The plants chosen would be local and drought tolerant and should not require watering once established (after 1 to 2 years). Water would be brought from offsite during operations and maintenance (including landscaping maintenance) to satisfy any water needs.

Overall, the amount of water required during construction and operation would be negligible.

2.3.3 SIGNAGE

No signs other than the Project contact information sign and those required for safety are being proposed.

2.3.4 PERIMETER FENCE AND LANDSCAPING

The perimeter of the Project site would be enclosed by a fixed knot "agricultural style" wooden fence with a proposed height of 7 feet and access provided through a rolling gate located at the proposed gravel driveway off Erwin Ranch Road. The fence would provide security of the facility while maintaining the rural aesthetic of the area. Approximately 6-inch gaps in the fence wiring will allow for the passage of small wildlife during operation. Based upon feedback received from the community, the Project also proposes the inclusion of a small gap (approximately 6 to 8 inches) along the bottom of the fence to further enable the passage of small wildlife during operation.

In addition to the perimeter fence, landscaping would be planted around the western, southern, and eastern boundaries of the Project site to limit views of the Project from nearby residences and drivers along Lakewood Drive and Erwin Road. Landscaping would consist of native and drought-tolerant plants that would reach the height of approximately 8 feet at full growth. A Landscape Plan is being prepared as part of the Project.

2.3.5 GROUND DISTURBANCES AND STORMWATER MANAGEMENT

The Project design requires minimal grading to maintain existing drainage patterns and site topography, which is relatively flat. However, stormwater management practices, which would include proposed stormwater detention basins in the northwestern corner and along the northern boundary of the Project site and other Stormwater Best Management Practices (BMPs), would contain stormwater flows onsite and manage water quality. Grading would generally only occur for stormwater management structures, along the interior access drives, and in the northeastern section of the site where the topography rises. Other ground disturbances include pile driving for the solar PV support structures to approximately 7-9 feet below grade, pending the final structural design, as well as trenching for underground electrical lines to approximately 42 inches below grade.

A Grading Plan is being prepared for approval by San Bernardino County prior to construction.

2.3.6 OPERATION AND MAINTENANCE

The Project would be operated on an autonomous, unstaffed basis and monitored remotely from an existing offsite facility. It is anticipated that maintenance requirements would be minimal, as the proposed Project's PV arrays would operate with limited moving parts. No full-time staffing would be required to operate the facility; however, roughly two employees are expected to visit the site approximately a few times per year for routine maintenance.

Operational activities are limited to monitoring plant performance and unscheduled, preventative maintenance of the facility. The Project would operate during daylight hours only. No heavy equipment would be used during routine Project operation. Operation and maintenance vehicles would include trucks (pickup, flatbed), forklifts, and loaders for routine and unscheduled maintenance. Large heavy-haul transport equipment may be brought to the site infrequently for equipment repair or replacement.

Any required maintenance would be scheduled to avoid peak electrical load periods, with unplanned maintenance activity as needed depending on the event. Preventative maintenance kits and certain critical spare components may be stored at the Project site near the equipment pads for the switchboard and step-up transformer, while all other necessary maintenance components would be available at an offsite location.

Existing vegetation is sparse with little potential for vegetative fuel buildup under the PV arrays. Minor weed mowing and other landscaping may be necessary occasionally. The Project would infrequently produce a small amount of waste associated with maintenance activities. Solar PV facility waste typically include broken and rusted metal, defective or malfunctioning modules, electrical materials, empty containers, and other miscellaneous solid materials including typical household type refuse generated by workers. These materials would be collected and disposed of in accordance with local, state, and federal regulations.

2.3.7 DECOMMISSIONING

At the end of the Project's operational term, the Applicant may determine that the site should be decommissioned and deconstructed after a lifecycle of approximately 35 years. When the solar

arrays, panels, fencing, etc. are removed after the Project's lifetime, the land would be largely restored to its pre-Project condition. The Project would utilize Industry BMPs to ensure the collection and recycling of solar arrays, panels, fencing, etc. to the extent feasible. Following the County's Development Code, a Closure, Revegetation, and Rehabilitation Plan that outlines the decommissioning process and its adherence to the requirements of other appropriate governing authorities, as well as other plans, permits, and management practices, would be prepared and submitted to the County prior to issuance of a Building Permit. Following the implementation of this plan, all equipment, foundations, and fencing would be removed, and the Project site would be restored to the pre-Project conditions. End uses would be consistent with the proposed zoning of RL.

3. EVALUATION FORMAT

This Initial Study is prepared in compliance with the CEQA pursuant to Public Resources Code (PRC) Section 21000, et seq. and the State CEQA Guidelines (California Code of Regulations [CCR] Section 15000, et seq.). Specifically, the preparation of an Initial Study is guided by Section 15063 of the State CEQA Guidelines. This format of the study is presented as follows. The Project is evaluated based on its effect on 20 major categories of environmental factors. Each factor is reviewed by responding to a series of questions regarding the impact of the Project on each element of the overall factor.

The Initial Study checklist provides a formatted analysis that provides a determination of the effect of the Project on the factor and its elements. Substantiation is then provided to justify each determination. One of the four following conclusions is then provided as a summary of the analysis for each of the major environmental factors.

Substantiation is then provided to justify each determination. One of the four following conclusions is then provided as a summary of the analysis for each of the major environmental factors.

1. **No Impact:** No impacts are identified or anticipated, and no mitigation measures are required.
2. **Less than Significant Impact:** No significant adverse impacts are identified or anticipated, and no mitigation measures are required.
3. **Less than Significant with Mitigation Incorporated:** Possible significant adverse impacts have been identified or anticipated, and the following mitigation measures are required as a condition of approval to reduce these impacts to a level below significant.
4. **Potentially Significant Impact:** Significant adverse impacts have been identified or are anticipated.

Any mitigation measures identified in this Initial Study would be compiled into a Mitigation Monitoring and Reporting Program for tracking during pre-construction, construction, and operation of the Project.

4. ENVIRONMENTAL DETERMINATION

4.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

	Aesthetics		Agriculture and Forestry Resources
	Air Quality	X	Biological Resources
X	Cultural Resources		Energy
X	Geology/Soils		Greenhouse Gas Emissions
	Hazards and Hazardous Materials		Hydrology/Water Quality
	Land Use/Planning		Mineral Resources
X	Noise		Population/Housing
	Public Services		Recreation
	Transportation	X	Tribal Cultural Resources
	Utilities/Service Systems		Wildfire
	Mandatory Findings of Significance		

4.2 DETERMINATION

On the basis of this initial evaluation:

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

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

_____ I find that the proposed Project MAY have a significant effect on the environment and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.

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

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

Signature _____ Date _____

5. EVALUATION OF ENVIRONMENTAL IMPACTS

5.1 AESTHETICS

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?				X
b. Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?			X	
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

5.1.2 AESTHETICS SETTING

This aesthetics setting and impact analysis are based on the results of the Glare Analysis prepared by ERM in 2024 (Appendix B). The Project is in the San Bernardino Mountains, approximately 2.5 miles southeast of Big Bear City, California, and approximately 0.6 miles northwest of Erwin Lake. The Project site is bordered by the San Bernardino National Forest to the north and rural residences on the east, west, and south.

The existing site to be developed is open, flat land covered with low shrubs and bordered by hills on the north. Elevation ranges from approximately 6,770 to 6,790 feet above mean sea level. A forested hillside immediately north of the fenced area rises approximately 500 feet above the site. The Project vicinity features flat, open shrubland with scattered homes and ranches to the west, south, and east. The site is bordered to the west by Lakewood Drive and to the south by Erwin Ranch Road.

Viewers of the site would generally be nearby residences and drivers along Lakewood Drive and Erwin Ranch Road. Within the Project vicinity, an approximately 16-mile segment of SR-38 is a

designated scenic highway between South Fork Campground and State Lane; however, no line of sight is present between SR-38 and the Project site.

5.1.3 REGULATORY SETTING

5.1.3.1 STATE OF CALIFORNIA

California Scenic Highway Program[5]

California's Scenic Highway Program was created in 1963 to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. A highway may be designated as "scenic" depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the travelers' enjoyment of the view.

5.1.3.2 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[6]

The Countywide Plan/Policy Plan contains the long-term goals and policies that will guide County decisions, investments, and improvements toward achieving the Countywide Vision. It serves as the County's General Plan for the unincorporated areas and includes policy direction for regional services the County administers in both incorporated and unincorporated areas. Relevant policies from the Countywide Plan/Policy Plan are summarized below.

Land Use Element

- *Goal LU-4 Community Design.* Preservation and enhancement of unique community identities and their relationship with the natural environment.
    - Policy LU-4.1 Context-sensitive design in the Mountain/Desert regions. We require new development to employ site and building design techniques and use building materials that reflect the natural mountain or desert environment and preserve scenic resources.
    - Policy LU-4.5 Community identity. We require that new development be consistent with and reinforce the physical and historical character and identity of our unincorporated communities.
    - Policy LU-4.7 Dark skies. We minimize light pollution and glare to preserve views of the night sky, particularly in the Mountain and Desert regions where dark skies are fundamentally connected to community identities and local economies.

Natural Resources Element

[5] California Department of Transportation. 2024. Scenic Highways. Retrieved from: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

[6] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf

- *Goal NR-4 Scenic Resources*. Scenic resources that highlight the natural environment and reinforce the identity of local communities and the county.
    - Policy NR-4.1 Preservation of scenic resources. Consider the location and scale of development to preserve regionally significant scenic vistas and natural features, including prominent hillsides, ridgelines, dominant landforms, and reservoirs.
    - Policy NR-4.2 Coordination with agencies. Coordinate with adjacent federal, state, local, and tribal agencies to protect scenic resources that extend beyond the County's land use authority and are important to countywide residents, businesses, and tourists.

Renewable Energy and Conservation Element

- *Goal RE-4 Environmental Compatibility*. The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.
    - Policy RE-4.4. Encourage siting, construction and screening of RE generation facilities to avoid, minimize or mitigate significant changes to the visual environment including minimizing light and glare.
        - RE 4.4.1. Reduce visual impacts through a combination of minimized reflective surfaces, context sensitive color treatments, nature-oriented geometry, minimized vegetation clearing under and around arrays, conservation of pre-existing native plants, replanting of native plants as appropriate, maintenance of natural landscapes around the edges of facility complexes, and lighting design to minimize night-sky impacts, including attraction of and impact to nocturnal migratory birds.

5.1.4 ENVIRONMENTAL EVALUATION

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

No Impact. The proposed Project is located on a vacant site with relatively sparse vegetation. The surrounding landscape consists of undeveloped land on the north and east, the Woodlands residential neighborhood to the south and two rural residences on the west. There are no designated scenic vistas including prominent hillsides, ridgelines, dominant landforms, and reservoirs in the viewshed of the proposed Project per the Countywide Plan/Policy Plan.[7] When comparing the existing conditions (Figure 9) to the proposed conditions (Figure 10) in proximity of the Project site (see photograph locations in Figure 4), adverse effects on surrounding landscape would be negligible within 1 mile, and viewers of the site would be limited to the nearby residences and drivers along Erwin Ranch Road and Lakewood Drive (see Figures 5 through 8). Landscape screening is proposed along Erwin Ranch Road and Lakewood Drive, as well as along the adjacent residences, to minimize visual effects of the proposed Project. Therefore, the Project would have no impact on scenic vistas.

[7] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf

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

Less Than Significant Impact. The Project site is generally flat and contains no significant geologic features or vegetation that is particularly unique for the area, nor does it contain vegetation that would be considered scenic. Development of the Project would not involve the removal of visually significant trees, rock outcroppings, and/or historic buildings, as these features do not occur on the site. The existing historic mine infrastructure would remain on site.

The segment of SR-38 nearest to the Project site is a state designated scenic highway, and segments to the north are eligible for listing. However, there is currently no line of sight between the Project site and SR-38 due to intervening topography and structures, and no historic buildings between SR-38 and the site. Therefore, the Project would not damage any scenic resources, and impacts would be less than significant.

c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The existing visual character of the site consists of nonurbanized, undeveloped open space with surrounding rural residences, open space, and recreational facilities. The visual quality of the Project site and surrounding lands is reduced due to the presence of numerous anthropogenic elements in the surrounding landscape, including scattered rural residential properties and existing transportation, mining, and energy infrastructure (e.g., roads, distribution poles, and historic mining equipment). Viewers of the site would be limited to the nearby residences and drivers along Erwin Ranch Road and Lakewood Drive.

The Project would involve both temporary and permanent changes to the nonurbanized, undeveloped open space visual character of the site (compare existing conditions versus proposed conditions in Figures 5 through 10). Temporary changes are associated with construction activities, including construction equipment, staging, construction fencing, and site construction. These visual impacts would be short term in nature and are therefore not considered significant.

Post-construction, the Project would change the nonurbanized, undeveloped open space visual character by developing the Project site as a PV solar facility. Although visual impacts to private residences are not considered an impact to aesthetics under CEQA, the Project would still be screened with vegetative screening and fencing that would limit aesthetic impacts on nearby residences and drivers (Figures 5 through 10). The Project would comply with all screening and fencing standards as stipulated in the San Bernardino County Development Code.

At the end of the Project's lifecycle (anticipated to be approximately 30 years), the Project would be decommissioned, and the Project site would be restored to its pre-construction undeveloped state.

Therefore, the Project would not substantially degrade the existing visual character or quality of public views and impacts would be less than significant.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. Unlike solar thermal facilities, which rely on large fields of mirrors to reflect light, the potential reflection from solar PV modules is inherently low since they are designed to capture and not reflect sunlight. PV panels have a lower index of refraction/reflectivity than common sources of glare in residential environments. The glare and reflectance levels from a given PV system are lower than the glare and reflectance levels of steel, snow, standard glass, plexiglass, and smooth water. The glare and reflectance levels of modules are further reduced with the application of anti-reflective coatings. PV suppliers typically use stippled glass for panels as the "texturing" of the glass to allow more light energy to be channeled/transmitted through the glass while weakening the reflected light. With the application of anti-reflective coatings and the use of modern glass technology, Project PV panels would display overall low reflectivity. In addition, because tracker systems follow the sun, the underside of the PV panels and most of the structure supporting them are shadowed throughout the day.

Moreover, light reflected from the PV panels would travel above the line of sight of most, if not all, viewers. PV tracking systems position the array so that the sun's rays are always perpendicular to the face of the panel. What light is reflected from the panels is reflected toward the sun. During midday conditions, when the sun is high in the sky, the rays of the sun are reflected directly upwards. When the sun is low on the horizon (near dawn or dusk), the sun's angle in the sky is low; however, reflected rays would still be directed away from ground-level receptors because the maximum downward angle of the arrays would not be below 30 degrees. Similarly, and due to their low reflectivity, the panels are not expected to cause visual impairment for motorists on local roadways near the Project site.

The glare analysis conducted by ERM (Appendix B) predicts the Project would generate green and yellow glare along Jensen Drive – Ringwood Trail to the intersection with Lakewood Drive near the northwest corner of the Project site. Along Erwin Ranch Road, green glare is predicted west of the intersection with Lakewood Drive. A negligible amount of yellow glare (1 minute per year) is predicted on Erwin Ranch Road. The analysis predicts green glare at the northern end of Lakewood Drive near Jensen Drive and green and yellow glare at several observation points located at the nearby residences. No yellow glare is predicted on Lakewood Drive, and no glare of any type is predicted along Central Lane, Cypress Lane, or Willow Lane.

Green glare indicates a low potential to cause after-image (flash blindness) while yellow glare indicates the potential to cause temporary after-image. Glare at these locations would be highly limited to certain times of year and day, with maximum daily durations of 3 to 31 minutes at certain observation points during those times. The range of daily duration corresponds to the length or size of glare along Jensen Drive – Ringwood Trail, rather than glare measured at a single point. Therefore, the potential for glare to negatively affect the surrounding area is minimal, and the Project impacts related to light and glare would be less than significant.

5.2 AGRICULTURE AND FOREST RESOURCES

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 (FMMP) of the California Resources Agency, to non-agricultural use?				X
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?				X
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))?				X
d. Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

5.2.1 AGRICULTURAL SETTING

The Project site currently consists of open space that is not used for agriculture and has not historically been used for agriculture or ranching activities. Wild donkeys graze the Project site. The Project site is not enrolled under a current Williamson Act contract[8]. According to the 2020 California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) database, the Project site does not carry a designation such as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or any other designation that would identify it as a critical agricultural resource[9].

No forested land or designated forest resources are located on the Project site.

[8] California Department of Conservation. 2024. Williamson Act Contracts. Retrieved from: https://www.conservation.ca.gov/dlrp/wa/Pages/contracts.aspx
[9] California Department of Conservation. 2024. Farmland Mapping & Monitoring Program. Retrieved from: https://www.conservation.ca.gov/dlrp/fmmp

The Project site is located on a parcel zoned RS-1 under the San Bernardino County Development Code[10]. The RS zoning district supports primarily single-family residential uses, incidental agricultural uses, and compatible recreational uses. The Project seeks to rezone the site to RL, which allows for similar uses as RS zoning, plus solar PV facilities with a CUP.

5.2.2 REGULATORY SETTING

5.2.2.1 FEDERAL

Federal Farmland Protection Policy Act

The Federal Farmland Protection Policy Act (FPPA), managed by the Natural Resources Conservation Service, aims to minimize the conversion of farmland to non-agricultural uses. While the FPPA primarily addresses federal projects, the principles outlined support efforts to protect farmland from unnecessary development. Since the Project site is not designated as Prime Farmland, the FPPA does not apply directly but provides overarching guidance for farmland preservation.

5.2.2.2 STATE OF CALIFORNIA

California Land Conservation Act of 1965 (Williamson Act)

The Williamson Act aims to restrict the uses of agricultural and open space lands to farming and ranching uses during the length of the contract periods.

5.2.2.3 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[11]

The Natural Resources Element of the Countywide Plan/Policy Plan contains the long-term goals and policies applicable to the protection, preservation, and conservation of important agricultural lands in unincorporated areas. Relevant policies from the Countywide Plan/Policy Plan are summarized below.

Natural Resources Element

- *Goal NR-7 Agriculture and Soils*. The ability of property owners, farmers, and ranchers to conduct sustainable and economically viable agricultural operations.
    - Policy NR-7.1 Protection of agricultural land. We protect economically viable and productive agricultural lands from the adverse effects of urban encroachment, particularly increased erosion and sedimentation, trespass, and non-agricultural land development.
    - Policy NR-7.2 Preservation of important farmlands. We require project applicants seeking to develop 20 or more acres of farmland (classified as prime, of statewide importance, or unique farmland) to non-agricultural uses to prepare an agricultural resource evaluation prior to project approval. The evaluation shall use generally accepted methodologies to

[10] San Bernardino County. 2024. Code of Ordinances. Retrieved from: https://codelibrary.amlegal.com/codes/sanbernardino/latest/sanberncty_ca/0-0-0-146479
[11] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

identify the potentially significant impact of the loss of agricultural land as well as the economic viability and sustainability of future agricultural use of the property, including long-term sustainability and economic viability of water resources. If the conversion is deemed significant, the County shall require mitigation at a 1:1 ratio of converted to preserved acreage through conservation easements, payment of its valuation equivalent if a fee mitigation program is established, or inclusion in a regional agricultural preservation program.

- Policy NR-7.3 Conservation and preservation incentives. We support programs and policies that provide tax and economic incentives to conserve existing productive agricultural lands or preserve farmland classified as prime, of statewide importance, unique, or of local importance. We support landowners in establishing new and maintaining existing California Land Conservation (Williamson Act) contracts.

5.2.3 ENVIRONMENTAL EVALUATION

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?

No Impact. According to the California DOC FMMP, the Project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Because the site's current use is not in active agricultural production, the Project does not present a conflict with existing or anticipated agricultural uses in the surrounding area. The absence of a significant farmland designation indicates that the site is not expected to contribute to regional or state agricultural productivity. The absence of these designations indicates that the site does not meet the criteria for significant agricultural land based on soil quality, irrigation status, or agricultural productivity potential. Consequently, the Project would not convert any mapped important farmland to non-agricultural use, and no impact on designated agricultural resources is anticipated.

b. Conflict with existing zoning for agricultural use or a Williamson Act contract?

No Impact. The Project site is not enrolled under a Williamson Act contract; therefore, no cancellation is required. Additionally, since the site is not designated for agricultural uses beyond what is incidentally allowed in the RS-1 zoning district, the Project does not conflict with current zoning for agricultural use or the Williamson Act. Additionally, the Project does not present a conflict with existing or anticipated agricultural uses in the proposed rezone to RL. Thus, development of the Project and rezoning the parcel will not result in potential impacts.

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))?

No Impact. Although the Project will be subject to a General Plan Amendment and rezone of the parcel from RS-1 to RL, the Project would avoid woodland areas and would not result in impacts to forest land, timberland, or timberland zoned for Timberland Production.

Additionally, rezoning the parcel to RL would prevent further adverse effects to forest land after the lifecycle of the Project. Therefore, the Project will not result in potential impacts.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The Project footprint will avoid development in the more sloped and wooded northern portion of the Project parcel. The solar PV facility and associated structures would only occupy the flat, open portions of the Project site south of the sloped and wooded northern portion. Therefore, development of the Project would not result in loss of forest land or the conversion of forest land to non-forest use.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The Project would not result in changes to the environment that would result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. Therefore, no impact would occur.

5.3 AIR QUALITY

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?			X	
b. 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?			X	
c. Expose sensitive receptors to substantial pollutant concentrations?			X	
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

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

5.3.2 AIR QUALITY SETTING

This analysis is based primarily on the Project's Air Quality/Greenhouse Gas (GHG) Assessment prepared by ERM in 2024 (Appendix C). The Project is located within the South Coast Air Basin (SCAB). The SCAB is bounded by the San Gabriel and San Bernardino Mountains to the north and the San Jacinto Mountains to the east. Big Bear Valley has a climate characterized by warm summers and cold winters, with precipitation occurring as rainfall in the warmer months and snowfall in the colder months. Average daily summer temperatures range between 60 to 70

degrees Fahrenheit, and average daily winter temperatures range between 35 to 40 degrees Fahrenheit.[12] Average annual precipitation is 21 inches and ranges from 0.12 inches in June to 4.73 inches in February.[13] The prevailing winds originate predominately from the west and southeast and have maximum speeds up to 12.8 miles per hour.[14] The San Bernardino Mountains surrounding Big Bear Valley create a barrier to airflow, which can trap air pollutants in the valley during unfavorable meteorological conditions and temperature inversions. Air stagnation can occur when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical flow caused by low surface heating reduces the influx of outside air and allows pollutants to become concentrated in the air. The surface concentrations of pollutants are highest when these conditions are combined with increased levels of smoke or when temperature inversions trap cool air, fog, and pollutants near the ground.

The South Coast Air Quality Management District (SCAQMD) identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes. The Project site is bounded on the north and east by undeveloped land, on the south by Erwin Ranch Road, and on the west by Lakewood Drive. The site is in a rural area consisting mostly of ranches; however, there are residential ranch houses on the east, south, and west sides of the Project.

5.3.3 REGULATORY SETTING

5.3.3.1 FEDERAL

Clean Air Act[15]

The Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the United States Environmental Protection Agency (USEPA) has established various regulations to achieve and maintain acceptable air quality, including the adoption of National Ambient Air Quality Standards (NAAQS), mandatory State Implementation Plan or maintenance plan requirements to achieve and maintain NAAQS, and emission standards for both stationary and mobile sources of air pollution. The NAAQS were established in 1970 for six criteria pollutants because they are considered the most prevalent air pollutants known to be hazardous to human health. If a region is designated as non-attainment for a NAAQS, the CAA requires the state to develop a State Implementation Plan to demonstrate how the standard will be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The CAA Amendments of 1990 directed the USEPA to set standards for toxic air contaminants (TAC) and required facilities to sharply reduce

[12] PRISM Climate Group, Oregon State University. 2024. Climate Data. Retrieved from: https://prism.oregonstate.edu.
[13] United States Geological Survey (USGS). 2012. Geohydrology of Big Bear Valley, California phase 1—Geologic Framework, Recharge, and Preliminary Assessment of the Source and Age of Groundwater. Retrieved from: https://pubs.usgs.gov/sir/2012/5100/pdf/sir20125100.pdf.
[14] South Coast Air Quality Management District (SCAQMD). 2024. AERMOD Table 1: Meteorological Sites. Retrieved from: https://www.aqmd.gov/home/air-quality/meteorological-data/aermod-table-1.
[15] USEPA. 1970. Clean Air Act, 42 U.S.C. §7401 et seq. Accessed 20 December 2024. Retrieved from: https://www.epa.gov/laws-regulations/summary-clean-air-act#:~:text=The%20Clean%20Air%20Act%20(CAA,emissions%20of%20hazardous%20air%20pollutants.

emissions. Table 2 summarizes the most stringent NAAQS/California Ambient Air Quality Standards (CAAQS) and the attainment status of the SCAB.

TABLE 2 MOST STRINGENT AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE SOUTH COAST AIR BASIN

Pollutant	Averaging Time	CAAQS Concentration	CAAQS Status	NAAQS Concentration	NAAQS Status
Ozone	8 hours	0.070 ppm	N	0.070 ppm	N
	1 hour	0.09 ppm	N	0.12 ppm[a]	N
Carbon Monoxide (CO)	8 hours	9 ppm	A	9 ppm	A
	1 hour	20 ppm	A	35 ppm	A
Nitrogen Oxides (NO_x)	1 hour	0.18 ppm	A	0.10	A
	Annual	0.03 ppm	A	0.053 ppm	A
Sulfur Dioxide	24 hours	0.04 ppm	A	—	—
	1 hour	—	—	0.075 ppm	A
Particulate Matter (PM_{10})	Annual	20 µg/m^3	N	—	—
	24 hours	50 µg/m^3	N	150 µg/m^3	N
Particulate Matter - Fine ($PM_{2.5}$)	Annual	12 µg/m^3	N	9.0 µg/m^3	To be determined[b]
	24 hours	—	—	35 µg/m^3	N
Sulfates	24 hours	25 µg/m^3	A	—	—
Lead	Rolling 3-Month Average	—	—	0.15 µg/m^3	A
	30-day average	1.5 µg/m^3	N	—	—

A=Attainment; N=Non-attainment; - =Unclassified
ppm = parts per million; µg/m^3 = micrograms per cubic meter
PM_{10} = particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less

a) *1-hour ozone standard (0.12 ppm) was revoked, effective 15 June 2005; however, the Basin has not attained this standard and is still subject to anti-backsliding requirements.*
b) *In February 2024 the USEPA strengthened the NAAQS for $PM_{2.5}$ to 9.0 µg/m3. The USEPA has 2 years to designate areas as in attainment or non-attainment so current monitoring data is still being analyzed. However, the air basin was not in attainment with the previous standard of 12.0 µg/m3*

and based on monitoring data for 2020-2022, the air basin will likely not be in attainment with the more stringent threshold either.

Another major component of the CAA is Hazardous Air Pollutants (HAPs). The 1977 CAA amendments required the USEPA to identify National Emission Standards for Hazardous Air Pollutants known as NESHAPs to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that are expected to result in a decrease of public health, based on scientific studies of exposure to humans and other mammals. The 1990 CAA amendments required the USEPA to set standard permissible ceilings for 187 substances and chemical families. The amendments also required businesses to implement risk-management programs for dealing with potential releases of hazardous substances.

5.3.3.2 STATE OF CALIFORNIA

The California Air Resources Board (CARB) is the State agency responsible for California air quality management. It establishes CAAQS, TAC standards, mobile source emission standards, and GHG regulations, as well as oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution.

The CAAQS are generally more stringent than federal NAAQS, except for the 1-hour nitrogen dioxide and sulfur dioxide standards, and include more pollutants than the NAAQS (see Table 2). California specifies four additional criteria pollutants: visibility reducing particles, sulfates and hydrogen sulfide, and vinyl chloride. Similar to USEPA, CARB designates counties in California as being in attainment or non-attainment for the CAAQS.

State law has also established the framework for California's TAC identification and control program, which is generally more stringent than the federal HAP program and aimed at TACs that are a problem in California. According to section 39655 of the California Health and Safety Code, a TAC is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." CARB has formally identified over 200 substances and groups of substances as TACs, including diesel particulate matter (DPM). In addition, substances which have been listed as federal HAPs pursuant to section 7412 of Title 42 of the United States Code are TACs under California's air toxics program. CARB is adopting appropriate control measures for sources of these TACs. The following measures are required by California law to reduce DPM emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use Off-Road Diesel Vehicles (Title 13 CCR, Chapter 9, Section 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.
- All commercial diesel vehicles are subject to Title 13, Section 2485 of the CCR, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to 5 minutes; electric auxiliary power units should be used whenever possible.

5.3.3.3 REGIONAL

The Project site is located within the jurisdiction of the SCAQMD. The SCAQMD is the regional air agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution pursuant to delegated state and federal authority. Because the Project would not involve construction of new stationary sources, and most equipment that will be used for construction is classified as mobile sources and is thus exempt from stationary source permit requirements, there are no relevant air permitting regulations. The SCAQMD has published CEQA guidelines for analysis and mitigation of impacts from projects within its jurisdiction, and established thresholds of significance for construction impacts as well as impacts from operation of non-permitted equipment and activities.

Under the CAA, the SCAQMD is required to develop an air quality plan to achieve and/or maintain compliance with federal and state non-attainment criteria pollutants within its air district. The SCAQMD has taken action and developed attainment plans, namely the 2022 Air Quality Management Plan (AQMP) and the SCAB Attainment Plan for the 2012 Annual $PM_{2.5}$ Standard, to achieve and/or maintain compliance with the federal and state ozone, particulate matter with a diameter of 10 microns or less (PM_{10}) and particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$) standards.[16]

Notification Requirements under SCAQMD Rule 403[17]

Rule 403 (Fugitive Dust) prohibits creation of dust plumes that are visible beyond the property line of the emission source and requires all active operations to implement applicable best available control measures. Enhanced dust control and notification requirements apply if the project is considered a "large operation" under this rule, which is any active operation on property that contains 50 or more acres of disturbed surface area. As the total parcel is approximately 30 acres with the disturbed area under 21 acres, enhanced dust control and notification requirements are not applicable.

5.3.3.4 COUNTY OF SAN BERNARDINO

In accordance with CEQA requirements and the CEQA review process, the County assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. The applicable San Bernardino County's Countywide Plan goals and policies and Development Code regulations are listed below.

Countywide Plan/Policy Plan[18]

[16] South Coast Air Quality Management District (SCAQMD). 2024. Localized Significance Thresholds. Retrieved from: https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.
[17] South Coast Air Quality Management District (SCAQMD). 2024. Rule 403 Dust Control Information. Retrieved from: https://www.aqmd.gov/home/rules-compliance/compliance/rule-403-dust-control-information#:~:text=Form%20403N%20(Large%20Operation%20Notification,Plan%20with%20the%20associated%20fee.
[18] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

The Natural Resources Element and the Renewable Energy Element of the Countywide Plan/Policy Plan contain the following Goals and Policies applicable to air quality.

Natural Resources Element

- *Goal NR-1 Air Quality.* Air quality that promotes health and wellness of residents in San Bernardino County through improvements in locally generated emissions.
    - Policy NR-1.3 Coordination on air pollution. We collaborate with air quality management districts and other local agencies to monitor and reduce major pollutants affecting the county at the emission source.
    - Policy NR-1.6 Fugitive dust emissions. We coordinate with air quality management districts on requirements for dust control plans, revegetation, and soil compaction to prevent fugitive dust emissions.
    - Policy NR-1.8 Construction and operations. We invest in County facilities and fleet vehicles to improve energy efficiency and reduce emissions. We encourage County contractors and other builders and developers to use low-emission construction vehicles and equipment to improve air quality and reduce emissions.

Renewable Energy Element

- *Goal RE-4 Environmental Compatibility.* The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.
    - Policy RE 4.1. Apply standards to the design, siting, and operation of all renewable energy facilities that protect the environment, including sensitive biological resources, air quality, water supply and quality, and cultural, archaeological, paleontological, and scenic resources.
    - Policy RE 4.3.1. Define measures required to minimize ground disturbance, soil erosion, flooding, and blowing of sand and dust, with appropriate enforcements mechanisms in the Development Code.

San Bernardino County Development Code[19]

Section 83.01.040

(c) Diesel Exhaust Emissions Control Measures. The following emissions control measures shall apply to all discretionary land use projects approved by the County on or after 15 January 2009:

1) On-Road Diesel Vehicles. On-road diesel vehicles are regulated by the State of California Air Resources Board.

[19] San Bernardino County. 2024. Code of Ordinances. Retrieved from: https://codelibrary.amlegal.com/codes/sanbernardino/latest/sanberncty_ca/0-0-0-146479.

2) Off-Road Diesel Vehicle/Equipment Operations. All business establishments and contractors that use off-road diesel vehicle/equipment as part of their normal business operations shall adhere to the following measures during their operations in order to reduce DPM emissions from diesel-fueled engines:

   A. Off-road vehicles/equipment shall not be left idling on site for periods in excess of five minutes. The idling limit does not apply to:

      (I) Idling when queuing;

      (II) Idling to verify that the vehicle is in safe operating condition; Idling for testing, servicing, repairing or diagnostic purposes;

      (III) Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane);

      (IV) Idling required to bring the machine system to operating temperature; and;

      (V) Idling necessary to ensure safe operation of the vehicle.

   B. Use reformulated ultra-low-sulfur diesel fuel in equipment and use equipment certified by the USEPA or that pre-dates USEPA regulations.

   C. Maintain engines in good working order to reduce emissions.

   D. Signs shall be posted requiring vehicle drivers to turn off engines when parked.

   E. Any requirements or standards subsequently adopted by the South Coast Air Quality Management District, the Mojave Desert Air Quality Management District or the California Air Resources Board.

   F. Provide temporary traffic control during all phases of construction.

   G. On-site electrical power connections shall be provided for electric construction tools to eliminate the need for diesel-powered electric generators, where feasible.

   H. Maintain construction equipment engines in good working order to reduce emissions. The developer shall have each contractor certify that all construction equipment is properly serviced and maintained in good operating condition.

   I. Contractors shall use ultra-low sulfur diesel fuel for stationary construction equipment as required by Air Quality Management District (AQMD) Rules 431.1 and 431.2 to reduce the release of undesirable emissions.

   J. Substitute electric and gasoline-powered equipment for diesel-powered equipment, where feasible.

Section 84.29.035

(c) The finding of fact shall include the following:

20) The proposed commercial solar energy generation facility will be designed, constructed, and operated so as to minimize dust generation, including provision of sufficient watering of excavated or graded soil during construction to prevent excessive dust. Watering will

occur at a minimum of three times daily on disturbed soil areas with active operations, unless dust is otherwise controlled by rainfall or use of a dust palliative, or other approved dust control measure.

21) All clearing, grading, earth moving, and excavation activities will cease during period of winds greater than 20 miles per hour (mph), averaged over one hour, or when dust plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property, and in conformance with AQMD regulations.

22) For sites where the boundary of a new commercial solar energy generation facility will be located within one-quarter mile of a primary residential structure, an adequate wind barrier will be provided to reduce potentially blowing dust in the direction of the residence during construction and ongoing operation of the commercial solar energy generation facility.

23) Any unpaved roads and access ways will be treated and maintained with a dust palliative or graveled or treated by another approved dust control Chapter 83.09 of the Development Code.

24) Onsite vehicle speed will be limited to 15 mph.

5.3.4 ENVIRONMENTAL EVALUATION

a. Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. For the Project area, the SCAQMD and CARB ensure implementation of California's AQMPs, known collectively as the State Implementation Plan. State-level air quality planning strategies to attain CAAQS are implemented through rules, regulations, and programs adopted by SCAQMD and CARB to control ozone precursors, PM_{10}, and $PM_{2.5}$. All construction and Project development-related activities, including operation and maintenance and eventual decommissioning, would comply with the applicable rules, regulations, and programs. Strategies and control measures identified within the SCAQMD 2016 AQMP, and the updated 2022 AQMP, apply directly to Project activities as promulgated through SCAQMD's rules and regulations.

All construction and operational activities and eventual decommissioning would comply with SCAQMD's Rule 402 and 403, which prevent nuisances and regulate fugitive dust emissions. The Project would also conform to the federal and state CAA requirements by complying with the rules and regulations that are contained in the air quality plan.

A project could be inconsistent with the applicable AQMP or attainment plan if it causes population and/or employment growth or growth in vehicle-miles traveled in excess of the growth forecasts included in the attainment plan. The Project would be operated remotely and employ no more than two part-time positions for ongoing operation and maintenance (O&M) related activities. The construction workforce would involve only temporary employment for a period of approximately 6 to 9 months. Accordingly, Project construction and operation would not result in activities that would permanently increase population and/or employment growth that would result in vehicle-miles traveled. Therefore, the Project would not conflict with or obstruct implementation of the applicable air quality plan, and this impact would be less than significant.

b. 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?

Less Than Significant Impact. Construction-related activities of the proposed Project will most likely require approximately 6 to 9 months of continuous activity involving six overlapping phases during normal working hours, 5 days per week. Although CalEEMod was used to calculate emissions associated with the planned 6-month schedule, delays could extend construction to approximately 9 months. In the event that construction extends to 9 months, it is unlikely that maximum daily emissions would see a significant increase as there would be no change in the equipment runtime over a timeline of 9 months rather than 6 months. It is noted that construction-related activities that emit air emissions will be a mix of short-term, intermittent, and temporary durations and will vary by phase and from equipment type usage.

Construction-related activities of the proposed Project will generate air pollutant emissions from entrained dust, off-road equipment use, and vehicle emissions. Offsite emissions will be generated by construction worker daily commute trips and heavy-duty diesel haul and vendor truck trips. Construction-related emissions could vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Exhaust emissions include ozone precursors (volatile organic compounds and nitrogen oxides [NO_x]), CO, and particulate matter (including PM_{10} and $PM_{2.5}$). Fugitive dust includes particulate matter from soil eroded by ground-disturbing activities and by travel on unpaved surfaces and on paved road surfaces. Dust control and engine exhaust would be subject to SCAQMD rules and regulations to avoid adverse levels of air pollutant concentrations.

As shown in Table 3, all maximum daily construction-related emissions would be well below the SCAQMD daily thresholds for construction. These emissions were estimated in CalEEMod without any controls, such as the SCAQMD and San Bernardino County dust control and off-road equipment measures. Application of SCAQMD and San Bernardino County dust control and off-road equipment emissions controls such as limiting onsite vehicle speeds on unpaved roads to 15 mph[20] and limiting construction equipment idling beyond regulation requirements[21], would further reduce the construction emissions of NO_x and PM_{10} below the SCAQMD thresholds. As such, the Project would not 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 standards, and the impact would be less than significant.

[20] SCAQMD. 2007. TABLE XI-A MITIGATION MEASURE EXAMPLES: FUGITIVE DUST FROM CONSTRUCTION & DEMOLITION. Retrieved from: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.aqmd.gov%2Fdocs%2Fdefault-source%2Fceqa%2Fhandbook%2Fmitigation-measures-and-control-efficiencies%2Ffugitive-dust%2Ffugitive-dust-table-xi-a.doc%3Fsfvrsn%3D2&wdOrigin=BROWSELINK

[21] SCAQMD. 2010. Quantifying Greenhouse Gas Mitigation Measures. Retrieved from: https://www.aqmd.gov/docs/default-source/ceqa/handbook/mitigation-measures-and-control-efficiencies/quantifying-greenhouse-gas-mitigation-measures.pdf?sfvrsn=0

TABLE 3 MAXIMUM DAILY CONSTRUCTION EMISSIONS

Pollutant	Emissions (max lb/day)	SCAQMD Air Quality Significance Thresholds	Below Threshold (Y/N)
VOC	2.45	75 lb/day	Y
NO_x	20.8	100 lb/day	Y
CO	23.0	550 lb/day	Y
SO_x	0.04	150 lb/day	Y
PM_{10} Total	63.3	150 lb/day	Y
$PM_{2.5}$ Total	6.67	55 lb/day	Y

CO = carbon monoxide; lb/day = pounds per day; N = no; NO_x = nitrogen oxides; lb/day = pounds per day; PM_{10} = particulate matter 10 micrometers or less in diameter; $PM_{2.5}$ = particulate matter 2.5 micrometers or less in diameter; SO_x = sulfur oxides; VOC = volatile organic compounds; Y = yes

c. Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Sensitive receptors are those individuals more susceptible to the effects of air pollution. Although the site is located in a rural region, there are several residences surrounding the property to east, west, and south. While these residences are in proximity to the Project site, construction emissions are well below thresholds and would be short duration in nature; therefore, sensitive receptors would not be exposed to substantial pollutants concentrations.

As noted previously, operations would entail infrequent maintenance activities, as needed, resulting in minimal emissions from maintenance vehicles and equipment. Therefore, operations would not expose existing sensitive receptors to substantial pollutant concentrations.

Other emissions may include TACs or HAPs identified by the state and federal government, respectively. The greatest potential for TAC emissions during construction would be DPM emissions from heavy equipment operations and heavy-duty trucks. As shown in Table 3, maximum daily particulate matter (PM_{10} or $PM_{2.5}$) emissions generated by construction equipment operation, combined with fugitive dust generated by equipment operation, would be well below the SCAQMD significance thresholds. During operation, the Project would include minimal sources of TAC emissions, potentially including use of pressure washers for occasional panel washing. Given the minor increase in emissions, operational activities are not expected to be a significant source of DPM or associated potential health impacts.

Given that the estimated Project emissions are well below significance thresholds as shown in Table 3, any potential impacts from exposure to substantial pollutant concentrations during construction and Project operations would be less than significant.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these odor-causing pollutants would exist during construction. An additional potential source of odor is diesel engine emissions. During construction, diesel exhaust produced by off-road construction equipment could generate odors; however, several pieces of construction equipment would need to operate concurrently in a relatively small area to generate a constant plume of diesel exhaust that could cause objectionable odors for a substantial number of people. These circumstances are not expected to occur as part of the Project because construction equipment would not all operate at the same time. In addition, with respect to Project operations, no odor-generating activities are expected to occur.

As described, because few sources of odor and TACs would exist and they would be short term in nature, the Project would not result in other emissions adversely affecting a substantial number of people and impacts due to other emissions would be less than significant.

5.4 BIOLOGICAL RESOURCES

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 Game or U.S. Fish and Wildlife Service?		X		
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
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?			X	
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?			X	

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
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?				X

5.4.1 BIOLOGICAL SETTING

This biological setting and impact analysis are based on the results of the Biological Resources Assessment prepared by ERM in 2024 (Appendix D). The Project site is located within the Southern California Montane Conifer Forest, part of the USEPA's Level IV Ecoregion 8f[22]. This region spans the igneous-dominated mountains of the eastern Transverse Range and the Peninsular Ranges. The site lies within the Big Bear Valley, falling under the Baldwin Lake Sub-Watershed and the Baldwin Hydrologic Subarea, which are managed by California's Regional Water Quality Control Board (RWQCB)[23]. The Project site's terrain includes a sloped pinyon-juniper woodland in the north, a minor topographic depression in the northwest to north-central section, and a flat sagebrush plant community in the southern portion. The sloped pinyon-juniper woodland features slopes between 30 percent and 50 percent at elevations ranging from approximately 6,785 to 6,875 feet above sea level. The minor topographic depression has gentle slopes of 0 percent to 2 percent, sitting at elevations between 6,780 and 6,785 feet. Similarly, the flat sagebrush community in the southern part of the site has slopes between 0 percent and 2 percent, with an elevation range of 6,785 to 6,790 feet. The topographic depression is bordered by slight elevation changes, marking the base of the woodland in the north, with Lakewood Drive to the west, a nearby equestrian facility to the southwest, and an abandoned 5-foot by 5-foot mineshaft and other mining remnants to the east. The area's historical land use includes past mining activities, evidenced by aerial photographs from the 1940s to the 1960s. The remains of mining features, such as a partially backfilled excavation site, further emphasize the region's past disturbances.

5.4.1.1 AQUATIC RESOURCES

The United States Fish and Wildlife Services (USFWS) National Wetland Inventory (NWI)[24] imagery depicts a seasonally flooded, riverine intermittent stream bed (R4SBC) approximately 65 feet from the northwestern area of the parcel, a semi-permanently flooded riverine system with an unconsolidated bottom (R5UBF) approximately 125 feet from the northwestern area of the Project site, and a seasonally saturated palustrine emergent wetland (PEM1B) approximately 290 feet from the northwestern area of the Project site. Historic aerial imagery from 1938 indicates inundation and surface hydrologic connectivity may have occurred between the northern sections

[22] US Environmental Protection Agency (USEPA). 2024. Ecoregion Download Files by Region. Retrieved from: https://www.epa.gov/eco-research/ecoregion-download-files-region#pane-09.
[23] US Geological Survey (USGS). 2015. USGS Water Resources Links for: 160503010207 - Baldwin Canyon. Retrieved from: https://water.usgs.gov/lookup/getwbd?160503010207.
[24] United States Fish and Wildlife Service (USFWS). 2024. National Wetlands Inventory (NWI). Retrieved from: https://www.fws.gov/program/national-wetlands-inventory.

of the Project site and the adjacent seasonally saturated palustrine emergent wetland; however, all subsequent aerial imagery and observations at the site indicate that there is no evidence of hydrologic connectivity, due to Lakewood Drive. Despite the presence of hydric soils in the northwestern section of the Project site and soil surface cracks in the southern section of the Project site, the absence of hydrophytic vegetation throughout the entirety of the Project site suggests that this site is not subject to United States Army Corps of Engineers (USACE) jurisdiction under the current definition of the Waters of the United States (WOUS) or Waters of the State (WOS). Moreover, the Project is not subject to a California Department of Fish and Wildlife (CDFW) streambed jurisdiction due to the absence of aquatic features containing a defined bed, bank, channel, or high-water mark within the Project site.

5.4.1.2 VEGETATIVE COMMUNITIES AND LAND COVER TYPES

The Project site contains three vegetation communities, including Big Sagebrush (*Artemisia tridentata* Shrubland Alliance), Upland Mustards of Star-Thistle Fields (*Brassica nigra – Centaurea* [*solstitialis*, *melitensis*] Herbaceous Semi-Natural Alliance), and Singleleaf Pinyon – Utah Juniper Woodlands (*Pinus monophyla* [*Juniperus osteosperma*] Woodland)[25]; however, none are considered sensitive by the CDFW.

5.4.1.3 SPECIAL-STATUS SPECIES

Definitions of special-status species—such as federally and state-listed endangered and threatened species, California Species of Special Concern, Fully Protected species, and California Rare Plant Rankings (CRPR) by the California Native Plant Society[26]. The presence or absence of special-status plant and wildlife species observed or with potential to occur on-site is summarized below. In total, 15 special-status species are present or have a moderate to high potential to occur within the Project site, including five plant species and 10 wildlife species.

Plants

During the 2024 field surveys, two special-status plants were observed onsite: Big Bear Valley milk-vetch (*Astragalus lentiginosus var. Sierrae*) and Baldwin Lake linanthus (*Linanthus killipii*). Big Bear Valley milk-vetch was observed within flat terrain (Aquents-Grunney complex), which will be developed by the Project; Baldwin Lake linanthus was observed on sloping habitat (Goldmountain-Deadmansridge-Deadpan complex) consisting of pinyon-juniper woodland, which will not be affected by Project activities. In addition, three additional special-status plants have been identified as having a moderate to high potential to occur within the Project's habitats; however, they were not observed onsite during the 2024 field surveys during their blooming season. These species include Pinyon rockcress (B*oechera dispar*), Parish's rockcress (*Boechera parishii*), and San Bernardino Mountains dudleya (*Dudleya abramsii* ssp. *affinis*).

Wildlife

[25] California Native Plant Society. 2024. A Manual of California Vegetation, Online Edition. Retrieved from: http://www.cnps.org/cnps/vegetation/
[26] California Native Plant Society. 2024. California Rare Plant Ranks. Retrieved from: https://www.cnps.org/rare-plants/california-rare-plant-ranks

No special-status wildlife species were observed onsite during the surveys. However, the following special-status wildlife species have been identified as having moderate potential to occur within the Project site: golden eagle (*Aquila chrysaetos*), lawrence's goldfinch (*Spinus lawrencei*), San Bernardino golden-mantled ground squirrel (*Callospermophilus lateralis bernardinus*), southern rubber boa (*Charina umbratica*), townsend's big-eared bat (C*orynorhinus townsendii*), western small-footed myotis (*Myotis ciliolabrum)*, long-eared myotis (*Myotis volans)*, fringed myotis (*Myotis thysanodes*), long-legged myotis (*Myotis Volans*), and coast horned lizard (*Phrynosoma blainvillii*). Wild donkeys were observed grazing at the site during the biological resources survey.

5.4.2 REGULATORY SETTING

5.4.2.1 FEDERAL

Clean Water Act[27]

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into WOUS. Recently adopted 2023 federal regulations implementing the CWA (40 Code of Federal Regulations [CFR] Part 120.2(a) define WOUS to include waters currently or historically used in commerce, tidal waters, territorial seas, interstate waters, impoundments, tributaries, and adjacent wetlands with a continuous surface connection).

Endangered Species Act[28]

The federal Endangered Species Act (ESA) provides protection for species listed as threatened or endangered and regulates activities affecting these species. The ESA establishes a legal framework for adding and removing species from these lists and sets out recovery plans. Interagency cooperation is required to avoid the "take" of listed species, and permits for incidental take are issued when necessary. Section 7 of the ESA applies to federal projects that may affect listed species, requiring consultation with the USFWS.

Migratory Bird Treaty Act[29]

The Migratory Bird Treaty Act (MBTA) (16 United States Code Section 703 et seq.) prohibits the take (including killing, capturing, selling, or transporting) of protected migratory birds without prior authorization from the USFWS. The MBTA protects all raptors and their nests under California Fish and Game Code (CFGC) Section 3503.5.

Bald and Golden Eagle Protection Act [30]

This act provides additional protection for bald and golden eagles, prohibiting the take, possession, or sale of these species (16 USC Section 668 et seq.).

[27]United States Environmental Protection Agency (USEPA). 2024. Summary of the Clean Water Act. Retrieved from: https://www.epa.gov/laws-regulations/summary-clean-water-act
[28] United States Fish & Wildlife Service (USFWS). 1973. Endangered Species Act. Retrieved from: https://www.fws.gov/law/endangered-species-act
[29] United States Fish & Wildlife Service (USFWS). 2024. Migratory Bird Treaty Act of 1918. Retrieved from: https://www.fws.gov/law/migratory-bird-treaty-act-1918
[30] United States Fish & Wildlife Service (USFWS). Bald and Golden Eagle Protection Act. Retrieved from: https://www.fws.gov/law/bald-and-golden-eagle-protection-act#:~:text=The%20Bald%20and%20Golden%20Eagle,)%2C%20nests%2C%20or%20eggs.

5.4.2.2 STATE OF CALIFORNIA

California Endangered Species Act [31]

The California Endangered Species Act (CESA) protects California's native species at risk of extinction. The CDFW administers CESA and oversees compliance. For projects affecting both federally and state-listed species, the federal incidental take authorization may satisfy CESA if determined consistent by CDFW (Section 2080.1). For state-listed species only, a project proponent must obtain an incidental take permit under CFGC Section 2081(b).

California Native Plant Society Rare or Endangered Plants[32]

Species with a CRPR of 1 or 2 must be considered in CEQA analyses. CRPR 3 or 4 species may be considered if they are locally rare or at the edge of their range. Methods to avoid impacts include reconfiguring project design, protecting sensitive areas, or using conservation easements.

California Fish and Game Code[33]

The CFGC contains the following Sections relevant to bald and golden eagle protection and nesting birds.

- Section 1602: Regulates activities that substantially divert or obstruct the natural flow of—or substantially change or use any material from—the bed, channel, or bank of any river, stream, or lake. Such activities may require a Lake and Streambed Alteration Agreement with the CDFW.
- Section 3503.5 (Birds of Prey): Prohibits the take, possession, or destruction of raptors, their nests, or eggs.
- Section 3511 (Fully Protected Species): Protects fully protected species, including golden eagles, from take, even with an incidental take permit.

Native Plant Protection Act[34]

The Native Plan Protection Act (CFGC Sections 1900-1913) protects 64 species of rare plants, subspecies, and varieties of plants prohibiting their take, except under specified conditions, such as agricultural practices or emergencies (CFGC Section 1913).

Natural Community Conservation Planning Act[35]

The Natural Community Conservation Planning Act supports ecosystem-level conservation planning aimed at protecting biological diversity while allowing for compatible land use. Plants

[31] California Legislative Information. 2024. Chapter 1.5 Endangered Species. Retrieved from: https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=FGC&division=3.&title=&part=&chapter=1.5.&article=
[32] California Native Plant Society (CNPS). 2024. CNPS Inventory of Rare Plants. Retrieved from: https://www.cnps.org/rare-plants/cnps-inventory-of-rare-plants
[33] California Legislative Information. 2024. Division 4: Birds and Mammals. Retrieved from: https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=FGC&division=4.&title=&part=&chapter=&article=&nodetreepath=6
[34] California Legislative Information. 2024. Chapter 10: Native Plant Protection. Retrieved from: https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?division=2.&chapter=10.&lawCode=FGC
[35] California Department of Fish and Wildlife Natural Community Conservation Planning (NCCP). Retrieved from: https://wildlife.ca.gov/Conservation/Planning/NCCP

protected under an approved Natural Community Conservation Plan (NCCP) may be "taken" during project activities but are also subject to conservation measures.

Porter-Cologne Water Quality Control Act[36]

Under the Porter-Cologne Water Quality Control Act, the State Water Resources Control Board (SWRCB) regulates stormwater discharges from construction sites to prevent pollutant mobilization into waterbodies. Activities subject to this regulation include clearing, grading, and excavation. Projects disturbing one or more acres of soil, or part of a larger development plan that affects one or more acres, must obtain coverage under the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit associated with construction and land disturbance. This regulation aims to protect and restore California's water resources.

CWA Section 401 requires an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant to obtain a water quality certification (or waiver) from the applicable RWQCB. The RWQCBs primarily implement basin plan policies through issuing waste discharge requirements for waste discharges to land and water. The RWQCBs have also been delegated responsibility for administering the NPDES permit program, which is designed to manage and monitor point and nonpoint source pollution.

5.4.2.3 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[37]

The Natural Resources Element of the Countywide Plan/Policy Plan includes one goal and several policies related to the protection of biological resources, with a focus on biodiversity, habitat conservation, and resource management. Key policies include:

Natural Resources Element

- *Goal NR-5 Biological Resources.* An interconnected landscape of open spaces and habitat areas that promotes biodiversity and healthy ecosystems, both for their intrinsic value and for the value placed on them by residents and visitors.
    - Policy NR-5.1. Coordinated habitat planning. Coordinate with public and private habitat conservation efforts to promote certainty for species conservation and land development.
    - Policy NR-5.2. Capacity for resource protection and management. Collaborates with agencies to seek funding for protecting, restoring, and maintaining open spaces and wildlife corridors.
    - Policy NR-5.3. Multiple-resource benefits. Prioritizes conservation actions that offer multiple benefits, including biological, hydrological, and cultural resource preservation.
    - Policy NR-5.4. Off-base recovery efforts. Facilitates off-base recovery efforts for threatened and endangered species.

[36] California Water Board. 2024. Porter-Cologne Water Quality Control Act. Retrieved from: Porter-Cologne Water Quality Control Act - 2024 Version
[37] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

- Policy NR-5.5. Mitigation and future responsibilities. Ensures new development addresses habitat conservation responsibilities without shifting them to military properties.
- Policy NR-5.6. Mitigation banking. Encourages the proactive assemblage of lands for conservation through mitigation banking, requiring sufficient funding for long-term management.
- Policy NR-5.7. Development review, entitlement, and mitigation. Complies with federal and state regulations on protected species during development review and entitlement processes.
- Policy NR-5.8. Invasive species. Requires the use of non-invasive species in new development and promotes the management of existing invasive species.

Renewable Energy and Conservation Element

- *Goal RE-4 Environmental Compatibility.* The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.
  - Policy RE-4.7. RE project site selection and site design shall be guided by the following priorities relative to habitat conservation and mitigation:
    - Avoid sensitive habitat, including wildlife corridors, during site selection and project design.
    - Where necessary and feasible, conduct mitigation on-site.
    - When on-site habitat mitigation is not possible or adequate, establish mitigation off-site in an area designated for habitat conservation.
  - Policy RE-4.8. Encourage mitigation for RE generation facility projects to locate habitat conservation offsets on public lands where suitable habitat is available.
    - RE 4.8.1. Collaborate with appropriate state and federal agencies to facilitate mitigation/habitat conservation activities on public lands.
  - Policy RE-4.9. Encourage RE facility developers to design projects in ways that provide sanctuary (i.e., a safe place to nest, breed and/or feed) for native bees, butterflies and birds where feasible and appropriate, according to expert recommendations.

5.4.3 ENVIROMENTAL EVALUATION

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 Game or U.S. Fish and Wildlife Service?

Less Than Significant with Mitigation. In total, 15 special-status species are present or have a moderate to high potential to occur within the Project site, including five plant species and 10 wildlife species, as well as nesting birds protected under the MBTA.

Two of the five special-status plants were observed on-site: Baldwin Lake linanthus (*Linanthus killipii*) and Big Bear Valley milk-vetch (*Astragalus lentiginosus* var. *sierrae*). Baldwin Lake linanthus was observed on sloping habitat (Goldmountain-Deadmansridge-Deadpan complex) consisting of pinyon-juniper woodland, which will not be affected by Project activities. Big Bear Valley milk-vetch was observed within flat terrain (Aquents-Grunney complex), which will be developed. However, only a single population of two individual Big Bear Valley milk-vetch was observed and the loss of two individuals would not significantly affect the species' long-term survival. Additionally, because the site is disturbed, heavily grazed, and only represents a small proportion of suitable habitat available, special-status plants not observed within the Project site but noted as having a moderate potential are unlikely to occur within this site and would not be adversely impacted. Therefore, the potential for adverse effects to special-status plants is less than significant.

Of the 10 special-status wildlife species, fringed myotis, townsend's big-eared bat, and southern rubber boa, as well as nesting birds protected under MBTA, have the potential to occur within the Project site; however, none were observed during the 2024 field survey. Potential roosting habitat for special-status bats within the Project site include the flooded mineshaft within the Project site, the mineshaft on the south-facing slope near the northeast corner of the Project site, and within logs or snags and under exfoliating bark on that same hillslope. However, the upper 10-15 feet of the flooded mineshaft would provide only low-quality, short-term bat roosting habitat for roosting bats. The loss of short-term bat roosting habitat provided by the flooded mineshaft would not be significant given that mines similar to Gold Hill Mine occur throughout the area surrounding Baldwin Lake. The Project site does contain habitat features that are consistent with suitable habitat for southern rubber boa, such as rock outcrops, surface rock, logs, forest litter, and rodent burrows. However, these features are generally limited to the south-facing hillslope which would not be impacted. Additionally, southern rubber boa is nocturnal, and any individual that would pass through the site would do so when no construction activities were occurring. Therefore, the potential for ground-disturbing activities and vehicle traffic during construction or vehicle traffic during operations to harm or kill a southern rubber boa would be limited. MM BIO-1 and MM BIO-2 as described below would further mitigate any impacts to southern boa. Birds protected by the MBTA have the potential to nest within or near the development footprint and therefore could be affected by Project activities; however, pre-construction clearance surveys would be conducted as outlined in MM BIO-1 to identify and avoid any potential nesting birds.

Therefore, development of the Project may result in potential impacts to special-status wildlife species, such as southern rubber boa, and nesting birds protected under the MBTA. However, implementation of the identified mitigation measures would reduce potential impacts to less than significant levels.

Mitigation Measures

MM BIO-1: Pre-construction clearance surveys

- A qualified biologist will conduct pre-construction surveys for nesting birds (including raptors) on and closely adjacent to the Project site no more than 10 days prior to any ground disturbance, if ground disturbance is to occur during the breeding season (1 February through 31 August). If an active nest is detected, a 100-foot work avoidance

buffer will be implemented for non-raptors and a 500-foot work avoidance buffer will be implemented for raptors. Nesting buffers may be reduced based upon the judgment of the biological monitor and should be monitored to detect any behavioral changes due to the reduced buffer. If behavioral changes are observed, the buffer will be restored to the original radius.

- A qualified biologist will conduct pre-construction surveys for southern rubber boa within all disturbance areas plus a 100-foot buffer no more than 3 days prior to any ground disturbance during the active/breeding season (1 April through 31 October). Should southern rubber boa be observed, work shall be halted within 100 feet of the individual until it has moved out of area.
- Prior to construction, the applicant shall construct a reptile exclusion fence around the perimeter of the Project area to avoid potential impacts to rubber boa. Additionally, the contractor shall shield and angle any necessary lighting away from the adjacent undeveloped land to the north of the Project site to avoid disturbing wildlife, including rare bats.

MM BIO-2: Construction monitoring

- A qualified biologist will conduct an education program for construction personnel. Topics to be discussed will include occurrence and distribution of special-status plants, rubber boa, and bats; take avoidance measures being implemented during the Project, reporting requirements if incidental take occurs; and applicable definitions and prohibitions under the CESA. A fact sheet conveying this information will be prepared for distribution to Project personnel.
- A qualified biologist shall be onsite to conduct daily (pre-work) sweeps for rubber boa during ground-disturbing activities initiated between 1 April and 31 October. Once a reptile exclusion fence around the perimeter of the Project is constructed, daily (pre-work) sweeps would not be required. In the event of unanticipated discovery of rubber boa within the site, construction personnel shall follow the guidance within the worker education program, including but not limited to halting construction and contacting a qualified biologist, etc.
- Project-related vehicles will observe a daytime speed limit of 15 mph throughout the entire Project site, except on county roads and state and federal highways. Off-road traffic outside of designated Project site will be prohibited.
- To prevent inadvertent entrapment of wildlife during the construction phase of the Project, all excavated, steep-walled holes or trenches more than 2 feet deep will be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.
- All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed at least once a week from the Project site.
- No firearms will be allowed on the Project site, excluding law enforcement personnel.

- No pets, such as dogs or cats, will be permitted on the Project site.
- All spills of hazardous materials will be cleaned up immediately.
- Use of rodenticides and herbicides in the Project site will be restricted.
- Should any vertical tubes, such as solar mount poles, chain link fencing poles, or any other hollow tubes or poles be utilized on the Project site, the poles will be capped immediately after installation to prevent entrapment of birds.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant Impact. The Project site and construction activities would not result in a significant impact to vegetation communities or other special-status habitats. The Project site does not contain any sensitive natural communities as designated by CDFW, and it also does not overlap with any federally designated critical habitat. Therefore, impacts to riparian habitat or other sensitive natural communities would be less than significant.

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?

Less Than Significant Impact. According to the aquatic delineation, the Project site is not a federally protected wetland as defined by Section 404 of the CWA. Despite the presence of hydric soils in the northwestern section of the Project site and soil surface cracks in the southern section of the Project site, the absence of hydrophytic vegetation throughout the entirety of the Project site suggests that this site is not subject to USACE jurisdiction under the current definition of the WOUS or WOS. Moreover, the Project is not subject to a CDFW streambed jurisdiction due to the absence of aquatic features containing a defined bed, bank, channel, or high-water mark within the Project site. Therefore, the potential for adverse effects to federally protected wetlands and other aquatic resources is less than significant.

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?

Less Than Significant Impact. The Project is located within historically disturbed lands previously used for mining and grazing and continues to provide habitat for wild donkeys, although it has regained some of its natural characteristics. The Project site is bounded by Lakewood Drive to the west, Erwin Ranch Road to the south, an unpaved access drive to the east, and San Bernardino National Forest to the north. Residential development occurs immediately south, west, and east of the Project site, with the residence bordering to the southwest also containing an equestrian facility. Existing uses surrounding the site would largely remain unchanged. The temporary reptile exclusion fence meant to prevent rubber boa from entering the site during construction would be removed after construction to allow safe passage of wildlife through the fixed-knot "agricultural style" wooden fence. The fence would incorporate a small gap of about 6 to 8 inches along the bottom for safe wildlife passage of

other small wildlife. Although fencing and vegetative screening would be required for the design of the Project and for security, the fencing would not impede the natural migratory wildlife corridors or native nursery sites. Additionally, the adjacent pinyon pine habitat will remain unfenced and accessible. Therefore, the potential for adverse effects due to development of the Project to wildlife movement or migration corridors would be less than significant.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant Impact. The only trees within the Project site are located on the hill situated on the northern boundary. Because the solar PV array and associated facilities would be constructed on the flat portion of the Project site south of the hill, no trees would be damaged or removed due to development or implementation of the Project. Therefore, the potential for adverse effects would be less than significant.

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?

No Impact. The Project site is not located within an area subject to a Habitat Conservation Plan, NCCP, or other local, regional, or state habitat conservation. Therefore, there is no potential for impacts.

5.5 CULTURAL RESOURCES

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?			X	
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		X		
c. Disturb any human remains, including those interred outside of formal cemeteries?		X		

5.5.1 CULTURAL RESOURCES SETTING

This cultural resources setting and impact analysis are based on the results of the Cultural Resources Assessment prepared by ERM in 2024 (Appendix E), as well as information provided by the Yahaaviatam of San Manuel Nation, the Morongo Band of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians (collectively referred to as Consulting Tribes) during the government-to-government tribal consultation under Assembly Bill (AB) 52.

The Project site is in the San Bernardino Mountains, which provide a clear line of demarcation between the high deserts to the north and the coastal and inland valleys to the south. To the west

of Project site is a major prehistoric trade route known as the Mojave Trail, which linked the cultures of the Colorado River and Mojave Desert regions with those of the Pacific Coast. Given this association, the prehistoric cultural development of both regions is important for understanding the potential for cultural resources within the San Bernardino Mountains. Moreover, the Project site is located within the Serrano ancestral territory and within the area of three named places of cultural significance, with several precontact sites within the Project site's vicinity. Based on the results of a desktop investigation, no previously recorded cultural resources have been recorded in the Project site. However, seven archaeological sites, six of which are associated with the Gold Hill Mine District, are located within a 0.25-mile radius of the Project site. The seventh archaeological site consists of one pre-contact isolate. The resources noted above overlook the Project site on a rocky low-lying hill, which runs northwest-southeast immediately north of the Project site. Eligibility of these seven sites for California Register of Historic Resources (CRHR) or National Register of Historic Places (NRHP) designation is unknown. Moreover, 10 cultural resource investigations have been conducted within a 0.25-mile radius.

During the field survey, ERM's archaeologist recorded one historic resource (ERM-Site-001) within the northeastern section of the Project site, but did not observe or record any pre-contact resources within the Project site. The historic resource comprises of three associated activity areas (loci), Locus 1, Locus 2, and Locus 3, inclusive of seven historical features and two refuse concentrations (defined as a scatter of historic-age trash, refuse, debris, etc.), as well as two historical access drives, all summarized below:

- Locus 1 includes three historical features (Feat-1 through Feat-3) and one refuse concentration (Concentration 1). Feat-1 appears to be an abandoned mineshaft lined with plaster, measuring 5 by 5 feet, and with an unknown depth. Water was noted at a depth of approximately 10 feet. The opening of the abandoned mineshaft is covered with two robust wooden planks. Feat-2 consists of a metal pipe, about 5 inches in diameter, extending south from the abandoned mineshaft. Feat-3 is located immediately north of the abandoned mineshaft and consists of a foundation and wall segments. Concentration 1 includes a refuse concentration of wood and concrete debris.
- Locus 2 includes two historical features (Feat-4 and Feat-5) and one refuse concentration (Concentration 2). Feat-4 consists of a ventilation shaft and remnants of an ore chute. Feat-5 is a metal pipe protruding out from the hillside. It must be noted that the equipment, such as ore chute, pipe, and milled lumber are located within a collapsed portion of the hillside, and only a small portion of these objects were observed during the survey. Concentration 2 consists of refuse containing wood and metal debris and is located approximately 130 feet north of Locus 1.
- Locus 3 is located immediately north, uphill, and includes two historical features (Feat-6 and Feat-7). Feat-6 is a collapsed mine adit. The entrance to the mine features a wooden facade that has partially collapsed. Feat-7 consists of mining equipment observed within the mine; however, it was difficult to recognize the type of equipment due to the collapsed adit. Additionally, a cable was noted extending out from the mine. Debris and tailing piles were noted immediately outside of the adit. Moreover, additional tailing piles were noted

immediately north and northeast of the mine adit. The easternmost tailing piles, however, are located outside of the Project area.

- Two historical roads were observed southwest and northwest of the mine adit. The road southwest of the mine extends from the foot of the hill to the mine adit. This road is approximately 330 feet in length and 10 feet wide and cut into the face of the hillside. The road is in fair condition. The sides are lined with trees and undergrowth and little vegetation on the actual road. A small segment of the road, approximately 50 feet, is graded, while the rest of the road is not. The road northwest of the mine adit spans approximately 480 feet in an east-west direction. The western segment of this road appears to have been washed out, given that it vanishes into the rocky hillside.

Although, the results of ERM's field survey indicate this site is located outside of the previously mapped boundaries for the Gold Hill Mine District, it is very likely that the remains of the cultural resources site are associated with the Gold Hill Mine District. The overall condition of the site is poor to fair, and it has been subjected to severe disturbances related to the demolition of structures and removal of equipment after the mining activities ceased, as well as erosion and a partial collapse of the hillside below the mining shaft. Modern trash was also observed scattered throughout the area and mixed in with the historical refuse.

5.5.2 REGULATORY SETTING

5.5.2.1 FEDERAL

National Historic Preservation Act[38]

The National Historic Preservation Act (NHPA) establishes a partnership between federal agencies and state, tribal, and local governments. Specifically, Section 106 of the NHPA requires federal agencies to assess the potential effects of their actions or undertakings on historic properties and aims to identify historic properties potentially affected by such actions. Section 106 requires such undertakings to assess their effects and to implement avoidance, minimization, or mitigation measures to reduce adverse effects to historic properties. Responsibility for compliance with NHPA lies with the federal agency funding the project or action.

5.5.2.2 STATE OF CALIFORNIA

California Register of Historical Resources[39]

As provided in PRC Section 5020.4, the California Legislature established the CRHR in 1992. The CRHR is used as a guide by state and local agencies, private groups, and citizens to identify the state historical resources and to include which properties are to be protected, to the extent prudent and feasible, from substantial adverse change. The CRHR, as instituted by the PRC, automatically includes all California properties already listed in the NRHP. It also includes those formally determined to be eligible for listing in the NRHP (Categories 1 and 2 in the State

[38] House – Resources and Senate – Energy and Natural Resources Committees. 2000. Retrieved from: https://www.congress.gov/bill/106th-congress/house-bill/834/text.
[39] State of California, Legislative Council Bureau. 1992. California Register of Historic Resources. Retrieved from: https://ohp.parks.ca.gov/?page_id=21238.

Inventory of Historical Resources), as well as specific listings of the State Historical Landmarks and in the State Inventory of Historical Resources, as well as specific listings of State Historical Landmarks and State Points of Historical Interest. The CRHR may also include other types of historical resources that meet the criteria for eligibility, including the following:

- Individual historic resources
- Resources that contribute to a historic district
- Resources identified as significant in historic resource surveys

Resources with a significance rating of Categories 3 through 5 in the State Inventory (Categories 3 and 4 refer to potential eligibility for the NRHP; Category 5 indicates a property with local significance). The CRHR follows the NRHP in using the 50-year threshold. A resource is usually considered for its historical significance after it reaches the age of 50 years. This threshold is not absolute but was selected as a reasonable span of time after which a professional evaluation of historical value and importance can be made. The cultural investigation of the Project site was conducted pursuant to CEQA, PRC Chapter 2.6, Sections 21083.2 and 21084.1; and the Title 14 CCR, Chapter 3, Article 5, Section 15064.5.

A resource shall be considered to be historically significant if it meets the criteria for listing on the CRHR (PRC Section 5024.1, Title 14 CCR, Section 4852), including the following:

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (Criterion 1).
- It is associated with the lives of persons important to local, California, or national history (Criterion 2).
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values (Criterion 3).
- It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (Criterion 4).

In addition to the above criteria, a resource must retain integrity to be considered historically significant. Integrity must also be evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR, if it maintains the potential to yield significant scientific or historical information or specific data.

An adverse effect on a cultural resource is defined as follows:

- Substantial adverse change in the significance of a historical resource by physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings.
- Demolishes or materially alters those physical characteristics of a historical resource that convey its significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR, or inclusion in a local register.

California Health and Safety Code[40]

The discovery of human remains is always a potential during ground disturbing activities. Federal and state laws require immediate reporting when human remains are discovered. California state law (California Health and Safety Code Section 7050.5) and federal law and regulations (Archaeological Resources Protection Act, 54 United States Code [USC] 300101 and 43 CFR 7; Native American Graves Protection and Repatriation Act [NAGPRA], 25 USC 3001 and 43 CFR 10; and Public Lands, Interior, 43 CFR 8365.1-7) identify defined protocols for the treatment of human remains regardless of whether the remains are modern or archaeological. All discovered human remains will be treated with respect and dignity. If human remains are encountered during construction, all work within 200 feet (61 meters) of the discovery shall cease immediately. The area shall be secured, and county coroner shall be notified immediately.

If the remains are located on state, local, or private property, a protocol defined by California state law (California Health and Safety Code 7050.5 and PRC 5097.98) is required to determine if the uncovered remains are modern or archaeological. If the coroner determines that the human remains are of Native American descent, the coroner shall notify the California Native American Heritage Commission, who shall then identify the most likely descendant (MLD). The MLD will be consulted to determine the best course of action for treatment and/or repatriation of the human remains, be granted access to examine the remains, and have 48 hours to provide recommendations. If the MLD does not make a recommendation within 48 hours of being given access to the human remains, the land manager can rebury the human remains in a location that will not be subject to future ground disturbing activities.

5.5.2.3 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[41]

The Countywide Plan/Policy Plan contains the following goals, objectives, and policies related to cultural resources that are relevant to the Project:

Cultural Resources Element

- *Goal CR-2 Historical and Paleontological Resources*. Historic resources (buildings, structures, or archaeological resources) and paleontological resources that are protected and preserved for their cultural importance to local communities as well as their research and educational potential.
    - Policy CR-2.1. National and state historic resources. Encourage the preservation of archaeological sites and structures of state or national significance in accordance with the Secretary of Interior's standards.

[40] State of California, Legislative Council Bureau. 1987. Section 7050.5 Health and Safety Code. Retrieved from: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC&sectionNum=7050.5.#:~:text=(a)%20Every%20person%20who%20knowingly,of%20the%20Public%20Resources%20Code.
[41] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf

- Policy CR-2.2. Local historic resources. Encourage property owners to maintain the historic integrity of resources on their property by (listed in order of preference): preservation, adaptive reuse, or memorialization.
- Policy CR-2.3. Paleontological and archaeological resources. Protect paleontological and archaeological resources from loss or destruction by requiring that new development include appropriate mitigation to preserve the quality and integrity of these resources. Require new development to avoid paleontological and archeological resources whenever possible. If avoidance is not possible, we require the salvage and preservation of paleontological and archeological resources.
- Policy CR-2.4. Partnerships. Encourage partnerships to champion and financially support the preservation and restoration of historic sites, structures, and districts.
- Policy CR-2.5. Public awareness and education. Increase public awareness and conduct education efforts about the unique historic, natural, tribal, and cultural resources in San Bernardino County through the County Museum and in collaboration with other entities.

5.5.3 ENVIRONMENTAL EVALUATION

a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Less Than Significant Impact. Based on the results of the Cultural Resources Assessment, six historic resources were recorded within a 0.25-mile buffer around the Project site, all of which are associated with the Gold Hill Mine District. Additionally, one historical resource site (ERM-Site-001) was recorded within the Project site during the field survey and is also likely associated with the Gold Hill Mine District. However, Gold Hill Mine District is not currently listed by the State Historic Resources Commission in the CRHR nor listed on a local register of historic resources.

ERM-Site-001 does not meet the criteria to be eligible for inclusion on the CRHR based on the following considerations:

- Evaluation under Criterion 1: Cultural resources identified here include refuse concentrations and mining features. These cultural resources represent brief use areas and single-episode dump sites. They are not significantly associated with important events related to the development of the region and California. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 1.
- Evaluation under Criterion 2: Cultural resources identified here are not associated with the lives of persons significant in our past. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 2.
- Evaluation under Criterion 3: Cultural resources identified here do not embody the distinctive characteristics of a type, period, or method of construction, nor represent the work of a master, possessing high artistic values, or represent a significant and distinguishable entity whose components lack individual distinction. Additionally, ERM-Site-001 is located near historic mining districts and is not regarded as a unique occurrence. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 3.

- Evaluation under Criterion 4: Cultural resources identified here do not yield nor are likelihood to yield information important to understanding the prehistory or history of the Project Area. These heavily disturbed resources exhibit the small-scale mining activities that commonly occurred at this location, and the single-episode refuse concentrations appear to be related to the demolition of the structures and on-going erosion activities. Thus, the site is not likely to yield information important in prehistory or history. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 4.

Based on this evaluation, cultural site (ERM-Site-001) is not eligible to be listed under the CRHR and is not a historically significant cultural resource under the CEQA. Additionally, the presence of previously undiscovered historic resources is unlikely given the prior disturbance of the site. Therefore, the potential for impacts to significant historic resources is less than significant.

Despite the cultural site not being considered significant under CEQA, the Project design would still avoid the mining features on site to maintain the historic features, if considered safe during construction of the Project.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant Impact with Mitigation. Based on the results of the Cultural Resources Assessment, one prehistoric archaeological resource, a precontact isolate, was recorded within a 0.25-mile buffer around the Project site. No additional prehistoric archaeological resources were discovered within the Project site during the cultural resources survey. However, the Project site is located within the Serrano ancestral territory and within the area of three named places of cultural significance, with several precontact sites within the Project site's vicinity. Therefore, previously undiscovered archaeological resources may be present within the Project site and could be impacted during ground-disturbing activities. Implementation of the following mitigation measures would reduce potential impacts to archaeological resources to a less-than-significant level.

MM CR 1: Retention of a Qualified Project Archaeologist (on-call basis)

- Prior to issuance of the grading permit associated for the Project, the Project Applicant shall retain a Project Archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61) in archaeology, to provide cultural resources support on an on-call basis.

  The Consulting Tribes shall work directly with the retained Project Archaeologist to collaboratively develop a Cultural Resources Monitoring and Treatment Plan (CRMTP) that reflects the mitigation measures for cultural resources and Tribal cultural resources appropriate to the scope and implementation of this Project. The CRMTP shall be informed by the knowledge, perspectives, and recommendations of the Consulting Tribes from the outset of its development. This plan shall also include a research design and outline procedures for archaeological and Tribal monitoring, unanticipated discoveries protocol, resource evaluation, and treatment procedures to ensure regulatory alignment with PRC §21083.2(i) and consistent with CEQA Guidelines. Once a draft has been prepared, it shall

be submitted to the Lead Agency for review and dissemination to the Consulting Tribes. The Lead Agency shall provide the Consulting Tribes with the final, approved version of the CRMTP to ensure agreement of the same document. Following Lead Agency approval, the CRMTP shall be formally adopted prior to issuance of the grading permit for the Project. All cultural resource discoveries and treatment procedures shall be carried out in accordance with the protocols established in the approved CRMTP.

Additional cultural resources personnel (e.g., archaeological field technicians, monitors, specialists) may be retained to assist with identification, evaluation, mitigation, monitoring, and other related activities. All cultural resources staff shall possess a minimum of a Bachelor's degree in anthropology, archaeology, history, or a related field, and demonstrate relevant field experience.

MM CR-2: Worker Environmental Awareness Program

- Prior to and throughout the duration of Project activities, all new personnel involved in ground-disturbing work shall complete a Worker Environmental Awareness Program (WEAP). The training shall be developed by the Project Archaeologist in concurrence with the Consulting Tribes and include information on applicable cultural resource laws, details on archaeological and Tribal cultural resources, respectful appropriate behavior and treatment of resources and sacred sites, and procedures for reporting discoveries. The training may be delivered in-person or via video and may include participation by a presenter from the Consulting Tribes. Each worker shall sign an acknowledgment form confirming completion of the training, and a sticker shall be placed on their hard hat to indicate compliance. Training records shall be maintained and submitted to the CEQA Lead Agency upon request

MM CR-3: Archaeological Monitoring (on-call basis)

- A qualified archaeologist, under the supervision of the Project Archaeologist, shall be retained to provide on-call support to respond to and address any inadvertent discoveries identified during ground disturbing activities. All monitoring activities shall be documented on a daily monitoring form and completed at the end of day. A final cultural resources technical report that encapsulates the support provided will be prepared in accordance with the California Office of Historic Preservation's Archaeological Resource Management Reports (ARMR) guidelines. Reports shall be submitted to the Lead Agency and Consulting Tribes for review and approval, prior to submittal to the appropriate Information Center.

c. Disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant with Mitigation. Ground-disturbing activities for the development of the Project could potentially result in the disturbance of buried human remains. This potential impact would be reduced to less than significant levels through implementation of the following mitigation measure:

MM CR-4: Protection of Buried Human Remains

- If human remains are encountered during any phase of ground-disturbing activities, all work in the immediate vicinity (within a 100-foot buffer of the find) shall cease, and the

County Coroner shall be notified immediately, in accordance with California Health and Safety Code §7050.5. No further disturbance shall occur until the Coroner has made a determination regarding the nature of the remains, which must occur within two working days of notification.

If the Coroner determines that the remains are or may be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours, as required by Public Resources Code §5097.98. The NAHC will identify the Most Likely Descendant (MLD), who shall be granted access to the site and allowed 48 hours to make recommendations regarding the treatment and disposition of the remains, in consultation with the County and the Project Archaeologist.

All activities in the vicinity of the discovery shall remain suspended until the remains have been appropriately treated and the lead agency has authorized the resumption of work.

5.6 ENERGY

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?			X	
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

5.6.1 ENERGY SETTING

In 2002, the state of California enacted Senate Bill (SB) 1078, a Renewable Portfolio Standard (RPS)[42] Program that mandates the percentage of energy that the state utilities must receive from renewable sources. The RPS has been revised and continues to be used to enforce the use of renewables and mandate the threshold of clean energy required. The California Public Utilities Commission (CPUC) implements the state's compliance with RPS, and the California Energy Commission (CEC) certifies facilities as eligible renewable sources for the program. Following the implementation of the RPS, the CPUC, CEC, and California Power Authority released the Energy Action Plan (EAP)[43] in 2003, setting goals for the future of California's energy usage and highlighting the need for affordable, reliable, and renewable energy. The EAP has been revised and continues to be a guiding principle for California energy regulations.

[42] California Public Utilities Commission. 2024. Renewables Portfolio Standard Program. Retrieved from: https://www.cpuc.ca.gov/rps#:~:text=The%20CPUC%20implements%20and%20administers,community%20choice%20aggregators%20(CCAs).
[43] California Public Utilities Commission. 2024. Energy Action Plan. Retrieved from: https://www.cpuc.ca.gov/industries-and-topics/natural-gas/energy-action-plans

AB 32, the California Global Warming Solutions Act[44], enacted in 2006 and further quantified by SB 32 in 2016, requires the CARB to implement measures that reduce GHG emissions, furthering the push towards clean energy and alignment with the EAP. The California Global Warming Solutions Act now requires a 40 percent reduction in 1990 levels of GHG emissions by 2030. In 2018, the California Governor signed SB 100[45] that sets a goal of 100 percent clean energy by the 2045. It jointly requires the CPUC, CEC, and CARB to submit a report outlining their energy usage every four years for the legislature to understand the barriers in meeting the target laid out in SB 100. SB 100 was further refined in the Clean Energy, Jobs, and Affordability Act of 2022 (SB 1020)[46] which set tiered targets every 5 years for achieving 100 percent renewable energy in 2045.

Currently, most electricity delivered to the Big Bear Valley region comes from off-mountain sources through one of two transmission lines that are subject to Public Safety Power Shutoff (PSPS) events. Because all power generated by the proposed Project would be consumed locally, the proposed Project would support grid reliability and mitigate interruptions from emergency or capacity-constraining situations like high wind events, wildfires or other situations that may result in a complete or significant loss of power from off-mountain resources. California's RPS requires BVES to serve 60 percent of its electric retail sale from renewable sources by 2030, with interim targets. This Project is crucial to supporting this requirement, and would help BVES meet these requirements cost-effectively, reducing the need to purchase more expensive Renewable Energy Certificates (RECs). By generating emission-free power, the proposed Project would reduce reliance on the gas-fired Bear Valley Power Plant and would improve local air quality for both residents and tourists. Development of the Project also would meet the County's commitment to CORE generation that would provide local, reliable, renewable energy to the grid within the Bear Valley Community. The Project is consistent with the federal, state, and local agency goals for renewable energy generation, grid resiliency, and rate stability.

5.6.2 REGULATORY SETTING

5.6.2.1 STATE OF CALIFORNIA

SB 350: The Clean Energy and Pollution Reduction Act [47]

The Clean Energy and Pollution Reduction Act administers ambitious goals to be fulfilled by 2030 including the establishment of clean energy and air along with the reduction of GHG Emissions. The Act involves upgrading the renewable energy procurement goal to 50 percent in 2030, from

[44] California Air Resources Board. 2018. AB 32 Global Warming Solutions Act of 2006. Retrieved from: https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006
[45] California Energy Commission. 2024. SB 100 Joint Agency Report. Retrieved from: https://www.energy.ca.gov/sb100
[46] California Legislative Information. 2024. SB-1020 Clean Energy, Jobs, and Affordability Act of 2022. Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB1020#:~:text=This%20bill%20would%20revise%20that,customers%20by%20December%2031%2C%202040%2C
[47] California Energy Commission. 2024. Clean Energy and Pollution Reductions Act – SB 350. Retrieved from: https://www.energy.ca.gov/rules-and-regulations/energy-suppliers-reporting/clean-energy-and-pollution-reduction-act-sb-350#:~:text=What%20Does%20SB%20350%20Do,%2C%20biomass%2C%20geothermal%20and%20others.

the original 33 percent in 2020. In addition to the increase in emissions reduction goals, the Act aims to double the energy efficiency savings in electricity and natural gas.

Assembly Bill 32 and SB 32: California Global Warming Solutions Act

AB 32, also known as the Climate Change Scoping Plan, was enacted in 2006, establishing a limit on GHG emissions statewide to 1990 levels by 2020. The bill required CARB to adopt regulations that rigorously decreased GHG emissions as much as possible. In 2016, SB 32 was enacted to quantify and revamp the goals in AB 32, requiring a 40 percent reduction in 1990 levels of greenhouse gas emissions levels by 2030.

California Renewables Portfolio Standard

The RPS Program was enacted in 2002 via SB 1078, which required investor-owned utilities to source 20 percent of their energy from renewable energy by 2010. This number increased to 50 percent by 2030 with the enactment of SB 350. In 2018, Governor Gerry Brown signed SB 100 which increased the RPS to 60 percent by 2030 and 100 percent by 2045. To aid in achieving this goal, the bill requires the CPUC, CEC, and CARB to intermittently submit a report of their energy usage to better understand the barriers and strengths to achieving 100 percent clean energy.

5.6.2.2 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[48]

The Countywide Plan/Policy Plan contains the following goals and policies related to energy that are relevant to the Project.

Infrastructure and Utilities Element

- *Goal IU-5: Power and communication.* Unincorporated area residents and businesses have access to reliable power and communication systems.
    - Policy IU-5.2. Electricity and natural gas service. We partner with other public agencies and providers to improve the availability and stability of electricity and natural gas service in unincorporated communities.
    - Policy IU-5.3. Underground facilities. We encourage new and relocated power and communication facilities to be located underground when feasible, particularly in the Mountain and Desert regions.

Renewable Energy and Conservation Element

- *Goal RE-1: Energy Conservation and Efficiency*. The County will pursue energy efficiency tools and conservation practices that optimize the benefits of renewable energy.
    - Policy RE-1.1. Continue implementing the energy conservation and efficiency measures identified in the County of San Bernardino Greenhouse Gas Emissions Reduction Plan.

[48] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf

- *Goal RE-2: Renewable Energy Systems*. The County will be home to diverse and innovative renewable energy systems that provide reliable and affordable energy to our unique Valley, Mountain, and Desert regions.
    - Policy RE 2.1. Support solar energy generation, solar water heating, wind energy and bioenergy systems that are consistent with the orientation, siting and environmental compatibility policies of the General Plan.
- *Goal RE-3: Community-Oriented Renewable Energy*. Community-oriented renewable energy facilities will be prioritized to complement local values and support a high quality of life in unincorporated communities.
    - Policy RE-3.2. Encourage CORE generation that primarily serves local uses in the county.
        - RE 3.2.1. Specific standards shall be established and maintained for CORE generation facilities appropriate to the Valley, Desert, and Mountain regions.
        - RE 3.2.2. Encourage through the regulatory system the establishment of local and regional organizations to pursue CORE production and storage.
        - RE 3.2.3. CORE facilities shall be designed primarily to meet the needs of the local users, with an adequate overage margin to meet peak demands and defray the cost of the systems.
        - RE 3.2.5. Encourage utilization of micro-grid technologies to support the principle of "local production primarily for local consumption," to enhance local energy security and to improve local costs of living and commerce.
        - RE 3.2.6. Apply minimal discretion in the permit approval process for CORE facilities.
        - RE 3.2.7. Encourage infrastructure, net metering, and regulatory systems that support CORE facilities.
    - Policy RE-3.3. Promote an adaptive distributed energy infrastructure that sustains local communities and improves resiliency to grid failures and increasing energy prices.

County of San Bernardino Greenhouse Gas Emissions Reduction Plan[49]

In response to the passage of Assembly Bill 32, San Bernardino County adopted the GHG Emissions Reduction Plan in 2011. The plan originally set a goal of reducing GHG emissions to 15 percent under the baseline by 2020, a goal that the county achieved by 2016. In 2021, San Bernardino County released Greenhouse Gas Emissions Development Review Process Screening Tables determined that a 40 percent reduction from the 2016 emissions levels by 2030 would put the County in alignment with the State standard set forth in SB 32.

[49] San Bernardino County Transportation Authority. 2021. Regional Greenhouse Gas Reduction Plan. Retrieved from: https://www.gosbcta.com/plan/regional-greenhouse-gas-reduction-plan/.

5.6.3 ENVIRONMENTAL EVALUATION

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact. During the construction phase of the Project, energy consumption would be temporary, lasting for a span of 6 to 9 months. The use of energy would not be wasteful, inefficient, or unnecessary and would only require consumption within the regular standard for an industrial construction project. This includes energy used to power construction equipment and fuels for the vehicles transporting workers and materials to the Project area, which would not require energy use beyond that of standard industrial construction projects. The workforce will be pulled from local sources, therefore having a minor effect on the consumption of fuel countywide. Additionally, new construction is required to follow all local, state, and federal building codes which include the conservation of energy resources.

The operation of the Project would help progress California's renewable energy goals by implementing a new, local solar facility that will generate renewable energy, resulting in a net positive impact towards the State's goal of 100 percent clean energy by 2045 and will help the State meet the interim goals set leading into 2045. The Project also aligns with the County's CORE generation goals.

Therefore, the Project would have a less than significant impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. At the local level, the Countywide Plan outlines several policies and goals in alignment with the Project, advocating for the implementation and increase of local, CORE generation. Goal RE-1 and Goal RE-2 and their associated policies highlight the drive toward clean energy and directly encourage renewable energy sources including solar power. Goal RE-3 and Goal RE-4 promote the implementation of renewable energy in a way that is beneficial for both the community and the environment. The Project meets and exceeds the goals outlined in the Renewable Energy and Conservation Element of the Countywide Plan and further progresses the County's clean energy targets.

At the state level, the implementation of a new solar facility aids California in meeting the mandates of the Climate Change Scoping Plan. AB 32 required the State to achieve 1990 levels of GHG emissions by 2020 and SB 32 requires a 40 percent reduction in GHG emission from 1990 levels. SB 350 increased the requirement to mandate 50 percent of the energy use to be renewable by 2030. SB 100 further increased the RPS to 60 percent by 2030 and 100 percent by 2045. The Project operations foster the State's advancement toward clean energy and will be an asset in helping California achieve the State's renewable energy goals. California's RPS requires BVES to serve 60 percent of its electric retail sale from renewable sources by 2030, with interim targets. This Project is crucial to supporting this requirement, and would help BVES meet these requirements cost-effectively, reducing the need to purchase more expensive RECs. The potential site options for a distribution-scale solar PV facility within

BVES's territory are limited, particularly due to the regions surrounding mountains and steep topography. Characteristics of this Project site including its flat topography, its existing condition of undeveloped and open space land, its proximity to local distribution infrastructure, and proximity to load, as well as being owned by a landowner with the desire to host a solar project make it an ideal site to develop the proposed Project.

Therefore, the Project would not conflict with or obstruct state or local plan for renewable energy efficiency and would not be considered an impact.

5.7 GEOLOGY AND SOILS

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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.			X	
ii. Strong seismic ground shaking?		X		
iii. Seismic-related ground failure, including liquefaction?		X		
iv. Landslides?		X		
b. Result in substantial soil erosion or the loss of topsoil?			X	
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?		X		
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?		X		
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?			X	

f. Directly or indirectly destroy a unique paleontological resource or site or geologic feature?			X	

5.7.1 GEOLOGY AND SOILS SETTING

The Project area is located within Bear Valley on the southside of a small, tectonically uplifted mountain block that divides Baldwin Lake on the north from Erwin Lake on the east-southeast. The Bear Valley is an internally draining basin nestled in the San Bernardino Mountains of the greater Transverse Ranges Geomorphic Province, a province of east-wide-trending, fault-bound mountain blocks that were rotated from transverse movement along the San Andreas Fault.[50] The mountain on the northern boundary of the Project area consists of quartzite of Wildhorse Meadows, which was historically mined for its gold at the Gold Hill Mine. The rest of the Project area south of the hill where the solar PV panels and infrastructure would be constructed contains alluvial deposits.[51]

Soil Types and Properties

Soils[52] within the Project area consist of the following:

- **Aquents-Grunney complex, 0 to 4 percent slopes (2dvmq)**: This complex of poorly drained soils is comprised of Aquents and Grunney soils. Aquents soils formed in mixed alluvium and occur in floodplains and treads. They are typically comprised of sandy loam, have an occasional frequency of flooding, and are characterized as hydric soils. Grunney soils formed in mixed alluvium and occur in floodplains and treads. They are typically comprised of muck, mucky loam, and sandy loam, have an occasional frequency of flooding and ponding, range from non-saline to very slightly saline, and are characterized as hydric soils.
- **Moonridge-Shayroad-Caribouceek complex, 0 to 4 percent slopes (2dvn1)**: This complex of well-drained soils is comprised of Moonridge, Shayroad, and Caribouceek soils. Moonridge soils formed in alluvium derived primarily from granite and related rocks and occur within alluvial fans and treads. They are typically comprised of loam, have an occasional frequency of flooding, and are not characterized as hydric soils. Shayroad soils formed in alluvium derived primarily from granite and related rocks and occur within alluvial fans and treads. They are typically comprised of sandy loam, range from non-saline to very slightly saline, and are not characterized as hydric soils. Caribouceek soils formed in mixed alluvium and occur within alluvial fans and treads. They are typically comprised of loam and clay loam, have an occasional frequency of flooding, and are not characterized as hydric soils.

[50] Norris, R.W., and R.W. Webb. 1990. Geology of California, 2nd Edition. John Wiley & Sons, Inc. New York, New York.
[51] Miller, F.K., and P.M. Cossette. 2004. Preliminary geologic map of the Big Bear City 7.5' quadrangle, San Bernardino County, California. U.S. Geological Survey, Open-File Report OF-2004-1193, scale 1:24,000.
[52] U.S. Department of Agricultural. 2024. National Resources Conservation District, Web Soil Survey Database. Retrieved from: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

- **Goldmountain-Deadmansridge-Deadpan complex, 30 to 50 percent slopes (2dvn6)**: This complex of well-drained is comprised of Goldmountain, Deadmansridge, and Deadpan soils. Goldmountain soils formed in colluvium derived from metasedimentary rock and occur on mountain slopes. They are typically comprised of very gravelly loam to extremely gravelly loam with lithic bedrock restriction at approximately 20 and 30 inches of depth and are not characterized as hydric soils. Deadmansridge soils formed in colluvium derived from igneous and metamorphic rock and occur on mountain slopes. They are typically comprised of very gravelly loam to very cobbly loam and are not characterized as hydric soils. Deadpan soils formed in formed in colluvium derived from igneous and metamorphic rock and occur on mountain slopes. They are typically comprised of cobbly loam to cobbly clay loam and are not characterized as hydric soils.

The 2024 field investigations confirmed hydric soils within the entire extent of the minor topographic depression in the northwestern to north-central portion of the Project area, corresponding with the Aquents-Grunney complex mapped by NRCS.

Expansive soils are those that contain a high percentage of certain kinds of clay particles that are capable of absorbing large quantities of water. Exposure to natural or human-sourced water during or after development results may result in expansion.[53] Soils within the Project area are mostly clayey to sandy loam (Aquents-Grunney complex and Moonridge-Shayroad-Caribou creek complex). Given the location of the Project and soils encountered, the potential for shrinkage and swelling of soils are low at the Project site.

Seismic and Geologic Hazards

The geologic history of the San Bernardino Mountains region is largely influenced by movement along the San Andreas Fault. The San Bernardino Mountains segment of the San Andreas Fault has an average slip rate of 24 millimeters per year, with an average recurrence interval of 146 years, and paleoseismic studies have indicated at least six surface-rupturing earthquakes on this segment of the San Andreas Fault since 1192, the last five of which occurring every approximately 106 years, the most recent of which was in 1812. Other named faults in the vicinity of the Project area capable of producing an earthquake of a magnitude 7 include the Helendale Fault (6 miles away) and the North Frontal Fault Zone (7 miles away), as well as several unnamed faults within the Big Bear Valley, one of which produced a 6.4 magnitude earthquake in 1992.[54]

A query of the USGS ANSS Comprehensive Earthquake Catalog indicates at least 19 recorded seismic events with the magnitude of 5.5 have occurred within a 62-mile-radius of the Project site.[55]

Fault Rupture and Ground Shaking

[53] Colorado Geological Survey. 2024. Expansive Soil and Rock. Retrieved from: https://coloradogeologicalsurvey.org/hazards/expansive-soil-rock/.
[54] City of Big Bear Lake. 1999. General Plan: Environmental Hazards/Geotechnical. Retrieved from: https://www.citybigbearlake.com/images/DOWNLOADS/CITY_DEPARTMENTS/BUSINESS/PLAN_CHECKS/GENERAL_PLAN_ELEMENTS/Environmental%20Hazards%20Element.pdf.
[55] U.S. Geological Survey (USGS). 2025. ANSS Comprehensive Earthquake Catalog (ComCat). Retrieved from: https://earthquake.usgs.gov/data/comcat/

Seismically induced ground rupture occurs at a result of differential movement across a fault. The California Geological Survey (CGS) defines "active" faults as those that have exhibited displacement within the last 11,000 years (i.e., Holocene age), "potentially active" faults as those that have exhibited displacement within the last 1.6 million years but have not been active during the Holocene age, and "inactive" faults as those that have not experienced displacement within the last 2.58 million years (i.e., prior to the Pleistocene). The California Earthquake Hazards Zone Application ("EQ Zapp") compiled by the CGS does not map the Project area within an Alquist-Priolo Fault Zone.[56] Although not mapped within an Alquist-Priolo Fault Zone, the Project site is located in an area where regional (i.e., those less than 10 miles away) "active" faults have caused several recent earthquakes, ranging from 6 to 7 magnitude, which could result in seismically induced ground shaking.

Liquefaction

Liquefaction is a seismic phenomenon in which young, saturated soils lose their structure/strength when subjected to high-intensity ground shaking due to shallow groundwater, low-density non-plastic soils, and high-intensity ground motion. Liquefaction primarily occurs in loose, granular soils like sand, especially when they are poorly compacted or consist of uniform particle sizes. Seismic shaking of loose, granular soil can also cause settling and compaction of soils, which can negatively affect, stress, or damage foundations and other built structures, resulting in fractures or displacement.

Field observations indicate that groundwater depths range between 4 feet and 18 feet across the site. This depth range corresponds with normal conditions observed by DWR periodic groundwater level measurements; however, the typical depth to groundwater fluctuates between approximately 20 to 30 feet during the summer growing season with seasonal spikes to between approximately 3 to 8 feet in spring melt seasons following years of high levels of winter precipitation.

The Project area contains moderately to well compacted soils derived from the weathering and erosion of poorly sorted (i.e., well-graded) alluvial clay, silt, sand, and gravel deposits that are only hydric in the northwestern corner of the Project area due to local drainage patterns. Although the EQ Zapp map does not classify this Project area as being in an area of potential liquefaction hazards, the County's geologic hazards overlay classifies the Project area as being in a Zone of Susceptibility for Liquification.[57] Additionally, high groundwater levels could indicate high soil saturation during wetter years. Field observations collected during a geologic hazards and geotechnical investigation of the Project site by ANS Geo, Inc. in 2025 indicate that soils across the proposed Project site might experience liquefaction at isolated locations during an earthquake; however, seismically induced settlement of the soils is expected to be negligible (i.e., seismically induced settlement values are expected to be 0.15 inch or less) according to the results of

[56] California Geological Survey (CGS). 2024. California Earthquake Hazards Zone Application ("EQ Zapp"). Retrieved from: https://maps.conservation.ca.gov/cgs/informationwarehouse/eqzapp/.
[57] County of San Bernardino. 2009. Geologic Hazard Map for Big Bear City (Bear Valley). Retrieved from: https://www.sbcounty.gov/Uploads/lus/GeoHazMaps/FI10C_20100309.pdf

geotechnical investigation liquefaction modelling[58]. Therefore, there is low to moderate potential for liquefaction and seismic settlement.

Landslides and Slope Instability

Earthquakes and other seismically induced disturbances, as well as large precipitation, could result in landslides, instability, and/or mass wasting along slopes. The EQ Zapp map compiled by the CGS does not map the Project area within an area susceptible to landslides or slope instability. Review of the County's geologic hazards overlay indicates that the mountain along the northeastern boundary has a low to moderate generalized landslide susceptibility. During the 2024 site visits, ERM noted that the northeastern Project area boundary along the mountain slope exhibits evidence of minor slope instability based on the surface deposits and a dislodged retaining wall constructed of wooden logs associated with the Gold Hill Mine. Additionally, the 2025 geologic hazards and geotechnical report by ANS Geo, Inc. notes an over-steepened slope at the northeastern corner of the Project area. However, the mining operations were discontinued in the late 1960's, and the stability of the slope should have settled and stabilized over the past 55 years. The relatively flat area immediately below this over-steepened slope is mapped as an Area of Concern (AOC). The current Project design includes the proposed solar PV array and ancillary structures within the AOC.

Paleontological Setting

Paleontological potential, or "paleontological sensitivity," refers to the likelihood that a geological unit contains scientifically significant (i.e., "unique") paleontological resources. The Society of Vertebrate Paleontology (SVP) defines four categories of paleontological sensitivity: high, low, undetermined, and no potential.[59] Based on geologic mapping within the Project area, the surface contains late Holocene (recent) to late Pleistocene (126,000 years ago) alluvial deposits, which are underlain at shallow depth by quartzite, exposed at the surface on the slope along the northern boundary of the Project area. Late Holocene deposits present at the surface are often too young to contain significant paleontological resources, and although surficial alluvial deposits may transition to middle Holocene to late Pleistocene deposits in the shallow surface that may be old enough to yield significant paleontological resources, the proximity to the adjacent mountain and shallow depth to the underlying quartzite suggests a low potential for the alluvial deposits to preserve intact paleontological resources. Additionally, quartzite is a metamorphic rock that formed from the melting and recrystallizing of quartz-rich (sandy) sedimentary rocks. Any fossil that may have been present in the original sedimentary rock has likely been physically or chemically destroyed or altered to an extent that any fossil remaining would no longer be scientifically significant. Therefore, the alluvial deposits within the Project area have low paleontological sensitivity, and the quartzite bedrock in the subsurface and along the northern boundary has no paleontological sensitivity.

[58] ANS Geo, Inc. 2025. Geotechnical Data Report for the Bear Valley Erwin Ranch Solar Project. Dated April 2, 2025. Prepared for EDF Renewables for the Bear Valley Solar Energy Project.
[59] Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Retrieved from: https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf.

5.7.2 REGULATORY SETTING

5.7.2.1 FEDERAL

Earthquake Hazards Reduction Act

The Earthquake Hazard Reduction Act aims to minimize risk to life and property caused by earthquakes by creating a comprehensive earthquake hazards reduction program. It includes detailed responsibilities for agencies to prepare for and mitigate seismic risks.

5.7.2.2 STATE OF CALIFORNIA

Alquist-Priolo Earthquake Fault Zoning Act

Alquist-Priolo Earthquake Fault Zoning Act provides a mechanism for reducing losses from surface fault rupture on a statewide basis. The intent of the act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep. This act groups faults into categories of active (Historic faults), potentially active (Holocene and Pleistocene faults), and inactive (pre-Pleistocene).

Seismic Hazards Mapping Act

The Seismic Hazard Mapping Act directs the CGS to delineate Seismic Hazard Zones as effort to reduce the threat to public health and safety and to minimize loss of life and property. The act requires identification and mitigation of seismic hazards. State and local agencies are directed to use seismic hazard zone maps developed by the CGS in land use planning and permitting review and approvals. The act requires project-specific geotechnical investigations be performed prior to permitting developments in seismic hazard zones.

California Building Code

The California Building Code (CBC), Title 24, Part 2 provides building codes and standards for the design and construction of structures in California. The most recent version of the CBC is based on the 2018 International Building Code with more provisions relevant to seismic and structural hazards. The CBC requires addressing soil-related hazards, such as treating hazardous soil conditions involving removal, proper fill selection, and compaction, prior to construction. In cases where soil remediation is not feasible, the CBC requires structural reinforcement of foundations to resist the forces of expansive soils.

PRC, Section 5097.5

Requirements for paleontological resource management are included in PRC Division 5, Chapter 1.7, Section 5097.5, which states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

These statutes prohibit the removal, without permission, of any paleontological site or feature from land under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others. PRC Section 5097.5 also establishes the removal of paleontological resources as a misdemeanor and requires reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, and district) land.

5.7.2.3 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[60]

The Natural Resources Element, Renewable Energy and Conservation Element, Cultural Resources Element (for paleontological resources), Hazards Element, and Personal and Property Protection Element of the Countywide Plan/Policy Plan contains goals and policies applicable to geology and soil resource issues.

Natural Resources Element

- *Goal NR-2 Water Quality*. Clean and safe water for human consumption and the natural environment.
    - Policy NR-2.5 Stormwater discharge. We ensure compliance with the County's Municipal Stormwater NPDES Permit by requiring new development and significant redevelopment to protect the quality of water and drainage systems through site design, source controls, stormwater treatment, runoff reduction measures, best management practices, low impact development strategies, and technological advances. For existing development, we monitor businesses and coordinate with municipalities.

Renewable Energy and Conservation Element

- *Goal RE-4 Environmental Compatibility*. The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.
    - Policy RE-4.2. Ensure that renewable energy facilities do not disrupt, degrade, or alter the local hydrology and hydrogeology.
        - RE 4.2.1. Require a groundwater impact assessment that evaluates the short and long-term impacts to groundwater usage.
    - Policy RE-4.3. Require construction and operation of all renewable energy facilities to minimize negative effects and optimize benefits to unincorporated communities.

[60] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf

        - RE 4.3.1. Define measures required to minimize ground disturbance, soil erosion, flooding, and blowing of sand and dust, with appropriate enforcement mechanisms in the County's Development Code.

Cultural Resources Element

- *Goal CR-2 Historic and Paleontological Resources*. Historic resources (buildings, structures, or archaeological resources) and paleontological resources that are protected and preserved for their cultural importance to local communities as well as their research and educational potential.
    - Policy CR-2.3 Paleontological and archaeological resources. We strive to protect paleontological and archaeological resources from loss or destruction by requiring that new development include appropriate mitigation to preserve the quality and integrity of these resources. We require new development to avoid paleontological and archeological resources whenever possible. If avoidance is not possible, we require the salvage and preservation of paleontological and archeological resources.

Hazards Element

- *Goal HZ-1 Natural Environmental Hazards*. Minimized risk of injury, loss of life, property damage, and economic and social disruption caused by natural environmental hazards and adaptation to potential changes in climate.
    - Policy HZ-1.2 New development in environmental hazard areas. We require all new development to be located outside of the environmental hazard areas listed below. For any lot or parcel that does not have sufficient buildable area outside of such hazard areas, we require adequate mitigation, including designs that allow occupants to shelter in place and to have sufficient time to evacuate during times of extreme weather and natural disasters.
        - Geologic: Alquist Priolo earthquake fault zone; County-identified fault zone; rockfall/debris-flow hazard area, medium or high liquefaction area (low to high and localized), existing and County-identified landslide area, moderate to high landslide susceptibility area)
    - Policy HZ-1.7 Underground utilities. We require that underground utilities be designed to withstand seismic forces, accommodate ground settlement, and hardened to fire risk.
    - Policy HZ-1.9 Hazard areas maintained as open space. We minimize risk associated with flood, geologic, and fire hazard zones or areas by encouraging such areas to be preserved and maintained as open space.
- *Goal HZ-2 Human-Generated Hazards*. People and the natural environment protected from exposure to hazardous materials, excessive noise, and other human-generated hazards.
    - Policy HZ-2.11 Legacy abandoned mine lands. We inventory legacy abandoned mines and require private property owners to eliminate hazardous conditions that could

threaten human life and environmental contamination. We pursue funding to address legacy abandoned mines on County-owned property.

Personal and Property Protection Element

- *Goal PP-4 Emergency Preparedness and Recovery*. A reduced risk of and impact from injury, loss of life, property damage, and economic and social disruption resulting from emergencies, natural disasters, and potential changes in climate.
    - Policy PP-4.1 Emergency management plans. A reduced risk of and impact from injury, loss of life, property damage, and economic and social disruption resulting from emergencies, natural disasters, and potential changes in climate.

San Bernardino County Development Code[61]

The following sections apply to geologic and soil hazards within the County:

1. Title 8, Division 2, Section 82.15.040 (Development Standards for Geologic Hazard Overlay):
    - Requires human-occupancy structures to be at least 50 feet away from active earthquake faults.
    - Allows reduced setbacks in specific cases with approval based on geologic investigations.
2. Title 8, Division 5, Section 85.11.030 (Erosion Control Plan Requirements):
    - Prohibits land disturbance or construction without prior approval of erosion control measures.
    - Requires site inspections for compliance with erosion control measures.
    - Mandates Stormwater Pollution Prevention Plans (SWPPP) for projects disturbing over one acre.
    - Ensures ongoing maintenance of approved erosion control features during and after construction.

5.7.3 ENVIRONMENTAL EVALUATION

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.

Less than Significant Impact. The Project is not located within an Alquist-Priolo Earthquake Zone, and no active faults that could result in rupture of the ground surface

[61] San Bernardino County. 2024. Code of Ordinances. Retrieved from: https://codelibrary.amlegal.com/codes/sanbernardino/latest/sanberncty_ca/0-0-0-146479

have been identified within the bounds of the Project area. The nearest Alquist-Priolo Earthquake Hazard Fault Zone is Northern Frontal Thrust System, which runs along the northern boundary of the San Bernardino Mountains. The closest section of this fault system to the Project site is approximately 6.3 miles northeast of the Project site. Impacts related to fault rupture would be less than significant.

II. Strong seismic ground shaking?

Less than Significant Impact with Mitigation. Although not mapped within an Alquist-Priolo Fault Zone, the Project site is located in an area where regional (i.e., those less than 10 miles away) "active" faults have caused several recent earthquakes, ranging from 6 to 7 magnitude, which could result in seismically induced ground shaking at the Project site. Construction of the Project would be temporary and brief (i.e., 6 months), and the Project would be unmanned during operations, except for occasional maintenance. The design of the Project must conform to the mandatory standards of the CBC, which contains specific requirements to reduce damage from seismically induced ground shaking/ground motions during a seismic event. Implementation of MM GEO-1 that adheres to CBC requirements would reduce potential impacts to less than significant levels.

Mitigation Measures

MM GEO-1: Seismic design parameters

- Prior to the issuance of grading permits, the applicant shall retain a California-registered and licensed engineer to design the proposed Project to withstand probable seismically induced ground shaking at the Project site. All grading and construction on site shall adhere to the specifications, procedures, and site conditions contained in the final design plans, which shall be fully compliant with the seismic recommendations of the California-registered and licensed professional engineer and consistent with the recommendations in the Geotechnical Recommendations Report prepared by ANS Geo, Inc. in 2025.

III. Seismic-related ground failure, including liquefaction?

Less than Significant Impact with Mitigation. The Project area contains moderately to well compacted soils (i.e., not loose) derived from the weathering and erosion of poorly sorted alluvial clay, silt, sand, and gravel deposits that are only hydric in the northwestern corner of the Project area due to local drainage patterns. The County's geologic hazards overlay classifies the Project area as being in a Zone of Susceptibility for Liquification, and the site is subject to shallow groundwater levels during wetter years. Soils across the proposed Project site may be susceptible to liquefaction in isolated areas during a seismic event of magnitude of 6.88 or greater. Despite the Project's location in a seismically active region, overall conditions of the site indicate a low to moderate potential for liquefaction or seismic settlement; however, implementation of MM GEO-1 would reduce potential impacts to less than significant levels.

IV. Landslides?

Less than Significant Impact with Mitigation. Although the EQ Zapp map compiled by the CGS does not map the Project area within an area susceptible to landslides or slope instability, the northeastern corner of the Project area along the mountain slope exhibits

evidence of minor slope instability based on the surface deposits and a dislodged retaining wall constructed of wooden logs associated with the Gold Hill Mine. Additionally, the 2025 geologic hazards and geotechnical investigation report maps an over-steepened slope at the northeast corner of the Project area. The relatively flat area immediately below this over-steepened slope is mapped as an AOC.

The current Project design includes small portions of the proposed solar PV array and ancillary structures within the AOC; however, the solar facility would be unoccupied during operation aside from a few O&M visits per year, and only the northeastern most PV arrays could be affected if on-site conditions would result in a landslide. If Project-related structures in the northeastern corner of the Project area cannot be designed to be sited outside of the AOC, then implementation of MM GEO-2, which includes a desktop-level slope stability assessment and, if necessary, a field-based slope stability analysis, would reduce potential impacts to less than significant levels.

Mitigation Measures

MM GEO-2: Slope stability assessment

- If the Project cannot be designed to avoid the construction of structures or PV arrays in the northeastern corner identified as an AOC for slope stability in the 2025 geologic hazards and geotechnical investigation by ANS Geo, Inc., then a desktop-level slope stability assessment conducted by licensed geotechnical engineers shall be required. If the results of the slope stability assessment indicate significant potential for landslides, slope failure, or instability, then a field-based slope stability analysis shall be conducted. The recommendations from the slope stability assessment, and if necessary from the slope stability analysis, shall be incorporated into the final design prior to issuance of grading and building permits.

b. Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. The solar PV array would be constructed on the flat portion of the parcel. Construction activities, which would include minimal grading, vegetation removal, and road installation may loosen soils, increasing the risk of erosion during storms. Additionally, water used for dust suppression could result in runoff that carries sediment. The Project will be required to comply with the NPDES Construction Stormwater General Permit. This includes the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which will outline site-specific Stormwater BMPs to reduce soil erosion and loss of topsoil. Stormwater BMPs include but are not limited to source control BMPs; treatment control BMPs; and implementation improvements, such as training, inspections, and maintenance. Water quality features intended to reduce construction-related erosion impacts would be clearly noted on the grading plans for implementation by the construction contractor. Additionally, construction activities are temporary (approximately 6-9 months) and landscaping around the perimeter of the Project area would minimize erosion. With conformance to applicable federal, state, and local regulations, and implementation of appropriate Stormwater BMPs, the Project would not result in substantial soil erosion or the loss of topsoil and impacts would be less than significant.

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?

Less than Significant Impact with Mitigation. The Project area contains moderately to well compacted soils (i.e., not loose) derived from the weathering and erosion of poorly sorted alluvial clay, silt, sand, and gravel deposits that are only hydric in the northwestern corner of the Project area due to local drainage patterns. Additionally, the 2025 geologic hazards and geotechnical investigation report notes an over-steepened slope at the northeastern corner of the Project area that has potential slope instability. The relatively flat area immediately below this over-steepened slope is mapped as an AOC. The County's geologic hazards overlay classifies the Project area as being in a Zone of Susceptibility for Liquification, and the site is subject to shallow groundwater levels during wetter years. Conditions of the site indicate a low to moderate potential for liquefaction or seismic settlement. Additionally, the Project would not be constructed in soils subject to lateral spreading or collapse, and the quartzite basement rock underlying the alluvial deposits within the subsurface of the Project area are unlikely to be affected by tectonic subsidence.

The Project will be designed to avoid the steep sloped area for slope stability. If the Project's design cannot avoid construction within the relatively flat AOC, implementation of MM GEO-1 and MM GEO-2 would reduce potential impacts to less than significant levels.

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?

Less than Significant Impact with Mitigation. Given the location of the Project and soils encountered, the potential for shrinkage and swelling of soils are low at the Project site. Thus, a geotechnical investigation was required to assess the potential for expansive soils. A geotechnical investigation report has been prepared for the Project by ANS Geo, Inc. in 2025. During the building permit application process, County staff will verify that the type of construction proposed is consistent with the actual soils present based on the results and recommendations within the geotechnical investigation. Implementation of MM GEO-1 would reduce potential impacts to less than significant levels.

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 wastewater?

Less than Significant Impact. Because sanitary facilities and wastewater disposal systems would only be needed during construction, no permanent wastewater disposal systems or supporting use of septic tanks would be constructed on site. Temporary wastewater facilities would remain on site until the end of construction and would be removed following construction. No wastewater disposal systems are needed for landscaping, which would rely on temporary irrigation systems, or operations and maintenance since no permanent workers will be on site. Additionally, the Project will be required to comply with the NPDES Construction Stormwater General Permit, including implementation of a SWPPP and Stormwater BMPs. Therefore, impacts would be less than significant.

f. Directly or indirectly destroy a unique paleontological resource or site or geologic feature?

Less than Significant Impact. The Project area contains geologic units of low to no paleontological sensitivity. Construction for the Project would involve minimal grading, except for what would be needed for Stormwater BMPs, excavating for the stormwater detention basins, pile driving for the solar support structures, trenching for collector lines, and leveling the northeastern portion of the site where the topography rises. Such activities would likely only impact sediments too young to contain paleontological resources, which are immediately underlain by quartzite, typically too metamorphosed to contain intact fossils. Additionally, the Project area contains no known "unique" paleontological resources, sites, or geologic features. Therefore, impacts would be less than significant.

5.8 GREENHOUSE GAS EMISSIONS

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?			x	
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				x

5.8.1 GREENHOUSE GAS EMISSIONS SETTING

Gases that trap heat in the atmosphere are called GHGs. The major concern in releasing excess GHG to the atmosphere is global climate change. Global climate change is a change in the average climate on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Human activity directly contributes to emissions of six primary anthropogenic GHGs: carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride (SF_6).[62] The most important and widely occurring anthropogenic GHG is CO_2, primarily from the use of fossil fuels as a source of energy.

Research by California's Office of Environmental Health Hazard Assessment documents climate change indicators by categorizing the effects as: changes in California's climate; impacts to physical systems including oceans, lakes, rivers, and snowpack; and impacts to biological systems including humans, vegetation, and wildlife. The primary observed changes in California's climate include increased annual average air temperatures, more-frequent extremely hot days and nights, and increased severity of drought. Impacts to physical systems affected by warming temperatures and changing precipitation patterns show decreasing snowmelt runoff, shrinking glaciers, and rising sea levels. Impacts to terrestrial, marine, and freshwater biological systems, with resulting

[62] California Air Resources Board (CARB). 2018. AB 32 Global Warming Solutions Act of 2006 Assembly Bill 32 Overview. Retrieved from: https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006.

changes in habitat, agriculture, and food supply are occurring in conjunction with the potential to impact human well-being.[63]

The electricity sector in California has achieved substantial GHG emissions reductions through renewable and zero-carbon energy deployment. Moving forward, a clean, affordable, and reliable electricity grid will serve as a backbone to support deep decarbonization across California's economy. Decarbonizing the electricity sector is a crucial pillar of achieving carbon neutrality, and CARB anticipates that the role of electricity in powering the economy will continue to grow while electric loads increase.[64] California continues to add zero-carbon energy resources to replace fossil-fuel generation and support growing demand. Moving to zero-carbon resources is critical to reducing GHG emissions and addressing the long-term impacts of climate change.[65]

In 2016, San Bernardino County generated approximately 16 million metric tons (MT) of carbon dioxide equivalents (CO_2e).[66] The largest portion of these emissions (51 percent) is attributed to on-road vehicles, while the second largest portion (35 percent) is due to building energy. In 2030, San Bernardino County is forecast to generate approximately 17.6 million tons of CO_2e, a GHG emissions increase of 15 percent. The largest portion of these emissions (51 percent) is attributed to on-road vehicles, while the second largest portion (38 percent) is due to building energy.

5.8.2 REGULATORY SETTING

5.8.2.1 FEDERAL

Clean Air Act[67]

The Supreme Court decision in Massachusetts et al. v. Environmental Protection Agency et al. (Supreme Court Case 051120) found that the USEPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the federal-level CAA. On 17 April 2009, USEPA found that CO_2, methane, NO_x, hydrofluorocarbons, perfluorocarbons, and SF_6 may contribute to air pollution and may endanger public health and welfare. The USEPA has established reporting regulations that require specific facilities and industries to report their GHG emissions annually. *40 Code of Federal Regulations Part 98, Mandatory Reporting of Greenhouse Gases Rule* requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 MT of CO_2e ($MTCO_2e$) per year.

[63] Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. 2018. Indicators of Climate Change in California. Retrieved from: https://oehha.ca.gov/climate-change/document/indicators-climate-change-california#:~:text=The%202018%20report%20compiles%2036,change%20on%20biological%20systems%20%E2%80%93%20humans%2C.
[64] California Air Resources Board. 2022. California's Scoping Plan for Achieving Carbon Neutrality. Retrieved from: https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf.
[65] California Energy Commission. 2022. Final 2021 Integrated Energy Policy Report (IEPR), Volume II - Ensuring Reliability in a Changing Climate. Retrieved from: https://efiling.energy.ca.gov/GetDocument.aspx?tn=241583.
[66] San Bernardino County Transportation Authority. 2021. San Bernardino County Regional Greenhouse Gas Reduction Plan. Appendix A. Retrieved from: https://www.gosbcta.com/wp-content/uploads/2019/09/San_Bernardino_Regional_GHG_Reduction_Plan_Appendices_Mar_2021.pdf.
[67] USEPA. 1970. Clean Air Act, 42 U.S.C. §7401 et seq. Accessed 20 December 2024. Retrieved from: https://www.epa.gov/laws-regulations/summary-clean-air-act#:~:text=The%20Clean%20Air%20Act%20(CAA,emissions%20of%20hazardous%20air%20pollutants.

5.8.2.2 STATE OF CALIFORNIA

Assembly Bill 32: Global Warming Solutions Act of 2006[68]

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (AB 32). AB 32 provides the framework for regulating GHG emissions in California. This law requires the CARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020.

The bill also requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions. The bill authorizes CARB to adopt market-based compliance mechanisms. The bill additionally requires the state board to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism adopted by the state board, pursuant to specified provisions of existing law. The bill also authorizes CARB to adopt a schedule of fees to be paid by regulated sources of GHG emissions. Because the bill requires CARB to establish emissions limits and other requirements, the violation of which would be a crime, this bill would create a state-mandated local program. Under AB 32, by 30 June 2007, CARB was to identify a list of discrete early action GHG reductions that will be legally enforceable by 2010. By 1 January 2008, CARB was also to adopt regulations that will identify and require selected sectors to report their statewide GHG emissions. By 1 January 2011, CARB must adopt rules and regulations to achieve the maximum technologically feasible and cost-effective reductions in GHG reductions. CARB is authorized to enforce compliance with the program that it develops.

State Executive Orders on GHG Emissions

State Executive Order S-3-05 (June 2005) established the initial GHG reduction targets for the State of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050.

In April 2015, Governor Brown signed Executive Order B-30-15, establishing the intermediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030, to ensure the state meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 (Executive Order S-3-05). On 8 September 2016, Governor Brown signed SB 32 and AB 197, which codified the 2030 GHG emissions reduction target of 40 percent below 1990 levels and provided additional direction for updating the scoping plan.

In September 2018, Executive Order B-55-18 established a new statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. CARB was directed to develop the framework for implementing the goal of carbon neutrality.

[68] California Air Resources Board. 2018. AB 32 Global Warming Solutions Act of 2006. Retrieved from: https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006

Renewables Portfolio Standard (RPS) Program and SBs 350 & 100[69]

On 10 September 2018, Governor Brown signed SB (SB) 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by 31 December 2045. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. California must procure 100 percent of its energy from carbon-free energy sources by the end of 2045.

SB 100 also creates new standards for the RPS goals established by SB 350 in 2015. The Clean Energy and Pollution Reduction Act of 2015 (SB 350) established California's state policy objectives on long-term energy planning and procurement as signed into law on 7 October 2015.

Cap-and-Trade Program (17 CCR 95801 to 96022)

The California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (Cap-and-Trade Program) was initially approved by CARB in 2011. The Cap-and-Trade Program applies to covered entities that fall within certain source categories, including suppliers of transportation fuels, retail providers of electricity, and operators of electricity generating facilities. The program is triggered when facility emissions exceed 25,000 MTCO2e in a year. The covered entities must hold compliance instruments sufficient to cover the actual GHG emissions, as evidenced through CARB's Mandatory Reporting Regulation requirements. This means that transportation fuel suppliers bear the GHG compliance obligation in the Cap-and-Trade Program for the GHG emissions from motor vehicle and off-road equipment fuels used by construction workforces and crews. No specific reporting requirements apply to electric power generation from solar resources.

SBs 97 and 743

SB 97, enacted in 2007, amended the CEQA statute to establish that GHG emissions and their effects are a prominent environmental issue that require analysis and identification of feasible mitigation under CEQA. GHG emissions were incorporated into the CEQA guidelines on 18 March 2010.

With the passing of SB 743 in 2013, the Governor's Office of Planning and Research further amended the State CEQA Guidelines providing alternative criteria to level of service for evaluating transportation impacts. One of the goals of the new criteria is to promote the reduction of GHG.

Emission Reductions of SF6 From Gas Insulated Equipment (17 CCR 95350 to 95359)

Electric power gas-insulated equipment and switchgear used in transmission and distribution systems are subject to this regulation for reducing or phasing-out SF_6 emissions and leaks. The regulation, initially adopted by CARB in 2010 and amended in 2022, requires owners of such gas-insulated equipment or switchgear to phase out use of SF_6, maintain records and inventories of

[69] California Legislative Information. 2024. SB 100 California Renewables Portfolio Standard Program: emissions of greenhouse gases. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100.

their gas-insulated equipment and capacities, and report CO_2e emissions to demonstrate compliance with annual limits set by the rule.

Climate Change Scoping Plan

CARB published a Climate Change Scoping Plan in December 2022 that outlines reduction measures to lower the state's GHG emissions and achieve an 85 percent reduction from 1990 levels as required by AB 1279.[70] Key elements for reducing California's GHG emissions to 85 percent of 1990 levels by 2045 include:

- Direct emission reduction for sources covered by the AB 32 Inventory
- Reducing demand for petroleum fuels
- Carbon capture and sequestration for petroleum refineries and manufacturing facilities
- Electrification of industrial, commercial, and residential energy use

5.8.2.3 REGIONAL

On 5 December 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. This interim guidance includes a numeric threshold to determine significance for industrial projects where SCAQMD is the lead agency.[71]. This interim guidance has continued to be used and is repeated in SCAQMD's Air Quality Significance thresholds that were published in March 2023.[72]

5.8.2.4 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[73]

Local jurisdictions, such as the County of San Bernardino, have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the County is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the County assesses the global climate change potential of new development projects, requires mitigation of potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

The *Greenhouse Gas Emissions Development Review Processes*, prepared for the County of San Bernardino March 2015, provides project level direction on how the County plans to achieve the reduction in GHG Emissions.[74] Further, the San Bernardino Policy Plan[75] includes goals and policies

[70] California Air Resources Board. 2022 Scoping Plan Documents. https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents
[71] South Coast Air Quality Management District (SCAQMD). 2008. SCAQMD Governing Board Agenda Item 31. Retrieved from: https://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2
[72] South Coast Air Quality Management District (SCAQMD). 2023. SCAQMD Air Quality Significance Thresholds. Retrieved from: https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25
[73] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf

that all new projects are required to comply with, as applicable. The following goals and policies are applicable to this community-oriented Project:

- *Goal NR 1.7. Greenhouse gas reduction targets*. We strive to meet the 2040 and 2050 GHG emission reduction targets in accordance with state law.
- *Goal RE 2.1*. Support solar energy generation, solar water heating, wind energy and bioenergy systems that are consistent with the orientation, siting, and environmental compatibility policies of the General Plan.
- *Goal RE 3.2*. Encourage CORE generation that primarily serves local uses in the county.

San Bernardino County 2014 Regional Greenhouse Gas Reduction Plan (RGHGRP)

In addition, the County participated with San Bernardino Associated Government's regional planning efforts in the adoption of the San Bernardino County 2014 Regional Greenhouse Gas Reduction Plan (RGHGRP). The 2014 RGHGRP was developed to meet the requirements of AB 32 and SB 375 and includes a regional GHG emissions inventory, summarizes actions that participating jurisdictions have selected to reduce GHG emissions to 1990 levels by 2020, and provides specific reduction goals for each participating jurisdiction. In March 2021, San Bernardino Council of Governments prepared an update to the 2021 RGHGRP in order to address SB 32, which mandates a 40 percent reduction in GHG emissions from 1990 levels by 2030. The 2021 RGHGRP was prepared in accordance with the GHG reduction measures provided in California's 2017 Climate Change Scoping Plan, November 2017.[76]

5.8.3 ENVIRONMENTAL EVALUATION

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. Construction and eventual decommissioning activities would cause GHG emissions resulting from fossil-fuel combustion in the engines of construction equipment and the vehicles carrying construction materials and workers to and from the site. Diesel fuel or gasoline will be used in mobilizing the heavy-duty construction equipment during all six phases of the Project: site preparation, pile and skid foundations, module install, electrical install, and commissioning.

The Project would be operated on an autonomous, unstaffed basis, and monitored remotely from an existing offsite facility. It is anticipated that maintenance requirements will be minimal as the proposed Project's PV arrays will operate with limited moving parts. Operational activities are limited to monitoring plant performance, periodic mowing, and unscheduled, preventative maintenance. The Project will operate during daylight hours only, and no heavy equipment will be used during routine Project operation. Default operational emissions from CalEEMod are based on land type, land amount, and local area precipitation. There is not an appropriate land use type in CalEEMod for solar facilities, so Industrial was selected as a conservative overestimate of operational emissions. The major contributor to GHG emissions is

[76] California Air Resources Board (CARB). 2018. Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. Retrieved from: https://ww2.arb.ca.gov/sites/default/files/2020-06/SB375_Updated_Final_Target_Staff_Report_2018.pdf.

the default water use number of 20 million gallons annually, based on the equation used in Department of Water Resources Model Water Efficient Landscape Ordinance. These operational emissions are a gross over-assumption as native drought tolerant plants will be used; however, these default values are used to be conservative.

Equipment and vehicle use over the duration of construction would amount to approximately 143 $MTCO_2e$ of GHG emissions. For assessing the overall rate of Project GHG emissions, San Bernardino County, as CEQA lead agency, allows short-term construction GHG emissions to be included with operational emissions by averaging construction effects over a 30-year life of the Project, as recommended by SCAQMD. The overall construction GHG emissions amortized over 30 years would be equivalent to an annualized rate of 5 $MTCO_2e$ per year. It is assumed that decommissioning activities would be similar in nature and duration to construction activities, so decommissioning emissions are assumed to be the same and would be equivalent to an annualized rate of 5 $MTCO_2e$ per year. Decommissioning is typically faster than construction, so this is a conservative assumption. During the operational life of the project, direct on-site O&M activities would contribute an additional 46.2 $MTCO_2e$ per year. The emissions of O&M activities are shown with the one-time and annualized GHG emissions rates of construction in Table 4.

The data provided in Table 4 shows that the proposed Project would create a total of 56 $MTCO_2e$ per year, which is well within the SCAQMD threshold of 10,000 $MTCO_2e$ per year. Even if the construction schedule slipped, and GHG emissions were doubled, it would still be well below thresholds.

TABLE 45.8 BEAR VALLEY ESTIMATED GREENHOUSE GAS EMISSIONS

Category	Total ($MTCO_2e$)
Total Construction Emissions	143
Amortized Construction Emissions (30 years)	4.77
Amortized Decommissioning Emissions (30 years)	4.77
Annual Operational Emissions	46
Total Annual Emissions (includes operational and amortized construction and decommissioning activities)	**55.54**
SCAQMD Annual Threshold	**10,000**
Below Threshold (Y/N)	**Y**

$MTCO_2e$ = metric tons of carbon dioxide equivalent; N = no; SCAQMD = South Coast Air Quality Management District; Y = yes

Further, operation of the solar facility will offset GHG emissions by displacing power produced by carbon-based fuels that would otherwise be used to meet electricity demand. The power displaced is incremental power provided by generators elsewhere on the grid, typically from

natural gas power plants. The Project will generate an estimated 13,987 MW-hours of solar-generated electricity each year that will be added to the power grid and be used in place of electricity generated by fossil-fuel sources. One hundred percent of the power produced by the Project will be consumed locally within BVES service territory.

Therefore, because GHG emissions from the Project are well below the threshold and because this Project would displace conventional fossil-fueled electricity generation, a less than significant generation of GHG emissions would occur from development of the proposed Project. Impacts to the environment would be less than significant.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact. The Project would produce electricity in a manner that improves California's ability to supply renewable energy to end-use customers and to achieve statewide renewable energy goals. Electricity from the solar generating station would be used to serve the needs of California's customers and would facilitate compliance with California's RPS and CARB's 2022 Climate Change Scoping Plan.

The San Bernardino County 2021 RGHGRP includes GHG inventories, and local GHG reduction strategies for each partnership jurisdiction including the unincorporated areas of San Bernardino County. The RGHGRP demonstrates how unincorporated San Bernardino County could achieve its selected goal of reducing its GHG emissions to 40 percent below its 2020 GHG emissions level by 2030. The majority (approximately 80 percent) of unincorporated San Bernardino County's GHG reduction goal will be achieved through state efforts such as vehicle standards, the state's low carbon fuel standard, the RPS, and other state measures to reduce GHG emissions in the on-road, solid waste, and building energy sectors in 2030. According to the RGHGRP, the remaining 20 percent needed to meet its goal could be achieved "primarily through the following local measures, in order of reductions achieved: Solar Installation for Existing Commercial/Industrial (Energy-8); Waste Diversion and Reduction (Waste-2); Solar Installation for Existing Housing (Energy-7)."

Further, the proposed Project is consistent with the GHG goals and policies in the San Bernardino Policy Plan, specifically NR-1.7, RE 2.1, RE 4.1 and RE 4.3.1.

The Project is consistent with the County's RGHGRP and County Policy Plan goal to encourage renewable energy, including solar facilities. The Project would be consistent with state and regional plans to reduce GHG emissions and would result in no impact.

5.9 HAZARDS AND HAZARDOUS MATERIALS

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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?			X	

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?			X	
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
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?				X
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

5.9.1 HAZARDS AND HAZARDOUS MATERIALS SETTING

This hazards and hazardous materials setting and impact analysis are based on the results of the Phase I Environmental Site Assessment and Limited Phase II Environmental Site Assessment prepared by ERM in 2024 (Appendix F and G, respectively). ERM staff conducted a site visit and interview with the property owners in July 2024. According to the landowners there are no other structures or storage tanks onsite besides the old mining equipment and associated structures, and they were unaware of any prior occupants. During ERM's site visit, a partially backfilled excavation approximately 5 feet by 5 feet wide and 10 feet deep was observed on the northeastern portion of the Project area. The excavation appears to be an abandoned mineshaft. The opening of the shaft is covered with highly weathered and degraded wooden planks. A small tailing pile was observed adjacent to the mineshaft. A former ventilation shaft within a 10-foot by 10-foot concrete slab and production shaft with subgrade machinery were also observed approximately 250-300 feet northeast of the mineshaft. The ventilation shaft was capped, and the production shaft was backfilled with soil and covered with a metal grate. The production shaft had a small portion of the remaining wooden structure that was still intact. Southwest of the

production shaft was a pile of approximately 50, 10-foot-long logs, that were cut and shaped. The logs were similar in size and shape to the remaining structure.

According to the Environmental Data Resources, Inc. (EDR)® Radius Map™ Report (EDR report), the Gold Hill Mine located approximately 200-feet west of the Project area is listed in the MINES Mineral Resources Data System (MRDS) database. The listing indicates that the adjacent property was historically utilized as a gold mine. No additional information was provided in the EDR report. However, after additional review of historical aerials and onsite observations, it appears that the Project area is at least partially associated with the former Gold Hill Mine operations. According to "The Diggings" website, Gold Hill Mine is closed and there are no plans for reopening. During its active period, the mine was considered to have a relatively small production size. The operations at the Gold Hill Mine included both surface and underground workings. In addition, the mine reportedly extends to a maximum depth of approximately 54 feet below ground surface, and the ore body extends approximately 10 feet in thickness. The gold bearing host rock most prevalent in this area is quartzite.

A variety of environmental impacts are commonly associated with former mining activities. Each of the different types of mineral processing operations generates its own specific waste streams. Environmental concerns specifically associated with gold mining and processing are mineral dusts, tailings, acid mine drainage, and other mineral processing wastes. Contaminants of concern include, but are not limited to, heavy metals (e.g., mercury, lead, nickel, copper, cadmium, zinc, and arsenic). To determine the potential for contaminants of concern at depths of potential ground disturbance (see Section 2.3.5 Ground Disturbance and Stormwater Management), ERM conducted a limited Phase II Environmental Site Assessment (Appendix G), which included assessing soil samples for contaminants of concern in the northwestern portion of the Project area near the mining facilities. Soil samples were obtained from seven hand-augered borings that extended to depths of 5 feet below ground surface where possible. Soil samples were tested for heavy metals via USEPA Method 6010B, and for total mercury by Method 7471A and were compared to Soluble Threshold Limit Concentration (STLC) and Total Threshold Limit Concentration (TTLC). All analyzed compounds detected above their respective laboratory method detection limit were below their respective STLC/TTLC Regulatory Limits, indicating that the compounds detected are not considered hazardous waste.

The Phase I Environmental Site Assessment (Appendix F) revealed the following recognized environmental conditions, controlled recognized environmental conditions, and/or significant data gaps in connection with the Project area:

- **Recognized Environmental Conditions (RECs)**. The land adjacent to the east of the Project area is listed under Gold Hill Mine in the MINES MRDS database in the EDR report. The listing indicates that the adjacent property was historically utilized as a gold mine. No additional information was provided in the EDR report. However, after additional review of historical aerials and onsite observations, it appears as though the Project area was also associated with the former Gold Hill Mine operations.
- **Controlled Recognized Environmental Conditions (CRECs)**. No CRECs were identified in connection with the Project area.

- **Historical Recognized Environmental Conditions (HRECs)**. No HRECs were identified in connection with the Project area.
- **De Minimis Conditions**. Big Bear has historically had wild donkeys since the 1860s. During the site visit, the Project area had approximately 20 wild donkeys on site. Given the long duration of animal waste (manure), the potential exists that methane, nitrates, and ammonia are found in soil. However, based on the proposed land use (solar) particulates from animal waste are not considered a REC, but a de minimis condition.

Construction of the Project may result in potential soil disturbances that could expose construction workers to heavy metals from the previous mining use of the site. However, the limited Phase II Environmental Site Assessment (Appendix G) soil sampling did not indicate the presence of specific mine-related hazardous compounds detected above regulatory limits. Additionally, mine-related structures currently situated on-site would be avoided and left on-site to minimize disturbance and potential hazard exposure.

5.9.2 REGULATORY SETTING

5.9.2.1 FEDERAL

Hazardous Materials Transportation Act

Regulates the safe transport of hazardous materials under Title 49 of the CFR, with enforcement primarily by the California Highway Patrol and the California Department of Transportation, which handle permits and emergency responses related to transportation incidents involving hazardous materials.

Resource Conservation and Recovery Act

Federal law overseeing hazardous waste from "cradle-to-grave"—from creation through to recycling, reuse, or disposal. This law is administered in California by the Department of Toxic Substances Control (DTSC) in coordination with the state's Hazardous Waste Control Law.

Occupational Safety and Health Administration

Ensures worker safety by establishing standards, including training and protective measures for employees involved in hazardous waste operations. Standards in Title 29 CFR Section 1910 require Health and Safety Plans for land-use proposals to address potential hazards and prescribe training for employees working with hazardous materials.

Title 40 CFR Part 273

Standards for Universal Waste Management: Federal regulations that govern the handling, storage, and labeling of universal waste types such as batteries, lamps, and aerosol cans. Regulations differ by handler size (small vs. large quantity) and apply specific storage and transportation guidelines without the need for hazardous waste transporters.

5.9.2.2 STATE OF CALIFORNIA

California Environmental Protection Agency

Established to coordinate California's environmental protection efforts, California Environmental Protection Agency (CalEPA) oversees agencies like the DTSC and the SWRCB. It enforces hazardous materials management and waste laws, including the Hazardous Waste Control Law, the Hazardous Substances Information and Training Act, and the Air Toxics Hot Spots and Emissions Inventory Law.

Strategic Fire Plan for California

A guide from CAL FIRE that establishes fire prevention, natural resource management, and suppression goals. The plan's 2019 update emphasizes these goals to enhance public and environmental safety.

California Occupational Safety and Health Administration

Sets standards for safe handling and exposure to hazardous chemicals in the workplace, including stringent training, safety equipment availability, and accident prevention requirements beyond federal Occupational Safety and Health Administration standards.

Hazardous Waste Control Act

Implements California's stringent hazardous waste management protocols under Title 26 CCR. The Act covers waste identification, generation, transportation, disposal and requires detailed record-keeping and staff training.

Title 8, CCR, Section 2700 et seq. – High Voltage Safety Orders

Defines safety protocols for working with high-voltage electrical installations and specifies safe working distances and operational practices.

Title 14, CCR, Sections 1250-1258 Fire Prevention Standards for Electric Utilities

Sets standards for fire prevention and requires utilities to maintain clearances around power lines and minimize risks from conductor sparks and other electrical hazards.

5.9.2.3 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[77]

The Hazards Element, Personal and Property Protection Element, Transportation and Mobility Element, and Renewable Energy and Conservation Element of the Countywide Plan/Policy Plan contain the following goals and policies applicable to minimizing hazards and hazard exposures.

Hazards Element

- *Goal HZ-2 Human-Generated Hazards*. Flood: 100-year flood zone, dam/basin inundation area.

[77] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.sbcounty.gov/wp-content/uploads/sites/125/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf?x23421.

- Policy HZ-2.2. Database of hazardous materials. We maintain up-to-date databases of the storage, use, and production of hazardous materials, based on federally- and state-required disclosure and notification, to appropriately respond to potential emergencies.
- Policy HZ-2.3. Safer alternatives. We minimize the use of hazardous materials by choosing and by encouraging others to use non-toxic alternatives that do not pose a threat to the environment.
- Policy HZ-2.4. Truck routes for hazardous materials. We designate truck routes for the transportation of hazardous materials through unincorporated areas and prohibit routes that pass through residential neighborhoods to the maximum extent feasible.
- Policy HZ-2.5. Community education. We engage with residents and businesses to promote safe practices related to the use, storage, transportation, and disposal of hazardous materials.
- Policy HZ-2.11. Legacy abandoned mine lands. We inventory legacy abandoned mines and require private property owners to eliminate hazardous conditions that could threaten human life and environmental contamination. We pursue funding to address legacy abandoned mines on County-owned property.

Personal and Property Protection Element

- *Goal PP-3 Fire and Emergency Medical*. Reduced risk of death, injury, property damage, and economic loss due to fires and other natural disasters, accidents, and medical incidents through prompt and capable emergency response.
  - Policy PP-3.4. Fire prevention services. We proactively mitigate or reduce the negative effects of fire, hazardous materials release, and structural collapse by implementing the California Fire Code, adopted with County amendments.
  - Policy PP-3.7. Fire safe design. We require new development in the Fire Safety Overlay to comply with additional site design, building, and access standards to provide enhanced resistance to fire hazards.
- *Goal PP-4 Emergency Preparedness and Recovery*. A reduced risk of and impact from injury, loss of life, property damage, and economic and social disruption resulting from emergencies, natural disasters, and potential changes in climate.
  - Policy PP-4.1. Emergency management plans. A reduced risk of and impact from injury, loss of life, property damage, and economic and social disruption resulting from emergencies, natural disasters, and potential changes in climate.

Renewable Energy and Conservation Element

- *Goal RE-4 Environmental Compatibility*. The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.

- Policy RE-4.6. Mandate recycling of electronic/toxic materials according to the Basel Convention or similar standards.

5.9.3 ENVIRONMENTAL EVALUATION

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. The soil sampling and analysis conducted as part of the limited Phase II Environmental Site Assessment did not indicate the presence of specific mine-related hazardous compounds detected above regulatory limits. Thus, the Project's potential to exhume potentially hazardous soils that would require removal, transport, and off-site disposal are minimal. The solar PV arrays and ancillary structures would use minimal quantities of hazardous materials necessary for its construction, operation, and decommissioning phases.

Solar panels, as utilized in this Project, have been shown to present minimal environmental hazards when properly manufactured and installed. According to the National Renewable Energy Laboratory,[78] the lifecycle impacts of solar PV systems, including their decommissioning, are significantly lower than those associated with conventional energy sources. This indicates that the construction and operation of solar facilities generally do not contribute to substantial environmental hazards.

The proposed Project is designed to operate within safe limits regarding hazardous materials, and the associated risks remain well within acceptable parameters, reaffirming that no significant hazards to public safety or environmental integrity are anticipated. Given these limited quantities, the Project is not anticipated to pose a significant risk to public health or the environment through the routine transport, use, or disposal of hazardous substances. Therefore, potential impacts would be less than significant.

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?

Less Than Significant Impact. During the construction phase, the Project poses a low risk for accidental release of limited quantities of hazardous materials, including fuels and chemicals. During operation, oils would be fully contained within the transformers, and no fuel or lubricants would be stored on site. Any potentially hazardous materials would be managed or stored following stringent safety standards, including secondary containment and fire safety protocols in accordance with applicable state and federal standards. In decommissioning, materials, including PV modules would be recycled or disposed of following all federal and state regulations, ensuring minimal landfill impact. Consequently, impacts from hazardous material handling across all Project phases are anticipated to remain at a less-than-significant level.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

[78] National Renewable Energy Laboratory. 2024. Rural Transportation Options. Retrieved from: https://www.nrel.gov/

No Impact. The McDonald Learning Center is the closest school to the Project and is located more than half a mile from the site, located north. Therefore, the Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impacts would result from the proposed Project.

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?

No Impact. The Project is not located on a site included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. As determined in the Phase I Environmental Site Assessment prepared for the Project, the Project site was not identified in any relevant databases, including those pursuant to Government Code Section 65962.5.

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

No Impact. The Big Bear Airport is over 3 miles from the proposed Project site. The Project is not located within the Airport Influence Area of any nearby airport and is not included in any Airport Land Use Compatibility Plan. Overall, due to the distance between the Project and nearby airports, the Project would not interfere with airport operations or result in a safety hazard or excessive noise for people residing or working in the area. No impact would occur.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Minor increases in traffic congestion related to construction vehicle traffic and equipment deliveries would not impact an emergency response plan or emergency evacuation plan. During construction and operation, all vehicles and stationary equipment will be staged within the Project site and off of Erwin Ranch Road, ensuring that emergency access routes remain unobstructed. Traffic control measures may be required during construction which would further limit any impacts to emergency response. Consequently, the implementation of the Project is not expected to substantially impair any adopted emergency response or evacuation plans, and less than significant impacts would occur.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact. Although the Project is located within a high-risk fire zone, a site fence/screen would be required with a 25-foot setback along Lakewood Drive and Erin Ranch Road and the residence (and 20-foot setback along the northern boundary). The setback would provide a defensible buffer around the Project footprint. The Project is also setback from the open space north of the Project site. Furthermore, the Project does not entail the construction of habitable structures or permanent facilities. Therefore, the Project will not expose people or structures to a significant risk of loss, injury, or death due to wildland fires.

5.10 HYDROLOGY AND WATER QUALITY

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or the addition of impervious surfaces, in a manner which would:			X	
I. Result in substantial erosion or siltation on- or off-site?			X	
II. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
III. 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; or			X	
IV. Impede or redirect flood flows?			X	
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

5.10.1 HYDROLOGY AND WATER QUALITY SETTING

This hydrology and water quality setting and impact analysis are partially based on the results of the Aquatic Resources Delineation Report prepared by ERM in 2024 (Appendix H). The Project site is located within the Santa Ana watershed (HUC8 18070203) and the Baldwin Lake sub-watershed (HUC12 180702030101).[79] Baldwin Lake is an intermittent, alkali lake with no known surface

[79] US Geological Survey (USGS). 2015. USGS Links for HUC 180702030101 - Baldwin Lake. Retrieved from: https://water.usgs.gov/lookup/getwbd?180702030101.

water drainage outlet or confirmed subsurface connectivity to Big Bear Lake. The site is within the Bear Valley Groundwater Basin, with groundwater recharge occurring primarily from precipitation, runoff, and subsurface flow from fractured rocks.[80] Based on the California Department of Water Resources (DWR) Best Available Maps (BAM) Awareness[81], typical depth to groundwater fluctuates between approximately 20 to 30 feet during the summer growing season with seasonal spikes to between approximately 3 to 8 feet in spring melt seasons following years of high levels of winter precipitation. The abandoned mining shaft in the north central area of the site contained standing water at an approximate depth of 10 to 15 feet (Appendix H).

The USFWS NWI[82] imagery depicts a seasonally flooded, riverine intermittent stream bed (R4SBC) approximately 65 feet from the northwestern area of the parcel, a semi-permanently flooded riverine system with an unconsolidated bottom (R5UBF) approximately 125 feet from the northwestern area of the Project site, and a seasonally saturated palustrine emergent wetland (PEM1B) approximately 290 feet from the northwestern area of the Project site. Historic aerial imagery indicates inundation and surface hydrologic connectivity between the northern sections of the Project site and the adjacent seasonally saturated palustrine emergent wetland. There is currently no connection via culvert from the Project site west under Lakewood Drive. Despite the presence of hydric soils in the northwestern section of the Project site and soil surface cracks in the southern section of the Project site, the absence of hydrophytic vegetation throughout the entirety of the Project site suggests that this site is not subject to USACE jurisdiction under the current definition of the WOUS or WOS. Moreover, the Project is not subject to a CDFW streambed jurisdiction due to the absence of aquatic features containing a defined bed, bank, channel, or high-water mark within the Project site.

The Federal Emergency Management Agency (FEMA)[83] floodplain map classifies the entire Project site as an area of minimal flood hazard. However, the California DWR BAM Awareness[84] dataset mapped the northwestern area of the parcel as within a 100-year floodplain. While DWR BAM Awareness 100-year floodplains are not intended to replace FEMA regulatory floodplains, these maps identify areas where storm flows have a 1 percent chance of being equaled or exceeded in any year.

[80] California Department of Water Resources (DWR). 2004. Hydrologic Region South Coast, Bear Valley Groundwater Basin. Bulletin 118. Retrieved from: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/8_009_BearValley.pdf.
[81] California Department of Water Resources (DWR). 2024. Best Available Maps (BAM) 100-Year Floodplain Awareness Dataset. Retrieved from: https://gis.bam.water.ca.gov/bam/. Accessed July 2024.
[82] United States Fish and Wildlife Service (USFWS). 2024. National Wetlands Inventory (NWI). Retrieved from: http://www.fws.gov/wetlands.
[83] Federal Emergency Management Agency (FEMA). 2024. National Flood Hazard Layer (NFHL) Viewer. Retrieved from: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd.
[84] California Department of Water Resources (DWR). 2024. Best Available Maps (BAM) 100-Year Floodplain Awareness Dataset. Retrieved from: https://gis.bam.water.ca.gov/bam/.

5.10.2 REGULATORY SETTING

5.10.2.1 FEDERAL

Clean Water Act

Section 404 of the CWA regulates the discharge of dredged or fill material into WOUS. Recently adopted 2023 federal regulations implementing the CWA (40 CFR Part 120.2(a) define WOUS to include waters currently or historically used in commerce, tidal waters, territorial seas, interstate waters, impoundments, tributaries, and adjacent wetlands with a continuous surface connection).

Section 402 mandates that certain types of construction activity comply with the requirements of USEPA's NPDES stormwater program. The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the NPDES Program, to the SWRCB and the RWQCB. Construction activities that disturb one or more acres of land must obtain coverage under the NPDES Construction Stormwater General Permit, which is issued by Santa Ana Regional Water Quality Control Board (see detailed discussion on NPDES permit requirements below).

National Flood Insurance Program

The National Flood Insurance Program (NFIP), established by Congress in 1968 and periodically updated, aims to reduce the impact of flooding through federal regulation. Executive Order 11988 (1973) strengthened floodplain management to limit development in flood-prone areas. FEMA administers the NFIP, mapping floodplains and determining flood elevations. FEMA's flood insurance rate maps identify special flood hazard areas, including 100-year floodplains, with a 1 percent annual flood risk. Federal regulations (Title 44, Part 60 CFR) require municipalities participating in the NFIP to adopt standards for construction in these floodplains to mitigate flood hazards.

5.10.2.2 STATE OF CALIFORNIA

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, the SWRCB regulates stormwater discharges from construction sites to prevent pollutant mobilization into waterbodies. Activities subject to this regulation include clearing, grading, and excavation. Projects disturbing one or more acres of soil, or part of a larger development plan that affects one or more acres, must obtain coverage under the NPDES Construction Stormwater General Permit for Stormwater Discharges associated with construction and land disturbance. This regulation aims to protect and restore California's water resources.

CWA Section 401 requires an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant to obtain a water quality certification (or waiver) from the applicable RWQCB. The RWQCBs primarily implement basin plan policies through issuing waste discharge requirements for waste discharges to land and water. The RWQCBs have also been delegated responsibility for administering the NPDES permit program, which is designed to manage and monitor point and nonpoint source pollution.

Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law the Sustainable Groundwater Management Act (SGMA), creating California's first framework for sustainable, groundwater management. SGMA empowers local agencies to form Groundwater Sustainability Agencies (GSAs) to manage basins sustainably. The legislation requires those GSAs to adopt Groundwater Sustainability Plans (GSPs) for crucial groundwater basins in California.

Several agencies worked together to develop a GSP for the Bear Valley Basin. The GSP was approved by the Bear Valley Basin GSA on June 21, 2022. The Project site is located within the Bear Valley Basin GSA.

5.10.2.3 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[85]

The Countywide Plan/Policy Plan contains goals and policies applicable to hydrology and water quality that are relevant to the Project, which include the following:

Infrastructure and Utilities Element

- *Goal IU-3. Stormwater Drainage*. A regional stormwater drainage backbone and local stormwater facilities in unincorporated areas that reduce the risk of flooding.
    - Policy IU-3.1. Regional Flood Control. We maintain a regional flood control system and regularly evaluate the need for and implement upgrades based on changing land coverage and hydrologic conditions in order to manage and reduce flood risk. We require any public and private projects proposed anywhere in the county to address and mitigate any adverse impacts on the carrying capacity and stormwater velocity of regional stormwater drainage systems.
    - Policy IU-3.2. Local Flood Control. We require new development to install and maintain stormwater management facilities that maintain predevelopment hydrology and hydraulic conditions.
    - Policy IU-3.3. Recreation Use. We prefer that stormwater facilities be designed and maintained to allow for regional open space and safe recreation use without compromising the ability to provide flood risk reduction.
    - Policy IU-3.4. Natural Floodways. We retain existing natural floodways and watercourses on County-controlled floodways, including natural channel bottoms, unless hardening and channelization is the only feasible way to manage flood risk. On floodways not controlled by the County, we encourage the retention of natural floodways and watercourses. Our priority is to reduce flood risk, but we also strive to protect wildlife corridors, prevent loss of critical habitat, and improve the amount and quality of surface water and groundwater resources.

Natural Resources Element

[85] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf

- *Goal NR-2 Water Quality*. Clean and safe water for human consumption and the natural environment.
    - Policy NR-2.2. Water Management Plans. We support the development, update, and implementation of ground and surface water quality management plans emphasizing the protection of water quality from point and non-point source pollution.
    - Policy NR-2.5. Stormwater Discharge. We ensure compliance with the County's Municipal Stormwater NPDES Permit by requiring new development and significant redevelopment to protect the quality of water and drainage systems through site design, source controls, stormwater treatment, runoff reduction measures, best management practices, low impact development strategies, and technological advances. For existing development, we monitor businesses and coordinate with municipalities.

Hazards Element

- *Goal HZ-1. Natural Environmental Hazards*. Minimized risk of injury, loss of life, property damage, and economic and social disruption caused by natural environmental hazards and adaptation to potential changes in climate.
    - Policy HZ-1.2. New Development in Environmental Hazard Areas. We require all new development to be located outside of the environmental hazard areas listed below. For any lot or parcel that does not have sufficient buildable area outside of such hazard areas, we require adequate mitigation, including designs that allow occupants to shelter in place and to have sufficient time to evacuate during times of extreme weather and natural disasters.
        - Flood: 100-year flood zone, dam/basin inundation area.
    - Policy HZ-1.3. Floodplain Mapping. We require any new lots or subdivisions partially in, and any new development partially or entirely in, 100-year flood zones or 100-year flood awareness areas to provide detail floodplain mapping for 100- and 200-year storm events as part of the development approval process.
    - Policy HZ-1.9. Hazard Areas Maintained as Open Space. We minimize risk associated with flood, geologic, and fire hazard zones or areas by encouraging such areas to be preserved and maintained as open space.

Renewable Energy and Conservation Element

- *Goal RE-4. Environmental Compatibility*. The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.
    - Policy RE-4.2. Ensure renewable energy facilities do not disrupt local hydrology.
    - Policy RE-4.2.1. Require groundwater impact assessments for short- and long-term impacts of renewable energy projects.

5.10.3 ENVIRONMENTAL EVALUATION

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. Construction activities, which will include minimal ground disturbances, such as trenching to approximately 42 inches below grade and pile driving due an approximate depth of 7-9 feet below grade (pending final structural design); vegetation removal; and road installation, may loosen soils and increase the risk of erosion during storms. Additionally, water used for dust suppression could result in runoff that carries sediment and dissolved solids. The use of construction equipment may lead to accidental releases of hazardous materials, such as fuels and oils, which could affect surface and groundwater quality.

The Project will be required to comply with the NPDES Construction Stormwater General Permit. This includes the development and implementation of a SWPPP, which will outline site-specific Stormwater BMPs to reduce erosion and prevent stormwater pollution. Stormwater BMPs include but are not limited to source control BMPs; treatment control BMPs; and implementation improvements such as training, inspections, and maintenance. Hazardous materials like fuels and oils will be handled according to Stormwater BMPs and the Project's Spill Prevention, Control, and Countermeasure Plan, ensuring accidental releases are minimized. With these controls, impacts on water quality during construction are expected to be temporary and less than significant.

Additionally, runoff will be managed with the implementation of these site-specific Stormwater BMPs and further managed under the Water Quality Management Plan. Thus, the water quality impacts during operations would be less than significant.

Decommissioning, expected to occur after approximately 35 years, will involve similar activities to the construction phase, including potential for erosion, sedimentation, and pollutant release. These activities will also require compliance with federal, state, and local water quality regulations, including the NPDES Construction Stormwater General Permit and the preparation of a SWPPP. Stormwater BMPs will be required to control erosion, sedimentation, and construction-related pollutants and include but are not limited to source control BMPs, treatment control BMPs, and implementation improvements such as training, inspections, and maintenance. These BMPs would ensure that water quality impacts during decommissioning are temporary and less than significant.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. Minimal grading and vegetation removal are planned to maintain existing drainage patterns and site topography. The detention basins that would be constructed as part of the Project would retain stormwater onsite to allow infiltration of water into the groundwater basin. The new proposed access drive on the Project site would be gravel, and impedance to groundwater recharge from access drives and foundations would be negligible. Therefore, the Project’s potential to deplete groundwater or interfere with groundwater recharge would be less than significant.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or the addition of impervious surfaces, in a manner which would:

I. Result in substantial erosion or siltation on- or off-site?

Less Than Significant Impact. Construction activities, which will include minimal grading, vegetation removal, and road installation may loosen soils, increasing the risk of erosion during storms. Additionally, water used for dust suppression could result in runoff that carries sediment. However, the Project design along with compliance measures during construction (e.g., SWPPP) incorporates stormwater management practices to preserve existing drainage patterns and to minimize surface erosion or siltation. Through these practices, the Project's potential to cause substantial surface erosion or siltation would be less than significant.

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

Less Than Significant Impact. Runoff would be managed onsite by the proposed detention basins and Stormwater BMPs. Therefore, the Project would not substantially increase the rate or amount of surface runoff that would result in a change in flooding on or offsite, and impacts would be less than significant.

III. 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?

No Impact. There are no stormwater drainage systems in the vicinity of the Project. Runoff would be managed onsite with proposed detention basins and Stormwater BMPs during operations. Stormwater BMPs include but are not limited to source control BMPs, treatment control BMPs, and implementation improvements such as training, inspections, and maintenance. Therefore, the Project runoff would not exceed existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff and impacts would be less than significant.

IV. Impede or redirect flood flows?

No Impact. There are no flood flows on the site. Currently water ponds and infiltrates into soils. The Project would maintain these conditions with the proposed detention basins. No impact from impeding or redirecting flood flows would occur.

b. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less than Significant Impact. The Project site is not located in a tsunami or seiche zone. The Project site is in a mapped California DWR BAM Awareness[86] zone. While DWR BAM Awareness 100-year floodplains are not intended to replace FEMA regulatory floodplains, these maps identify areas where storm flows have a 1 percent chance of being equaled or exceeded

[86] California Department of Water Resources (DWR). 2024. Best Available Maps (BAM) 100-Year Floodplain Awareness Dataset. Retrieved from: https://gis.bam.water.ca.gov/bam/.

in any year. However, the Project would retain stormwater with the construction of the proposed detention basins. Therefore, there is no impact related to pollutant release.

d. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. The proposed Project is located within the Bear Valley Groundwater Basin, which has been designated very low priority by the Sustainable Groundwater Management Act (SGMA). The SGMA empowers local agencies to form Groundwater Sustainability Agencies (GSAs) to manage basins and requires GSAs to adopt Groundwater Sustainability Plans (GSPs) for crucial groundwater basins in California[87]. The SGMA "requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, that will be 2040. For the remaining high and medium priority basins, 2042 is the deadline."[88] Given that the Project is located within a basin that is considered very low priority, no conflict or obstruction of a water quality control plan or sustainable groundwater management plan is anticipated. As such, the Project would not conflict with a sustainable groundwater management plan. Water consumption and effects in the basin indicates that the proposed Project's water demand is considered to be minimal. By controlling water quality during construction and operations through implementation of Stormwater BMP's at the site and adherence to the Water Quality Management Plan, no potential for conflict or obstruction of the Regional Board's water quality control plan has been identified. Stormwater BMPs include but are not limited to source control BMPs, treatment control BMPs, and implementation improvements such as training, inspections, and maintenance. Therefore, impacts would be less than significant.

5.11 LAND USE AND PLANNING

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Physically divide an established community?				X
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

[87] Big Bear Area Regional Wastewater Agency. 2025. Bear Valley Basin Groundwater Sustainability Agency. Retrieved from: https://www.bbarwa.org/bear-valley-basin-groundwater-sustainability-agency.
[88] California Department of Water Resources. 2025. Sustainability Groundwater Management Act (SGMA). https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management.

5.11.1 LAND USE AND PLANNING SETTING

The Project site consists of undeveloped land located in unincorporated San Bernardino County, California, approximately 0.15 miles southeast of the unincorporated community of Big Bear City. The parcel's zoning is RS-1. The RS zoning district provides sites for single-family residential uses, incidental agricultural and recreational uses, and similar and compatible uses.

The Project site is bounded on the north and east by undeveloped land, on the south by Erwin Ranch Road and developed land, and on the west by Lakewood Drive and two residences. Surrounding uses include dispersed rural residences zoned RS-1; undeveloped open space along the northern perimeter of the proposed Project site parcel zoned RC; and the Woodlands residential neighborhoods to the south, which is zoned RS (accessed from SR-38) (Figure 3).

The Project site and surrounding area are within the Bear Valley Community, a subsection of unincorporated San Bernardino County.

The Project would require a General Plan Amendment to rezone the parcel as RL, which allows for similar single-family residential uses, agricultural, and recreation, as well as solar facilities with an approved CUP.

5.11.2 REGULATORY SETTING

5.11.2.1 STATE OF CALIFORNIA

California Planning and Zoning Laws

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. A general plan is a comprehensive, long-term document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning.

The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period or more. The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific zone district, are required to be consistent with the general plan and any applicable specific plans.

California Codes

The California Codes are 29 legal codes enacted by the State Legislature, which together form the general statutory law for the state. Unlike the United States Code or other state legal codes, the California Codes have never been consolidated into a single unified code. The official codes are maintained by the California Legislative Counsel for the Legislature.

California Government Code Section 53091(d) states, "Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency."

Furthermore, Section 53091(e) states, "Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, or for the production or generation of electrical energy, facilities that are subject to Section 12808.5 of the Public Utilities Code, or electrical substations in an electrical transmission system that receives electricity at less than 100,000 volts. Zoning ordinances of a county or city shall apply to the location or construction of facilities for the storage or transmission of electrical energy by a local agency, if the zoning ordinances make provision for those facilities."

5.11.2.2 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[89]

The Countywide Plan/Policy Plan contains the long-term goals and policies that will guide County decisions, investments, and improvements toward achieving the Countywide Vision. It serves as the County's General Plan for the unincorporated areas and includes policy direction for regional services the County administers in both incorporated and unincorporated areas.

The County recently adopted a Renewable Energy and Conservation Element for inclusion in the San Bernardino County General Plan in August 2017. The element contains goals and policies related to the development of renewable energy sources within the unincorporated regions of the County. The Renewable Energy and Conservation Element include the following relevant goals and policies:

- *Goal RE-2*: *Renewable Energy Systems.* The County will be home to diverse and innovative renewable energy systems that provide reliable and affordable energy to our unique Valley, Mountain, and Desert regions.
- *Goal RE-3*: *Community-Oriented Renewable Energy*. Community-oriented renewable energy facilities will be prioritized to complement local values and support a high quality of life in unincorporated communities.
- *Goal RE-4*: *Environmental Compatibility.* The County will establish a new era of sustainable energy production and consumption in the context of sound resource conservation and renewable energy development practices that reduce greenhouse gases and dependency on fossil fuels.

San Bernardino County Development Code[90]

Chapter 84.29, Renewable Energy Generation Facilities, of the County Development Code is an ordinance that regulates the construction, operation, and decommissioning of renewable energy generation facilities in the County. Specifically, Section 84.29.040 includes the County's development standards for commercial solar energy generation facilities. These development standards include setbacks of energy-generating equipment and mounting structures from the property line; design features to preclude glare on any residential land use zoning district, residential parcel, or public right-of-way as well as night lighting, public safety services impact

[89] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.
[90] San Bernardino County. 2024. Code of Ordinances. Retrieved from: https://codelibrary.amlegal.com/codes/sanbernardino/latest/sanberncty_ca/0-0-0-146479.

fees, special use permit, and project notices. Additionally, Section 84.29.070 includes the County's decommissioning requirements for all renewable energy generation facilities.

The ordinance also requires that the County make findings for solar renewable energy projects prior to approving such projects. The findings require that prior to approval of a commercial solar facility, it must be determined that the location of the proposed commercial facility is appropriate in relation to the desirability and future development of communities, neighborhoods, and rural residential uses. Additionally, the ordinance requires that the Planning Commission consider (1) the characteristics of the commercial solar energy facility development site and its physical and environmental setting, as well as the physical layout and design of the proposed development in relation to nearby communities neighborhoods, and rural residential uses; and (2) the location of other commercial solar energy generation facilities that have been constructed, approved, or applied for in the vicinity, whether in a city or unincorporated territory, or on state or federal land.

5.11.3 ENVIRONMENTAL EVALUATION

a. Physically divide an established community?

No Impact. The Project site parcel consists of vacant and undeveloped land located in unincorporated San Bernardino County, in zoning district RS-1. The Project site is bounded on the north and east by undeveloped land, on the south by Erwin Ranch Road and developed land, and on the west by Lakewood Drive and two residences. The Project would maintain all existing access routes and no new public roadways or other structural elements that would limit existing circulation patterns or that would have the potential to isolate or create a division between existing communities are proposed. Although a few scattered residences exist within the vicinity of the Project, the Project would not cause a physical division of an established community. Additionally, when the Project is decommissioned, the site would return to existing conditions of open land. Therefore, no impact would occur.

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 purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact. The Project site occupies a parcel that is zoned as RS-1. The RS zoning district provides sites for single-family residential uses, incidental agricultural and recreational uses, and similar and compatible uses. Per the San Bernadino County Development Code, renewable energy facilities are not a permitted use within the RS-1 zoning district.

As such, the Project is requesting a General Plan Amendment and rezone of the parcel to include the parcel in the Rural Living General Plan Land Use Designation and rezone the parcel to RL. San Bernadino County Development Code Section 84.29.020 Applicability and Land Use Zoning Districts lists RL as one of the zoning designations where San Bernadino County allows commercial renewable energy facilities with the approval of a Conditional Use Permit. The rezone of the parcel to the RL zoning district would allow for future development (e.g., housing) at the site when the Project is decommissioned.

The Project is consistent with goals included in the County's General Plan Renewable Energy and Conservation Element and the Bear Valley Community Action Plan, including prioritizing community-oriented renewable generation to complement local values and support a high quality of life in unincorporated communities. The Project would be owned and operated by BVES and would provide renewable energy and resiliency to the local BVES grid.

For the reasons stated above, the Project would not conflict with any applicable land use plan, policy, or regulation, and impacts would be less than significant.

5.12 MINERAL RESOURCES

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?				X
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?				X

5.12.1 MINERAL RESOURCES SETTING

Historic gold mining activities related to the Gold Hill Mine did occur within the Project site, as evidenced by existing small-scale infrastructure, such as a ventilation shaft and production shaft. The Phase 1 Environmental Site Assessment Report (Appendix F) indicates that during its active period the mine was considered to have a relatively small production size. The operations at the Gold Hill Mine included both surface and underground workings. In addition, the mine reportedly extends to a maximum depth of approximately 54 feet below ground surface and the ore body extends approximately 10 feet in thickness. The gold bearing host rock most prevalent in this area is quartzite. The Gold Hill Mine is closed and there are no plans for reopening.

The San Bernardino County Mineral Resources Zones Policy map indicates that the proposed Project is not located within an area containing delineated mineral resources.[91]

No Mineral Resource Zones have been identified within the Project site, nor has the Project site been mapped or classified with respect to the availability of aggregate resources by the California Department of Conservation (CDOC) or the California Geological Survey Information Warehouse.[92]

[91] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.sbcounty.gov/wp-content/uploads/sites/125/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf?x23421.
[92] California Department of Conservation (CDOC). 2023. Mines and Mineral Resources. Retrieved from: https://maps.conservation.ca.gov/mineralresources/.

5.12.2 REGULATORY SETTING

5.12.2.1 STATE

State Surface Mining and Reclamation Act of 1975[93]

The Surface Mining and Reclamation Act of 1975 (SMARA) (PRC §2710 et seq.) was enacted by the California Legislature to address the need for a continuing supply of mineral resources and to prevent or minimize the negative impacts of surface mining to public health, property and the environment. Pursuant to its provisions, the State Mining and Geology Board receives classification information from the State Geologist, and then prioritizes and designates lands containing mineral deposits of regional or statewide significance. Areas which are generally given highest priority for classification are those areas within the state which are subject to urban expansion or other irreversible land uses which would preclude mineral extraction. Mineral lands are mapped according to jurisdictional boundaries (i.e., counties), mapping all mineral commodities at one time in the area using the California Mineral Land Classification System.

5.12.2.2 LOCAL

Countywide Plan/Policy Plan[94]

The following policies have been identified in the Natural Resources Element of the San Bernardino County General Plan and are relevant to this analysis:

- *Goal NR-6 Mineral Resources*. Mineral resource zones that allow extraction industries to continue supporting the regional and national economy while minimizing negative impacts on the public and natural environment.
    - Policy NR-6.1 Mineral Resource areas. We prioritize the conservation of land area with mineral resources by prohibiting or discouraging development of land that would substantially preclude the future development of mining facilities in areas classified as Mineral Resource Zone 2a, 2b, or 3a.
    - Policy NR-6.2 Mining operations and reclamation. We require and monitor mineral extraction activities to ensure that the operation and reclamation of mined lands is consistent with the state SMARA.
    - Policy NR-6.3 Conservation of construction aggregate. We encourage the continued operation of existing mining facilities and streamline the permitting of new mining facilities (consistent with the Policy Plan and other local, state, and federal regulations) to establish aggregate resources that are sufficient to satisfy 50 years of county demand.

[93] California Department of Conservation (CDOC). 2024. Surface mining and Reclamation Act (SMARA) Statues and Regulations. Retrieved from: https://www.conservation.ca.gov/dmr/lawsandregulations.
[94] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.sbcounty.gov/wp-content/uploads/sites/125/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf?x23421.

5.12.3 ENVIRONMENTAL EVALUATION

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?

No Impact. There is currently no mining activity on or around the Project site. According to the CDOC, the closest active SMARA designated Mineral Lands Classification is the Smart Ranch Limestone Property, approximately 4 miles northeast of the Project site. Historic gold mining activities related to the Gold Hill Mine did occur within the Project site; however, the Gold Hill Mine is closed and there are no plans for reopening. Due to relative distance from any active mining sites, the Project would not result in the loss of availability of mineral resources that would be of value to the region and the residence of the State. No impact would occur.

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?

No Impact. The Project site is not delineated as a locally important mineral resource recovery site in the Countywide Plan/Policy Plan. The Project site is also not located in a Mineral Resource Zone classified by the CDOC or the California Geological Survey Information Warehouse. As the Project site does not fall within any mineral resource recovery site boundaries on any local plan, the Project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a general plan, specific plan, or other land use plan; therefore, no impacts would occur.

5.13 NOISE

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b. Generation of excessive ground borne vibration or ground borne noise levels?		X		
c. For a project located within the vicinity of a private airstrip or 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?				X

5.13.1 NOISE SETTING

The proposed Project site is zoned as RS-1 along with the eastern, southern, and western surrounding parcels and would be rezoned to RL as part of the Project. There are no residences

directly on the property, but there are scattered nearby residences to 475 feet east, 106 feet south, and 211 feet west of the Project.

5.13.2 REGULATORY SETTING

5.13.2.1 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[95]

The Hazards Element of the Countywide Plan/Policy Plan contains the following goals and policies applicable to the Project:

- *Goal HZ-2 Human-Generated Hazards*. People and the natural environment protected from exposure to hazardous materials, excessive noise, and other human-generated hazards.
    - Policy HZ-2.8. Proximity to Noise Generating Uses. We limit or restrict new noise sensitive land uses in proximity to existing conforming noise generating uses and planned industrial areas.
    - Policy HZ-2.9. Control Sound at the Source. We prioritize noise mitigation measures that control sound at the source before buffers, soundwalls, and other perimeter measures.

Despite these goals and policies, the Countywide Plan contains no nearby noise sensitive land use types.

San Bernardino County Development Code[96]

Chapter 83.01.080 of the County's Development Code states that RS areas have a noise standard for stationary noise sources of 55 A-weighted decibel (dB[A]) from 7:00am to 10:00pm and a standard of 45 dBA from 10:00pm to 7:00am. Chapter 83.01.080 of the Development Code does not explicitly restrict noise levels during construction or demolition of a project, nor does it call out specific noise standards for the RL zone (though, Open Areas have a noise standard of 65 dBA).

The County's Development Code Section 83.01.090 Vibration states:

- *Vibration Standard.* No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths inches per second measured at or beyond the lot line.

- *Vibration Measurement.* Vibration velocity shall be measured with a seismograph or other instrument capable of measuring and recording displacement and frequency, particle velocity, or acceleration. Readings shall be made at points of maximum vibration along any lot line next to a parcel within a residential, commercial and industrial land use zoning district.

[95] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.sbcounty.gov/wp-content/uploads/sites/125/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf?x23421.
[96] San Bernardino County. 2024. Code of Ordinances. Retrieved from: https://codelibrary.amlegal.com/codes/sanbernardino/latest/sanberncty_ca/0-0-0-146479.

- *Exempt Vibrations.* The following sources of vibration shall be exempt from the regulations of this Section.
  - Motor vehicles not under the control of the subject use.
  - Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

5.13.3 ENVIRONMENTAL EVALUATION

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant with Mitigation Incorporated. The construction equipment utilized would differ from phase to phase but would include a track hoe, skid steer, roller, dump truck and a forklift. A pile driver will also be utilized for an approximate one-month period. The diesel-powered equipment typically generates noise levels of approximately 85 decibel A (dBA) at 50 feet. The pile driver is a louder noise source, generating approximately 100 dBA at 50 feet.

General construction-related noise levels will be lower than pile driving noise levels. The Project site covers a relatively large area, and the noise levels experienced at any residences will vary depending on what areas of the site are being constructed at any given time. It is important to note that all of the equipment listed is not used in all phases of construction. Further, the equipment used generally is not operated continuously, nor is the equipment always operated simultaneously or at full load conditions.

Construction is a temporary activity, and there are no identified regulatory noise limits applicable to construction. Exhaust noise from diesel engines that power the equipment is usually the predominant source of construction equipment noise. Overall, construction activities do have the potential of temporarily increasing ambient noise levels, in particular when pile driving is occurring. Although there are no standards established in the local general plan or noise ordinance, construction related noise could result in temporary impacts. Implementation of MM NOI-1 would reduce those temporary impacts to less than significant levels.

During operations, solar panels themselves do not emit sound; the solar inverters and transformers are the primary component of a solar project that produce sound and only produce sound during the daylight when they are operating. The Project inverters would generate a sound level of 67 dBA at 10 feet,[97] and Project transformers would emit a sound level of 62 dBA at 3 feet away from sound source. The transformers would be sited far from the parcel boundary, resulting in sound attenuation to noise receptors. Additionally, sound would be obstructed by other panels and the landscaping plan. Sound levels would be reduced to 55 dBA (the daytime noise level limit for residential locations in the County Code) at a distance of 40 feet, and further reduced to 45 dBA (the nighttime noise level limit) at a distance of 125 feet. Implementation of MM NOI-2 would ensure all Project inverters are at least 40 feet from any residences and would reduce potential impacts less than significant

[97] Yaskawa Solectria Solar - Leading Commercial PV Inverter Supplier - Yaskawa – Solectria Solar

levels. Additionally, inverters and transformers do not generate noise during nighttime hours. The Project will contain approximately 20 inverters although they will be spread out over the Project site. Thus, the cumulative noise would be negligible. Operational noise levels will be well below the applicable noise level limits. Therefore, the operations of the Project would not generate a permanent increase in ambient noise levels in excess of standards established in the Countywide Plan or noise ordinance in the vicinity of the Project.

Mitigation Measures

MM NOI-1: Construction activity limits

- Construction activities (excluding activities that would result in a safety concern to the public or construction workers) shall be limited to between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday, where possible. Construction activities are prohibited on Sundays and legal holidays. In the event concrete pouring is necessitated during nighttime hours due to ambient air temperatures that are too hot to cure the concrete during daytime hours, appropriate notice will be provided to nearby occupants by the Applicant.
- Construction equipment shall be properly maintained and equipped with exhaust mufflers and engine shrouds in accordance with manufacturers' recommendations.

MM NOI-2: Inverter placement

- All Project inverters shall be at least 40 feet from any residences.

b. Generation of excessive ground borne vibration or ground borne noise levels?

Less than Significant Impact with Mitigation. Project construction would be completed in six work stages. Pile driving, which would take place in stage 2 and is expected to last 1 month to 2 months, would generate the highest vibration level. Some ground borne vibration is expected during general construction from vehicles and grading. Ground borne vibration associated with temporary construction activity is exempt from the limits in the County Code, provided that it occurs between 7:00 a.m. and 7:00 p.m., and not on Sundays or Federal holidays. Inverters and solar arrays do not generate ground borne vibration during operations. No vibration impacts would occur during operations. Therefore, implementation of MM NOI-1 and MM NOI-2 would reduce potential impacts to less than significant levels.

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

No Impact. The Project site is not located within the vicinity of a private airstrip or an airport land use plan, or an area where such a plan has not been adopted, or within 2 miles of a public airport or public use airport. The closest airport is Big Bear Airport located approximately 2.8 miles northwest of the Project site. The Project would not expose people to excessive airport-related noise levels. Therefore, no impact would occur.

5.14 POPULATION AND HOUSING

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)?				X
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?			X	

5.14.1 POPULATION AND HOUSING SETTING

There are no residences or buildings on the Project site. The site is surrounded by properties in the RS-1 zoning district to the east, south, and west, and would directly border two residences to the southwest. The property to the north is in the RC zoning district and consists of open space. The Project site would be rezoned to RL. Building housing is an allowable use in the RL zoning district. Therefore, the rezone for the Project would not eliminate the option of building housing after it is decommissioned.

According to the 2020 U.S. Census Bureau report, the population of Big Bear Lake city was 5,046, with a 0.5 percent increase from 2020.[98] In 2020, the U.S. Census Bureau reported a population of 2,181,654 within San Bernardino County, with a 7 percent increase from 2010.[99]

5.14.2 REGULATORY SETTING

5.14.2.1 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[100]

The Land Use Element and the Housing Element of the Countywide Plan/Policy Plan contain considerations related to population and housing and infrastructure that supports local neighborhoods.

Land Use Element

Land Use Zone RS-1 is not included in the list of zoning districts that allow renewable energy generation facilities. The RS-1 zoning district provides sites for single-family residential uses, incidental agricultural and recreational uses, and similar and compatible uses. As previously discussed, to develop a solar PV facility at the proposed Project site, a General Plan Amendment and rezone would need to be approved by the County Board of Supervisors to change the Project

[98] U.S. Census Bureau. 2020. Big Bear Lake city, California 2020 Census Report. Retrieved from: https://data.census.gov/profile/Big_Bear_Lake_city,_California?g=160XX00US0606434.
[99] U.S. Census Bureau. 2020. San Bernardino County, California 2020 Census Report. Retrieved from: https://data.census.gov/all?q=San%20Bernardino%20County,%20California.
[100] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

site's zoning district to one that permits the development of renewable energy generation facilities (e.g., RL).

Housing Element

The Housing Element contains the following goals and policies:

- *Goal H-1. Housing Production and Safety*. A broad range of housing types in sufficient quantity, location, and affordability levels that meet the lifestyle needs of current and future residents, including those with special needs.
    - Policy H-1.1. Appropriate range of housing. We encourage the production and location of a range of housing types, densities, and affordability levels in a manner that recognizes the unique characteristics, issues, and opportunities for each community.
    - Policy H-1.3. Income-restricted multifamily. Where infrastructure and public services are available, we encourage the production of affordable multifamily housing by providing assistance and incentives for projects that include new affordable units reserved for lower income, moderate income, or special needs households.
- *Goal H-2. Development Regulations*. An efficient administrative process that recognizes the need for efficient and timely review of residential projects while also ensuring and valuing the need for quality design, environmental review, and planning.
    - Policy H-2.3. Flexible standards and incentives. We maintain development incentives and allow flexibility in the application of residential and mixed-use development standards to gain benefits such as exceptional design quality, economic advantages, sustainability, or other benefits that would not otherwise be realized.
    - Policy H-2.5. Critical infrastructure. We ensure that the efficient provision of critical infrastructure accompanies residential development and the building of complete communities, and ensure that the costs are fairly apportioned to the development community.
- *Goal H-3. Housing and Neighborhood Quality*. Neighborhoods that protect the health, safety, and welfare of the community, and enhance public and private efforts in maintaining, reinvesting in, and upgrading the existing housing stock.
    - Policy H-3.1. Public services, amenities, and safety. We support the provision of adequate and fiscally sustainable public services, infrastructure, open space, non-motorized transportation routes, and public safety for neighborhoods in the unincorporated area.

5.14.3 ENVIRONMENTAL EVALUATION

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)?

No Impact. The Project would involve a temporary construction workforce of about 30-50 workers during the peak period of construction. These construction workers are expected to be drawn from the existing labor pool in the region. For construction management staff and specialized workers who may reside outside the area, there is an ample supply of temporary lodging in nearby Big Bear Lake. Therefore, construction of the Project would not directly induce population growth within the area.

The Project would be unstaffed and would not include a residential component. Operational and maintenance staff would likely originate from the Big Bear Area or within San Bernardino County.

The Project would not result in the extension of roads or urban utilities (e.g., water and sewer) to lands not currently served by urban infrastructure, and thus would not induce unplanned urban development into the rural area of the County. Therefore, the Project would not induce indirect growth through extension of urban infrastructure.

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Less than Significant Impact. There is no existing housing on the Project site. There are approximately five residences located to the southwest of the Project site. None of these residences would be removed or relocated as a result of construction or operation of this Project. The Project would involve the development of a solar facility and rezone of the Project area to RL, allowing for housing to be built after the decommissioning of the Project. Moreover, the development of a community-oriented renewable energy (i.e., "CORE") solar PV facility would add local, energy reliability and resiliency for the local community and future development in the greater Bear Valley area.

Therefore, the Project would result in less than significant impacts to current people or housing, necessitating the need for construction or replacement housing.

5.15 PUBLIC SERVICES

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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 these public services:				
I. fire protection?			X	
II. police protection?			X	
III. schools?				X

IV. parks?				X
V. other public facilities?				X

5.15.1 PUBLIC SERVICES SETTING

Fire Protection Services

Fire protection for the Project site is provided locally by Big Bear Fire Department (BBFD) and regionally by the San Bernardino County Fire Protection District (SBCFPD). BBFD operates six fire departments, including the headquarters office at 41090 Big Bear Boulevard.

BBFD Station 283 is approximately 2.1 miles west of the Project site at 550 Maple Lane in Big Bear Lake. Response time from the nearest station would be approximately 6 to 11 minutes. The second nearest fire station is Big Bear Station 282 at 301 West Big Bear Boulevard, 3.5 miles northwest of the Project site. Response time would range from 8 to 13 minutes.

BBFD's other responsibilities include review of building plans for compliance with fire safety requirements, emergency medical response, and implementation of the County's emergency management plan. Each station conducts assessments of proposed industrial and business facilities to assure compliance with safety and design capacity requirements.

The Project falls within a "very high" zone within the California Department of Forestry and Fire Protection (CALFIRE) Fire Hazard Severity Zones in State Responsibility Area, last updated 29 September 2023.[101]

Law Enforcement Services

Law enforcement services in the Project site are provided by the San Bernardino County Sheriff's Department. The nearest sheriff's department station is in Big Bear Lake, approximately 6 miles west of the Project site at 477 Summit Boulevard. The San Bernardino County Sheriff's Department has over 4,200 employees, including deputies and civilian employees. The department serves over 2.1 million residents and has 15 patrol stations. The information isn't published, but based on general police response time standards and the County's large geographical area, it is likely to be around 10 to 15 minutes for non-emergency calls, with faster response times for high-priority emergency situations.

Other Public Services and Facilities

There is a community park containing a playground, tennis courts, basketball courts, a dog park, and a large parking lot approximately .2 miles southwest of the project site. Other public services provided in the Project site include schools, parks and recreation, libraries, and social services, which are located in more urbanized areas of the City of Big Bear.

[101] California Department of Forestry & Fire Protection. 2024. Fire Hazard Severity Zones. Retrieved from: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones.

5.15.2 REGULATORY SETTING

5.15.2.1 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[102]

The Countywide Plan/Policy Plan includes the following goals, objectives and policies related to public services that are relevant to the Project:

- *Goal PP-1: Law Enforcement*. Effective crime prevention and law enforcement that leads to a real and perceived sense of public safety for residents, visitors, and businesses.
    - Policy PP-1.1. Law enforcement services. The Sheriff's Department provides law enforcement services for unincorporated areas and distributes resources geographically while balancing levels of service and financial resources with continuously changing needs for personal and property protection.
    - Policy PP-1.6. Agency partnerships. The Sheriff's Department partners with other local, state, and federal law enforcement agencies and private security providers to enhance law enforcement service.
    - Policy PP-1.7. Community partnerships. The Sheriff's Department establishes and maintains partnerships to help identify public safety needs, strengthen community confidence, and improve service to our communities.
    - Policy PP-1.8. Public awareness. The Sheriff's Department engages the media and our communities to improve the public's perception and awareness of personal and property protection and safety.
- *Goal PP-3: Fire and Emergency Medical*. Reduced risk of death, injury, property damage, and economic loss due to fires and other natural disasters, accidents, and medical incidents through prompt and capable emergency response.
    - Policy PP-3.1. Fire and emergency medical services. We maintain a sufficient number and distribution of fire stations, up-to-date equipment, and fully-trained staff to respond effectively to emergencies.
    - Policy PP-3.2. Fire District. We support the expansion of the Fire District to serve additional incorporated jurisdictions, and the use of special funding and financing mechanisms to augment Fire District revenues to improve service and coverage.
    - Policy PP-3.4. Fire prevention services. We proactively mitigate or reduce the negative effects of fire, hazardous materials release, and structural collapse by implementing the California Fire Code, adopted with County amendments.
    - Policy PP-3.5. Firefighting water supply and facilities. We coordinate with water providers to maintain adequate water supply, pressure, and facilities to protect people and property from urban fires and wildfires.
    - Policy PP-3.6. Concurrent protection services. We require that fire department facilities, equipment, and staffing required to serve new development are operating prior to, or in conjunction with new development.

[102] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

- Policy PP-3.7. Fire safe design. We require new development in the Fire Safety Overlay to comply with additional site design, building, and access standards to provide enhanced resistance to fire hazards.
- Policy PP-3.8. Fire-adapted communities. We inform and prepare our residents and businesses to collaboratively plan and take action to more safely coexist with the risk of wildfires.
- Policy PP-3.9. Street and premise signage. We require adequate street signage and premise identification be provided and maintained to ensure emergency services can quickly and efficiently respond.
- Policy PP-3.12. Fire protection and emergency medical resource allocation. We use fire and emergency services data analysis and professional expertise to allocate resources, reduce fire risks, and improve emergency response.

5.15.3 ENVIRONMENTAL EVALUATION

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 these public services:

I. Fire protection?

Less than Significant Impact. Fire protection services for the Project site are provided locally by the BBFD and regionally by the SBCFPD. Wildfire protection services are further discussed in Section 5.20, Wildfire.

The Project would be designed and operated in compliance with applicable federal, state, and local worker safety and fire protection codes and regulations to minimize the potential for occurrence of fire. The Project would not result in development that would generate new population in the area that would potentially increase demand for fire protection, as no residential uses are proposed.

Project construction, operation, and maintenance could introduce potential ignition sources such as distribution lines, maintenance vehicles, and gas- or electric-powered machinery used for maintenance of the facilities. However, the potential for fire risk from these sources is considered low. The Project would be designed and constructed in conformance with BBFD and SBCFPD requirements (e.g., as conditions of approval) and the National Fire Protection Association Code.

In addition, the Applicant would be required to pay Public Safety Services Impact Fees of $157 per acre annually in conformance with County Development Code Section 84.29.040(d) based on acreage to help offset any potential increase in fire protection services.

With appropriate construction and maintenance techniques, and required fees, the Project would not result in significant service ratios, response times, or other performance objectives for fire protection services. Therefore, potential impacts to fire protection public services would be less than significant.

II. Police protection?

Less than Significant Impact. The Project area is served by the San Bernardino County Sheriff's Department. The Project would not result in development that would generate a new population that could potentially increase demand for police protection, as no residential uses are proposed. Project construction and operation activities would not substantially increase demand for police protection services in the area. The facility would be secured with landscaped fencing and access gates at entry points. It is not anticipated that the Project would result in activity that would warrant additional police protection.

As mentioned above, the Applicant would be required to pay Public Safety Services Impact Fees of $157 per acre annually in conformance with County Development Code Section 84.29.040(d) based on acreage. Alternatively, the developer of an approved commercial solar energy generation facility shall pay an annual public services impact fee on a per acre basis based on a Project-specific study of the Project's public safety services impacts, which study shall be paid at the developer's expense, using a consultant approved by the County.

With implementation of security measures and fees, the proposed Project would not result in substantial changes to acceptable service ratios, response times, or other performance objectives for police protection services. Therefore, potential impacts to police protection public services would be less than significant.

III. Schools?

No Impact. The nearest schools to the Project site are Chautauqua High School, Big Bear High School, Garfield High School, and Baldwin Lane Elementary School, all located approximately 2 miles west.

As previously discussed, construction workers for the Project will primarily be sourced from San Bernardino County and surrounding counties within California. It is not anticipated that commuting construction workers would permanently relocate to the local area, resulting in a potential increase in school-age children. Therefore, there would not be a need for additional school services. The proposed Project would not result in potential impacts to maintain acceptable service ratios, response times, or other performance objectives for schools.

IV. Parks?

No Impact. Project construction may result in a temporary increase in construction workers in the area; however, construction workers would either be from the area already and/or would not be anticipated to permanently relocate locally. The Project is not anticipated to generate sufficient population growth to increase demand for park facilities or other recreational services in the area. Therefore, the proposed Project would not result in the need for new or altered recreational facilities.

V. Other public facilities?

No Impact. The Project is not anticipated to cause permanent or temporary population increases in the area. As such, the Project would not increase demand for other public

facilities (e.g., libraries). Therefore, the proposed Project would not result in potential impacts to public facilities.

5.16 RECREATION

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b. Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

5.16.1 RECREATION SETTING

Currently, there are no official recreational uses tied to the Project site. It is likely the current open space is used for hiking or other open space recreational activities. There is also a community park containing a playground, tennis courts, basketball courts, a dog park, and a large parking lot approximately 0.2 miles southwest of the Project site.

5.16.2 REGULATORY SETTING

5.16.2.1 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[103]

The Natural Resources Element of the Countywide Plan/Policy contains one goal and several policies applicable to recreation and open space.

Natural Resources Element

- *Goal NR-3: Open Space, Parks, and Recreation.* A system of well-planned and maintained parks, trails, and open space that provides recreation opportunities for residents, attracts visitors from across the region and around the country, and preserves the natural environment.
    - Policy NR-3.1. Open space preservation. We regulate land use and coordinate with public and nongovernmental agencies to preserve open space areas that protect natural resources, function as a buffer against natural hazards or between land uses, serve as a recreation or tourist destination, or are central to the identity of an unincorporated community.

[103] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

- Policy NR-3.3. Management of designated areas. We coordinate with public and nongovernmental agencies to sustainably manage and conserve land within or adjacent to locally-, state-, or federally designated open space or resource conservation areas.
- Policy NR-3.4. Land exchange. We coordinate with state and federal agencies to exchange publicly owned lands in order to provide additional areas for open space, recreation, and resource protection. We also request the right of first refusal on publicly owned lands made available for purchase to the public.
- Policy NR-3.5. Private conservation efforts. We support nongovernmental organizations and private entities who purchase, own, maintain, and expand areas for conservation and preservation. We also support the voluntary transition of privately held lands within a larger boundary designated by the state or federal government for open space and resource conservation to public ownership.
- Policy NR-3.8. Regional trail system. We coordinate with incorporated jurisdictions, state and federal agencies, and other regional and not-for-profit entities to maintain and improve a regional trail system. We prioritize the maintenance and improvement of the Santa Ana River Trail, followed by the creation of trails in unincorporated areas that connect to existing trails in incorporated areas and to state- and federally maintained trails.
- Policy NR-3.9. Local parks, trails, and recreation. We support the provision of local and community parks, trails, and recreational programs and facilities in unincorporated areas when a locally approved funding and financing mechanism is established to pay for acquisition, construction, maintenance, and operations. We encourage unincorporated communities to apply for funding and cooperate with them in their funding applications for local trails that are identified in a non-motorized transportation plan that is accepted or adopted by the County. We also encourage, where feasible, local trails to be separated from vehicular traffic to improve the safety of trail users.

5.16.3 ENVIRONMENTAL EVALUATION

a. Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. No residential uses are proposed as part of this Project. As previously mentioned, population and housing growth would not result from the Project operations or construction; therefore, an increased use of existing neighborhood and regional parks or other recreational facilities is not anticipated.

b. Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The Project would not include any recreational facilities as the Project site would be private property owned and operated by BVES. The Project would also not require any new construction or expansion of recreational facilities as the Project does not eliminate any current recreational facilities.

5.17 TRANSPORTATION

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?			X	
b. Conflict with or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?				X
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment?)			X	
d. Result in adequate emergency access?			X	

5.17.1 TRANSPORTATION SETTING

State Highway 38 is the nearest highway to the Project and is located approximately 0.5 mile to the southwest. State Highway 38 is called Greenspot Boulevard at the point closest to the Project. State Highway 18 is located approximately 1.5 miles to the northwest of the Project at the nearest point. State Highway 18 serves at the primary route from Big Bear to communities in the northern portion of San Bernardino County including Barstow and Lucerne Valley and provides access to urban areas such as the City of San Bernardino to the west. The Project is located at the intersection of Lakeview Drive and Erwin Ranch Road, with the entrance being located on Erwin Ranch Road, an unpaved, two-way road, which will serve as the primary access drive to the Project site. Lakewood Drive and Erwin Ranch Road are rural roadways and traffic is generally limited to local residents.

Big Bear Mountain Transit Red Line has the nearest transit stop, located at the intersection of State Lane and Woodland Drive, approximately 0.5 miles south of the Project site. The closest airport to the Project is Big Bear Airport, located approximately 2.5 miles to the northwest of the Project site. San Bernardino International Airport is located approximately 24 miles to the southwest of the Project, located within the greater San Bernardino area. The nearest railroad is BNSF Railway a large commercial railway, approximately 9.4 miles to the northwest. It runs east to west and terminates about 7.2 miles north of Big Bear City.

5.17.2 REGULATORY SETTING

5.17.2.1 STATE OF CALIFORNIA

SB 375 (SB 375) Sustainable Communities and Climate Protection Act[104]

[104] Southern California Association of Governments. 2009. SB 375 Factsheet. Retrieved from: https://scag.ca.gov/sites/main/files/file-attachments/scag_sb375_factsheet.pdf?1605558391#:~:text=SB%20375%20(Steinberg)%20is%20California,from%20cars%20and%20light%20trucks.

Enacted in 2008, the Sustainable Communities and Climate Protection Act leverages the objectives in the California Global Warming Solutions Act. SB 375 aims to reduce GHG emissions through the land use and transportation planning to reduce vehicle miles traveled (VMT). It sets emissions targets for each of the State's metropolitan planning organizations, which are required to establish Sustainable Communities Strategies in order to achieve the emissions targets set by the Act.

SB 743 (SB 743)[105]

SB 735 was enacted in 2013, reforming the way that transportation-induced emissions are evaluated under the CEQA. This reform involves eliminating the traditional use of the level of service (LOS) metric in determining vehicle emissions, which evaluated project impacts based on congestion of intersections and nearby highways that the Project may cause. SB 743 updated the guidelines to implement the use of VMT instead of LOS to quantify the impact that a project may have on the surrounding roads.

5.17.2.2 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[106]

The Transportation and Mobility Element of the San Bernardino County Countywide Plan/Policy Plan contains the following goals and policies applicable to transportation:

Transportation and Mobility Element

- *Goal TM-1 Roadway Capacity*. Unincorporated areas served by roads with capacity that is adequate for residents, businesses, tourists, and emergency services.
    - Policy TM-1.1 Roadway Level of Service. We require our roadways to be built to achieve the following minimum level of service standards during peak commute periods (typically 7:00-9:00 AM and 4:00-6:00 PM on a weekday):
        - LOS D in the Mountain Region.
    - Policy TM-1.8 Emergency access. When considering new roadway improvement proposals for the Capital Improvements Program or Regional Transportation Plan we consider the provision of adequate emergency access routes along with capacity expansion in unincorporated areas. Among access route improvements, we prioritize those that contribute some funding through a local area funding and financing mechanism.
- *Goal TM-3 Vehicle Miles Traveled*. A pattern of development and transportation system that minimizes VMT.
- *Goal TM-5 Goods Movement*. A road, rail, and air transportation system that supports the logistics industry and minimizes congestion in unincorporated areas.

[105] California Governor's Office of Land Use and Climate Innovation. 2024. Transportation Impacts (SB 743). Retrieved from: https://lci.ca.gov/ceqa/sb-743/.
[106] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

- Policy TM-5.6 Unincorporated truck routes. We establish local truck routes in unincorporated areas to efficiently funnel truck traffic to freeways while minimizing impacts on residents. We establish routes where trucks are prohibited in unincorporated environmental justice focus areas and to avoid overlaps or conflicts with safe routes to schools.

San Bernardino County Transportation Impact Study Guidelines[107]

The guidelines set forth in this document, released in July of 2019, outlines the evaluation process required for projects in San Bernadino County. It addressed the implementation of SB 743 and the requirement of completing a VMT evaluation but continues to stress the equal importance of the vehicle LOS metric, as outlined in the Countywide Plan. The Guidelines stipulate that "Any study roadway segment in the Valley or Mountain regions that is operating at an LOS D or better without project traffic in which the addition of project traffic causes the segment to degrade to an LOS E or F should identify improvements to achieve LOS D."

The guidelines further elaborated on the CEQA requirements outlined in SB 743. The guidelines state that projects that "serve the local community and have the potential to reduce VMT should not be required to complete a VMT assessment," one of which is relevant to the Project:

- Projects located within a low VMT generating area as determined by the analyst (e.g. development in efficient areas of the County will reduce VMT per person/employee and is beneficial to the region).

5.17.3 ENVIRONMENTAL EVALUATION

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less than Significant Impact. During the construction period, there will be a temporary increase in Project-related traffic on Erwin Ranch Road, Lakewood Drive and State Highway 18. This increase in traffic would take place as the workers both arrive at and depart from the Project site at peak commute hours and would also occur due to equipment deliveries. The temporary impact of construction-related traffic will last for 6 to 9 months. There are 35 to 50 construction workers anticipated to be frequenting the area each day during this period.

Based on the policies listed in the Countywide Plan, the Project must meet the threshold for LOS D. The construction duration of 6 to 9 months and the average of 35 to 50 workers traveled to and from the Project site per day is not expected to have a significant effect on LOS. As this is an unmanned facility during operations, there will very limited trips to the Project site once built, aside from irregular maintenance activities and inspections.

The significant distance between the Project and the nearest transit stops, airport, bikeway routes, and pedestrian routes minimizes the impacts that a minor and temporary increase in traffic flow on Erwin Ranch Road or nearby roadways may have. The Project will not impact bicycle facilities nor pedestrian routes as the access drive adjacent to the Project is not located

[107] San Bernardino County. 2019. Transportation Impact Study Guidelines. Retrieved from: https://www.sbcounty.gov/uploads/DPW/docs/Traffic-Study-Guidelines.pdf.

along bicycle, pedestrian routes, or the nearest transit stop. Therefore, potential impacts to circulation system would be less than significant.

b. Conflict with or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?

No Impact. The CEQA Guidelines as established in SB 743 shifts the transportation metric from LOS to VMT. As outlined in the San Bernardino County Transportation Impact Study Guidelines, certain projects that "serve the local community and have potential to reduce VMT" are exempt from a full quantitative VMT Analysis. The exemption includes "Projects generating less than 110 daily vehicle trips". The Project would be well under this threshold, producing a conservative estimate (i.e., worst-case scenario) of 40 daily vehicle trips from on-site workers, inspectors, and delivery crews during construction, with most days having even fewer. During operations, approximately two employees are expected to visit the site approximately one day per quarter for routine maintenance. In addition to the Project being exempt from VMT analysis as stipulated in the County Transportation Impact Study Guidelines, the Project would generate very limited trips during construction and operation, and therefore limited VMT. The Project is compliant with CEQA Guidelines § 15064.3, subdivision (b). Therefore, no impact would occur.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment?)

Less Than Significant Impact. The most notable potential hazard would be the proposed access point off of Erwin Ranch Road. The access drive is designed according to all applicable local, state, and federal standards. The access drive is located along Erwin Ranch Road, which is an infrequently traveled rural roadway with very limited traffic and related hazards. The access drive would be visible from Erwin Ranch Road and vehicles traveling along Erwin Ranch Road would have ample ability to see vehicles entering/exiting. Similarly, vehicles exiting the access drive would have clear visibility of vehicles traveling on Erwin Ranch Roach. The Project would not introduce any incompatible uses to nearby roadways. Therefore, the Project will not substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Therefore, the Project will have a less than significant impact.

d. Result in adequate emergency access?

Less Than Significant Impact. The construction traffic from the Project would be contained to weekdays and Saturdays, and will be temporary in duration, lasting approximately 6 to 9 months. Peak construction is expected to involve approximately 35 to 50 workers along with equipment and construction deliveries. Additional traffic congestion related to the Project is expected to be minimal and would not impede emergency access.

The Project will be subject to traffic control measures as stipulated in the Construction Management Plan, further reducing any obstruction to emergency access. Although the site is located along Erwin Ranch Road, an unpaved, two-lane road, where vehicles will regularly be driving slower, the Project is not expected to significantly impact the flow of traffic to a point that obstructs emergency access significantly, and adequate emergency access within the Project site would be maintained via the gravel access drive within the site. Thus, impacts related to emergency access would be less than significant.

5.18 TRIBAL CULTURAL RESOURCES

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	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 § 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 Public Resources Code section 5020.1(k)?		X		
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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?		X		

5.18.1 TRIBAL CULTURAL RESOURCES SETTING

This tribal cultural resources setting and impact analysis is based on the results of the Cultural Resources Assessment prepared by ERM in 2024 (Appendix E), as well as information provided by the Yahaaviatam of San Manuel Nation, the Morongo Band of Mission Indians, and the Twenty-Nine Palms Band of Mission Indians (collectively referred to as Consulting Tribes) during the government-to-government tribal consultation under AB 52.

Based on the results of this investigation, no previously recorded cultural resources have been recorded in the Project site. However, seven archaeological sites, six of which are associated with the Gold Hill Mine District, are located within a 0.25-mile radius of the Project site. The seventh archaeological site consists of one pre-contact isolate. These archaeological sites are not eligible for listing in the CRHR or NRHP. The overall condition of the site is poor to fair in terms of the preservation potential of intact archaeological or Tribal cultural resources, and the site has been subjected to severe disturbances related to the demolition of structures and removal of equipment after the mining activities ceased, as well as erosion and a partial collapse of the hillside below the

mining shaft. Modern trash was also observed scattered throughout the area and mixed in with the historical refuse.

According to the Native American Heritage Commission, the results of the SLF search were positive and provided a consultation list of Tribes culturally affiliated with the Project site. The list included contact information to nine individuals, representing five Tribal organizations, with only the Consulting Tribes (listed above) responding to the County's request for AB 52 consultation. The Consulting Tribes noted that the Project is within the Serrano ancestral territory and within the area of three named places of cultural significance, with several precontact sites within the Project site's vicinity. Thus, the Project site may contain unknown Tribal cultural resources and holds cultural significance to the Consulting Tribes.

5.18.2 REGULATORY SETTING

5.18.2.1 FEDERAL

National Historic Preservation Act[108]

The NHPA establishes a partnership between federal agencies and state, tribal, and local governments. Specifically, Section 106 of the NHPA requires federal agencies to assess the potential effects of their actions or undertakings on historic properties and aims to identify historic properties potentially affected by such actions, including tribal cultural resources. Section 106 requires such undertakings to assess their effects and to implement avoidance, minimization, or mitigation measures to reduce adverse effects.

5.18.2.2 STATE OF CALIFORNIA

Assembly Bill 52[109]

AB 52 provides protections for tribal cultural resources. As of July 1, 2015, all lead agencies approving projects under CEQA are required, if formally requested by a culturally affiliated California Native American Tribe, to consult with such tribe regarding the impacts of a project on tribal cultural resources prior to the release of any negative declaration, mitigated negative declaration, or a notice of preparation for an EIR.

PRC, Section 21074 and 21084.3

Under PRC Section 21074, tribal cultural resources include site features, places, cultural landscapes, sacred places, or objects that are of cultural value to a tribe that are eligible or listed on the CRHR or a local historic register or that the lead agency has determined to be a significant tribal cultural resource.

Tribal consultation is to continue until mitigation measures are agreed to, unless the tribe or the lead agency concludes in good faith that an agreement cannot be reached. In the case of agreement, the lead agency is required to include the mitigation measures in the environmental

[108] State of California, Legislative Council Bureau. 1992. California Register of Historic Resources. Retrieved from: https://ohp.parks.ca.gov/?page_id=21238.
[109] California Legislative Information. 2014. AB-52 Native Americans: California Environmental Quality Act. Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB52.

document along with the related Mitigation Monitoring and Reporting Program (see PRC Section 21084.3). If no agreement is reached, the lead agency must still impose all feasible measures necessary for a project to avoid or minimize significant adverse impacts on tribal cultural resources (PRC Section 21084.3).

5.18.3 ENVIRONMENTAL EVALUATION

a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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 Public Resources Code section 5020.1(k)?

Less Than Significant Impact with Mitigation. Based on the results of the Cultural Resources Assessment, one prehistoric archaeological resource, a precontact isolate, was recorded within a 0.25-mile buffer around the Project site. Although the eligibility status of the isolate is unknown, it is not eligible for CRHR or local register since it does not meet the significance criteria.

No additional prehistoric archaeological resources were discovered within the Project site during the survey. The Project site is located within the Serrano ancestral territory and within the area of three named places of cultural significance, with several precontact sites within the Project site's vicinity. Although the Project site has cultural significance to the Consulting Tribes, the Project site is unlikely to yield new, previously unidentified Tribal cultural resources that would be eligible for listing in the CRHR or local register based on the level of site disturbance from previous historic mining activities, absence of prehistoric resources, regular flooding of portions of the site, and grazing use of the Project site. If unanticipated discovery of Tribal cultural resources would occurs, potential impacts would be mitigated through the implementation of mitigation measure CR 1, CR 2, and CR 3 (noted above in Section 5.5.3). Therefore, the potential for adverse effects to Tribal cultural resources with eligibility to be listed in the CRHR or local register would be less than significant with mitigation.

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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less Than Significant Impact with Mitigation. Although no Tribal cultural resources were identified within the bounds of the Project site during the cultural resources assessment, the results of the SLF search were positive and the Consulting Tribes note that the Project site contains cultural significance. Implementation of the following mitigation

measures would reduce potential impacts to Tribal cultural resources to a less-than-significant level.

MM TR 1: Tribal Monitoring

- Due to the heightened cultural sensitivity of the Project site, a Tribal monitor authorized to represent the Consulting Tribes shall be present during all ground-disturbing construction activities in native soil. Monitoring activities shall be conducted in a manner that protects Tribal cultural resources as outlined in the approved CRMTP and complies with applicable construction safety protocols. The scheduling and implementation of monitoring shall be determined collaboratively by the Consulting Tribes and the Project Applicant (or its authorized representative) to ensure appropriate monitoring coverage and responsiveness. The Tribal monitor shall have the authority to recommend halting or redirecting construction if a potentially significant resource is encountered, pending evaluation and treatment in accordance with the approved CRMTP. Monitoring activities shall be documented using a standardized monitoring form, completed at the end of each workday, and incorporated into the final cultural resources technical report

MM TR 2: Treatment of Cultural Resources During Project Implementation

- If a pre-contact cultural resource is discovered during Project implementation, ground-disturbing activities shall be suspended 60 feet around the resource(s), and an Environmentally Sensitive Area (ESA) physical demarcation/barrier be established.

  The significance of the resource shall be assessed collaboratively by the Consulting Tribes and the Project Archaeologist, in consultation with the Lead Agency, and in accordance with the procedures outlined in the approved CRMTP.

  Avoidance of resources determined significant is preferred. If avoidance is not feasible, treatment measures shall be implemented in accordance with the CRMTP and applicable CEQA regulations, including PRC §21083.2(i). All removal, analysis, reburial, or curation of cultural materials shall follow the protocols established in the CRMTP and curation guidelines established by the California Office of Historic Preservation (OHP).

  Final documentation, including evaluation results and treatment outcomes, shall be submitted to the Lead Agency, Consulting Tribes, and the appropriate CHRIS Information Center, as specified in the CRMTP.

MM TR 3: Inadvertent Discoveries of Human Remains

- If human remains are encountered during any phase of ground-disturbing activities, all work in the immediate vicinity (within a 100-foot buffer of the find) shall cease, and the County Coroner shall be notified immediately, in accordance with California Health and Safety Code §7050.5. No further disturbance shall occur until the Coroner has made a determination regarding the nature of the remains, which must occur within two working days of notification.

If the Coroner determines that the remains are or may be Native American, the Native American Heritage Commission (NAHC) shall be notified within 24 hours, as required by Public Resources Code §5097.98. The NAHC will identify the Most Likely Descendant (MLD), who shall be granted access to the site and allowed 48 hours to make recommendations regarding the treatment and disposition of the remains, in consultation with the County and the Project Archaeologist.

All activities in the vicinity of the discovery shall remain suspended until the remains have been appropriately treated and the lead agency has authorized the resumption of work.

5.19 UTILITIES AND SERVICE SYSTEM

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment of storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				X
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c. 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?				X
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e. Comply with federal, state, and local statutes related to solid waste?				X

5.19.1 UTILITIES AND SERVICE SYSTEM SETTING

No public utilities currently service the Project site. The Project site is within the service area of Big Bear City Community Services District (CSD)[110]. The region does not import any of its water, and therefore have water conservations in practice to sustain the supply. In terms of wastewater collection and treatment, there is a sewer line along Erwin Ranch Road, also managed by CSD.

[110] Big Bear City Community Services District (CSD). 2024. Bear Valley Basin Boundary Map. Retrieved from: https://www.bbccsd.org/index.php.

The CSD also provides solid waste services to the region. For additional solid waste, there is a landfill approximately 20 miles from the Project site, Lander's Landfill,[111] that accepts construction debris, among many other types of solid waste. As for stormwater runoff, there are no existing stormwater drainage facilities on the Project site. Additionally, the Project site is relatively flat, with about a 0.1 percent grade draining to the north of the parcel at the base of the hill to the north of the property. BVES provides electric services to the greater Bear Valley area. The limits of the service area include Big Bear Lake, Baldwin Lake, Erwin Lake, and Lake Williams, providing service to over 23,000 customers throughout the greater area. Southwest Gas[112] is the provider of natural gas services in the greater Bear Valley area.

5.19.2 REGULATORY SETTING

5.19.2.1 FEDERAL

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 to manage the disposal of solid waste in order to ensure health and safety. The RCRA gives authority to the states in developing a waste management system up to federal standards. It addresses both hazardous and non-hazardous wastes, including recycling and waste reduction. Compliance with this act is enforced by both the USEPA and state agencies, and the act grants the ability to enforce penalties for lack of compliance.

5.19.2.2 STATE OF CALIFORNIA

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act was enacted in 2014 targeting the conservation of groundwater resources in California. The act defines groundwater basins throughout the state and encourages the management of groundwater on a local level and promotes the development of groundwater sustainability plans.

California Integrated Waste Management Act

The California Integrated Waste Management Act was enacted in 1989 with the intention of establishing a sustainable waste management system in the state of California. The act requires Integrated Waste Management Plans (IWMPs) to be implemented at the local level. The IWMPs target an increase in recycling in place of waste.

5.19.2.3 REGIONAL

National Pollutant Discharge Elimination System

The San Bernardino RWQCB enforced the NPDES, requiring wastewater treatment facilities acquire a permit to prove compliance with standards laid out in relation to discharging treated wastewater into surface water.

[111] San Bernardino County. 2024. Waste Disposal Sites. Retrieved from: https://dpw.sbcounty.gov/solid-waste-management/waste-disposal-sites/.
[112] Southwest Gas Corporation. 2022. Service Areas. Retrieved from: https://www.swgas.com/7200000200599/SWG-Territory-Map-03-2022.pdf.

5.19.2.4 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[113]

The Infrastructure and Utilities Element of the Countywide Plan/Policy Plan includes goals and policies applicable to the Project:

Infrastructure and Utilities Element

- *Goal IU-1 Water Supply*. Water supply and infrastructure are sufficient for the needs of residents and businesses and are resilient to drought.
    - Policy IU-1.1. Water supply. We require that new development be connected to a public water system or a County-approved well to ensure a clean and resilient supply of potable water, even during cases of prolonged drought.
    - Policy IU-1.7. Areas vital for groundwater recharge. We allow new development on areas vital for groundwater recharge when stormwater management facilities are installed onsite and maintained to infiltrate predevelopment levels of stormwater into the ground.
    - Policy IU-1.8. Groundwater management coordination. We collaborate with watermasters, groundwater sustainability agencies, water purveyors, and other government agencies to ensure groundwater basins are being sustainably managed. We discourage new development when it would create or aggravate groundwater overdraft conditions, land subsidence, or other "undesirable results" as defined in the California Water Code. We require safe yields for groundwater sources covered by the Desert Groundwater Management Ordinance.
- *Goal IU-3 Stormwater Drainage*. A regional stormwater drainage backbone and local stormwater facilities in unincorporated areas that reduce the risk of flooding.
    - Policy IU-3.2. Local flood control. We require new development to install and maintain stormwater management facilities that maintain predevelopment hydrology and hydraulic conditions.
- *Goal IU-4 Solid Waste*. Adequate regional landfill capacity that provides for the safe disposal of solid waste, and efficient waste diversion and collection for unincorporated areas.
- *Goal IU-5 Power and Communications*. Unincorporated area residents and businesses have access to reliable power and communication systems.
    - Policy IU-5.1. Electricity and natural gas service. We partner with other public agencies and providers to improve the availability and stability of electricity and natural gas service in unincorporated communities.
    - Policy IU-5.3. Underground facilities. We encourage new and relocated power and communication facilities to be located underground when feasible, particularly in the Mountain and Desert regions.

[113] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

- Policy IU-5.5 Energy and fuel facilities. We encourage the development and upgrade of energy and regional fuel facilities in areas that do not pose significant environmental or public health and safety hazards, and in a manner that is compatible with military operations and local community identity.

5.19.3 ENVIRONMENTAL EVALUATION

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment of storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact. The Project consists of a solar PV facility, which will tie into the local electric distribution system within the BVES service territory via existing distribution facilities. Although the proposed solar PV facility would be a new electric power generating facility, its construction would not require the need for additional facilities, as the Project would interconnect to an adjacent BVES distribution line. No water or wastewater treatment facilities, natural gas, or telecommunication facilities are needed, and excess stormwater runoff would be captured on site via the proposed detention basins. Therefore, relocation or expansion of utility facilities is not necessary and no significant environmental impact would occur.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact. The Project is within the service area of CSD. There are no existing connections to water at the site and the operations of the Project would not require access to water as it would be an unmanned facility. Construction may require temporary water storage for dust mitigation, and it is expected that water trucks would bring water from off-site. Landscape planting irrigation would be required for the first approximately 2 years until landscaping is established, and it is expected that water would be brought from offsite. These temporary impacts to water supply would only be required during these initial Project stages. Operation of the site would result in very limited, if any, water usage, and no routine panel washing is being proposed as part of on-going maintenance. There would be no need for a permanent water supply. Therefore, the Project would have sufficient water supplies available and new or expanded entitlements are not needed. Impacts would be less than significant.

c. 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?

No Impact. There is no need for nor are there existing sanitary hook ups at the Project site. During construction, a portable toilet would be brought to the site to serve the construction workers, and wastewater would be hauled and disposed of off-site. Construction wastewater is anticipated to be minimal. Wastewater will not be generated during operations, and the Project will not be using the relevant wastewater treatment provider for operations. There will be no impact in relation to wastewater treatment providers.

d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. Lander's Landfill, located about 20 miles outside of the City of Big Bear, accepts construction debris and has a permitted capacity of 13,983,500 cubic yards, with a remaining capacity of 11,148,100 cubic yards. This puts the landfill at a closing date of January 2072. The Project would have access to a landfill with sufficient permitted capacity. Construction-related solid waste that would be generated from the Project would have a less than significant impact on the capacity of the landfill.

The operations of the Project would not produce solid waste on a regular basis. There may be a minor generation of solid waste sporadically during normal Project operations and maintenance over the life of the solar PV facility. The Lander's Landfill has capacity for the next approximately 50 years.

Decommissioning of the Project is expected to be initiated in approximately 30 years, reflecting the average lifespan of a solar PV facility. The Project would follow all applicable laws and regulations for recycling of Project infrastructure. Lander's Landfill is expected to still have capacity for waste upon closure of the Project for all other waste that could be produced by decommissioning.

Therefore, the Project will have access to a landfill that has permitted capacity and potential impacts would be less than significant.

e. Comply with federal, state, and local statutes related to solid waste?

No Impact. Solid waste would be primarily construction-generated. Operations of the Project would result in very minimal solid waste. Any waste generated at the site would be disposed of in compliance with local, state, and federal regulations, and no impact would occur.

5.20 WILDFIRES

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X	
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

5.20.1 WILDFIRES SETTING

The Project is located within a State Responsibility Area and is categorized as Very High Fire Hazard Severity Zone.[114] State Highway 18/Big Bear Boulevard and State Highway 38 have been delineated as emergency evacuation routes by San Bernardino County.[115]

5.20.2 REGULATORY SETTING

5.20.2.1 STATE OF CALIFORNIA

California Government Code General Plan Guidelines

Government Code §65302(g), states local governments must include "a review of the safety of development in fire hazard zones." New development must adhere with these safety standards and consider appropriate mitigation measures to minimize fire risks.

California Department of Forestry & Fire Protection/California Fire Code

The California Fire Code (CFC) (Title 24, Part 9) establishes specific regulations for fire mitigation, including requirements for defensible space as outlines in CFC §4907.

State Responsibility Area Fire Prevention Regulations

PRC §4101 defines the responsibilities of state agencies in fire prevention and suppression.

California Risk Reduction Plan

The plan emphasizes strategies for reducing wildfire risk, including the need for community-level planning. California Wildfire Risk Reduction Strategy encourages "integrated land use planning to minimize risks associated with wildfires."

5.20.2.2 COUNTY OF SAN BERNARDINO

Countywide Plan/Policy Plan[116]

Both the Land Use Element and the Hazards Element of the Countywide Plan/Policy Plan provide goals and policies applicable to the Project, which are outlined below:

Land Use Element

[114] Board of Forestry and Fire Protection. 2017. State Responsibility Area Viewer. Retrieved from: https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=468717e399fa4238ad86861638765ce1.
[115] San Bernardino County. Nd. San Bernardino County Evacuation Status. Retrieved from: https://sbcounty.maps.arcgis.com/apps/webappviewer/index.html?id=35f8f75a490f4007bc983b39c208a629.
[116] San Bernardino County. 2022. Countywide Plan. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/01/CWP_PolicyPlan_HardCopy_MainText_Tables_2022_Sept_Adopted.pdf.

- *Goal LU-4 Community Design*. Preservation and enhancement of unique community identities and their relationship with the natural environment.
    - Policy LU-4.2. Fire-Adapted Communities. New developments in high or very high fire hazard zones must use fire-resistant design techniques, including fuel modification areas, fire-resistant landscaping, and materials.
    - Policy LU-4.3. Native or Drought-Tolerant Landscaping. New developments outside high fire hazard zones are required to install drought-tolerant landscaping and encourage the use of native plant species.

Hazards Element

- *Goal HZ-1 Natural Environment Hazards*. Minimize risk of injury, loss of life, property damage, and economic and social disruption caused by natural environmental hazards and adaptation to potential changes in climate.
    - Policy HZ-1.2. New Development in Environmental Hazard Areas. We require all new development to be located outside of the environmental hazard areas listed below. For any lot or parcel that does not have sufficient buildable area outside of such hazard areas, we require adequate mitigation, including designs that allow occupants to shelter in place and to have sufficient time to evacuate during times of extreme weather and natural disasters.
        - Fire: high or very high fire hazard severity zone.
    - Policy HZ-1.7. Underground Utilities. We require that underground utilities be designed to withstand seismic forces, accommodate ground settlement, and hardened to fire risk.
    - Policy HZ-1.9. Hazard Areas Maintained as Open Space. We minimize risk associated with flood, geologic, and fire hazard zones or areas by encouraging such areas to be preserved and maintained as open space.
    - Policy HZ-1.13. Fire Protection Planning. New developments in designated Fire Safety Overlay and Very High Fire Hazard Zones must comply with the CFC and maintain a Fire Protection Plan or Defensible Space/Fuel Modification Plan.
    - Policy HZ-1.14. Long-Term Fire Hazard Reduction and Abatement. Proactive vegetation management is required on private properties and evacuation route roadsides. New developments must enter long-term maintenance agreements for fire hazard reduction.
    - Policy HZ-1.15. Evacuation Route Adequacy. Coordination with CALFIRE and local agencies is necessary to ensure evacuation routes remain reliable and accessible during wildfires.

5.20.3 ENVIRONMENTAL EVALUATION

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Minor increases in traffic congestion related to construction vehicle traffic and equipment deliveries would not impact an emergency response plan or emergency evacuation plan. During construction and operation, all vehicles and stationary equipment will be staged within the Project site and off of Erwin Ranch Road, ensuring that

emergency access routes remain unobstructed. Traffic control measures may be required during construction which would further limit any impacts to emergency response. Consequently, the implementation of the Project is not expected to substantially impair any adopted emergency response or evacuation plans, and less than significant impacts would occur.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less Than Significant Impact. Based on the County's requirements, a site fence/screen would be required with a 25-foot setback along Lakewood Drive and Erin Ranch Road and the residence (and 20-foot setback along the northern boundary). The setback would provide a defensible buffer around the Project footprint. The Project is also setback from the open space north of the Project site. Furthermore, the Project does not entail the construction of habitable structures or permanent facilities. Therefore, the Project will not expose occupants to hazardous pollutant concentrations arising from wildfire incidents or contribute to the uncontrolled spread of wildfire, and potential impacts would be less than significant.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less Than Significant Impact. Although the Project could increase the risk of fire due to the construction and operation of PV panels and related electrical equipment, the Project would be constructed in compliance with all National Fire Protection Association and National Electric Code requirements to minimize the potential of fire. No roads, fuel breaks, or other infrastructure that may exacerbate fire risk are proposed as part of the Project. As such, impacts are anticipated to be less than significant.

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact. Given that the Project does not involve the construction of habitable structures or permanent facilities, there is no anticipated exposure of individuals or structures to a significant risk of loss, injury, or death related to wildland fires, downslope or downstream flooding, landslides, etc. Therefore, impacts would be less than significant.

6. MANDATORY FINDINGS OF SIGNIFICANCE

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact

a. Would the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?		X		
b. Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects.)			X	
c. Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

6.2 ENVRIONMENTAL EVALUTATION

a. Would the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation. As previously discussed in section 5.4 Biological Resources, the Project may result in potential impacts to special-status wildlife species, such as southern rubber boa, and nesting birds protected under the MBTA. However, implementation of MM BIO-1: Pre-construction clearance surveys and MM BIO-2: Construction monitoring would reduce potential impacts to less than significant levels.

As discussed in Section 5.5 Cultural Resources, ground-disturbing activities for the development of the Project could potentially result in the disturbance of cultural resources, including historic or prehistoric resources, or buried human remains. Potential impacts would be reduced to less than significant levels through implementation of MM CR-1: Retention of a Qualified Project Archaeologist (on-call basis), MM CR-2: Worker Environmental Awareness Program, MM CR-3: Archaeological Monitoring (on-call basis), and MM CR-4: Protection of Buried Human Remains.

As discussed in Section 5.7 Geology and Soils, the Project may be at risk due to seismic ground shaking, ground failure, and liquefaction. Moreover, portions of the Project may be at

risk if constructed in the AOC for slope instability identified in the geologic hazards and geotechnical study. However, implementation of MM GEO-1: Seismic design parameters and MM GEO-2: Slope stability assessment would reduce potential impacts to less than significant levels.

As discussed in section 5.13 Noise, construction- and operational-related noise could result in temporary impacts. Implementation of MM NOI-1: Construction activity limits and MM NOI-2: Inverter placement would reduce impacts to less than significant levels.

As discussed in Section 5.18 Tribal Cultural Resources, ground-disturbing activities for the development of the Project could potentially result in the disturbance of Tribal cultural resources. Potential impacts would be reduced to less than significant levels through the implementation of the mitigation measures outlined for Section 5.5 Cultural Resources, and through the implementation of MM TR-1: Tribal Monitoring, MM TR-2: Treatment of Cultural Resources During Project Implementation, and MM TR-3: Inadvertent Discoveries of Human Remains.

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

Less Than Significant Impact. Cumulative impacts are defined as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the development when added to the impacts of other closely related past, present, and reasonably foreseeable or probable future developments. Cumulative impacts can result from individually minor, but collectively significant, developments taking place over a period. The CEQA Guidelines, Section 15130 (a) and (b), states:

> (a) Cumulative impacts shall be discussed when the Project's incremental effect is cumulatively considerable.
>
> (b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided of the effects attributable to the project. The discussion should be guided by the standards of practicality and reasonableness.

There are no past, present, or reasonably foreseeable projects in the vicinity of the Project. The Project is the only renewable energy facility of its size located in the Big Bear community. Additionally, impacts associated with the proposed Project would not be considered individually or cumulatively adverse or considerable. Impacts identified in this Initial Study can be reduced to a less than significant impact. Therefore, no significant adverse impacts are identified or are anticipated, and no mitigation measures are required.

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

Less Than Significant Impact. The incorporation of design measures, County of San Bernardino policies, standards, and guidelines and proposed mitigation measures as identified

within this Initial Study would ensure that the proposed Project would have no substantial adverse effects on human beings, either directly or indirectly on an individual or cumulative basis.



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APPENDIX A FIGURES

DRAWN BY: Jimmy Holcomb

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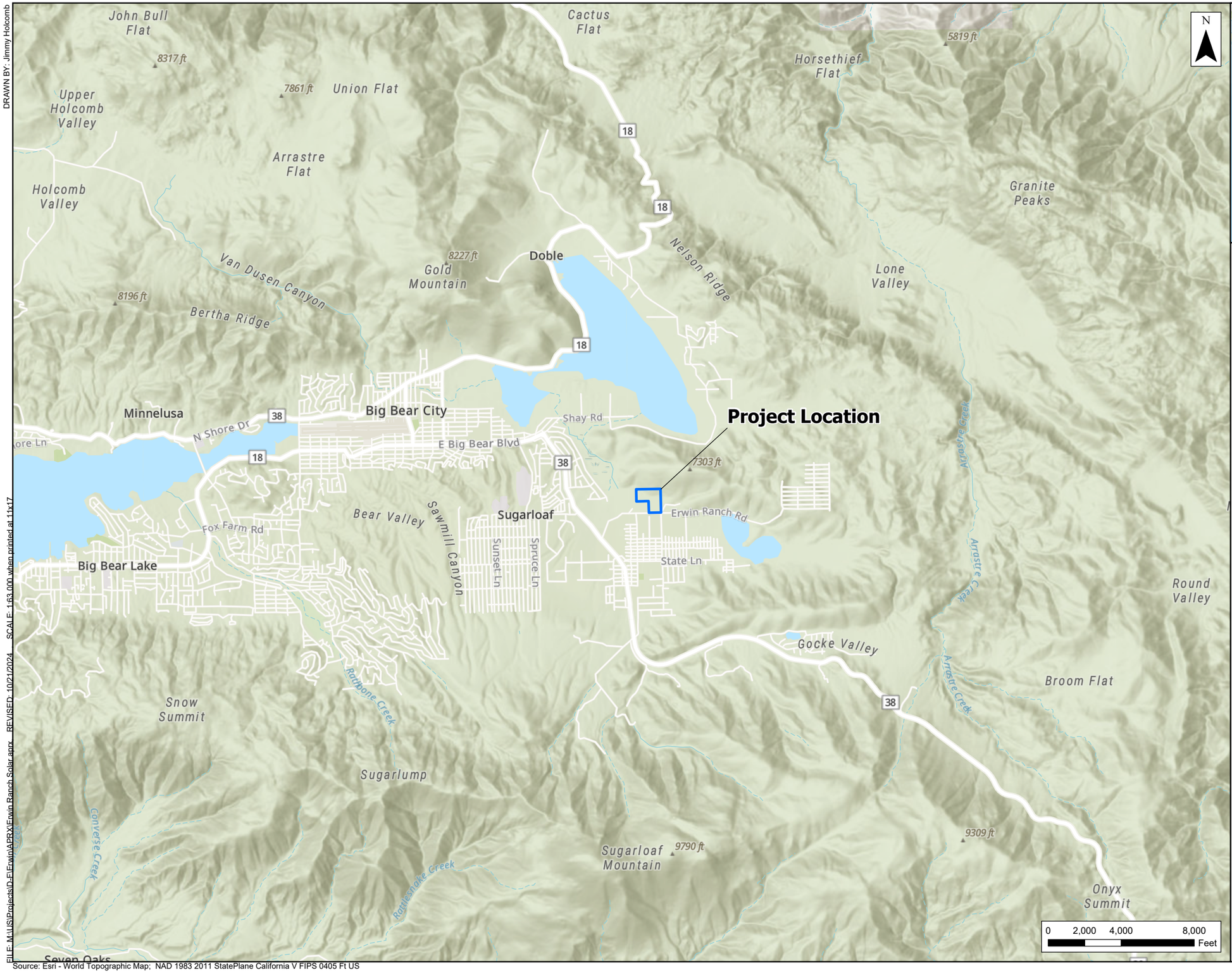

Source: Esri - World Topographic Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

Figure 1: Site Vicinity
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

DRAWN BY: Jimmy Holcomb

SCALE: 1:6,000 when printed at 11x17

REVISED: 10/21/2021

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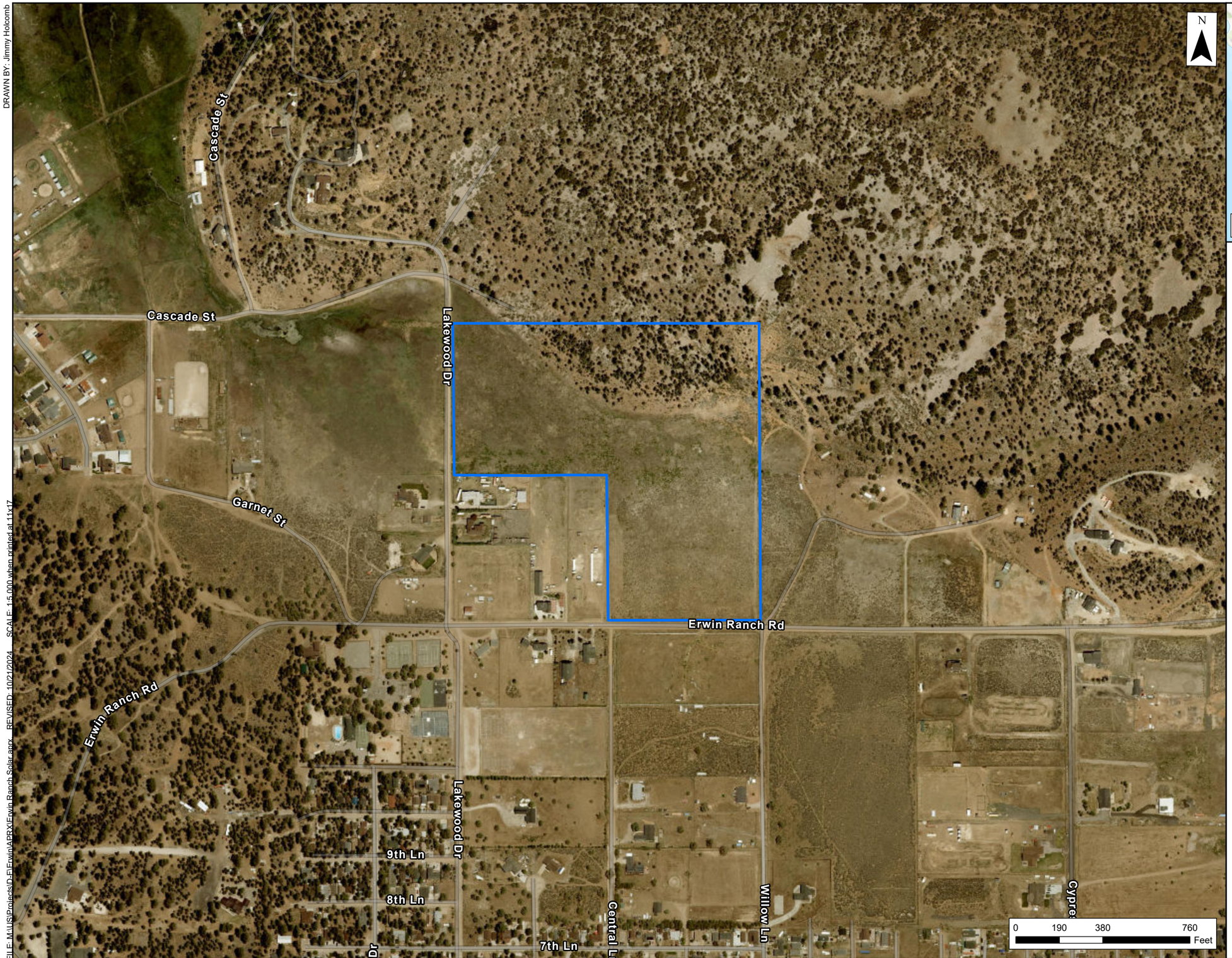



Legend

Site Boundary

Figure 2: Site Location
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

Source: Esri - World Topographic Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

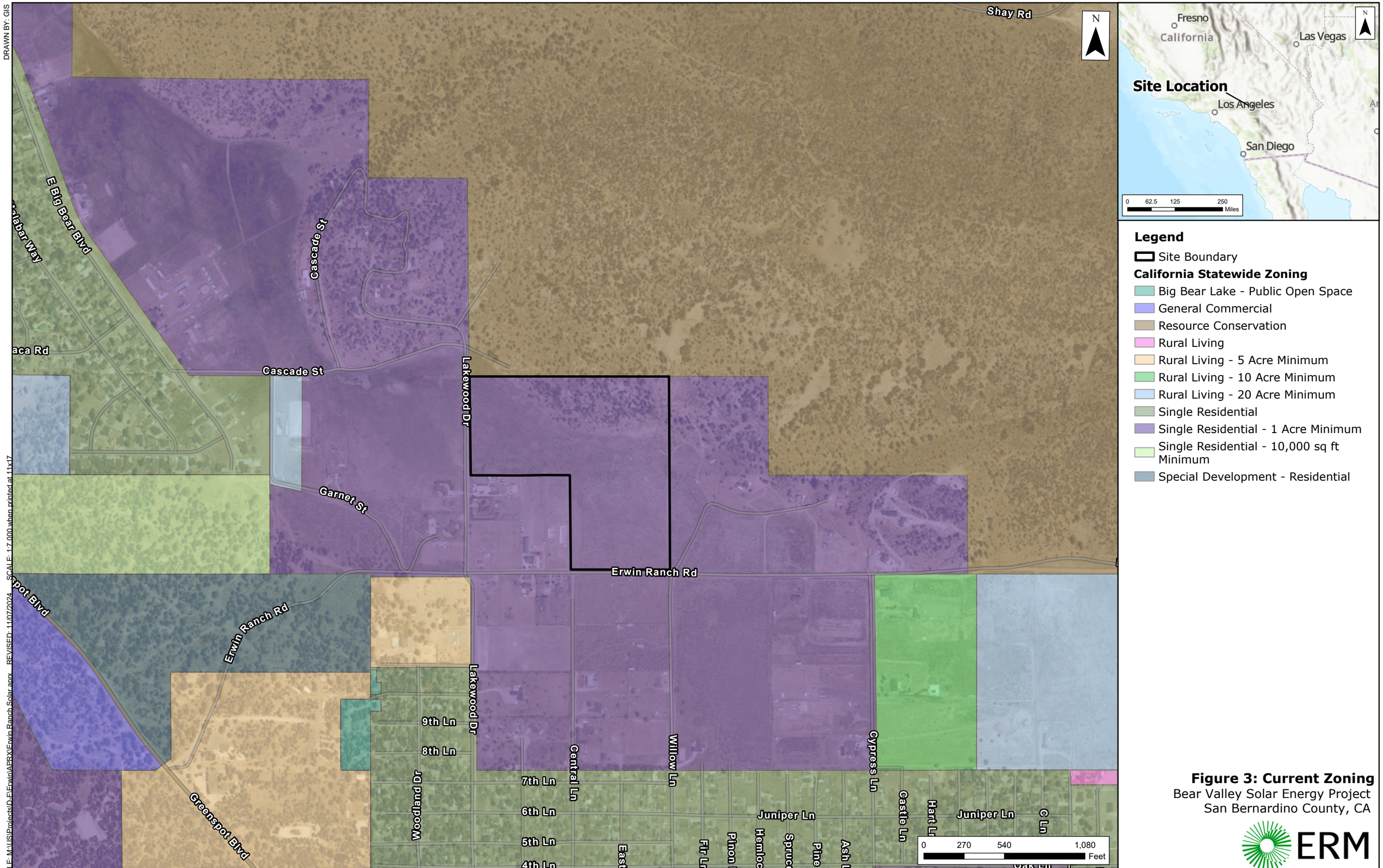

Figure 3: Current Zoning
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

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Source: USGS - World Imagery Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

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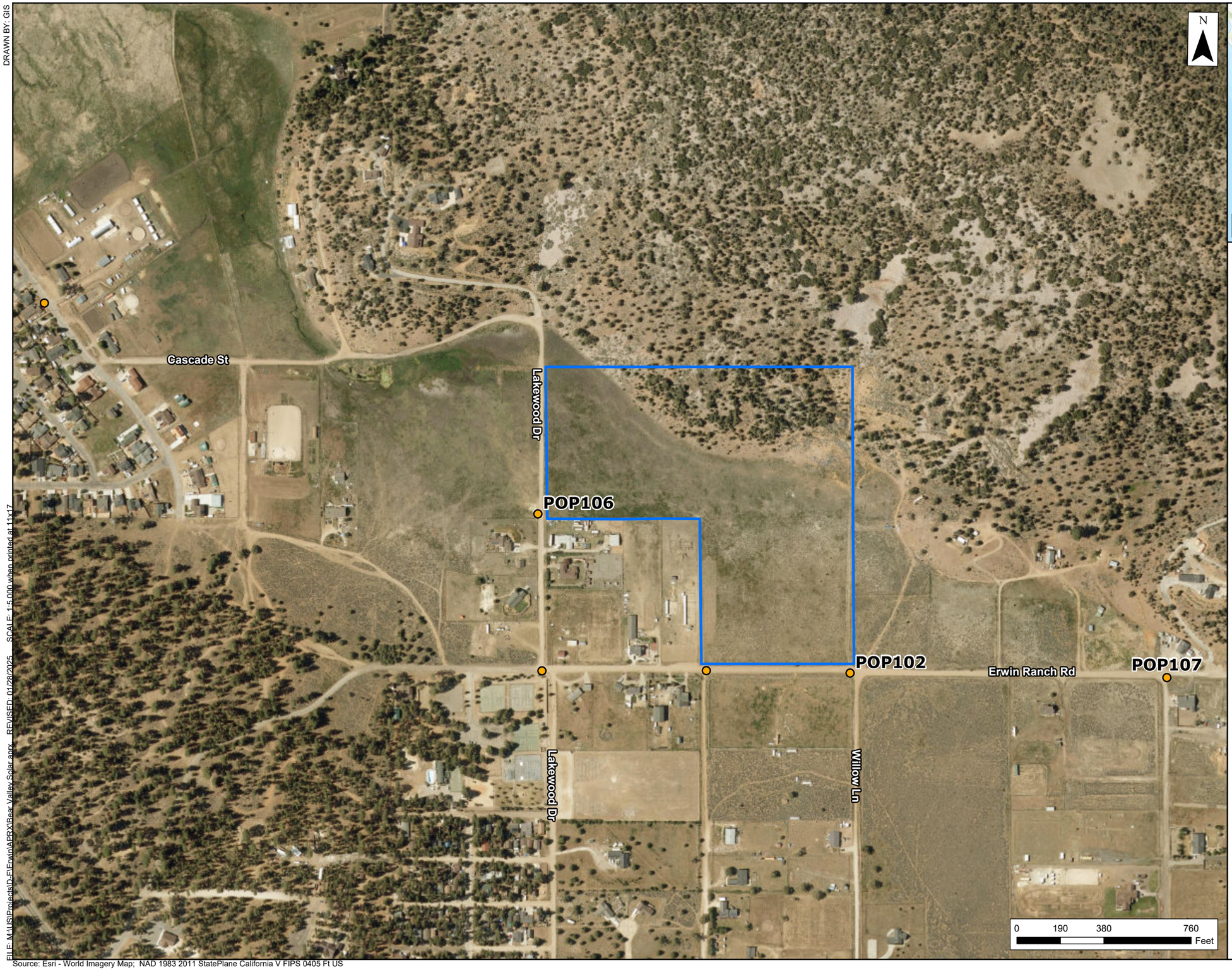



Legend

- KOP Locations
- Site Boundary

Figure 4
KOP Locations
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

Source: Esri - World Imagery Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

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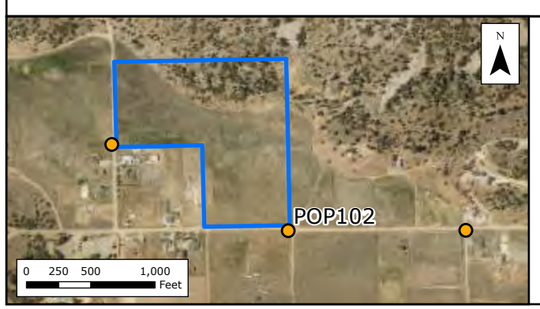

Figure 5
KOP Location POP102 Existing
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

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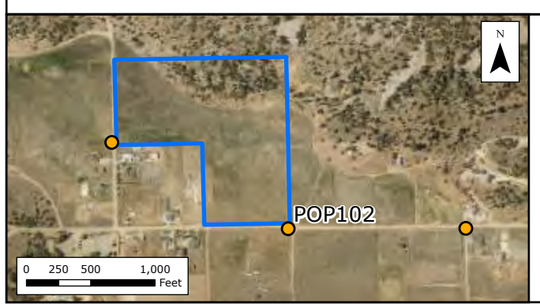

Figure 6
KOP Location POP102 with Rendered Image
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

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Figure 7
KOP Location POP106 Existing
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

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Figure 8
KOP Location POP106 with Rendered Image
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

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Figure 9
KOP Location POP107 Existing
Bear Valley Solar Energy Project
San Bernardino County, CA

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Figure 10
KOP Location POP107 with Rendered Image
Bear Valley Solar Energy Project
San Bernardino County, CA

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APPENDIX B GLARE ASSESSMENT

ERM

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MEMO

TO	Yannick Tamm, Senior Manager, Project Development EDF Renewables Distribution-Scale Power
FROM	Mat Carson, Project Manager Duncan Quinn, Senior Consultant Ian Todd, Partner-in-Charge Ben Sussman, Technical Consulting Director
DATE	16 December 2024
REFERENCE	0739207
SUBJECT	Bear Valley Solar Energy Project - Glare Analysis Memorandum

1. INTRODUCTION

Bear Valley Electric Service, Inc. (BVES), proposes to construct the Bear Valley Solar Energy Project (Project), a photovoltaic (PV) solar facility in unincorporated San Bernardino County, California. The Project is being designed, permitted, and developed by EDF Renewables Distribution-Scale Power (EDFR-DSP). EDFR-DSP has engaged Environmental Resources Management, Inc. (ERM) to conduct a glare analysis for the proposed Project in response to the County's request for additional technical studies to inform the Conditional Use Permit (CUP) application and the California Environmental Quality Act (CEQA) review.

In support of this process, ERM has prepared this memorandum summarizing the methodologies utilized and results of the glare analysis. Glare analysis documentation from the industry-standard ForgeSolar online glare analysis tool is provided in Appendix A.

2. PROJECT AND SITE DESCRIPTION

The proposed Project is located on a 30-acre parcel with a fenced area of 18.9 acres containing PV arrays and other Project infrastructure (Site). The Site is located at 2151 Erwin Ranch Road (north side of road), approximately 0.4 mile east of the Lakewood Drive intersection in the unincorporated community of Big Bear, California (Figures 1, 2, and 3). The Project will have a generation capacity of 5.7 megawatts (MW). The Project will eventually be owned and operated by BVES.

The Project's PV panels will be mounted on single-axis trackers oriented south at 180 degrees with a tracking angle range of motion of +/-60 degrees. The average height of center of the PV panels above ground will be approximately 5 feet. The ground

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coverage ratio (GCR) of the PV panels will be 0.40 (40 percent), and the PV panels will contain smooth glass with an anti-reflective coating. The PV panel tracking modules will implement a shade- and slope-aware backtracking strategy with the shallowest possible angle of east/west rotation during backtracking of 0 degrees.

The fenced area of the Site to be developed is open, flat land covered with low shrubs. Elevation of the fenced area ranges from approximately 6,770 to 6,790 feet above mean sea level. A forested hillside immediately north of the fenced area rises approximately 500 feet above the Site. The Project vicinity features flat, open shrubland with scattered homes and ranches to the west, south, and east. The Site is bordered to the west by Lakewood Drive and to the south by Erwin Ranch Road.

3. VIEWPOINT SUMMARY AND DISCUSSION

A representative sample of potential viewpoints was identified within a half-mile radius of the proposed Project. Viewpoints are locations from which the Project may be visible to human receptors, such as residents, motorists, pilots, recreationists, and tourists. Such viewers may be sensitive to potential glare caused by the PV panels. These viewpoints, referred to as "receptors" in the glare analysis results (Appendix A), were identified through review of aerial imagery, topographic maps, and other publicly available online mapping resources.

Based on ERM's review of the Federal Aviation Administration (FAA) database,[1] aerial photos, and a Google search, the nearest aircraft facility is Big Bear Airport (L35), located 2.6 miles west-northwest of the Project. ERM evaluated a total of three 2-mile-long flight paths (FP 1, FP 2, and FP 3) to Runway 08/26 at this airport as part of the glare analysis (Figure 3). As documented by the FAA and Big Bear Airport,[2] Runway 08 approach (FP 1) has a bearing of 74 degrees and threshold crossing height of 29 feet. Runway 26 has two approaches, bearing 270 degrees (FP 2) and bearing 256 degrees (FP 3), both with a threshold crossing height of 46 feet. All three flight paths have a glide slope of 4.3 degrees. Big Bear Airport does not have an air traffic control tower (ATCT). ERM identified no other airports within 10 miles of the Site.

ERM identified 16 stationary locations to serve as representative viewpoints for the glare analysis. These viewpoints are identified using the abbreviation "OP" and are numbered sequentially—OP 1 through OP 16 (Figures 1 and 2). OP 1 is located on a pickleball court at Big Bear Ranch Park, a San Bernadino County Parks and Recreation facility at 2080 Erwin Ranch Road. OP 7 is on the grounds of the Big Bear Equestrian Center & Bear Valley Farms at 1601 East Big Bear Boulevard. The remaining 14 viewpoints represent individual residences in the vicinity of the Project. ERM also

[1] Federal Aviation Administration. Circle Search for Airports. Available online https://oeaaa.faa.gov/oeaaa/external/searchAction.jsp?action=showCircleSearchAirportsForm. Accessed 5 November 2024.
[2] Big Bear Airport. Approach and Departure Procedures. Available online https://www.bigbearcityairport.com/pilots/. Accessed 5 November 2024.

identified six road segments including Erwin Ranch Road, Lakewood Drive, Central Lane, Willow Lane, Cypress Lane, and Jensen Drive – Ringwood Trail to evaluate whether glare could potentially be observed by motorists traveling these roads.

To mitigate potential visual impacts (including glare) observed from these viewpoints, the Project design includes a visual screen consisting of a vegetative buffer along the southern and western boundaries of the Site (Figures 1 and 2). A fixed-knot agricultural-style fence is also proposed along the southwestern side of the Site where it abuts residential properties; however, this type of fence would not provide significant visual screening.

At full growth, the vegetative buffer along the frontages of Erwin Ranch Road and Lakewood Drive is conservatively expected to provide a fully opaque screen up to a minimum estimated height of 8 feet. At full growth, the vegetative buffer between the Site and residential properties is conservatively expected to provide a fully opaque screen up to a minimum estimated height of 6 feet. Because the ForgeSolar tool assumes that visual obstructions provide complete screening, these conservative height estimates were used in this analysis. At full growth, however, the vegetative buffers may provide at least partial screening up to an estimated height of 12 feet. For comparison, the glare analysis results without the visual buffers are provided in Appendix B.

4. GLARE ANALYSIS

This glare analysis is based on design parameters provided by EDFR-DSP for single-axis trackers as described above in Section 2. It is important to note that glare would not be experienced if the solar panels are screened by topography, structures, or vegetation. Therefore, locations where glare may occur would be limited to areas with direct views of the proposed solar panels. Potential visibility could change over time due to planting or removal of vegetation or construction or removal of structures. The ForgeSolar tool does not, by default, consider the screening effects of vegetation, structures, or topographic features between a PV array and the identified viewpoints. However, the proposed visual buffers described in Section 3 above were incorporated into this glare analysis.

4.1 BACKGROUND

PV panels are designed to absorb rather than reflect sunlight to maximize energy capture. Many PV panels utilize textured glass and/or have anti-reflective coatings to further minimize reflectivity. Based on information provided by EDFR-DSP, the Project's PV panels will contain smooth glass with an anti-reflective coating. ERM included this parameter in the glare analysis.

PV solar projects do not typically cause harmful or nuisance levels of glare, defined as a continuous source of bright light that may be visible to nearby residents, motorists,

or pilots. The absorbing, rather than reflecting, nature of PV technology, in conjunction with proper site planning and design, has allowed PV panels to be commonly and safely installed on airport properties nationwide.[3] Additionally, PV panels have a lower index of refraction/reflectivity than common sources of glare in residential environments. The glare and reflectance levels from a given PV system are lower than those of steel, snow, standard glass, plexiglass, and smooth water. The glare and reflectance levels of modules are further reduced with the application of anti-reflective coatings. PV suppliers typically use stippled glass for panels as the "texturing" of the glass allows more light energy to be channeled/transmitted through the glass while weakening the reflected light. With the application of anti-reflective coatings and the use of modern glass technology, Project PV panels would display overall low reflectivity. In addition, because tracker systems follow the sun, the underside of the PV panels and most of the structure supporting them are shadowed throughout the day.

Light reflected from the PV panels would travel above the line of sight of most, if not all, viewers. PV tracking systems position the array so that the sun's rays are always perpendicular to the face of the panel. Reflected light is directed back toward the sun. During midday conditions, when the sun is high in the sky, the rays of the sun are reflected directly upwards. When the sun is low on the horizon (near dawn or dusk), the sun's angle in the sky is low; however, reflected rays would still be directed away from ground-level receptors because the maximum downward angle of the arrays would not be below 30 degrees. Due to their low reflectivity, the panels are not expected to cause visual impairment for motorists on local roadways near the Project site.

The amount of light reflected from solar panels depends on several factors, including the amount of sunlight hitting the panel surface, the surface's reflectivity (based on variables such as the presence of textured glass and/or anti-reflective coatings), the geographic location, time of year, weather conditions, and solar panel orientation. These factors affect the angle of incidence of the sun relative to sensitive viewers, and the amount of glare experienced.[3] With respect to glare, angle of incidence is the angle at which light deviates from perpendicular to a surface. The angle of incidence changes as the sun moves across the sky and is generally lowest at solar noon (when the sun is at its highest point above the horizon and light is reflected toward the sky) and highest at dawn and dusk (when the sun is low in the sky and light is reflected from a high angle of incidence in the opposite direction).

[3] Federal Aviation Administration. 2018. *Technical Guidance for Evaluating Selected Solar Technologies on Airports.* Version 1.1, April 2018. Available online https://www.faa.gov/sites/faa.gov/files/airports/environmental/FAA-Airport-Solar-Guide-2018.pdf.

4.2 METHODOLOGY

ERM used the industry standard ForgeSolar GlareGauge[4] tool to assess potential glare and ocular impact at the 16 viewpoints and along the 6 road segments as shown on Figures 1 and 2. Glare was also assessed along flight approach paths FP 1, FP 2, and FP 3 at Big Bear Airport located 2.6 miles west-northwest of the Site (Figure 3). The tool calculates ocular impact from anticipated levels of retinal irradiance (amount of light received by the retina) and the subtended angle (size and distance) of the glare source. The ForgeSolar tool uses three categories to report potential ocular hazards ranging from retinal burns to temporary after-image, defined as a visual phenomenon in which glare persists in the viewer's vision, even after looking away from the source. These categories include:

- "Green" ratings indicate a low potential to cause after-image (flash blindness);
- "Yellow" ratings indicate the potential to cause temporary after-image; and
- "Red" ratings indicate potential to cause retinal burn and permanent eye damage.[5]

When simulating glare, the ForgeSolar tool modifies the vertex elevations of a PV array footprint so that all points of the PV array reside on a single planar surface. The ForgeSolar tool also may convert PV array footprints with large concavities into a convex shape by filling in these concavities. Therefore, to enhance the accuracy of the glare analysis (by preventing the flattening of hills and reducing the presence of large concavities), ERM divided the PV array area into three smaller sections (labeled PV 01 through PV 03) as shown on Figures 1 and 2.

The ForgeSolar tool considers the direction the PV panels face throughout the day and the slope of the PV array, based on the underlying topography, elevation, and height above ground of the PV panels. Analysis of potential glare observed from stationary viewpoints (OP 1 through OP 16) is based on a 360-degree field of view. By comparison, analysis of glare along the six road segments is calculated using a 100-degree field of view (50 degrees to the left and right) centered on the direction of travel (in both directions) along the routes. Glare assessment along the flight paths also use a 100-degree field of view with a maximum downward viewing angle of 30 degrees. This default value is based on FAA research, which determined that the impact of glare beyond a 100-degree field of view is mitigated.[6]

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[4] ForgeSolar Glare Analysis tool. Available online https://www.forgesolar.com/. Accessed 5 November 2024.

[5] ForgeSolar. Fundamentals: About Glint and Glare. Available online https://www.forgesolar.com/help/#glare. Accessed 5 November 2024.

[6] Rogers, J. A., et al. 2015. "Evaluation of Glare as a Hazard for General Aviation Pilots on Final Approach." Federal Aviation Administration, Office of Aerospace Medicine. Report No. DOT/FAA/AM-15/12. Available online https://www.faa.gov/sites/faa.gov/files/data_research/research/med_humanfacs/oamtechreports/201512.pdf.

4.3 RESULTS

As summarized in Table 1 and documented in Appendix A, the glare analysis results predict the Project will generate green and yellow glare along Jensen Drive – Ringwood Trail from a point southwest of OP 6 to the intersection with Lakewood Drive near the northwest corner of the Site. Along Erwin Ranch Road, green glare is predicted west of the intersection with Lakewood Drive. A negligible amount of yellow glare (1 minute per year) is predicted on Erwin Ranch Road. The analysis predicts green glare at the northern end of Lakewood Drive near Jensen Drive. No yellow glare is predicted on Lakewood Drive, and no glare of any type is predicted along Central Lane, Cypress Lane, or Willow Lane.

The analysis predicts green glare along flight path FP 1, the approach to Runway 08 at Big Bear Airport. No yellow glare is predicted along FP 1, and no glare of any type is predicted along FP 2 or FP 3, the two approaches to Runway 26.

No yellow glare is predicted at any of the viewpoints OP 1 through OP 16. Green glare is predicted at viewpoints OP 3 through OP 7. No glare of any type is predicted at viewpoints OP 1, OP 2, and OP 8 through OP 16.

Table 1: Bear Valley Solar Energy Project – Summary of Predicted Glare (with visual buffers)

Viewpoint Location	Annual Green Glare (minutes/year)	Annual Yellow Glare (minutes/year)	Glare Source	Distance and Direction to Source	Approximate Time of Year and Day	Maximum Daily Duration (Green and Yellow combined) (minutes/day)	Comments
Erwin Ranch Road	68	none	PV 01	0.3 mi NE	Jun to Jul - morning	3	Glare predicted along western segment of road, northwest of Big Bear Ranch Park
	518	1	PV 02	0.2 mi NE	May to Aug - morning	7	Glare predicted along segment of road west of Lakewood Drive
Jensen Drive – Ringwood Trail	1,956	137	PV 01	630 ft SE	Nov to Jan - morning	31	
	1,269	none	PV 02	0.2 mi SE	Nov to Jan - morning	19	
Lakewood Drive	413	none	PV 02	0.2 mi SE	Dec to Jan - morning	11	Glare predicted at northern end of road near Jensen Drive
FP 1	459	none	PV 01	3.5 mi E	Feb to Mar and Sep to Oct - morning	12	
	146	none	PV 02	3.6 mi E	Feb to Mar and Sep to Oct - morning	5	
OP 3	101	none	PV 02	450 ft ENE	Apr to Sep - morning	2	

Table 1: Bear Valley Solar Energy Project – Summary of Predicted Glare (with visual buffers)

Viewpoint Location	Annual Green Glare (minutes/year)	Annual Yellow Glare (minutes/year)	Glare Source	Distance and Direction to Source	Approximate Time of Year and Day	Maximum Daily Duration (Green and Yellow combined) (minutes/day)	Comments
OP 4	73	none	PV 01	570 ft NE	May to Jul - morning	4	
	429	none	PV 02	640 ft ENE	Feb to May and Jul to Sep - morning	8	
OP 5	341	none	PV 01	350 ft NE	Apr to Aug - morning	8	
	304	none	PV 02	870 ft E	Mar, May, and Aug - morning	10	
OP 6	86	none	PV 02	0.3 mi SE	Dec - morning	6	
OP 7	73	none	PV 01	0.4 mi ESE	Feb to Mar and Oct - morning	8	

All viewpoints where glare is predicted in Table 1 are located on the western side of the PV array(s) generating the glare. Consequently, predicted glare would occur in the morning at these locations when the sun is low in the eastern sky and a person may observe glare when looking eastward toward the PV array. Graphs in Appendix A provide additional detail showing both the hour of day and daily duration of predicted glare each day throughout the year for every PV array and viewpoint combination.

It should be noted that glare observed at a viewpoint from multiple PV arrays may partially occur at the same time, particularly when glare is reflected from PV arrays that appear closely aligned relative to the observer. As a result, the total annual duration of glare predicted for each viewpoint in the Appendix A Summary of Results Table may include overlapping periods of glare for viewpoints that receive glare from more than one PV array.

In addition, the glare analysis does not consider potential cloud cover. The amounts of glare predicted in Table 1 and Appendix A represent total potential amounts of glare assuming clear, sunny skies every day throughout the year.

4.4 CONCLUSIONS

As currently designed, the Project would potentially reflect glare onto segments of Erwin Ranch Road, Jensen Drive – Ringwood Trail, and Lakewood Drive, as well as other viewpoints identified in Table 1 during certain periods of the year. However, the proposed visual buffers significantly reduced predicted glare along Erwin Ranch Road, Lakewood Drive, and at OP 3, OP 4, OP 5, and OP 7. The visual buffers eliminated

predicted glare at OP 1, OP 2, OP 8, and OP 15. (The glare analysis results without the visual buffers are provided in Appendix B for reference.)

Because viewpoints OP 6 and Jensen Drive – Ringwood Trail are located up to 110 feet above and northwest of the Site, the lines of sight from these viewpoints would not be affected by the proposed buffers. Consequently, predicted glare at these locations remained nearly unchanged. At OP 6, however, only 86 minutes of annual green glare (a maximum of 6 minutes per day) is predicted.

In 2021, the FAA issued an updated policy regarding reviews of solar projects on federally obligated airport property in which the FAA concluded that in most cases "glare from solar energy systems to pilots on final approach is similar to glint and glare pilots routinely experience from water bodies, glass facade buildings, parking lots, and similar features."[7] FAA policy focuses on potential impacts on crews in ATCTs, which would not apply to airports without ATCTs such as Big Bear Airport.

Along flight path FP 1, located 3.5 miles west of the Site, the results predict a maximum of around 12 minutes of green glare in the morning per day for about one month in the spring and fall. These levels and duration of glare from the Project potentially observed by pilots would likely be similar to or less than levels occasionally reflected from the much larger Big Bear Lake located directly under FP 1. In addition, Baldwin Lake, located 2.1 miles east-northeast and roughly in line with FP 1, could also be a potential source of glare for pilots at certain times. Based on these factors, glare impacts on pilots caused by the Project are expected to be minimal.

[7] FAA. 2021. Federal Aviation Administration Policy: Review of Solar Energy System Projects on Federally-Obligated Airports. 86 FR 25801.

FIGURES

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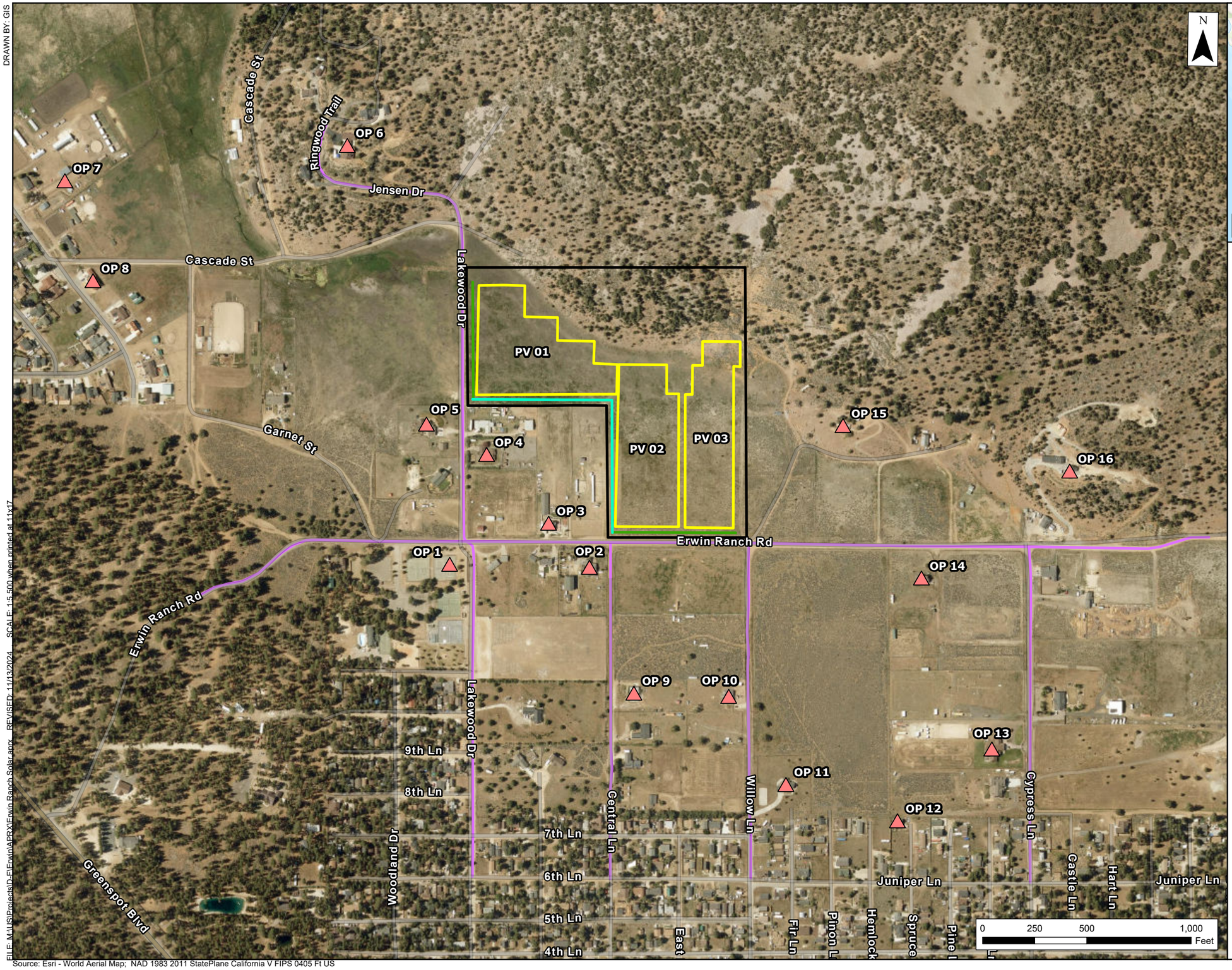



Legend

- Observation Point
- Route Receptor
- Vegetative Buffer 8 feet
- Vegetative Buffer 6 feet
- PV Array
- Site Boundary

Figure 1
Glare Analysis
Aerial Map
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

Source: Esri - World Aerial Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

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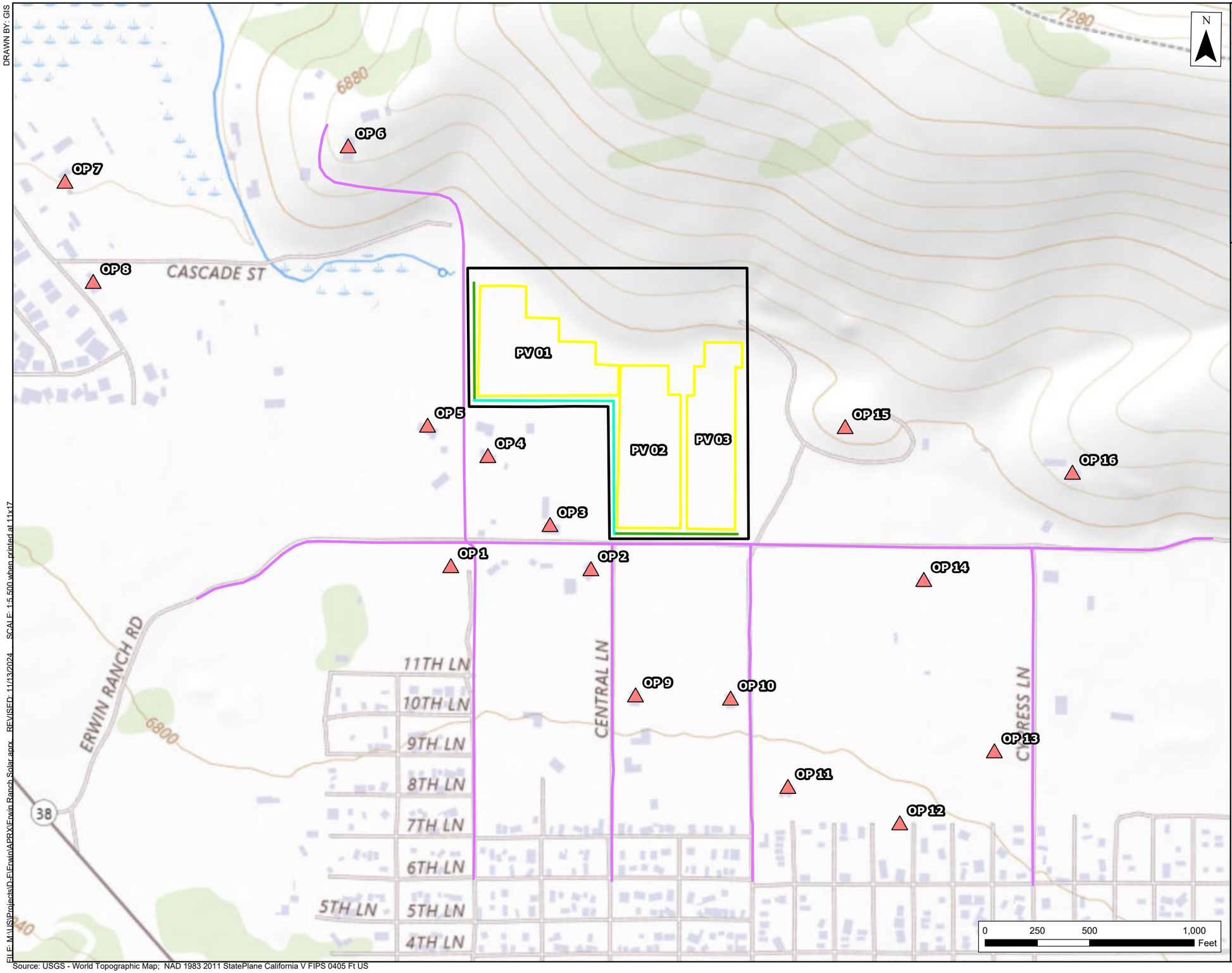



Legend

- Observation Point
- Route Receptor
- Vegetative Buffer 8 feet
- Vegetative Buffer 6 feet
- PV Array
- Site Boundary

Source: USGS - World Topographic Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

Figure 2
Glare Analysis
Topographic Map
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

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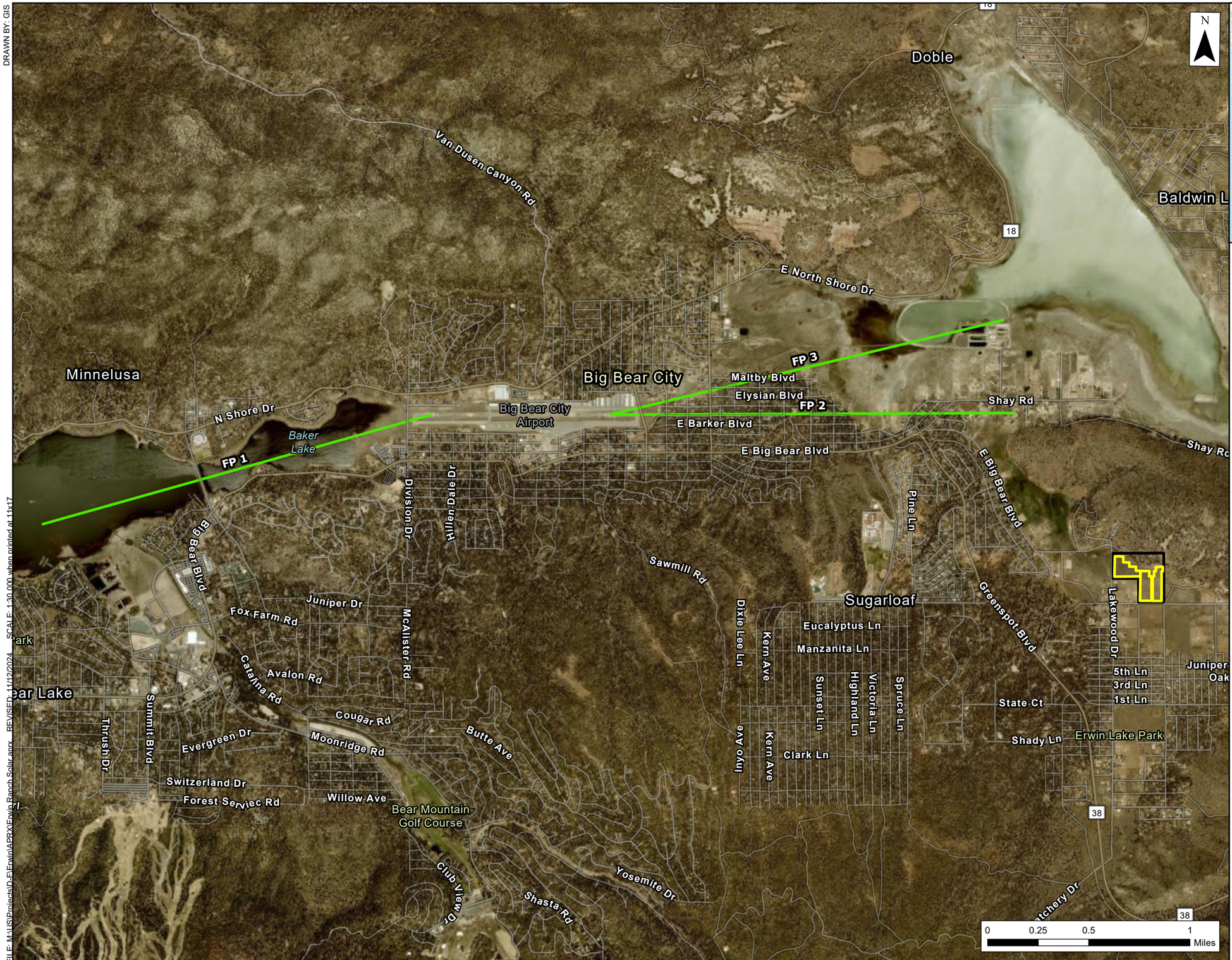



Legend

- Flight Path
- PV Array
- Site Boundary

Figure 3
Glare Analysis
Flight Path Map
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

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Source: Esri - World Aerial Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

APPENDIX A - FORGESOLAR GLARE ANALYSIS RESULTS (WITH VISUAL BUFFERS)

FORGESOLAR GLARE ANALYSIS

Project: **Bear Valley Solar Energy Project**

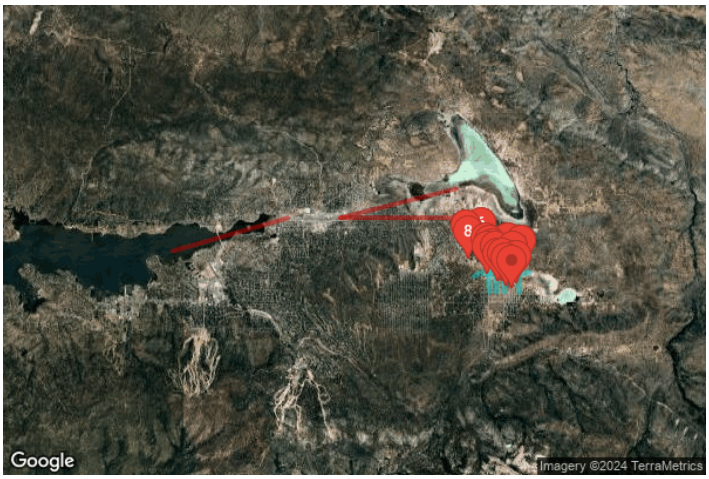
Proposed 5.7-megawatt (MW) solar photovoltaic (PV) project located on approximately 30 acres on Erwin Ranch Road in unincorporated San Bernardino County, California

Site configuration: **BV2-Buffer-BT-0-deg**

Client: EDF Renewables Distributed Solutions

Created 20 Nov, 2024
Updated 21 Nov, 2024
Time-step 1 minute
Timezone offset UTC-8
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m^2
Category 5 MW to 10 MW
Site ID 134663.22713

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2



Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV 01	SA tracking	SA tracking	2,970	49.5	137	2.3	-
PV 02	SA tracking	SA tracking	3,266	54.4	1	0.0	-
PV 03	SA tracking	SA tracking	0	0.0	0	0.0	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Erwin Ranch Rd	586	9.8	1	0.0
Jensen Dr - Ringwood Trl	3,225	53.8	137	2.3
Lakewood Dr	413	6.9	0	0.0
Willow Ln	0	0.0	0	0.0
FP 1	605	10.1	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	101	1.7	0	0.0
OP 4	502	8.4	0	0.0
OP 5	645	10.8	0	0.0
OP 6	86	1.4	0	0.0
OP 7	73	1.2	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

Component Data

PV Arrays

Name: PV 01
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.4
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.253853	-116.805054	6771.20	5.00	6776.20
2	34.252416	-116.805086	6775.06	5.00	6780.06
3	34.252416	-116.802892	6776.59	5.00	6781.59
4	34.252846	-116.802881	6775.61	5.00	6780.61
5	34.252855	-116.803235	6775.53	5.00	6780.53
6	34.253130	-116.803235	6775.72	5.00	6780.72
7	34.253134	-116.803809	6775.33	5.00	6780.33
8	34.253440	-116.803809	6775.38	5.00	6780.38
9	34.253449	-116.804335	6771.80	5.00	6776.80
10	34.253853	-116.804340	6771.96	5.00	6776.96

Name: PV 02
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.4
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.252851	-116.802849	6775.62	5.00	6780.62
2	34.250696	-116.802871	6787.99	5.00	6792.99
3	34.250691	-116.801884	6789.00	5.00	6794.00
4	34.252434	-116.801889	6779.00	5.00	6784.00
5	34.252434	-116.802087	6778.96	5.00	6783.96
6	34.252846	-116.802082	6779.03	5.00	6784.03

Name: PV 03
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.4
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.252842	-116.801664	6779.38	5.00	6784.38
2	34.252429	-116.801658	6779.03	5.00	6784.03
3	34.252429	-116.801766	6779.01	5.00	6784.01
4	34.250691	-116.801760	6788.78	5.00	6793.78
5	34.250691	-116.801015	6790.45	5.00	6795.45
6	34.252837	-116.801009	6783.78	5.00	6788.78
7	34.252846	-116.800923	6783.67	5.00	6788.67
8	34.253148	-116.800923	6788.55	5.00	6793.55
9	34.253148	-116.801508	6785.10	5.00	6790.10
10	34.252842	-116.801508	6780.63	5.00	6785.63

Route Receptors

Name: Central Ln
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.250483	-116.802954	6790.01	6.00	6796.01
2	34.250096	-116.802964	6791.93	6.00	6797.93
3	34.248468	-116.802939	6802.29	6.00	6808.29
4	34.247755	-116.802940	6807.07	6.00	6813.07
5	34.247484	-116.802905	6811.78	6.00	6817.78
6	34.247213	-116.802937	6813.37	6.00	6819.37
7	34.246607	-116.802937	6815.85	6.00	6821.85
8	34.246044	-116.802929	6820.51	6.00	6826.51

Name: Cypress Ln
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.250452	-116.796329	6785.05	6.00	6791.05
2	34.250324	-116.796310	6785.09	6.00	6791.09
3	34.250054	-116.796284	6786.42	6.00	6792.42
4	34.249657	-116.796278	6787.18	6.00	6793.18
5	34.249205	-116.796295	6788.78	6.00	6794.78
6	34.248635	-116.796284	6790.82	6.00	6796.82
7	34.247979	-116.796291	6795.51	6.00	6801.51
8	34.246908	-116.796287	6800.76	6.00	6806.76
9	34.246012	-116.796269	6806.49	6.00	6812.49

Name: Erwin Ranch Rd
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.249734	-116.809496	6792.06	6.00	6798.06
2	34.249871	-116.809195	6790.28	6.00	6796.28
3	34.249938	-116.808806	6790.59	6.00	6796.59
4	34.250011	-116.808589	6791.37	6.00	6797.37
5	34.250381	-116.808066	6789.30	6.00	6795.30
6	34.250459	-116.807875	6786.66	6.00	6792.66
7	34.250494	-116.807639	6787.38	6.00	6793.38
8	34.250461	-116.805797	6787.21	6.00	6793.21
9	34.250475	-116.805231	6787.96	6.00	6793.96
10	34.250486	-116.802771	6789.27	6.00	6795.27
11	34.250486	-116.800950	6790.17	6.00	6796.17
12	34.250446	-116.799719	6789.39	6.00	6795.39
13	34.250445	-116.798042	6785.76	6.00	6791.76
14	34.250453	-116.795711	6784.23	6.00	6790.23
15	34.250422	-116.794424	6782.28	6.00	6788.28
16	34.250453	-116.794212	6781.85	6.00	6787.85
17	34.250581	-116.793743	6780.66	6.00	6786.66
18	34.250579	-116.793461	6780.12	6.00	6786.12

Name: Jensen Dr - Ringwood Trl
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.255954	-116.807491	6886.54	6.00	6892.54
2	34.255753	-116.807575	6879.13	6.00	6885.13
3	34.255549	-116.807623	6870.92	6.00	6876.92
4	34.255393	-116.807599	6864.32	6.00	6870.32
5	34.255287	-116.807521	6860.81	6.00	6866.81
6	34.255209	-116.807368	6860.05	6.00	6866.05
7	34.255154	-116.807025	6853.49	6.00	6859.49
8	34.255087	-116.806322	6828.14	6.00	6834.14
9	34.255054	-116.805780	6801.69	6.00	6807.69
10	34.255010	-116.805571	6793.31	6.00	6799.31
11	34.254937	-116.805466	6786.99	6.00	6792.99
12	34.254798	-116.805393	6779.93	6.00	6785.93
13	34.254640	-116.805352	6773.79	6.00	6779.79

Name: Lakewood Dr
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.254638	-116.805351	6773.79	6.00	6779.79
2	34.254467	-116.805323	6770.65	6.00	6776.65
3	34.253181	-116.805316	6771.85	6.00	6777.85
4	34.251804	-116.805305	6781.38	6.00	6787.38
5	34.250521	-116.805290	6787.95	6.00	6793.95
6	34.250477	-116.805234	6787.87	6.00	6793.87
7	34.250441	-116.805157	6788.76	6.00	6794.76
8	34.250277	-116.805129	6791.08	6.00	6797.08
9	34.248736	-116.805133	6800.24	6.00	6806.24
10	34.246602	-116.805109	6817.69	6.00	6823.69
11	34.246063	-116.805117	6821.27	6.00	6827.27

Name: Willow Ln
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.250480	-116.800751	6789.82	6.00	6795.82
2	34.250180	-116.800764	6791.62	6.00	6797.62
3	34.249547	-116.800757	6794.12	6.00	6800.12
4	34.249281	-116.800783	6795.52	6.00	6801.52
5	34.249089	-116.800761	6797.77	6.00	6803.77
6	34.248947	-116.800753	6798.84	6.00	6804.84
7	34.248821	-116.800764	6799.14	6.00	6805.14
8	34.248335	-116.800759	6802.48	6.00	6808.48
9	34.247605	-116.800731	6808.51	6.00	6814.51
10	34.246942	-116.800731	6813.29	6.00	6819.29
11	34.246783	-116.800711	6815.89	6.00	6821.89
12	34.246054	-116.800711	6817.99	6.00	6823.99

Flight Path Receptors

Name: FP 1
Description:
Threshold height: 29 ft
Direction: 74.0°
Glide slope: 4.3°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	34.263779	-116.864144	6753.64	29.00	6782.64
Two-mile	34.255809	-116.897812	6745.41	831.24	7576.65

Name: FP 2
Description:
Threshold height: 46 ft
Direction: 270.0°
Glide slope: 4.3°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	34.263835	-116.848690	6756.32	46.00	6802.32
Two-mile	34.263835	-116.813665	6743.08	853.25	7596.33

Name: FP 3
Description:
Threshold height: 46 ft
Direction: 256.0°
Glide slope: 4.3°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	34.263835	-116.848689	6756.32	46.00	6802.32
Two-mile	34.270829	-116.814705	6711.30	885.04	7596.33

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	34.250192	-116.805503	6792.88	6.00
OP 2	2	34.250160	-116.803294	6795.48	8.00
OP 3	3	34.250738	-116.803942	6791.36	8.00
OP 4	4	34.251642	-116.804936	6784.71	8.00
OP 5	5	34.252013	-116.805874	6778.97	8.00
OP 6	6	34.255694	-116.807161	6896.13	8.00
OP 7	7	34.255223	-116.811646	6764.44	6.00
OP 8	8	34.253904	-116.811181	6772.14	8.00
OP 9	9	34.248501	-116.802576	6803.42	8.00
OP 10	10	34.248474	-116.801074	6804.24	8.00
OP 11	11	34.247310	-116.800162	6812.56	8.00
OP 12	12	34.246845	-116.798387	6809.84	8.00
OP 13	13	34.247796	-116.796905	6796.92	8.00
OP 14	14	34.250039	-116.798024	6790.95	8.00
OP 15	15	34.252042	-116.799274	6819.42	8.00
OP 16	16	34.251464	-116.795675	6862.01	8.00

Obstruction Components

Name: Vegetative Buffer 1
Top height: 8.0 ft



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	34.253910	-116.805161	6770.27
2	34.252367	-116.805172	6775.08

Name: Vegetative Buffer 2
Top height: 8.0 ft



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	34.250638	-116.802924	6788.60
2	34.250634	-116.800966	6790.49

Name: Vegetative Buffer-Solid Wall 3
Top height: 6.0 ft



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	34.252367	-116.805177	6775.08
2	34.252358	-116.802924	6776.98
3	34.250634	-116.802924	6788.68

Glare Analysis Results

Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV 01	SA tracking	SA tracking	2,970	49.5	137	2.3	-
PV 02	SA tracking	SA tracking	3,266	54.4	1	0.0	-
PV 03	SA tracking	SA tracking	0	0.0	0	0.0	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Erwin Ranch Rd	586	9.8	1	0.0
Jensen Dr - Ringwood Trl	3,225	53.8	137	2.3
Lakewood Dr	413	6.9	0	0.0
Willow Ln	0	0.0	0	0.0
FP 1	605	10.1	0	0.0
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	101	1.7	0	0.0
OP 4	502	8.4	0	0.0
OP 5	645	10.8	0	0.0
OP 6	86	1.4	0	0.0
OP 7	73	1.2	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

PV: PV 01 potential temporary after-image

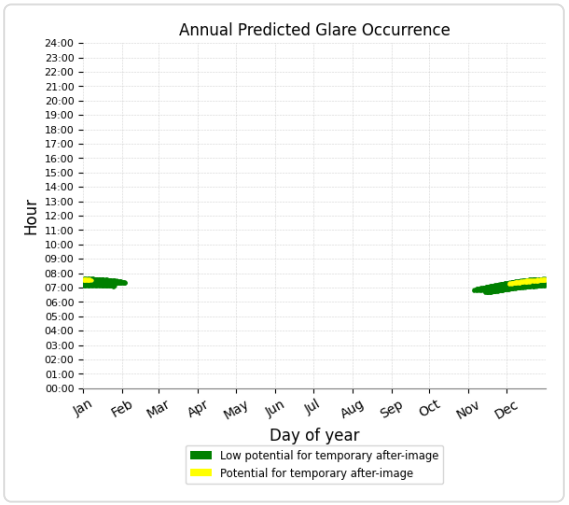
Receptor results ordered by category of glare

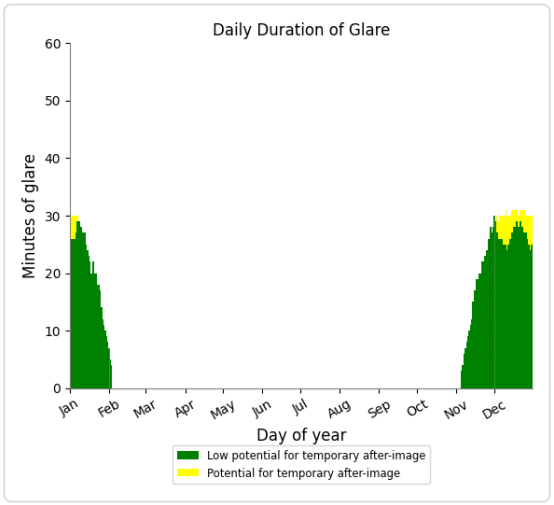
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Jensen Dr - Ringwood Trl	1,956	32.6	137	2.3
Erwin Ranch Rd	68	1.1	0	0.0
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Lakewood Dr	0	0.0	0	0.0
Willow Ln	0	0.0	0	0.0
FP 1	459	7.7	0	0.0
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 4	73	1.2	0	0.0
OP 5	341	5.7	0	0.0
OP 7	73	1.2	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

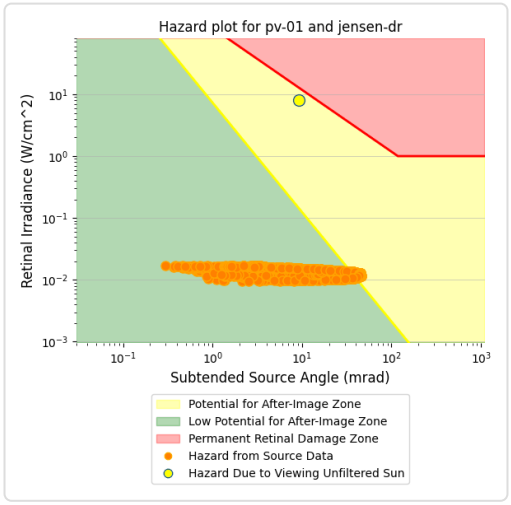
PV 01 and Route: Jensen Dr - Ringwood Trl

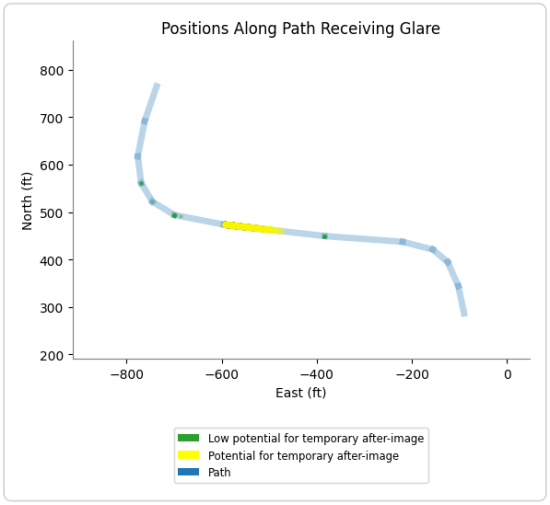
Yellow glare: 137 min.

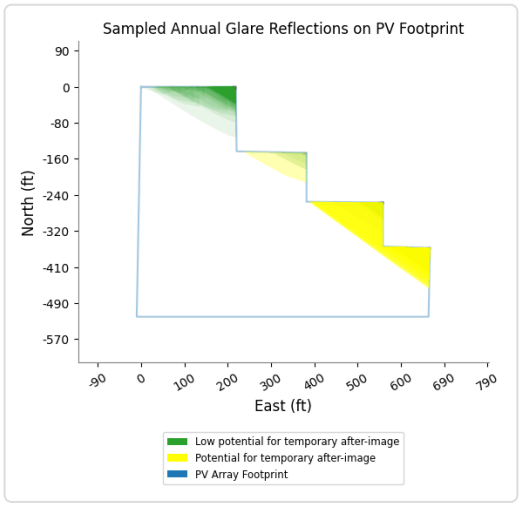
Green glare: 1,956 min.







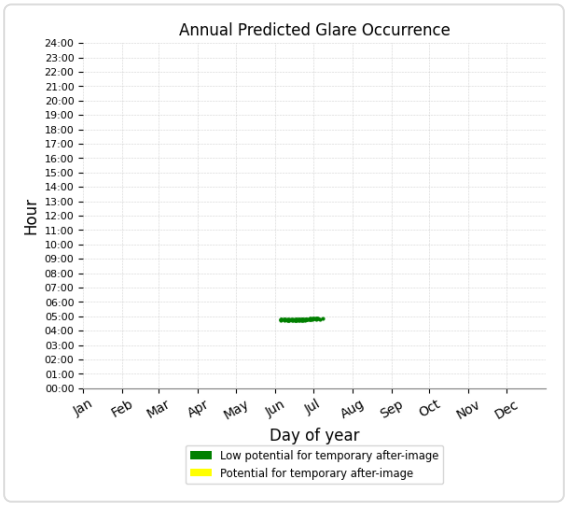


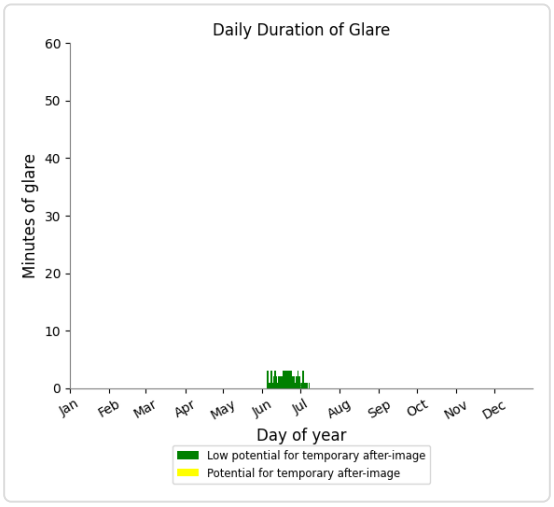


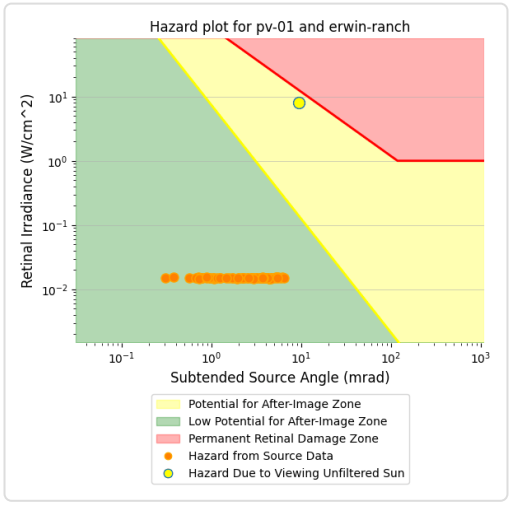
PV 01 and Route: Erwin Ranch Rd

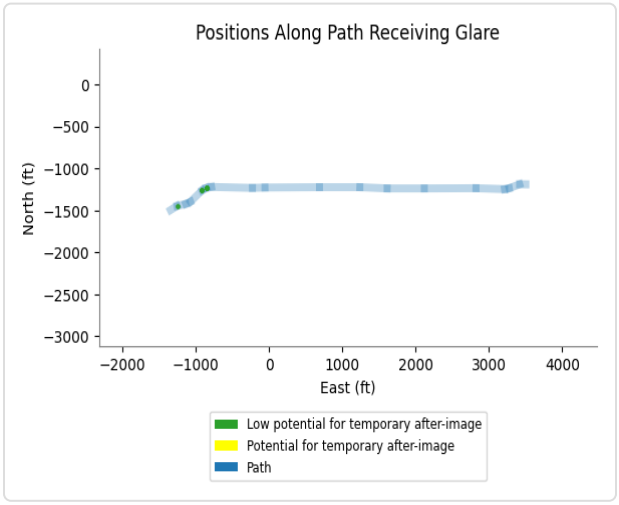
Yellow glare: none

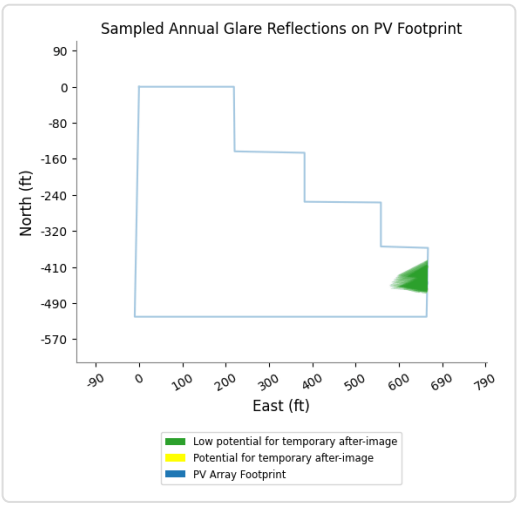
Green glare: 68 min.











PV 01 and Route: Central Ln

No glare found

PV 01 and Route: Cypress Ln

No glare found

PV 01 and Route: Lakewood Dr

No glare found

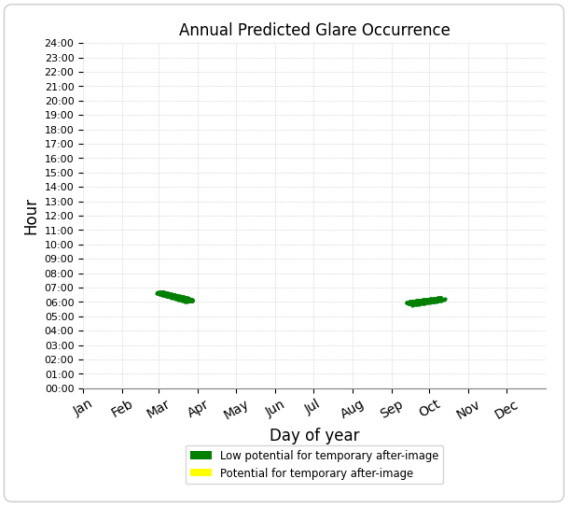
PV 01 and Route: Willow Ln

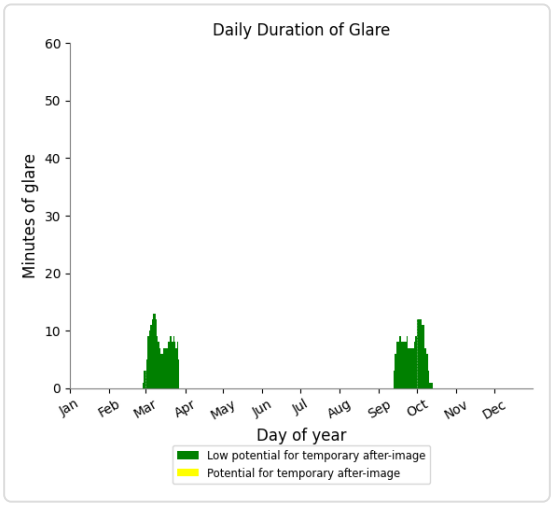
No glare found

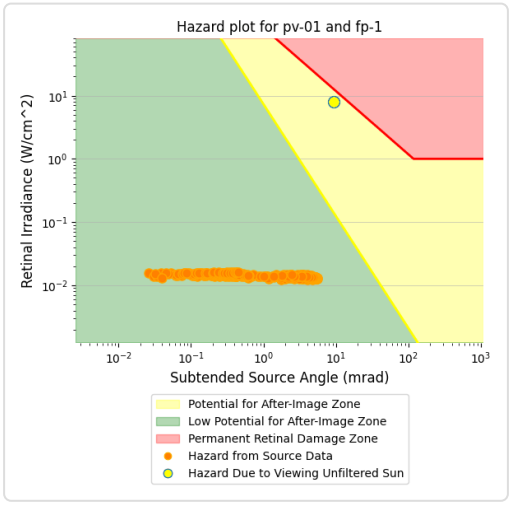
PV 01 and FP: FP 1

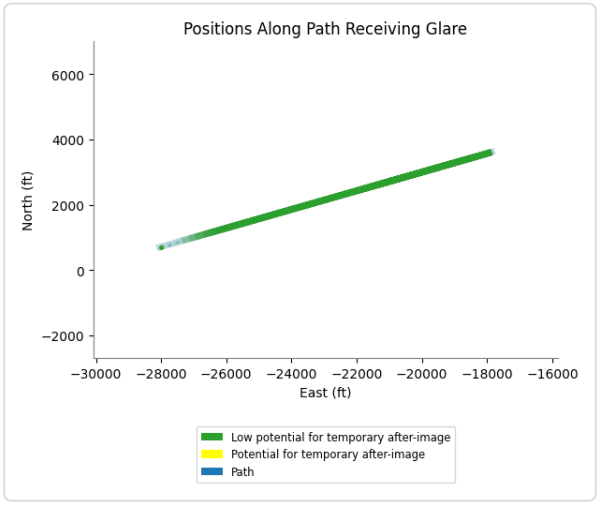
Yellow glare: none

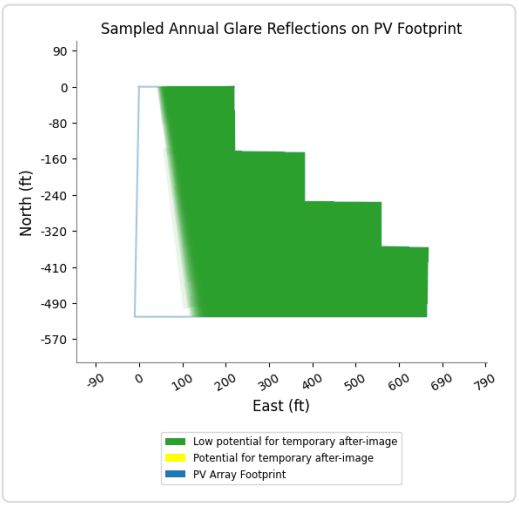
Green glare: 459 min.

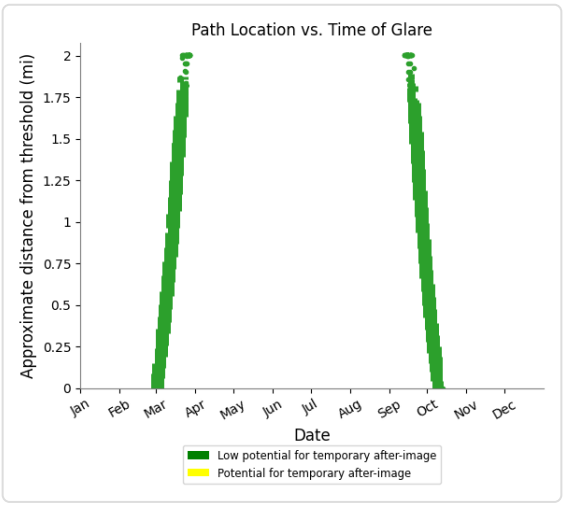












PV 01 and FP: FP 2

No glare found

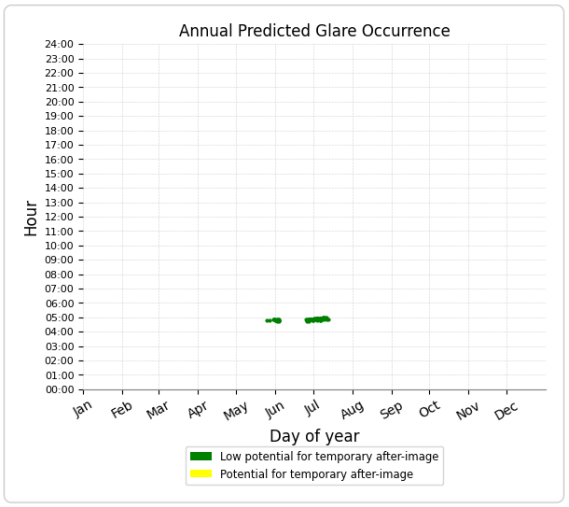
PV 01 and FP: FP 3

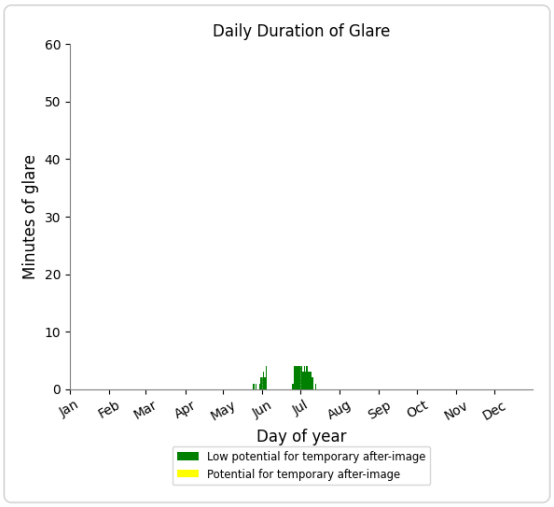
No glare found

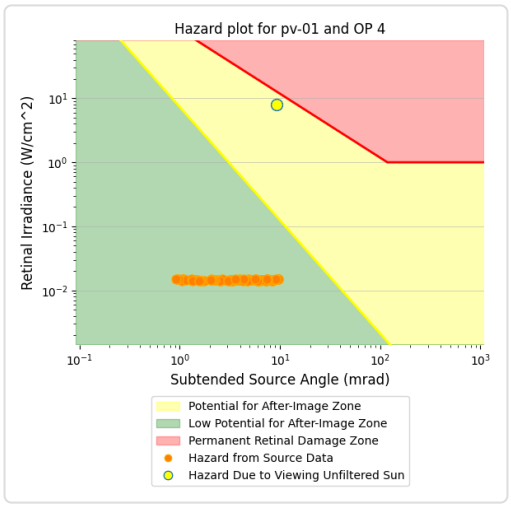
PV 01 and OP 4

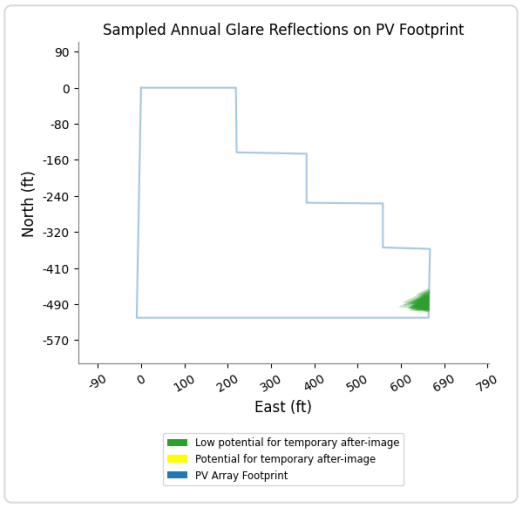
Yellow glare: none

Green glare: 73 min.





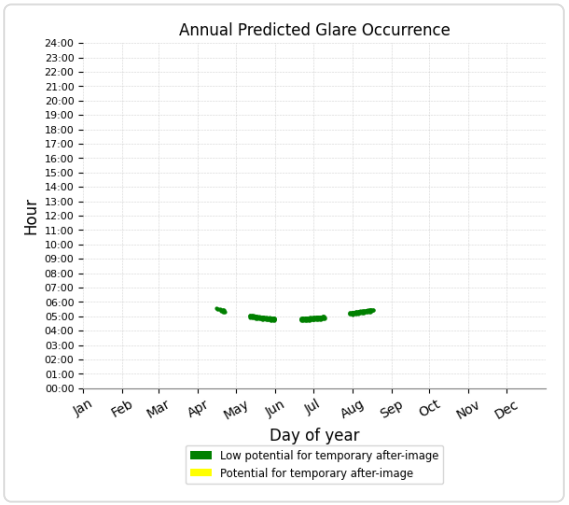


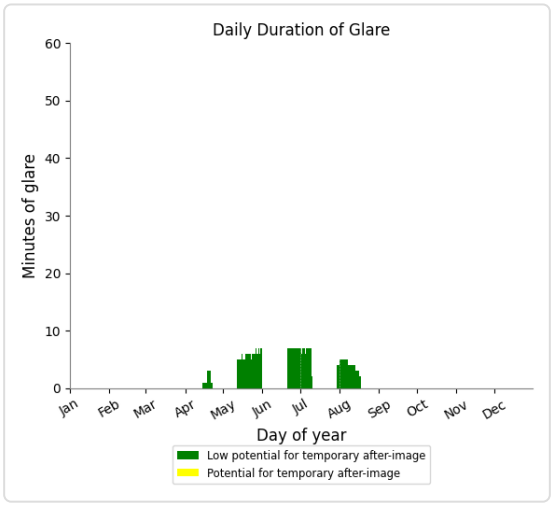


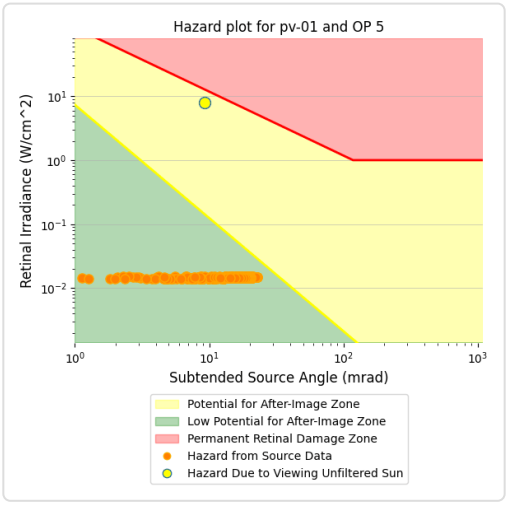
PV 01 and OP 5

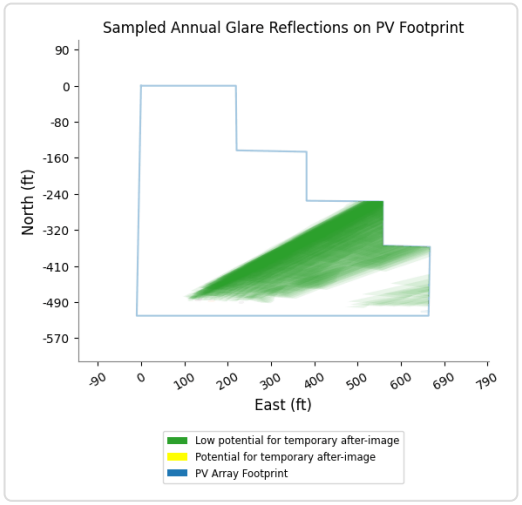
Yellow glare: none

Green glare: 341 min.



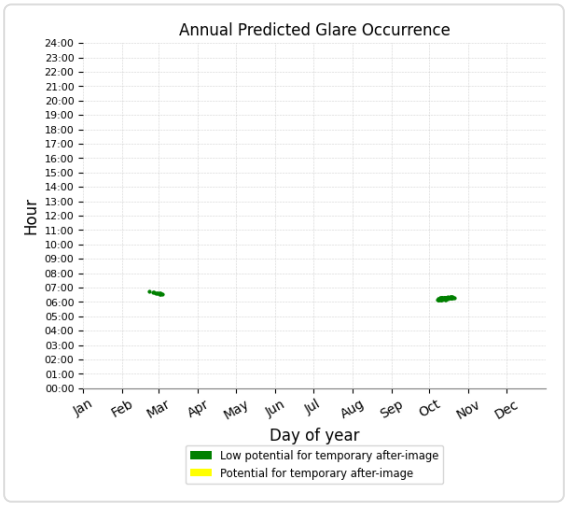


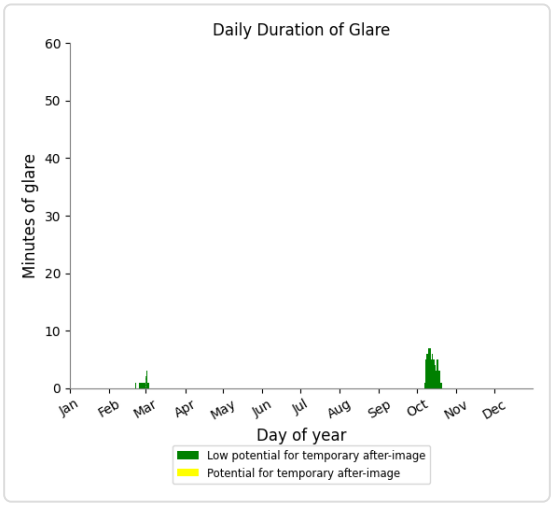


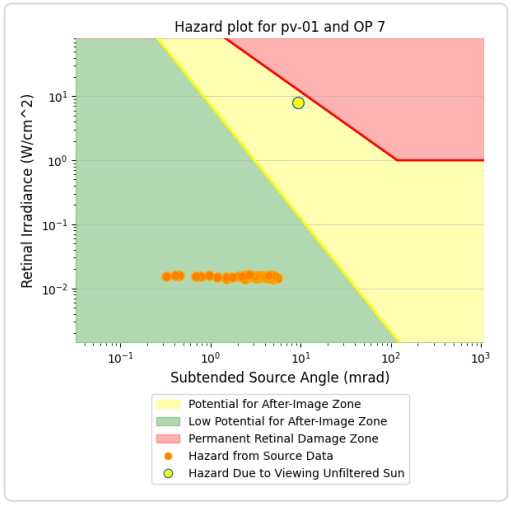


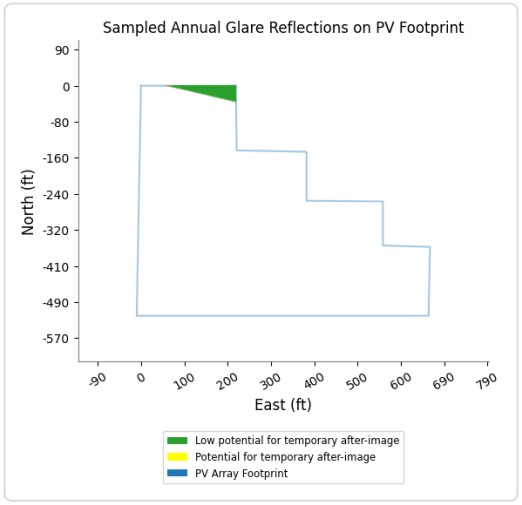
PV 01 and OP 7

Yellow glare: none
Green glare: 73 min.









PV 01 and OP 1

No glare found

PV 01 and OP 2

No glare found

PV 01 and OP 3

No glare found

PV 01 and OP 6

No glare found

PV 01 and OP 8

No glare found

PV 01 and OP 9

No glare found

PV 01 and OP 10

No glare found

PV 01 and OP 11

No glare found

PV 01 and OP 12

No glare found

PV 01 and OP 13

No glare found

PV 01 and OP 14

No glare found

PV 01 and OP 15

No glare found

PV 01 and OP 16

No glare found

PV: PV 02 potential temporary after-image

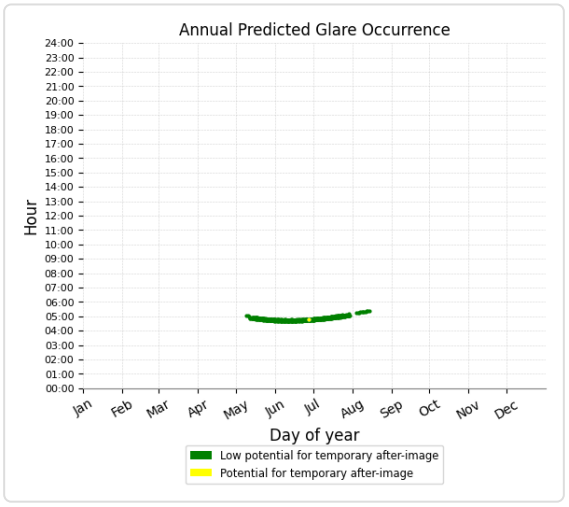
Receptor results ordered by category of glare

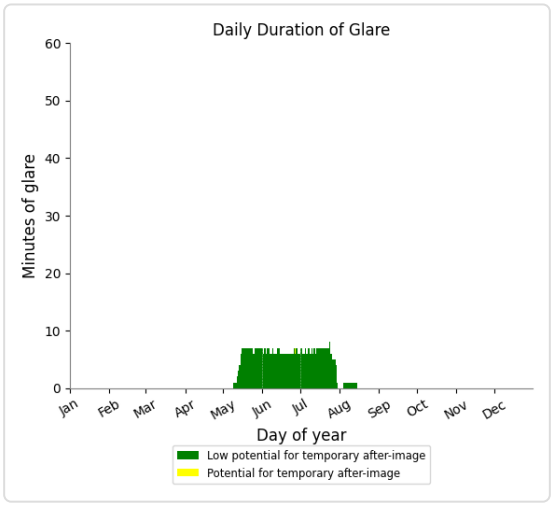
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Erwin Ranch Rd	518	8.6	1	0.0
Jensen Dr - Ringwood Trl	1,269	21.1	0	0.0
Lakewood Dr	413	6.9	0	0.0
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Willow Ln	0	0.0	0	0.0
FP 1	146	2.4	0	0.0
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 3	101	1.7	0	0.0
OP 4	429	7.2	0	0.0
OP 5	304	5.1	0	0.0
OP 6	86	1.4	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

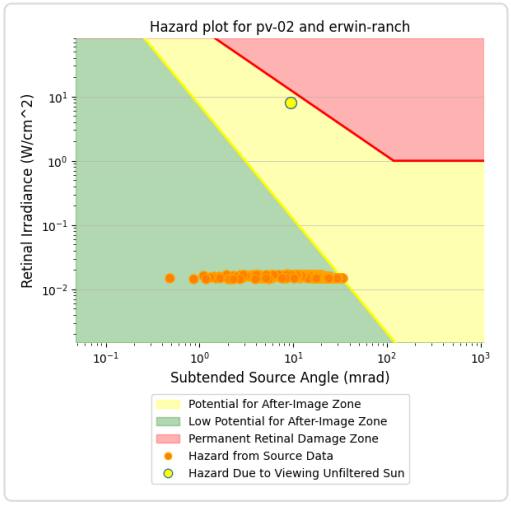
PV 02 and Route: Erwin Ranch Rd

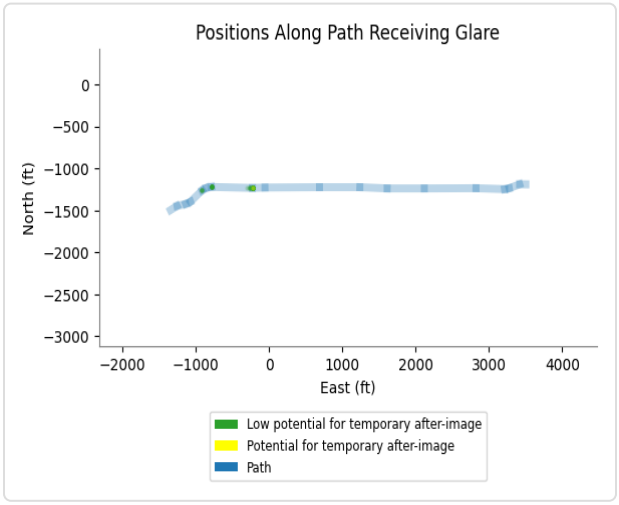
Yellow glare: 1 min.

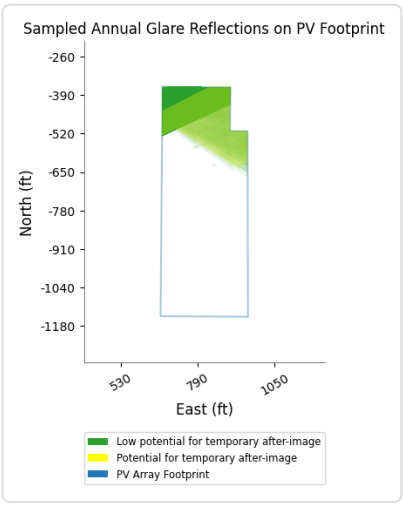
Green glare: 518 min.







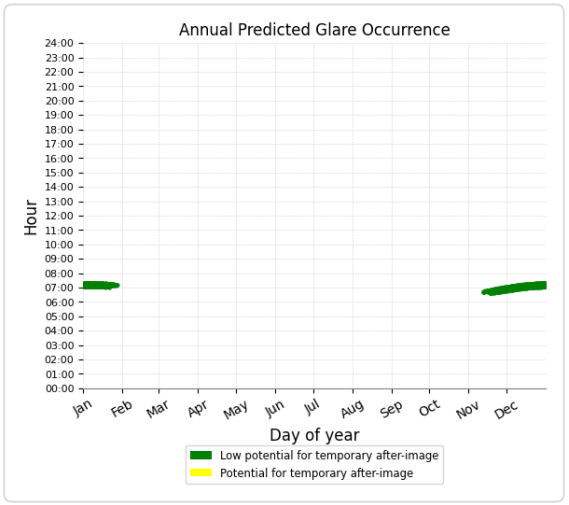


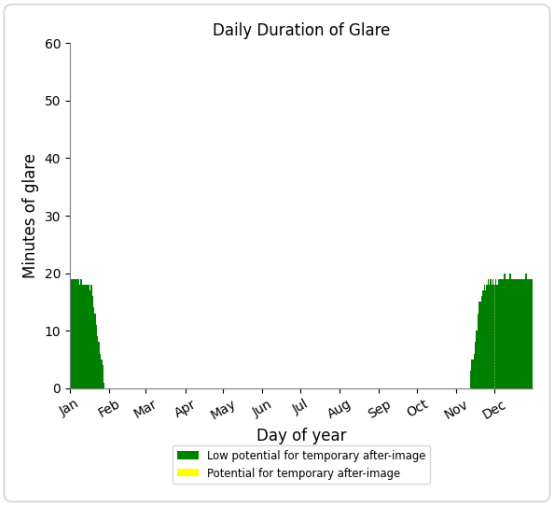


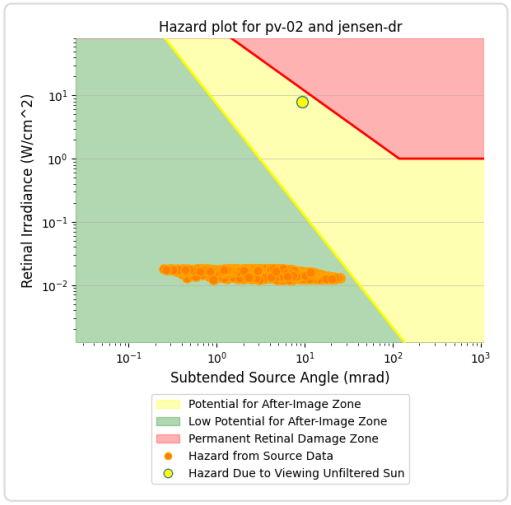
PV 02 and Route: Jensen Dr - Ringwood Trl

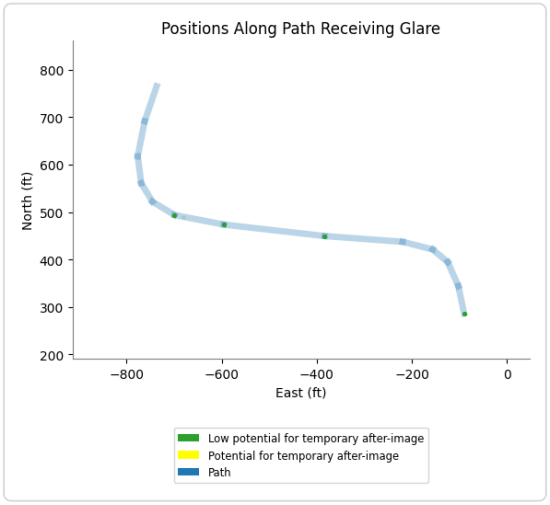
Yellow glare: none

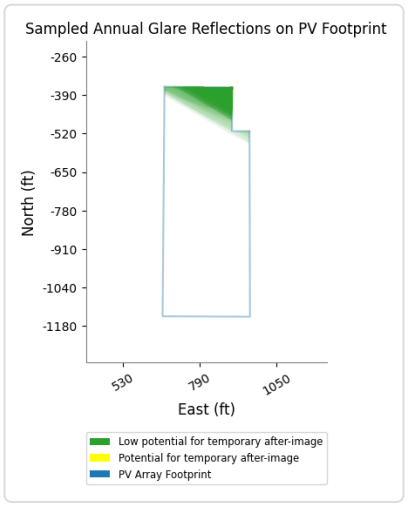
Green glare: 1,269 min.







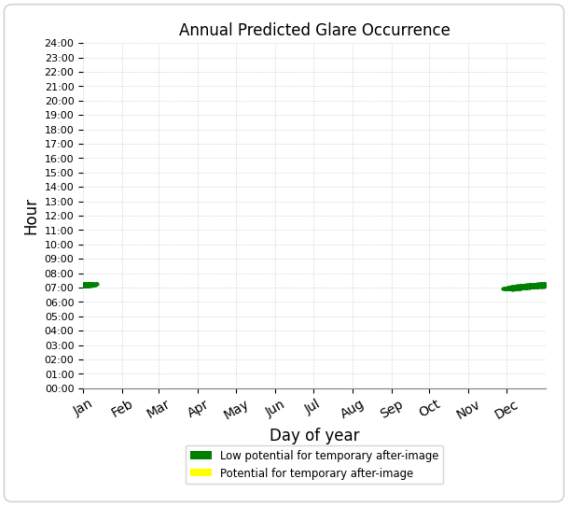


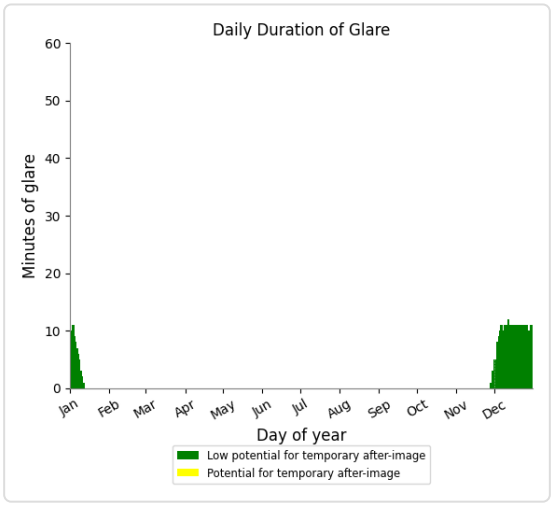


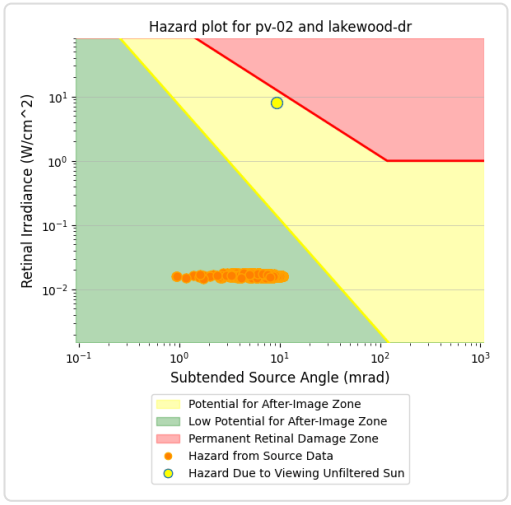
PV 02 and Route: Lakewood Dr

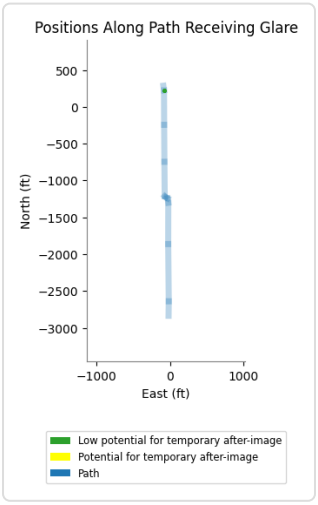
Yellow glare: none

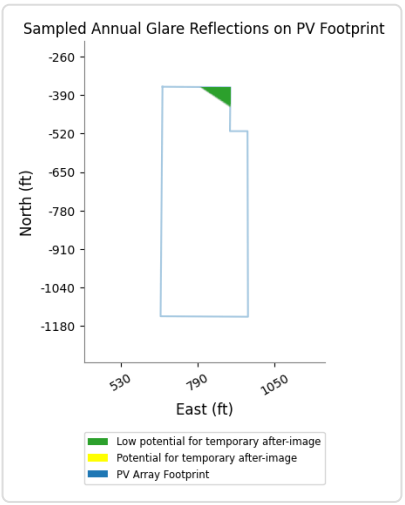
Green glare: 413 min.











PV 02 and Route: Central Ln

No glare found

PV 02 and Route: Cypress Ln

No glare found

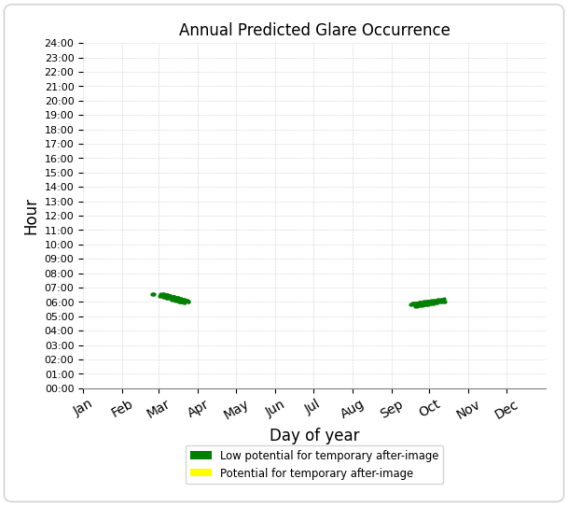
PV 02 and Route: Willow Ln

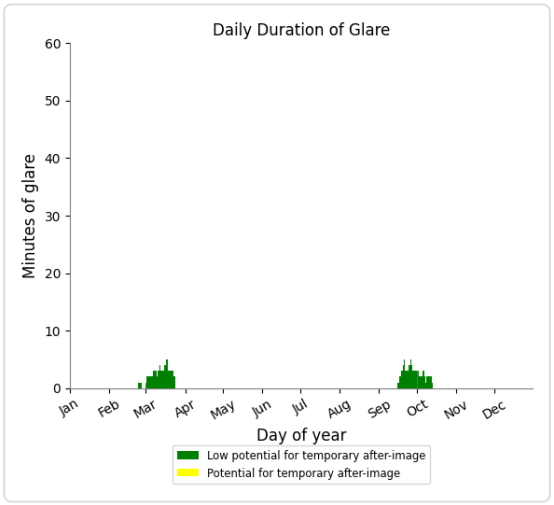
No glare found

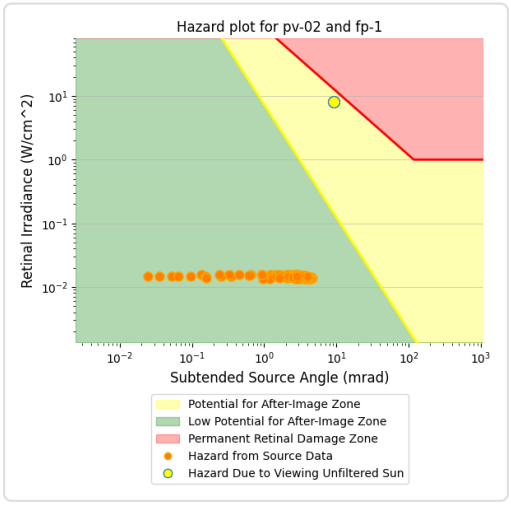
PV 02 and FP: FP 1

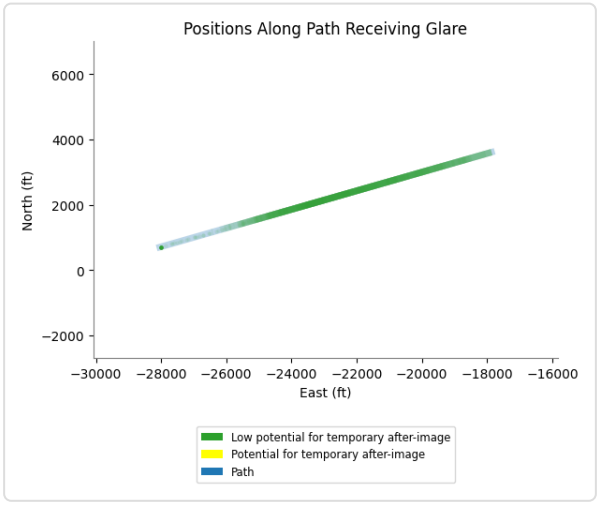
Yellow glare: none

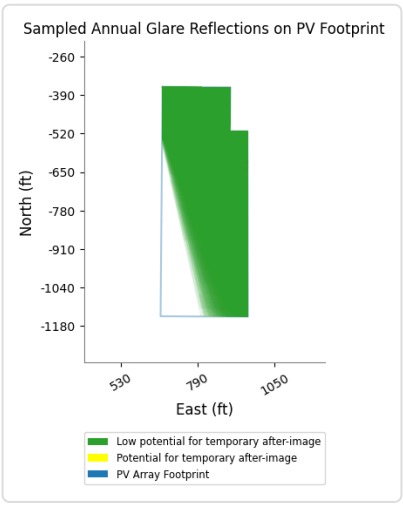
Green glare: 146 min.

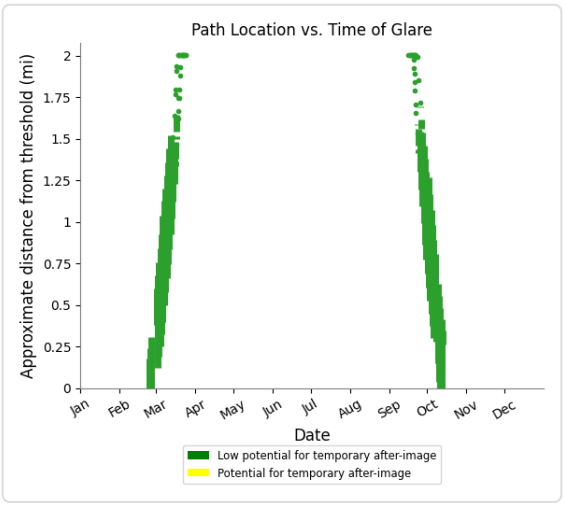












PV 02 and FP: FP 2

No glare found

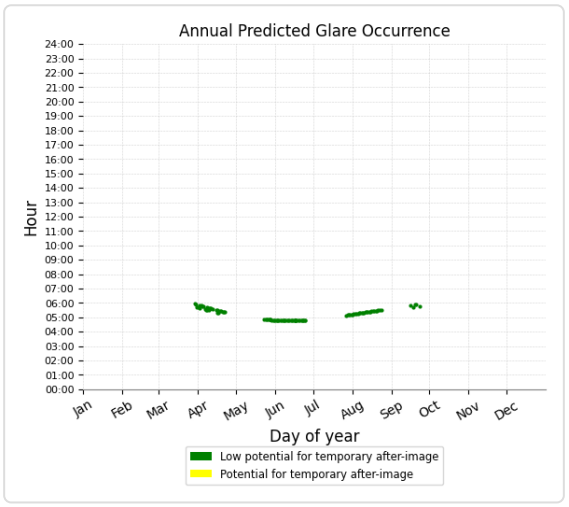
PV 02 and FP: FP 3

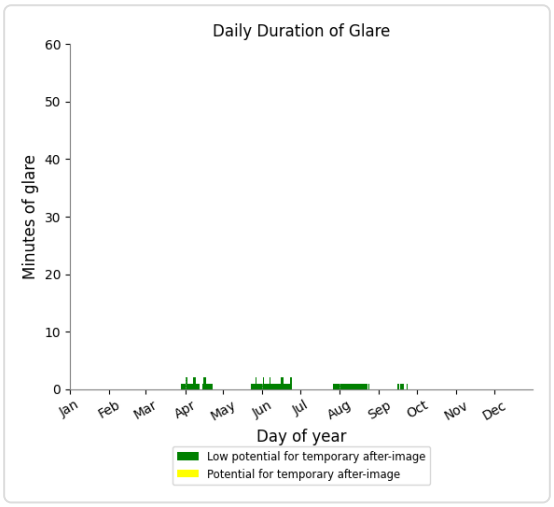
No glare found

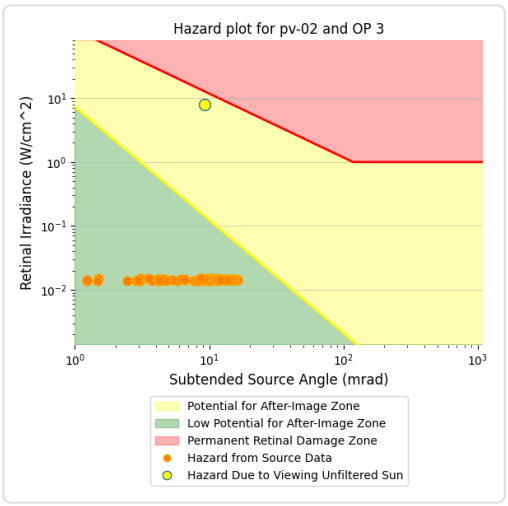
PV 02 and OP 3

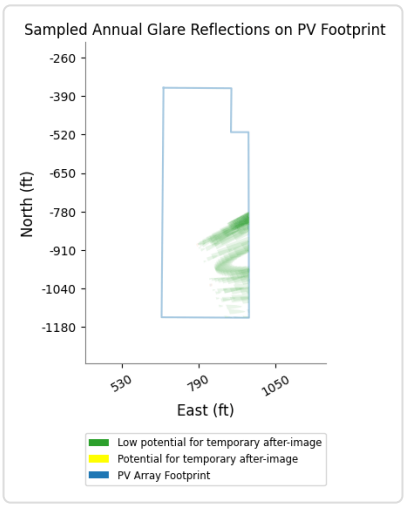
Yellow glare: none

Green glare: 101 min.





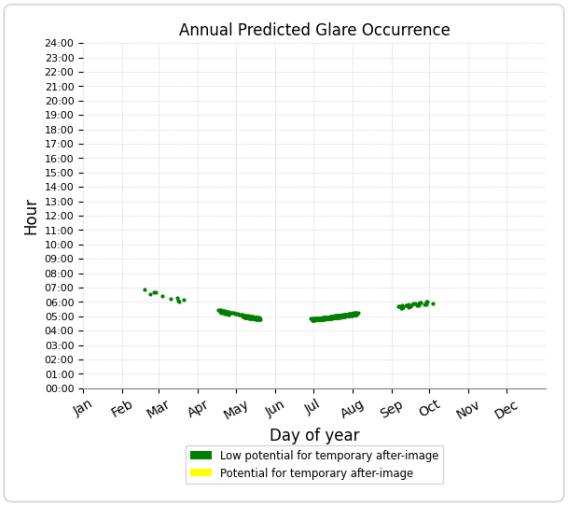


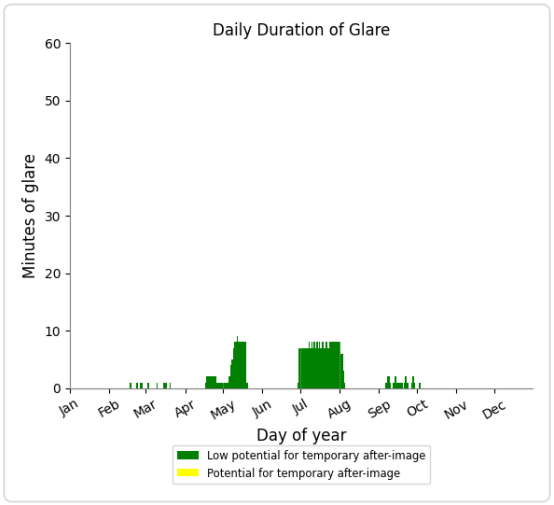


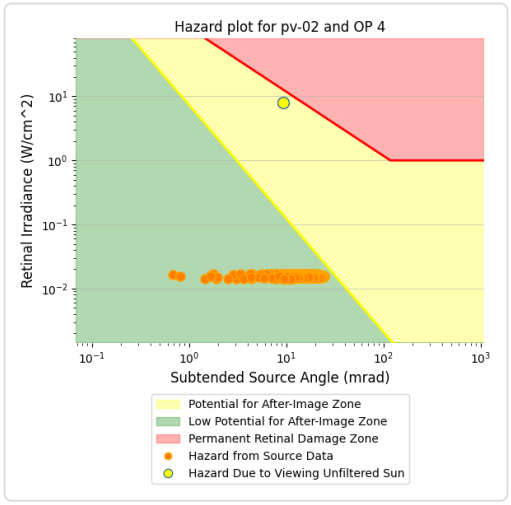
PV 02 and OP 4

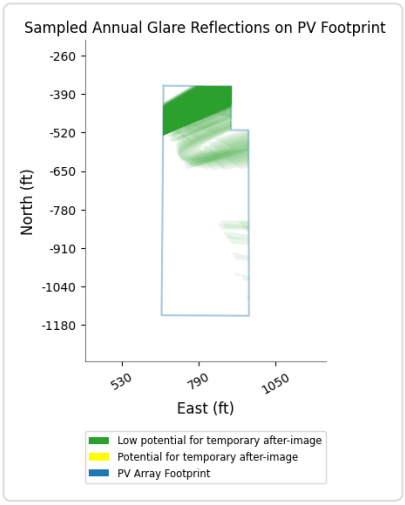
Yellow glare: none

Green glare: 429 min.





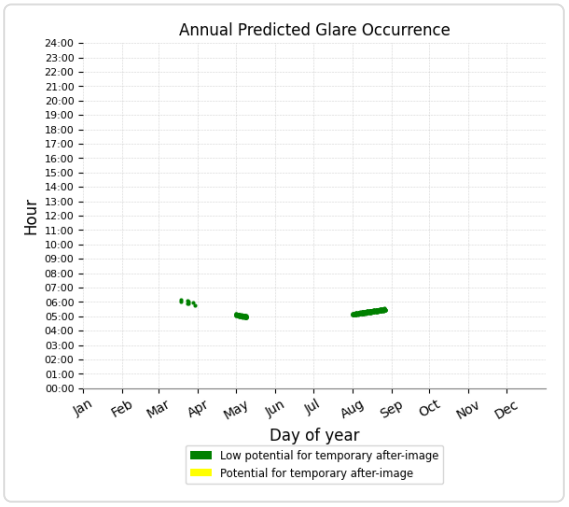


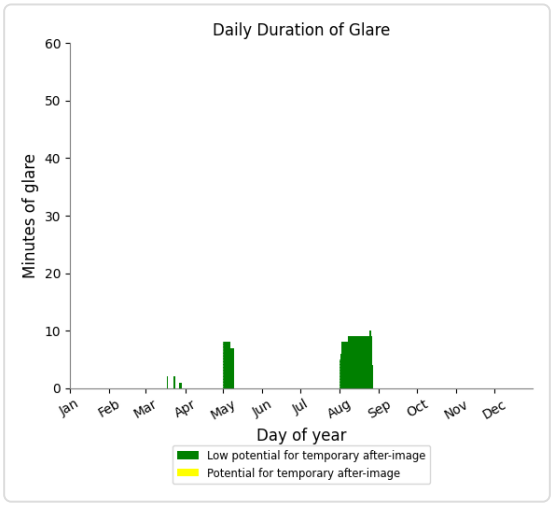


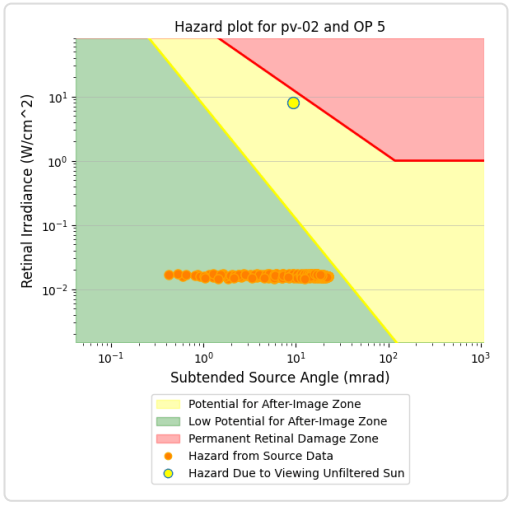
PV 02 and OP 5

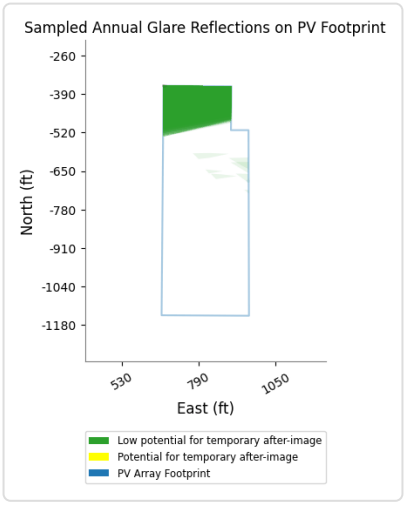
Yellow glare: none

Green glare: 304 min.



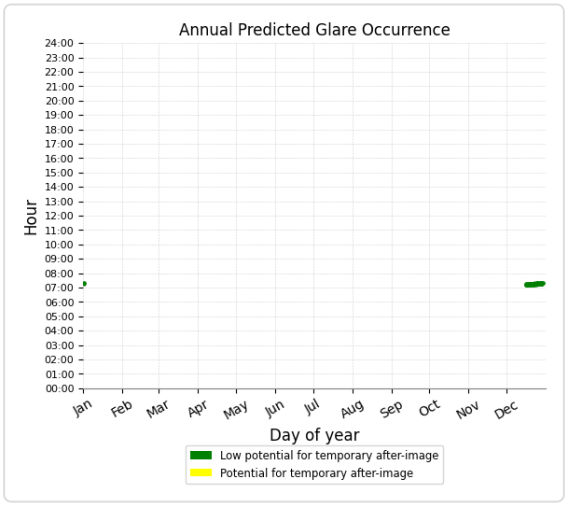


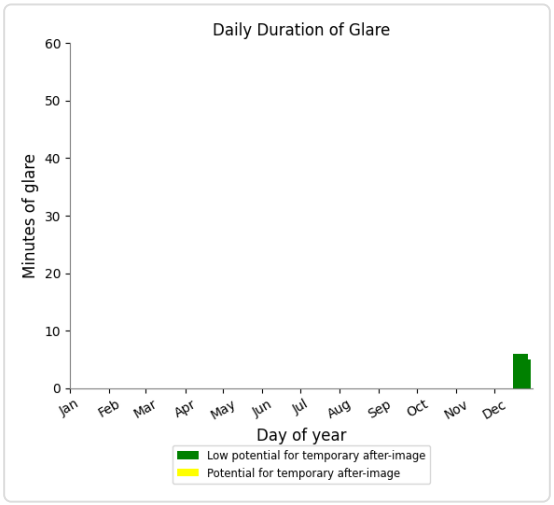


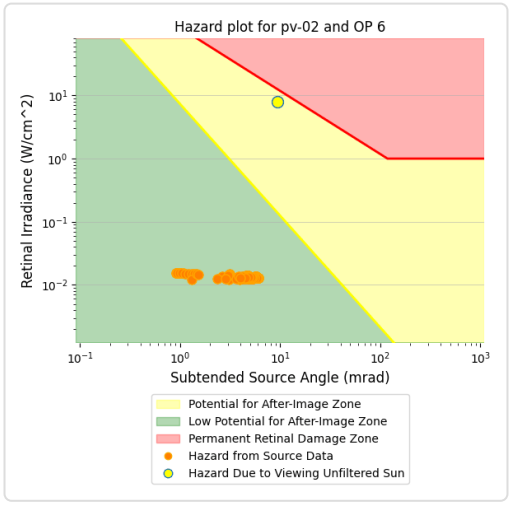


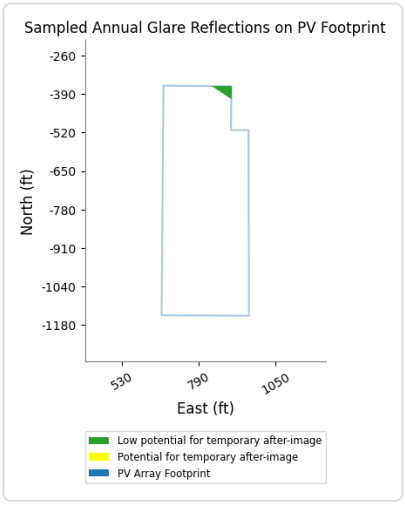
PV 02 and OP 6

Yellow glare: none
Green glare: 86 min.









PV 02 and OP 1

No glare found

PV 02 and OP 2

No glare found

PV 02 and OP 7

No glare found

PV 02 and OP 8

No glare found

PV 02 and OP 9

No glare found

PV 02 and OP 10

No glare found

PV 02 and OP 11

No glare found

PV 02 and OP 12

No glare found

PV 02 and OP 13

No glare found

PV 02 and OP 14

No glare found

PV 02 and OP 15

No glare found

PV 02 and OP 16

No glare found

PV: PV 03 no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Erwin Ranch Rd	0	0.0	0	0.0
Jensen Dr - Ringwood Trl	0	0.0	0	0.0
Lakewood Dr	0	0.0	0	0.0
Willow Ln	0	0.0	0	0.0
FP 1	0	0.0	0	0.0
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

PV 03 and Route: Central Ln

No glare found

PV 03 and Route: Cypress Ln

No glare found

PV 03 and Route: Erwin Ranch Rd

No glare found

PV 03 and Route: Jensen Dr - Ringwood Trl

No glare found

PV 03 and Route: Lakewood Dr

No glare found

PV 03 and Route: Willow Ln

No glare found

PV 03 and FP: FP 1

No glare found

PV 03 and FP: FP 2

No glare found

PV 03 and FP: FP 3

No glare found

PV 03 and OP 1

No glare found

PV 03 and OP 2

No glare found

PV 03 and OP 3

No glare found

PV 03 and OP 4

No glare found

PV 03 and OP 5

No glare found

PV 03 and OP 6

No glare found

PV 03 and OP 7

No glare found

PV 03 and OP 8

No glare found

PV 03 and OP 9

No glare found

PV 03 and OP 10

No glare found

PV 03 and OP 11

No glare found

PV 03 and OP 12

No glare found

PV 03 and OP 13

No glare found

PV 03 and OP 14

No glare found

PV 03 and OP 15

No glare found

PV 03 and OP 16

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

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APPENDIX B - FORGESOLAR GLARE ANALYSIS RESULTS (WITHOUT VISUAL BUFFERS)

**Table 2: Bear Valley Solar Energy Project –
Summary of Predicted Glare (without visual buffers)**

Viewpoint Location	Annual Green Glare (minutes/year)	Annual Yellow Glare (minutes/year)	Glare Source	Distance and Direction to Source	Approximate Time of Year and Day	Maximum Daily Duration (Green and Yellow combined) (minutes/day)	Comments
Erwin Ranch Road	279	none	PV 01	0.3 mi NE	May to Jul - morning	5	Glare predicted along western segment of road, northwest of Big Bear Ranch Park
	743	874	PV 02	60 ft N to NE	Mar to Sep - morning	10	Glare predicted along segment of road south and southwest of PV 02
	245	606	PV 03	60 ft N to NE	May to Aug - morning	12	Glare predicted along segment of road south and southwest of PV 03
Jensen Drive – Ringwood Trail	1,965	130	PV 01	630 ft SE	Nov to Jan - morning	31	
	1,269	none	PV 02	0.2 mi SE	Nov to Jan - morning	19	
Lakewood Drive	963	234	PV 02	730 ft E	Mar to May, Jul to Sep, and Dec to Jan - morning	10	Glare predicted from Erwin Ranch Road intersection northward
FP 1	818	none	PV 01	3.5 mi E	Feb to Mar and Sep to Oct - morning	15	
	807	none	PV 02	3.6 mi E	Feb to Mar and Sep to Oct - morning	12	
OP 1	599	none	PV 02	780 ft ENE	Apr to Sep - morning	10	
OP 2	290	none	PV 02	330 ft NE	May to Jul - morning	8	
	20	none	PV 03	460 ft ENE	May and Jul - morning	2	
OP 3	673	386	PV 02	290 ft E	Apr to Sep - morning	13	
OP 4	310	none	PV 01	500 ft NE	May to Jul - morning	9	
	1,686	none	PV 02	580 ft E	Intervals throughout the year - morning	12	
OP 5	498	182	PV 01	250 ft NE	Apr to Aug - morning	11	
	1,133	none	PV 02	870 ft E	Aug to May - morning	11	
OP 6	93	none	PV 02	0.3 mi SE	Dec to Jan - morning	7	
OP 7	460	none	PV 01	0.3 mi ESE	Oct to Mar - morning	12	
	476	none	PV 02	0.5 mi SE	Oct to Feb - morning	11	
OP 8	437	none	PV 01	0.3 mi E	Feb to Mar and Sep to Oct - morning	11	

**Table 2: Bear Valley Solar Energy Project –
Summary of Predicted Glare (without visual buffers)**

Viewpoint Location	Annual Green Glare (minutes/year)	Annual Yellow Glare (minutes/year)	Glare Source	Distance and Direction to Source	Approximate Time of Year and Day	Maximum Daily Duration (Green and Yellow combined) (minutes/day)	Comments
	423	none	PV 02	0.5 mi ESE	Feb to Mar and Oct to Nov - morning	10	
OP 15	104	none	PV 02	810 ft SW	Jan to Feb - evening	5	

FORGESOLAR GLARE ANALYSIS

Project: **Bear Valley Solar Energy Project**

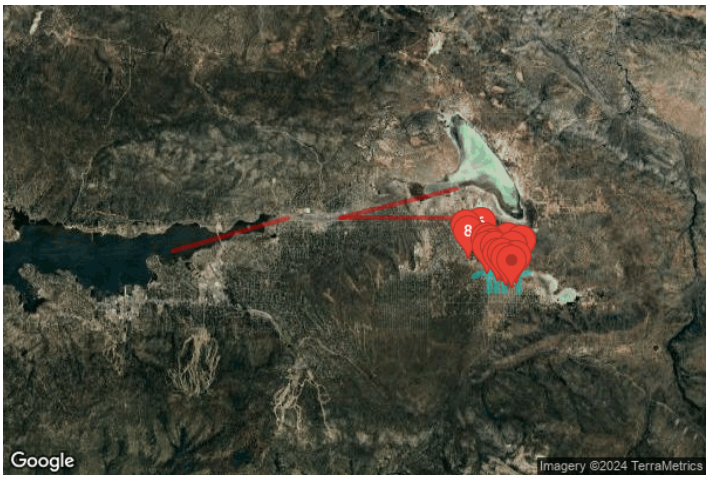
Proposed 5.7-megawatt (MW) solar photovoltaic (PV) project located on approximately 30 acres on Erwin Ranch Road in unincorporated San Bernardino County, California

Site configuration: **BV1-BT-0-deg**

Client: EDF Renewables Distributed Solutions

Created 05 Nov, 2024
Updated 05 Nov, 2024
Time-step 1 minute
Timezone offset UTC-8
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m^2
Category 5 MW to 10 MW
Site ID 133322.22713

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2



Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV 01	SA tracking	SA tracking	4,767	79.5	312	5.2	-
PV 02	SA tracking	SA tracking	9,259	154.3	1,494	24.9	-
PV 03	SA tracking	SA tracking	265	4.4	606	10.1	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Erwin Ranch Rd	1,267	21.1	1,480	24.7
Jensen Dr - Ringwood Trl	3,234	53.9	130	2.2
Lakewood Dr	963	16.1	234	3.9
Willow Ln	0	0.0	0	0.0
FP 1	1,625	27.1	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 1	599	10.0	0	0.0
OP 2	310	5.2	0	0.0
OP 3	673	11.2	386	6.4
OP 4	1,996	33.3	0	0.0
OP 5	1,631	27.2	182	3.0
OP 6	93	1.6	0	0.0
OP 7	936	15.6	0	0.0
OP 8	860	14.3	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	104	1.7	0	0.0
OP 16	0	0.0	0	0.0

Component Data

PV Arrays

Name: PV 01
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.4
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.253853	-116.805054	6771.20	5.00	6776.20
2	34.252416	-116.805086	6775.06	5.00	6780.06
3	34.252416	-116.802892	6776.59	5.00	6781.59
4	34.252846	-116.802881	6775.61	5.00	6780.61
5	34.252855	-116.803235	6775.53	5.00	6780.53
6	34.253130	-116.803235	6775.72	5.00	6780.72
7	34.253134	-116.803809	6775.33	5.00	6780.33
8	34.253440	-116.803809	6775.38	5.00	6780.38
9	34.253449	-116.804335	6771.80	5.00	6776.80
10	34.253853	-116.804340	6771.96	5.00	6776.96

Name: PV 02
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.4
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.252851	-116.802849	6775.62	5.00	6780.62
2	34.250696	-116.802871	6787.99	5.00	6792.99
3	34.250691	-116.801884	6789.00	5.00	6794.00
4	34.252434	-116.801889	6779.00	5.00	6784.00
5	34.252434	-116.802087	6778.96	5.00	6783.96
6	34.252846	-116.802082	6779.03	5.00	6784.03

Name: PV 03
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.4
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.252842	-116.801664	6779.38	5.00	6784.38
2	34.252429	-116.801658	6779.03	5.00	6784.03
3	34.252429	-116.801766	6779.01	5.00	6784.01
4	34.250691	-116.801760	6788.78	5.00	6793.78
5	34.250691	-116.801015	6790.45	5.00	6795.45
6	34.252837	-116.801009	6783.78	5.00	6788.78
7	34.252846	-116.800923	6783.67	5.00	6788.67
8	34.253148	-116.800923	6788.55	5.00	6793.55
9	34.253148	-116.801508	6785.10	5.00	6790.10
10	34.252842	-116.801508	6780.63	5.00	6785.63

Route Receptors

Name: Central Ln
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.250483	-116.802954	6790.01	6.00	6796.01
2	34.250096	-116.802964	6791.93	6.00	6797.93
3	34.248468	-116.802939	6802.29	6.00	6808.29
4	34.247755	-116.802940	6807.07	6.00	6813.07
5	34.247484	-116.802905	6811.78	6.00	6817.78
6	34.247213	-116.802937	6813.37	6.00	6819.37
7	34.246607	-116.802937	6815.85	6.00	6821.85
8	34.246044	-116.802929	6820.51	6.00	6826.51

Name: Cypress Ln
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.250452	-116.796329	6785.05	6.00	6791.05
2	34.250324	-116.796310	6785.09	6.00	6791.09
3	34.250054	-116.796284	6786.42	6.00	6792.42
4	34.249657	-116.796278	6787.18	6.00	6793.18
5	34.249205	-116.796295	6788.78	6.00	6794.78
6	34.248635	-116.796284	6790.82	6.00	6796.82
7	34.247979	-116.796291	6795.51	6.00	6801.51
8	34.246908	-116.796287	6800.76	6.00	6806.76
9	34.246012	-116.796269	6806.49	6.00	6812.49

Name: Erwin Ranch Rd
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.249734	-116.809496	6792.06	6.00	6798.06
2	34.249871	-116.809195	6790.28	6.00	6796.28
3	34.249938	-116.808806	6790.59	6.00	6796.59
4	34.250011	-116.808589	6791.37	6.00	6797.37
5	34.250381	-116.808066	6789.30	6.00	6795.30
6	34.250459	-116.807875	6786.66	6.00	6792.66
7	34.250494	-116.807639	6787.38	6.00	6793.38
8	34.250461	-116.805797	6787.21	6.00	6793.21
9	34.250475	-116.805231	6787.96	6.00	6793.96
10	34.250486	-116.802771	6789.27	6.00	6795.27
11	34.250486	-116.800950	6790.17	6.00	6796.17
12	34.250446	-116.799719	6789.39	6.00	6795.39
13	34.250445	-116.798042	6785.76	6.00	6791.76
14	34.250453	-116.795711	6784.23	6.00	6790.23
15	34.250422	-116.794424	6782.28	6.00	6788.28
16	34.250453	-116.794212	6781.85	6.00	6787.85
17	34.250581	-116.793743	6780.66	6.00	6786.66
18	34.250579	-116.793461	6780.12	6.00	6786.12

Name: Jensen Dr - Ringwood Trl
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.255954	-116.807491	6886.54	6.00	6892.54
2	34.255753	-116.807575	6879.13	6.00	6885.13
3	34.255549	-116.807623	6870.92	6.00	6876.92
4	34.255393	-116.807599	6864.32	6.00	6870.32
5	34.255287	-116.807521	6860.81	6.00	6866.81
6	34.255209	-116.807368	6860.05	6.00	6866.05
7	34.255154	-116.807025	6853.49	6.00	6859.49
8	34.255087	-116.806322	6828.14	6.00	6834.14
9	34.255054	-116.805780	6801.69	6.00	6807.69
10	34.255010	-116.805571	6793.31	6.00	6799.31
11	34.254937	-116.805466	6786.99	6.00	6792.99
12	34.254798	-116.805393	6779.93	6.00	6785.93
13	34.254640	-116.805352	6773.79	6.00	6779.79

Name: Lakewood Dr
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.254638	-116.805351	6773.79	6.00	6779.79
2	34.254467	-116.805323	6770.65	6.00	6776.65
3	34.253181	-116.805316	6771.85	6.00	6777.85
4	34.251804	-116.805305	6781.38	6.00	6787.38
5	34.250521	-116.805290	6787.95	6.00	6793.95
6	34.250477	-116.805234	6787.87	6.00	6793.87
7	34.250441	-116.805157	6788.76	6.00	6794.76
8	34.250277	-116.805129	6791.08	6.00	6797.08
9	34.248736	-116.805133	6800.24	6.00	6806.24
10	34.246602	-116.805109	6817.69	6.00	6823.69
11	34.246063	-116.805117	6821.27	6.00	6827.27

Name: Willow Ln
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	34.250480	-116.800751	6789.82	6.00	6795.82
2	34.250180	-116.800764	6791.62	6.00	6797.62
3	34.249547	-116.800757	6794.12	6.00	6800.12
4	34.249281	-116.800783	6795.52	6.00	6801.52
5	34.249089	-116.800761	6797.77	6.00	6803.77
6	34.248947	-116.800753	6798.84	6.00	6804.84
7	34.248821	-116.800764	6799.14	6.00	6805.14
8	34.248335	-116.800759	6802.48	6.00	6808.48
9	34.247605	-116.800731	6808.51	6.00	6814.51
10	34.246942	-116.800731	6813.29	6.00	6819.29
11	34.246783	-116.800711	6815.89	6.00	6821.89
12	34.246054	-116.800711	6817.99	6.00	6823.99

Flight Path Receptors

Name: FP 1
Description:
Threshold height: 29 ft
Direction: 74.0°
Glide slope: 4.3°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	34.263779	-116.864144	6753.64	29.00	6782.64
Two-mile	34.255809	-116.897812	6745.41	831.24	7576.65

Name: FP 2
Description:
Threshold height: 46 ft
Direction: 270.0°
Glide slope: 4.3°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	34.263835	-116.848690	6756.32	46.00	6802.32
Two-mile	34.263835	-116.813665	6743.08	853.25	7596.33

Name: FP 3
Description:
Threshold height: 46 ft
Direction: 256.0°
Glide slope: 4.3°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	34.263835	-116.848689	6756.32	46.00	6802.32
Two-mile	34.270829	-116.814705	6711.30	885.04	7596.33

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	34.250192	-116.805503	6792.88	6.00
OP 2	2	34.250160	-116.803294	6795.48	8.00
OP 3	3	34.250738	-116.803942	6791.36	8.00
OP 4	4	34.251642	-116.804936	6784.71	8.00
OP 5	5	34.252013	-116.805874	6778.97	8.00
OP 6	6	34.255694	-116.807161	6896.13	8.00
OP 7	7	34.255223	-116.811646	6764.44	6.00
OP 8	8	34.253904	-116.811181	6772.14	8.00
OP 9	9	34.248501	-116.802576	6803.42	8.00
OP 10	10	34.248474	-116.801074	6804.24	8.00
OP 11	11	34.247310	-116.800162	6812.56	8.00
OP 12	12	34.246845	-116.798387	6809.84	8.00
OP 13	13	34.247796	-116.796905	6796.92	8.00
OP 14	14	34.250039	-116.798024	6790.95	8.00
OP 15	15	34.252042	-116.799274	6819.42	8.00
OP 16	16	34.251464	-116.795675	6862.01	8.00

Glare Analysis Results

Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV 01	SA tracking	SA tracking	4,767	79.5	312	5.2	-
PV 02	SA tracking	SA tracking	9,259	154.3	1,494	24.9	-
PV 03	SA tracking	SA tracking	265	4.4	606	10.1	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Erwin Ranch Rd	1,267	21.1	1,480	24.7
Jensen Dr - Ringwood Trl	3,234	53.9	130	2.2
Lakewood Dr	963	16.1	234	3.9
Willow Ln	0	0.0	0	0.0
FP 1	1,625	27.1	0	0.0
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 1	599	10.0	0	0.0
OP 2	310	5.2	0	0.0
OP 3	673	11.2	386	6.4
OP 4	1,996	33.3	0	0.0
OP 5	1,631	27.2	182	3.0
OP 6	93	1.6	0	0.0
OP 7	936	15.6	0	0.0
OP 8	860	14.3	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	104	1.7	0	0.0
OP 16	0	0.0	0	0.0

PV: PV 01 potential temporary after-image

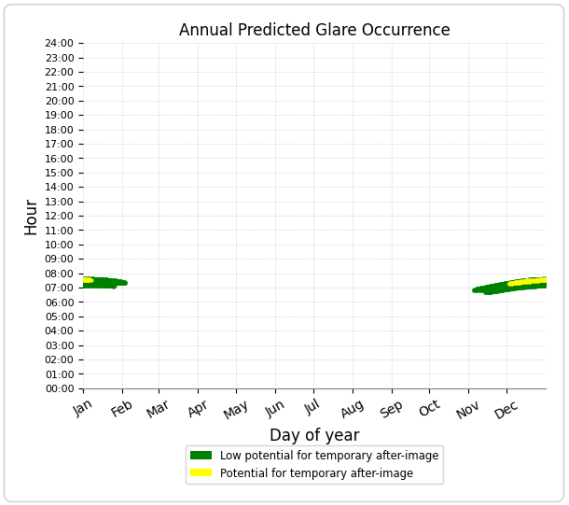
Receptor results ordered by category of glare

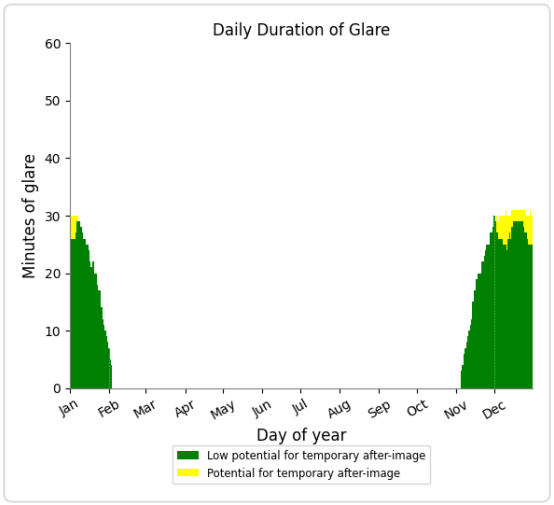
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Jensen Dr - Ringwood Trl	1,965	32.8	130	2.2
Erwin Ranch Rd	279	4.7	0	0.0
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Lakewood Dr	0	0.0	0	0.0
Willow Ln	0	0.0	0	0.0
FP 1	818	13.6	0	0.0
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 5	498	8.3	182	3.0
OP 4	310	5.2	0	0.0
OP 7	460	7.7	0	0.0
OP 8	437	7.3	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

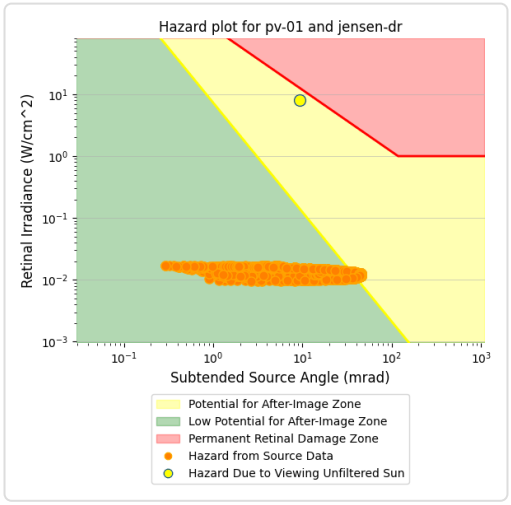
PV 01 and Route: Jensen Dr - Ringwood Trl

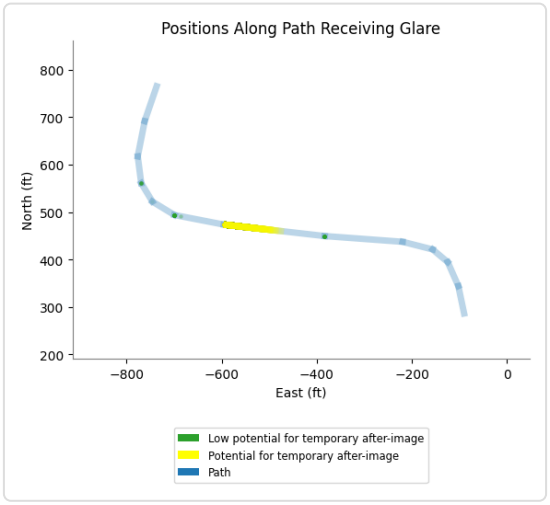
Yellow glare: 130 min.

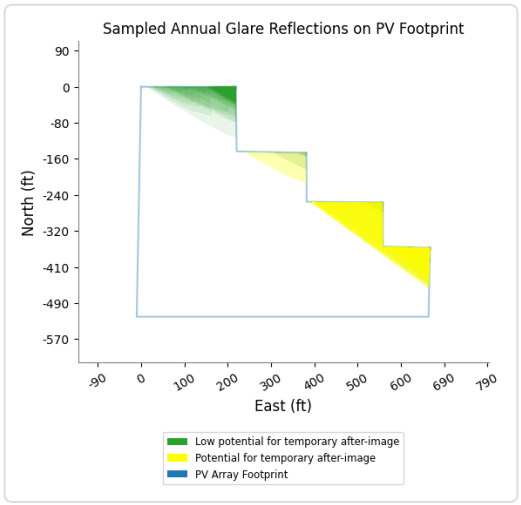
Green glare: 1,965 min.







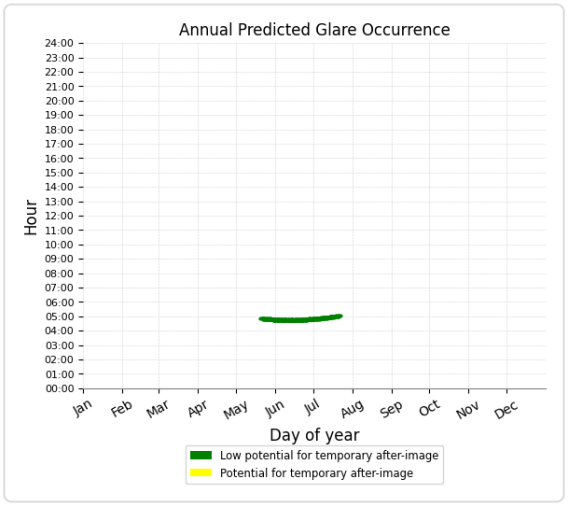


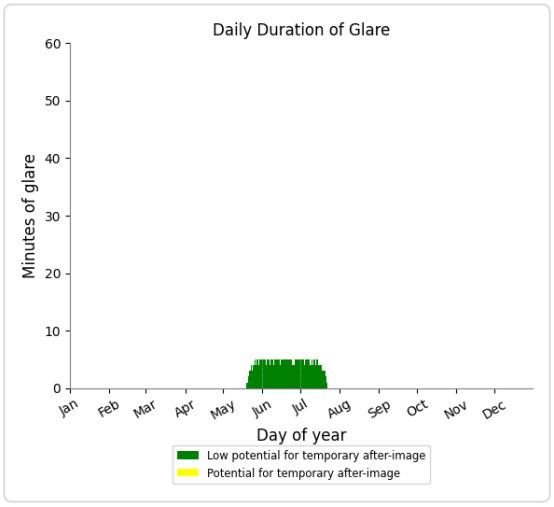


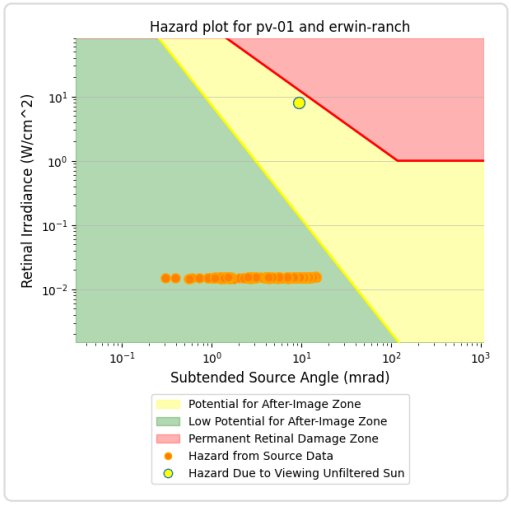
PV 01 and Route: Erwin Ranch Rd

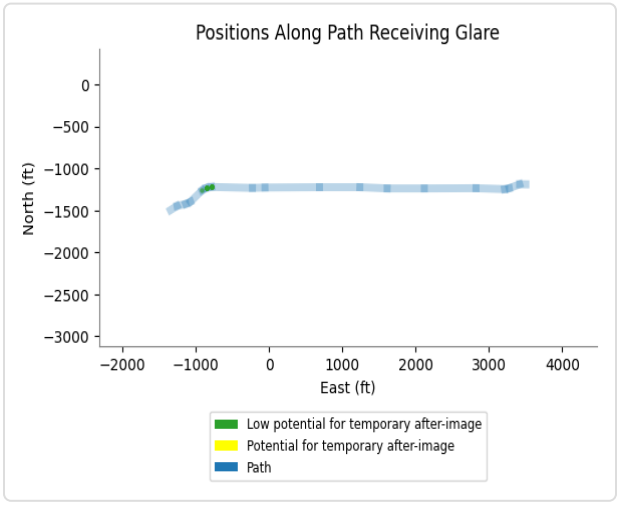
Yellow glare: none

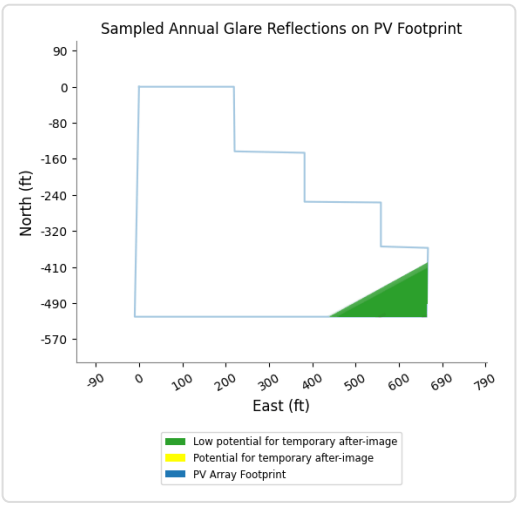
Green glare: 279 min.











PV 01 and Route: Central Ln

No glare found

PV 01 and Route: Cypress Ln

No glare found

PV 01 and Route: Lakewood Dr

No glare found

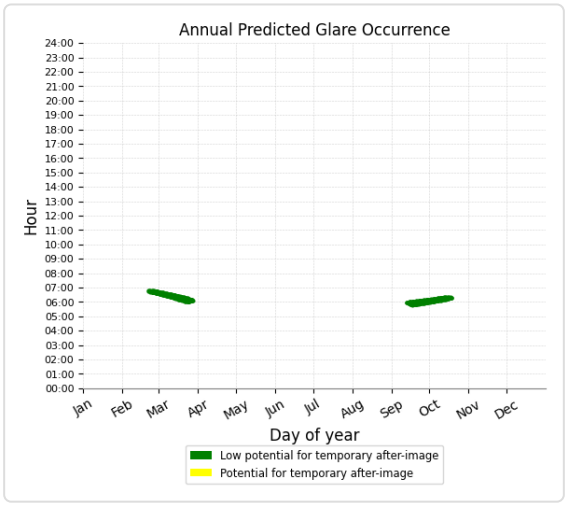
PV 01 and Route: Willow Ln

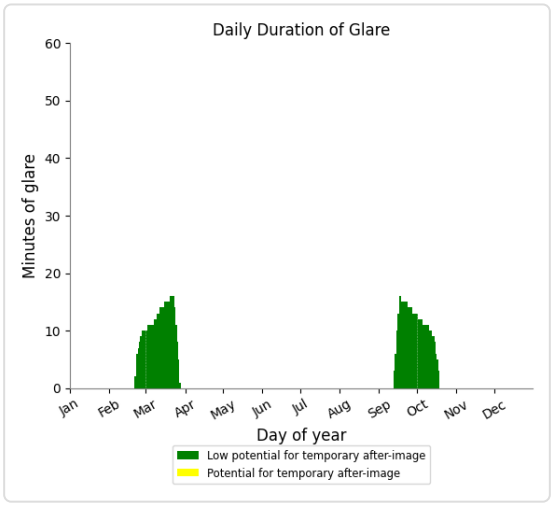
No glare found

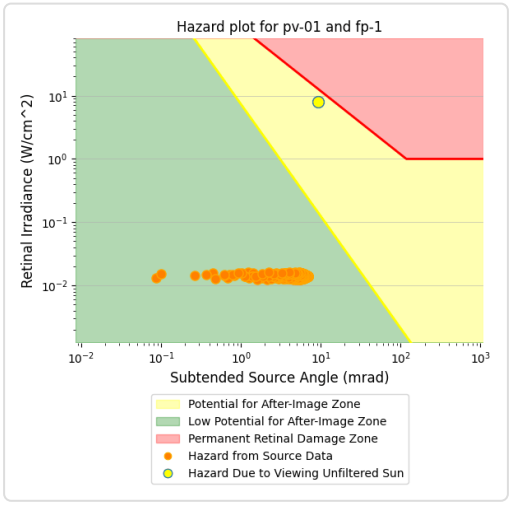
PV 01 and FP: FP 1

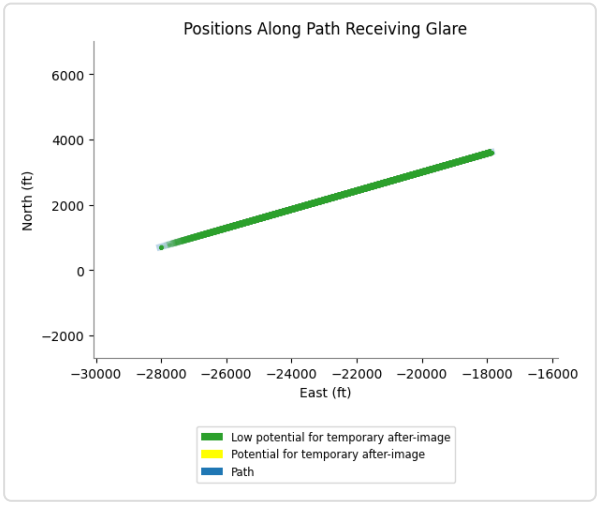
Yellow glare: none

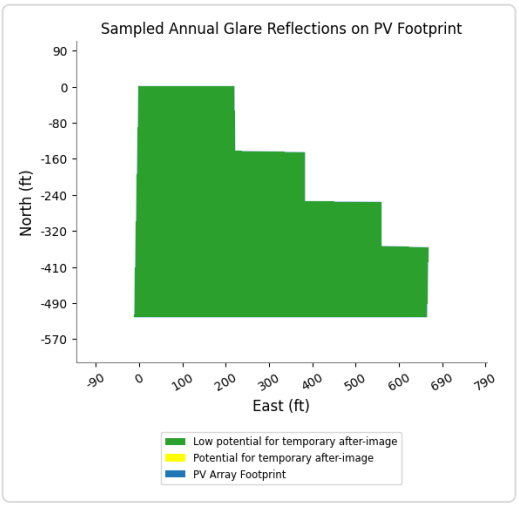
Green glare: 818 min.

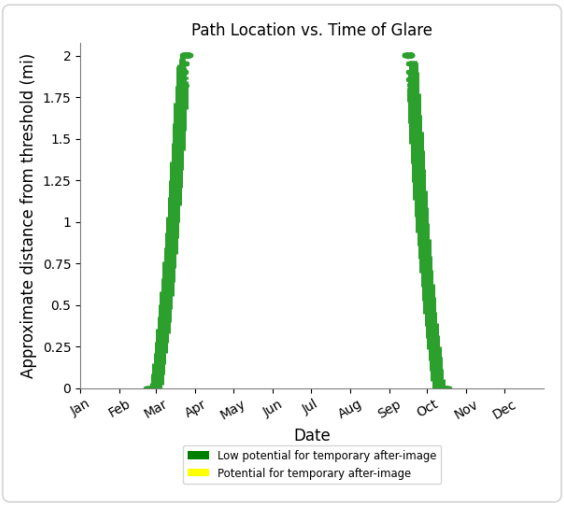












PV 01 and FP: FP 2

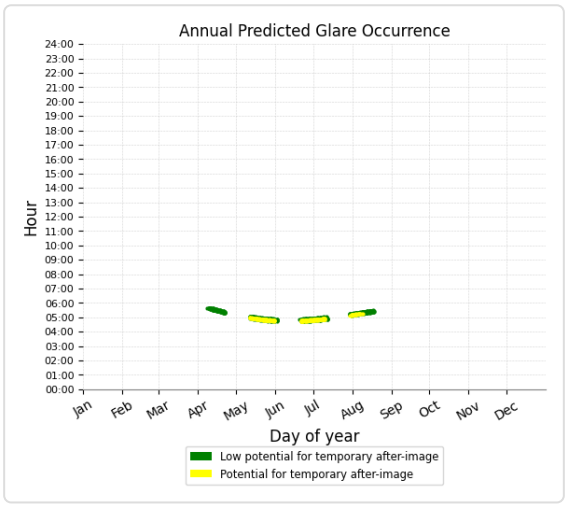
No glare found

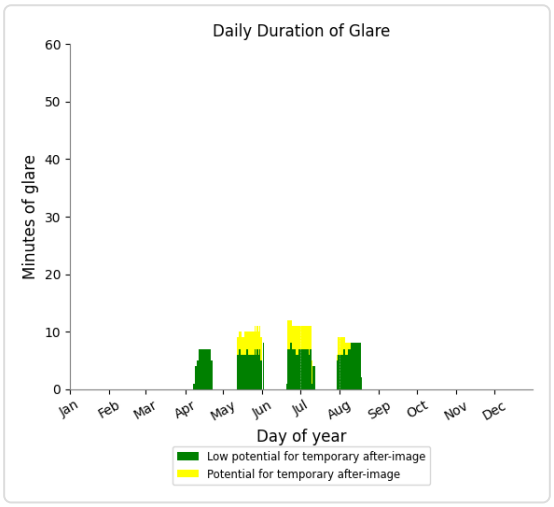
PV 01 and FP: FP 3

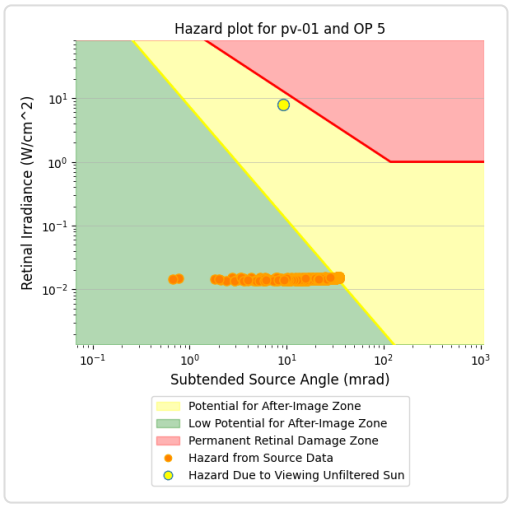
No glare found

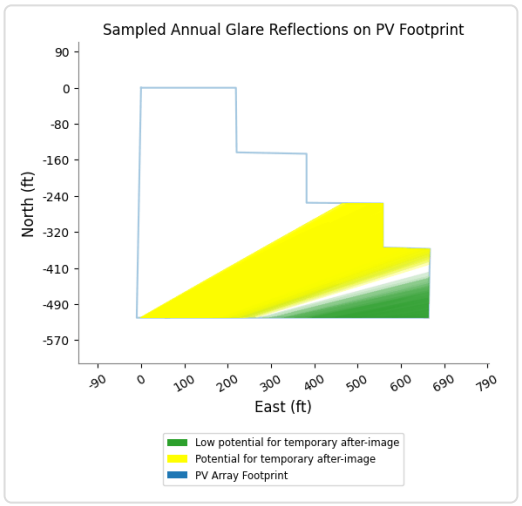
PV 01 and OP 5

Yellow glare: 182 min.
Green glare: 498 min.





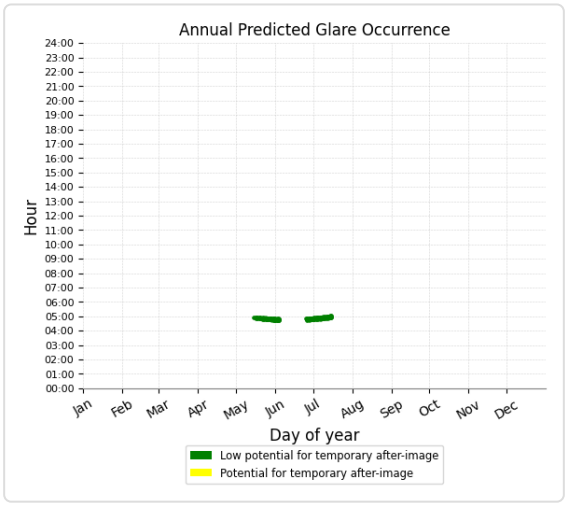


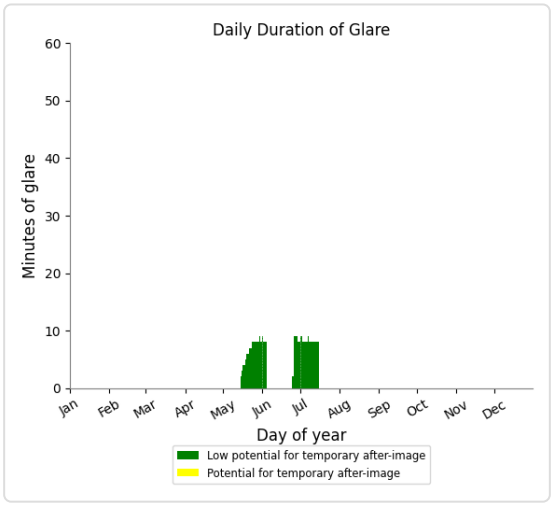


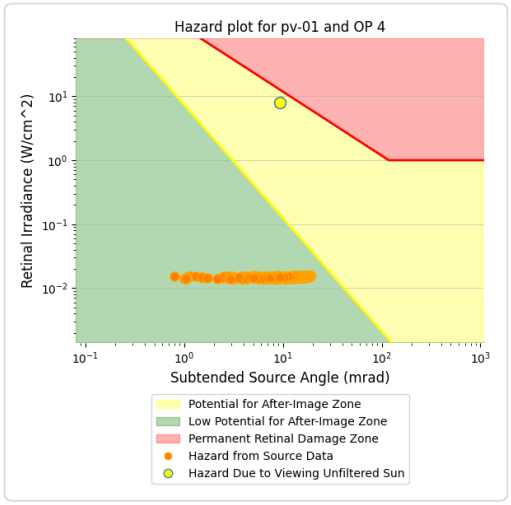
PV 01 and OP 4

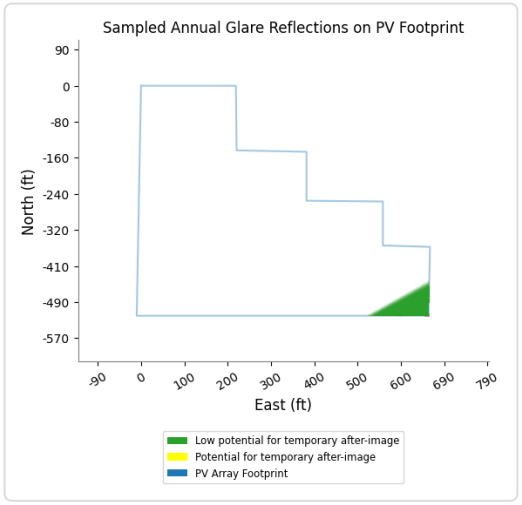
Yellow glare: none

Green glare: 310 min.





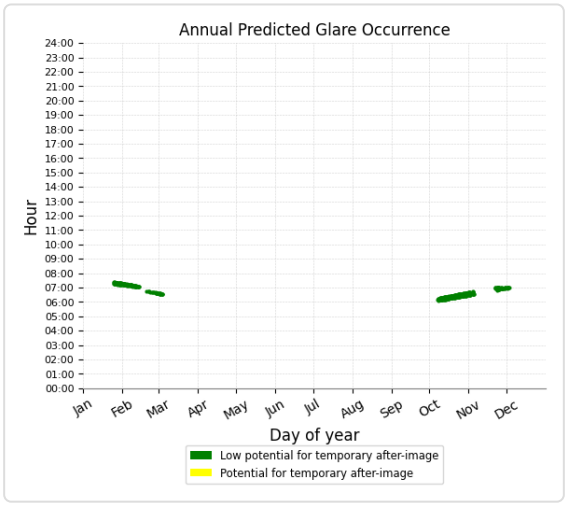


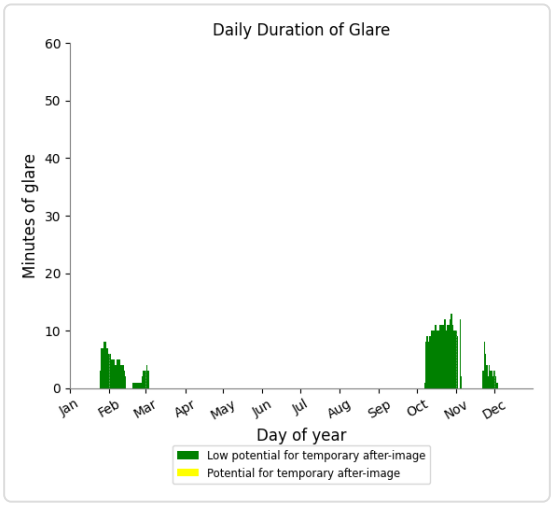


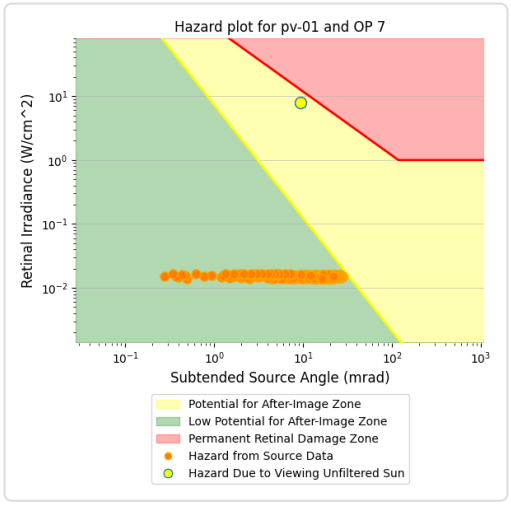
PV 01 and OP 7

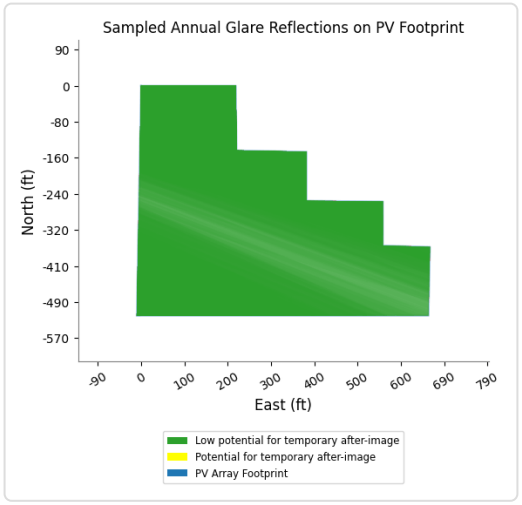
Yellow glare: none

Green glare: 460 min.



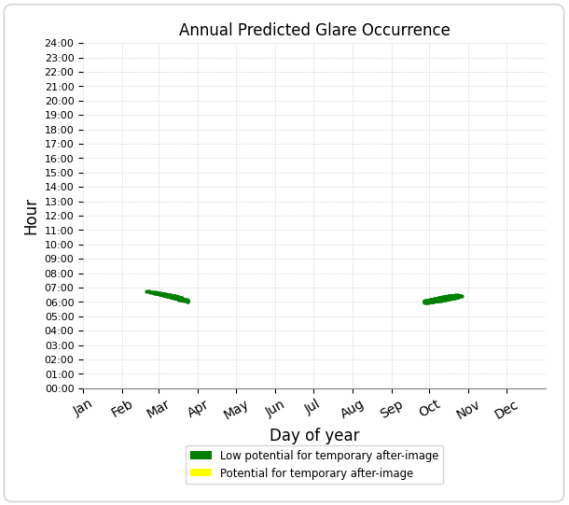


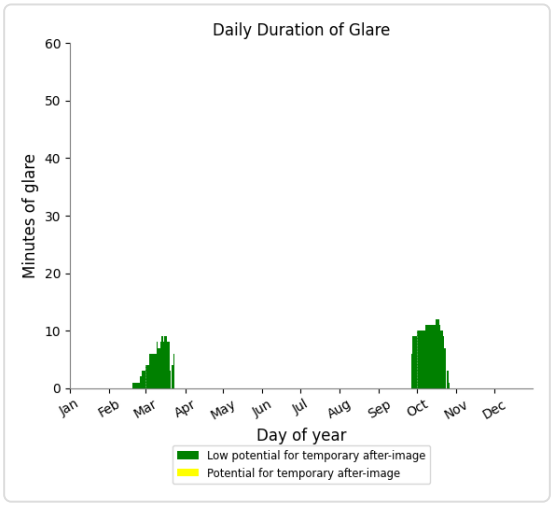


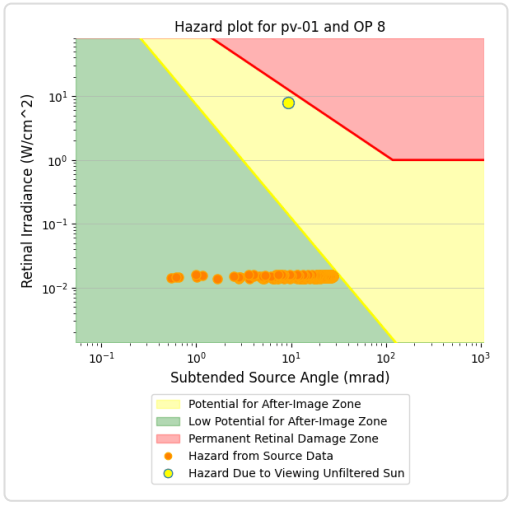


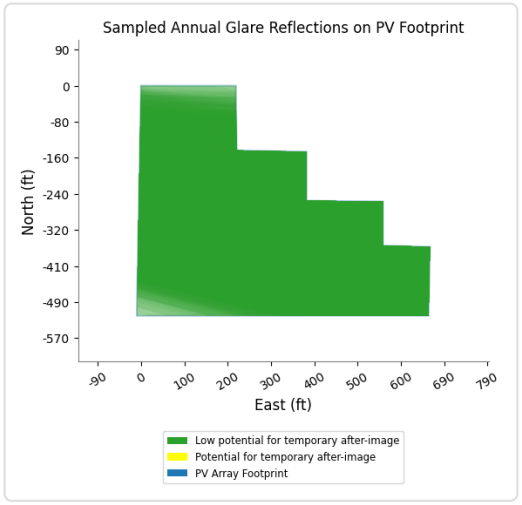
PV 01 and OP 8

Yellow glare: none
Green glare: 437 min.









PV 01 and OP 1

No glare found

PV 01 and OP 2

No glare found

PV 01 and OP 3

No glare found

PV 01 and OP 6

No glare found

PV 01 and OP 9

No glare found

PV 01 and OP 10

No glare found

PV 01 and OP 11

No glare found

PV 01 and OP 12

No glare found

PV 01 and OP 13

No glare found

PV 01 and OP 14

No glare found

PV 01 and OP 15

No glare found

PV 01 and OP 16

No glare found

PV: PV 02 potential temporary after-image

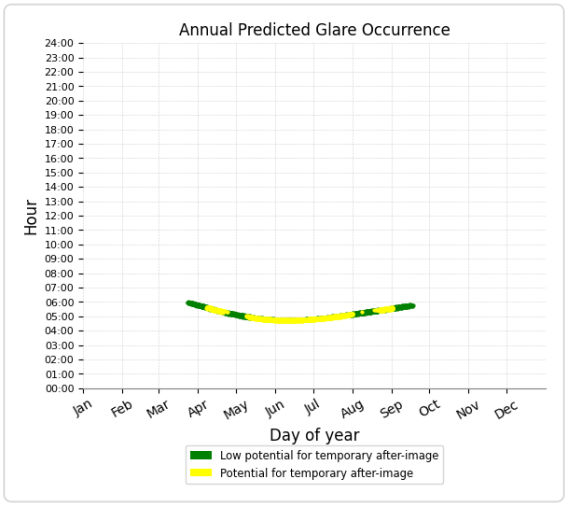
Receptor results ordered by category of glare

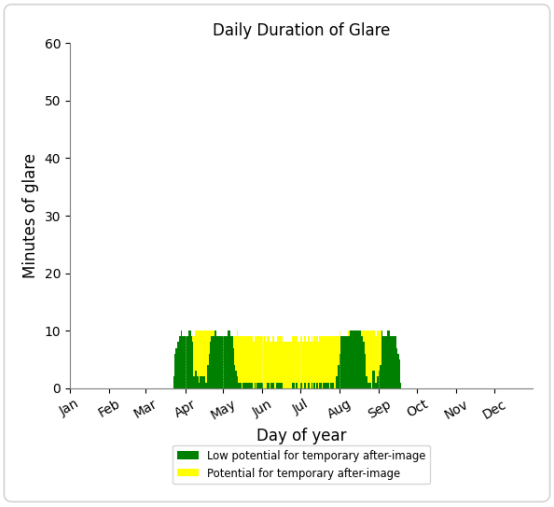
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Erwin Ranch Rd	743	12.4	874	14.6
Lakewood Dr	963	16.1	234	3.9
Jensen Dr - Ringwood Trl	1,269	21.1	0	0.0
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Willow Ln	0	0.0	0	0.0
FP 1	807	13.4	0	0.0
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 3	673	11.2	386	6.4
OP 1	599	10.0	0	0.0
OP 2	290	4.8	0	0.0
OP 4	1,686	28.1	0	0.0
OP 5	1,133	18.9	0	0.0
OP 6	93	1.6	0	0.0
OP 7	476	7.9	0	0.0
OP 8	423	7.0	0	0.0
OP 15	104	1.7	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

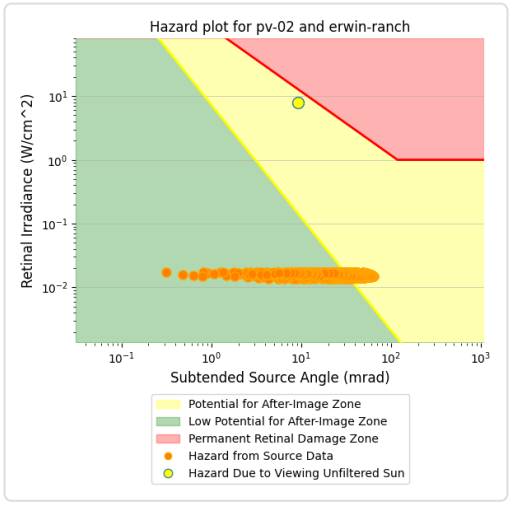
PV 02 and Route: Erwin Ranch Rd

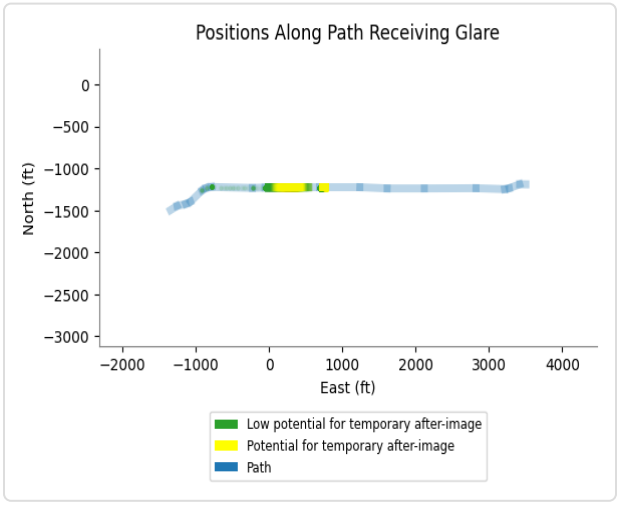
Yellow glare: 874 min.

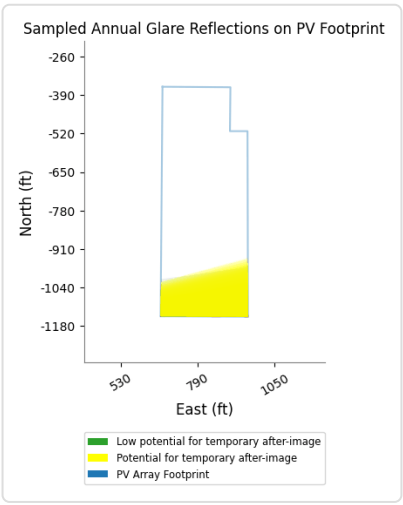
Green glare: 743 min.







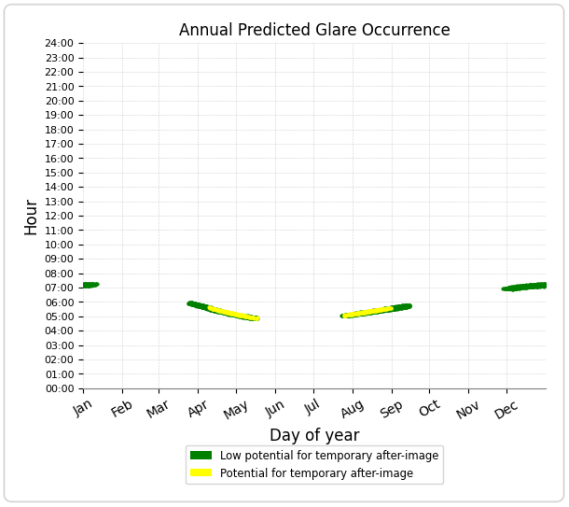


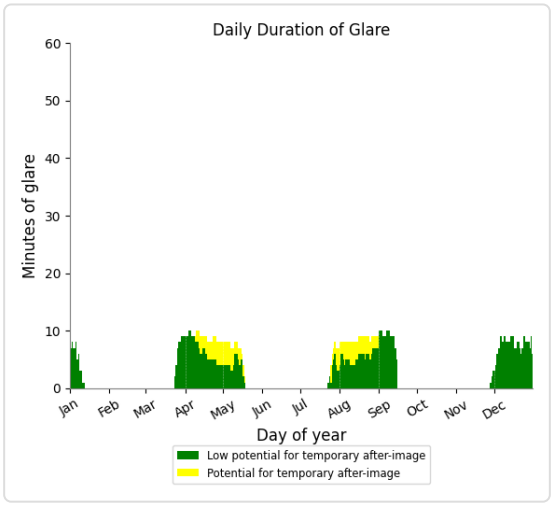


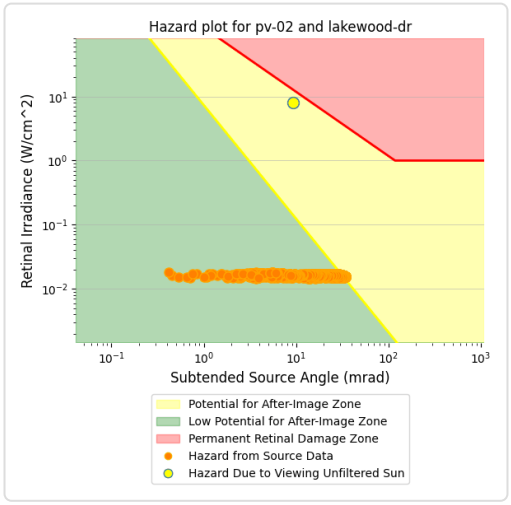
PV 02 and Route: Lakewood Dr

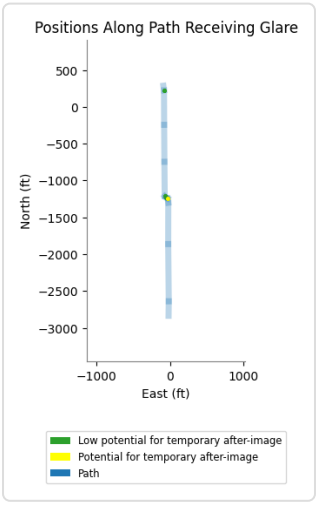
Yellow glare: 234 min.

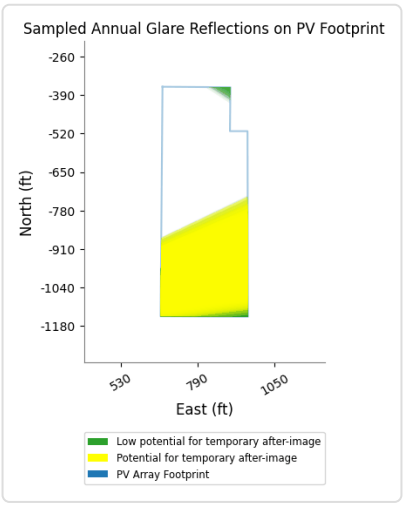
Green glare: 963 min.







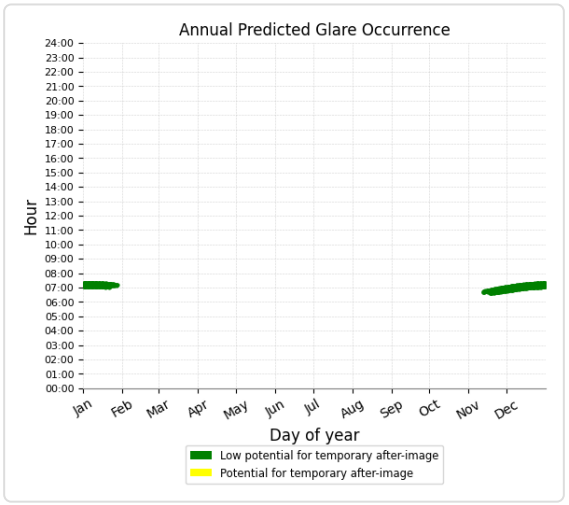


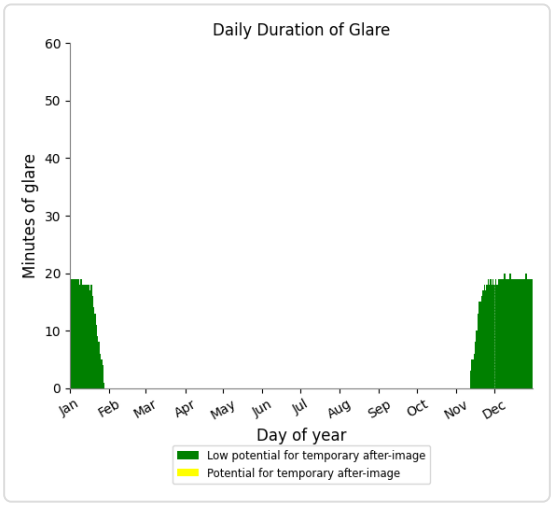


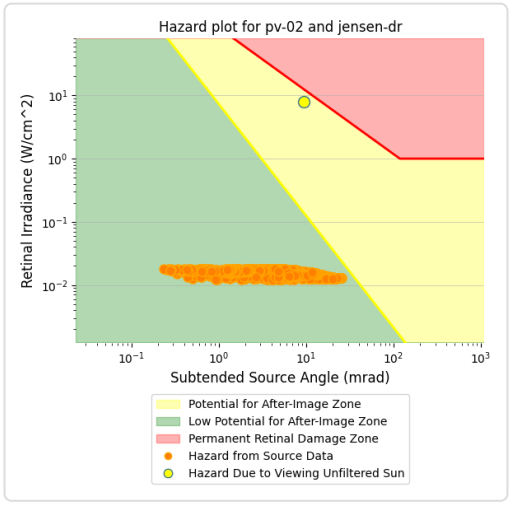
PV 02 and Route: Jensen Dr - Ringwood Trl

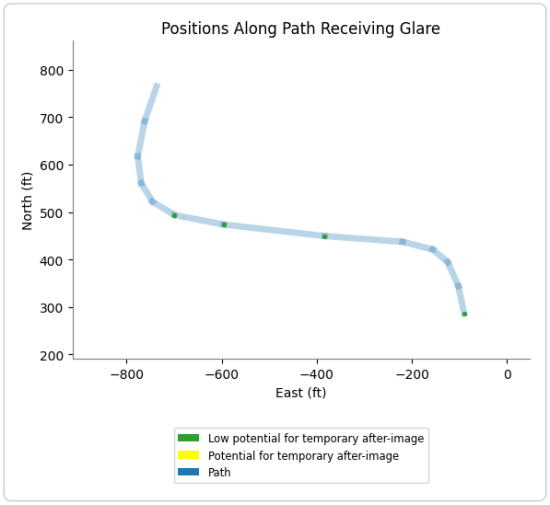
Yellow glare: none

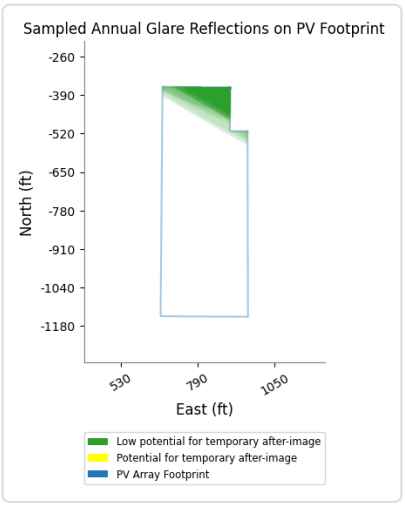
Green glare: 1,269 min.











PV 02 and Route: Central Ln

No glare found

PV 02 and Route: Cypress Ln

No glare found

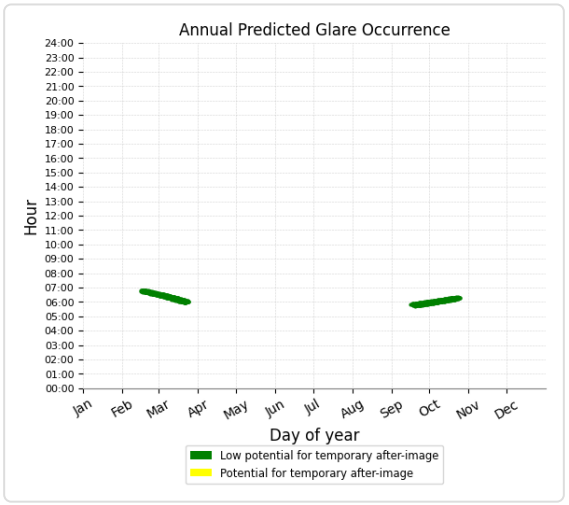
PV 02 and Route: Willow Ln

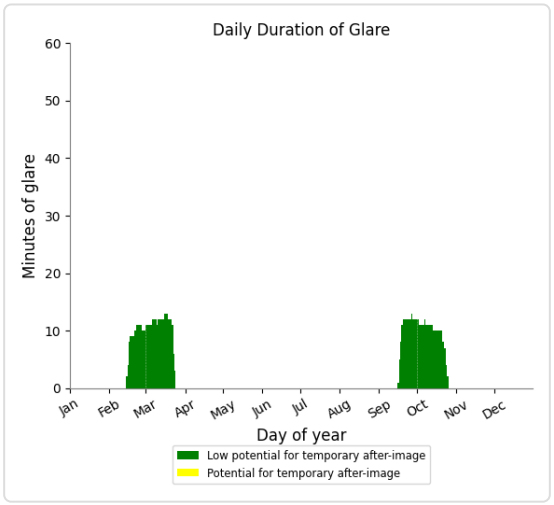
No glare found

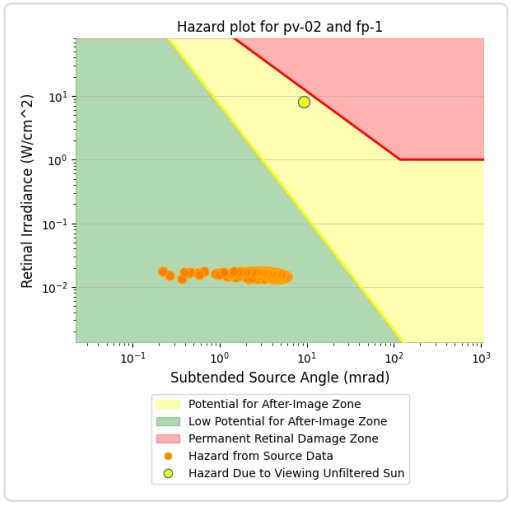
PV 02 and FP: FP 1

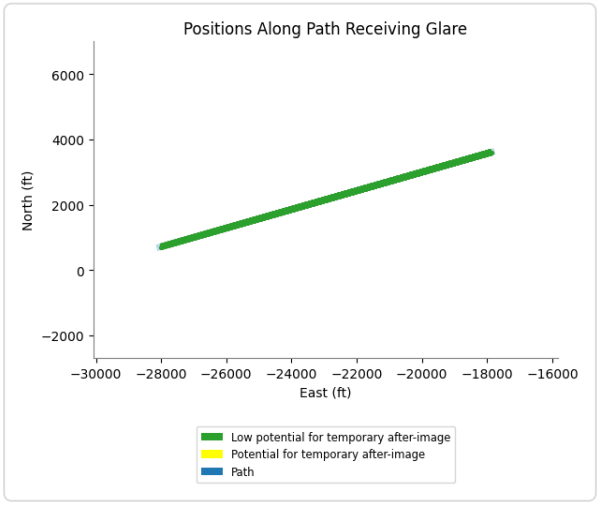
Yellow glare: none

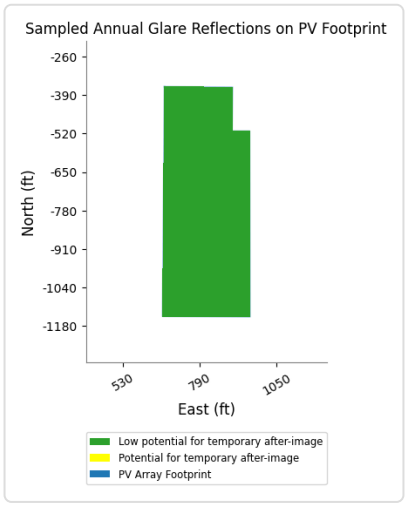
Green glare: 807 min.

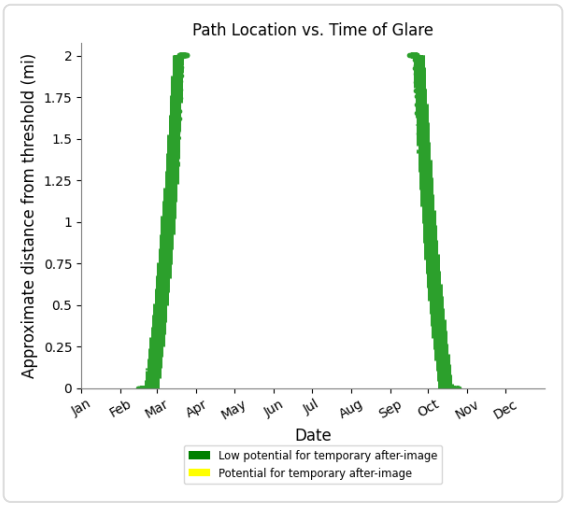












PV 02 and FP: FP 2

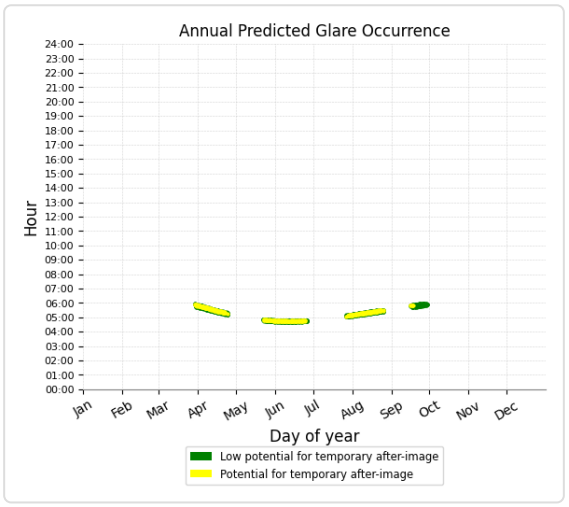
No glare found

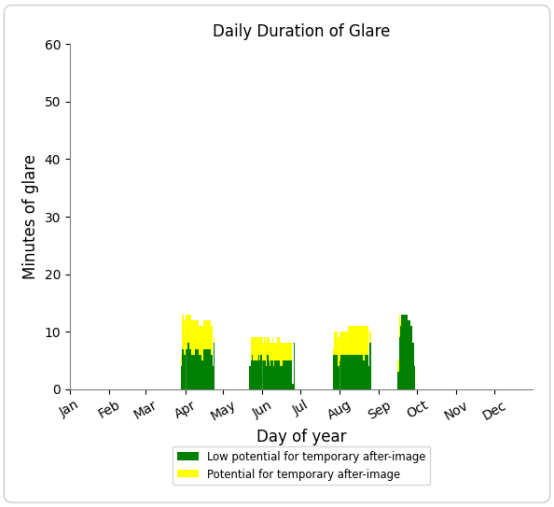
PV 02 and FP: FP 3

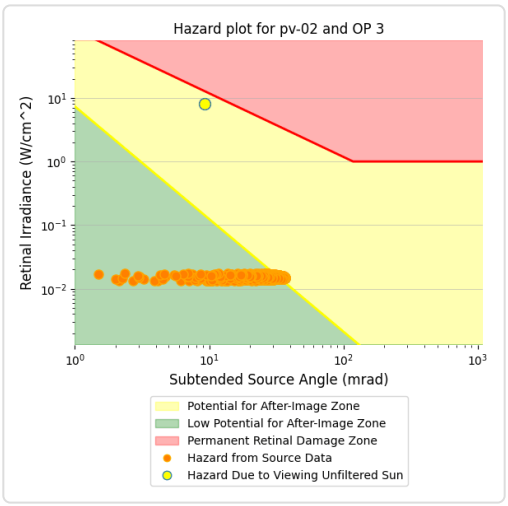
No glare found

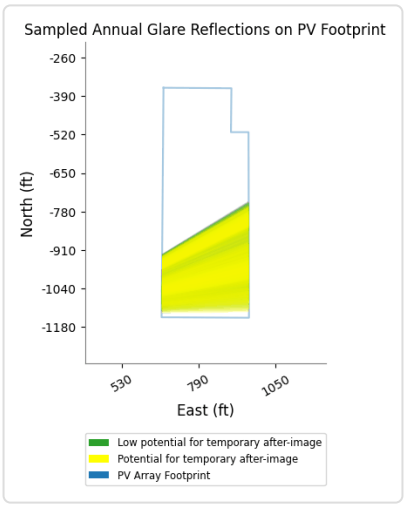
PV 02 and OP 3

Yellow glare: 386 min.
Green glare: 673 min.





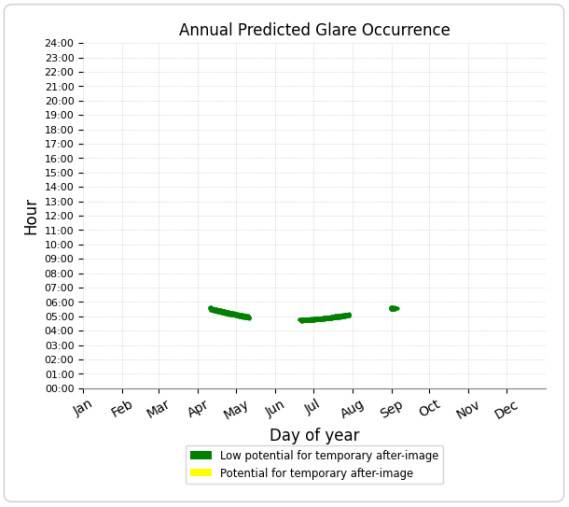


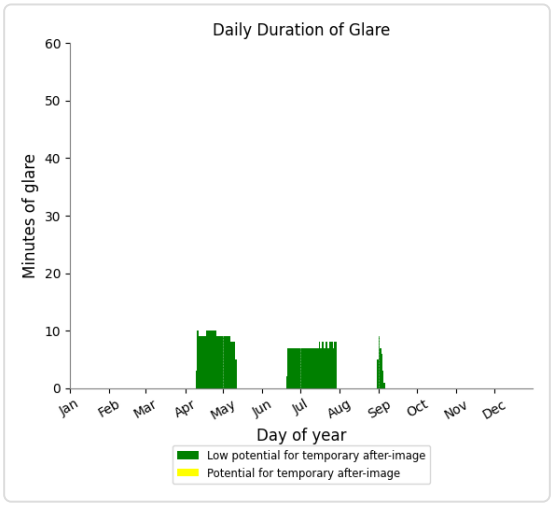


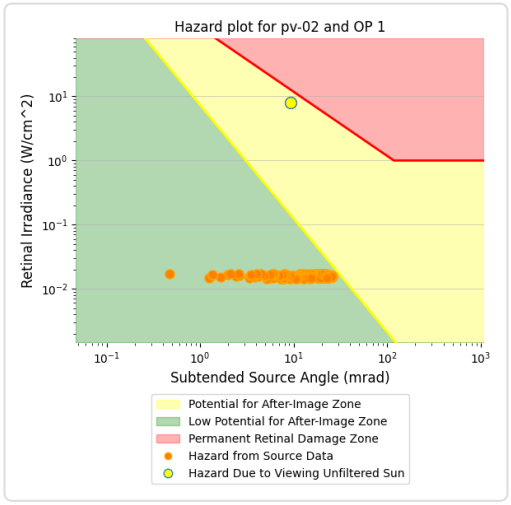
PV 02 and OP 1

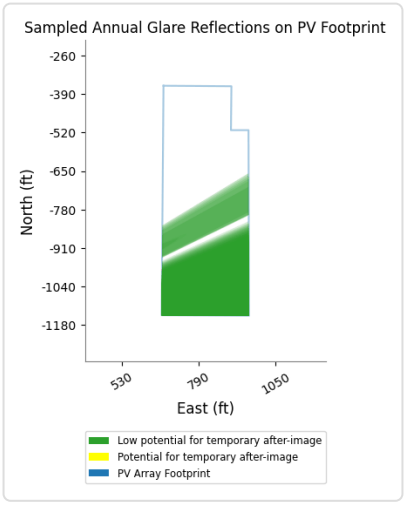
Yellow glare: none

Green glare: 599 min.





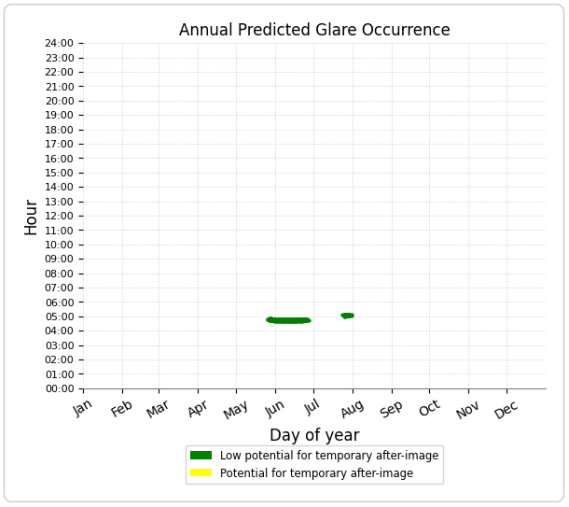


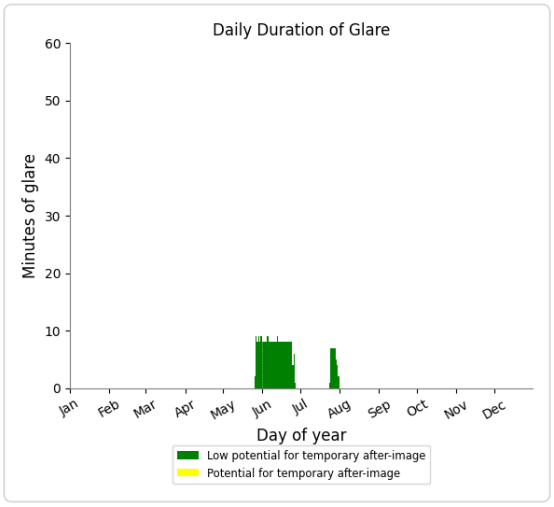


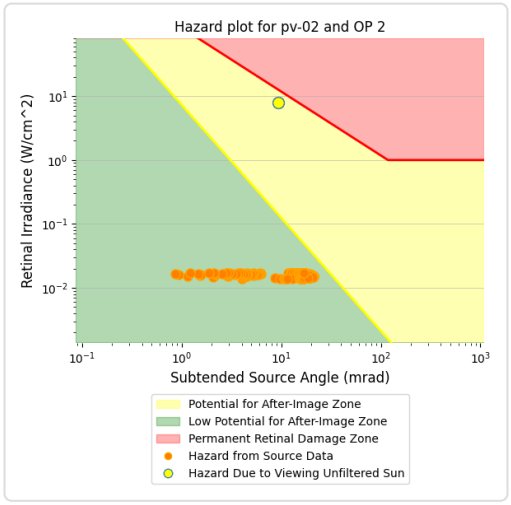
PV 02 and OP 2

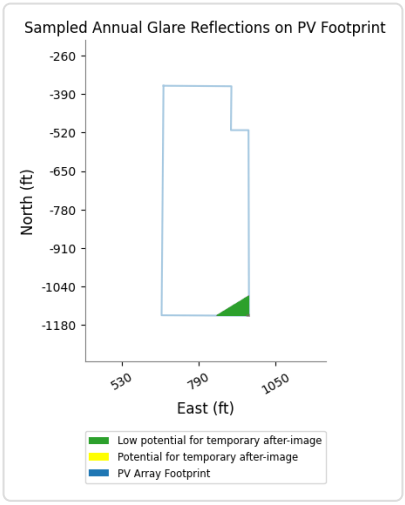
Yellow glare: none

Green glare: 290 min.





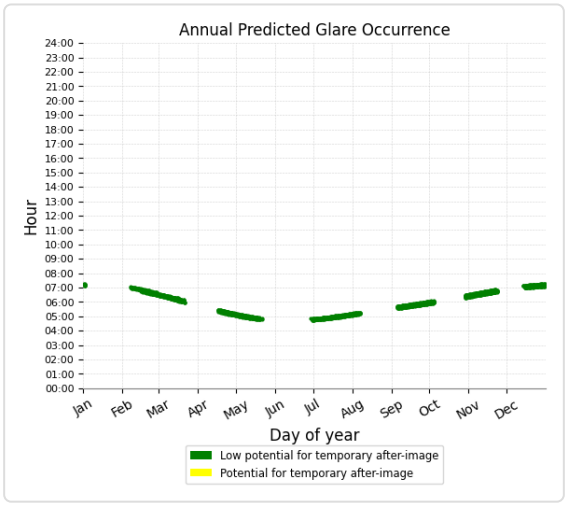


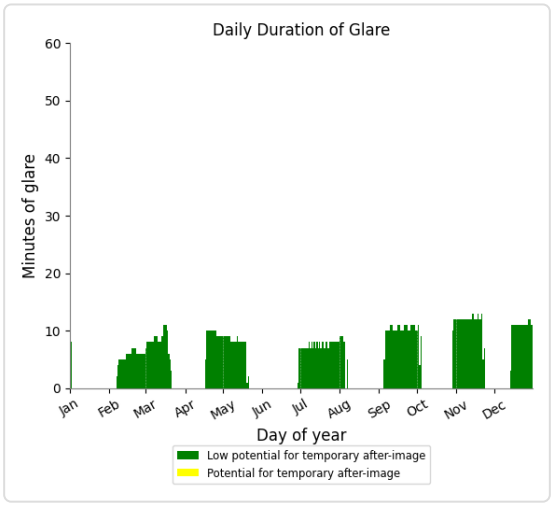


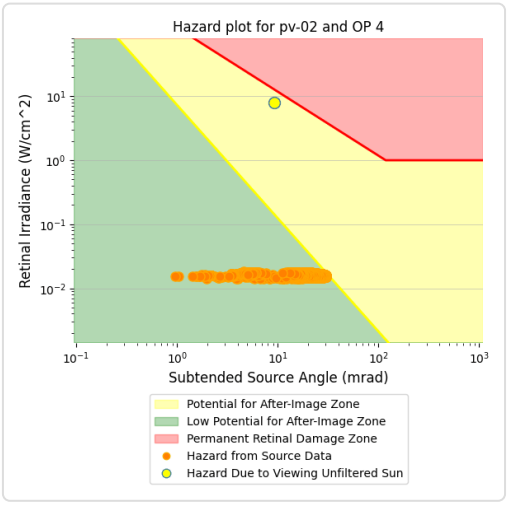
PV 02 and OP 4

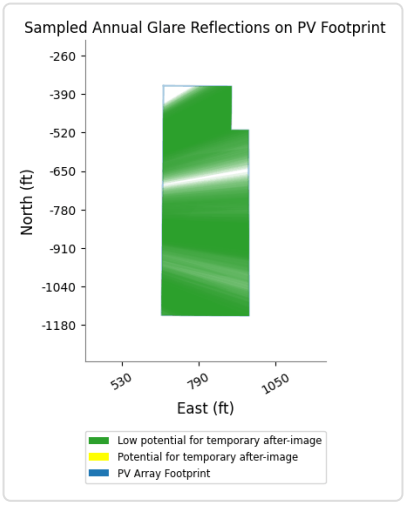
Yellow glare: none

Green glare: 1,686 min.





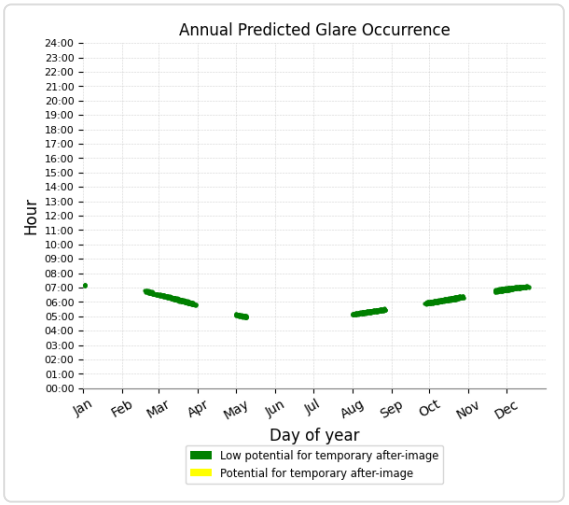


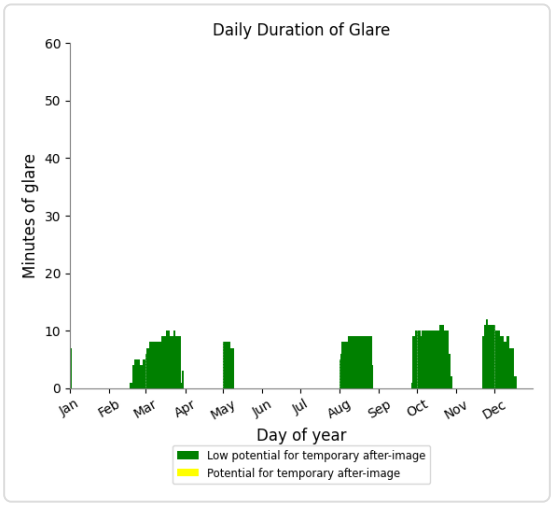


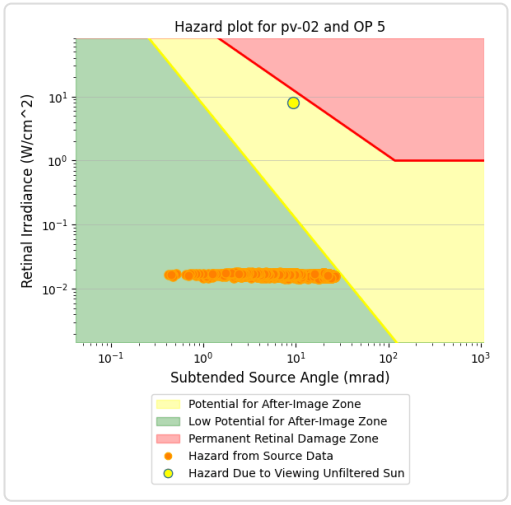
PV 02 and OP 5

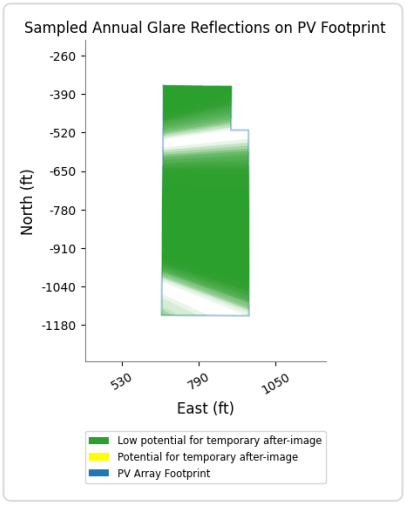
Yellow glare: none

Green glare: 1,133 min.





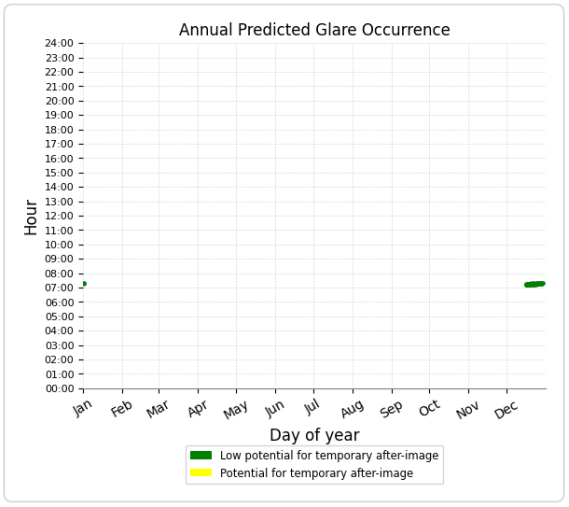


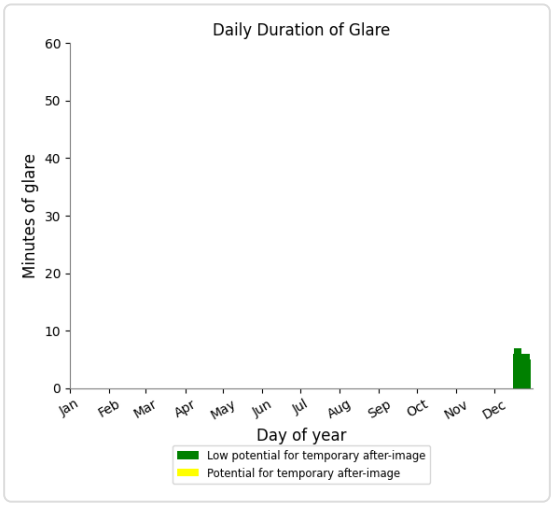


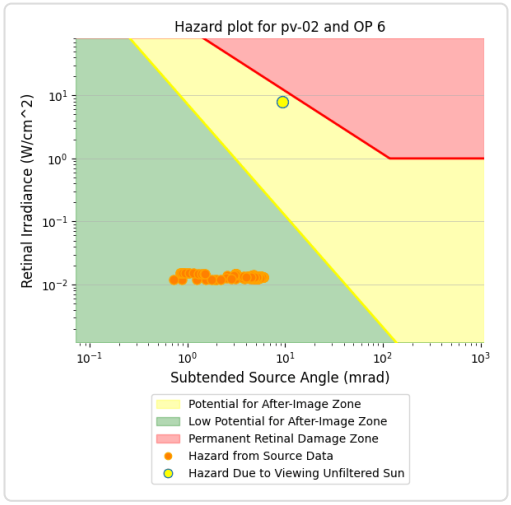
PV 02 and OP 6

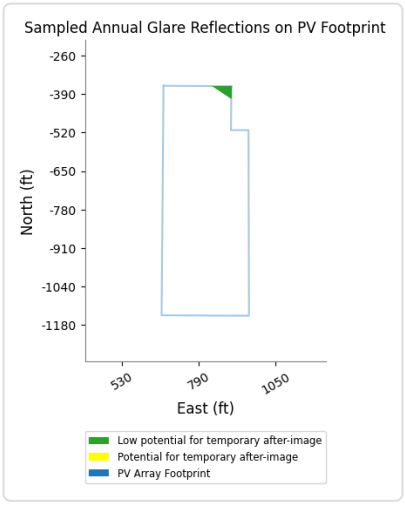
Yellow glare: none

Green glare: 93 min.





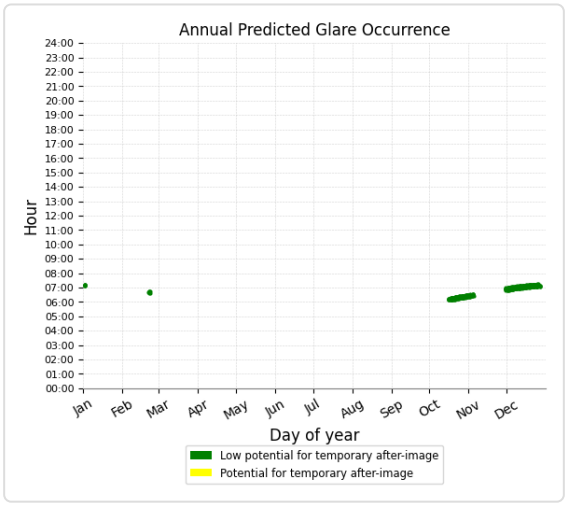


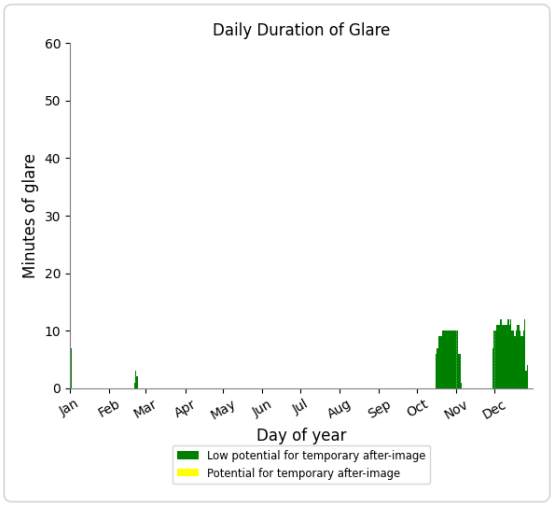


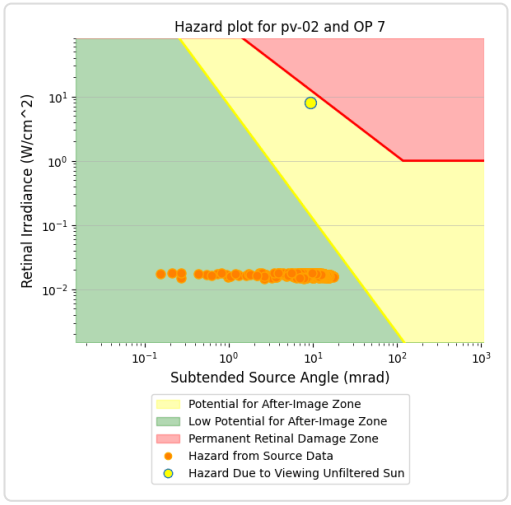
PV 02 and OP 7

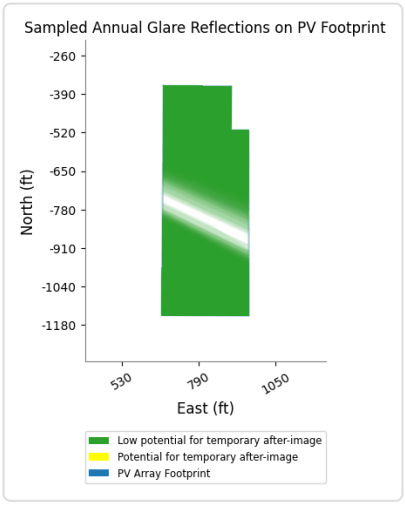
Yellow glare: none

Green glare: 476 min.





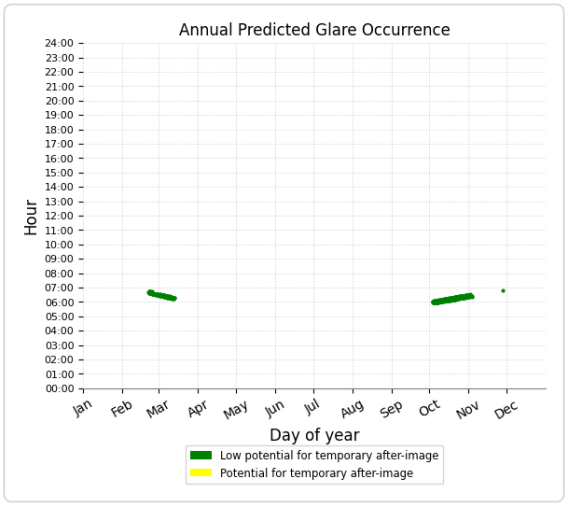


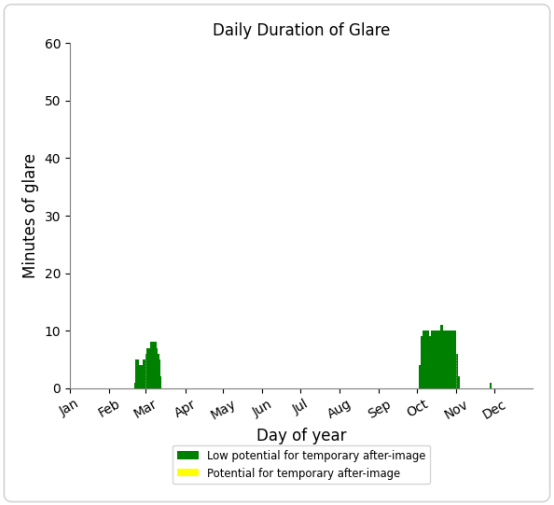


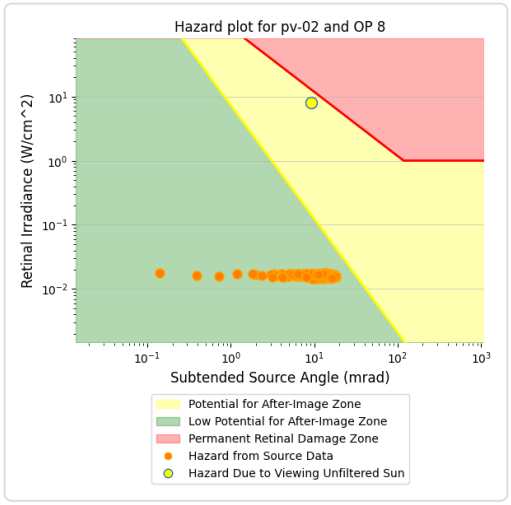
PV 02 and OP 8

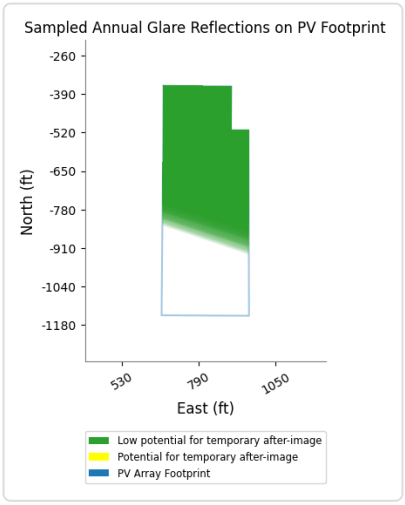
Yellow glare: none

Green glare: 423 min.



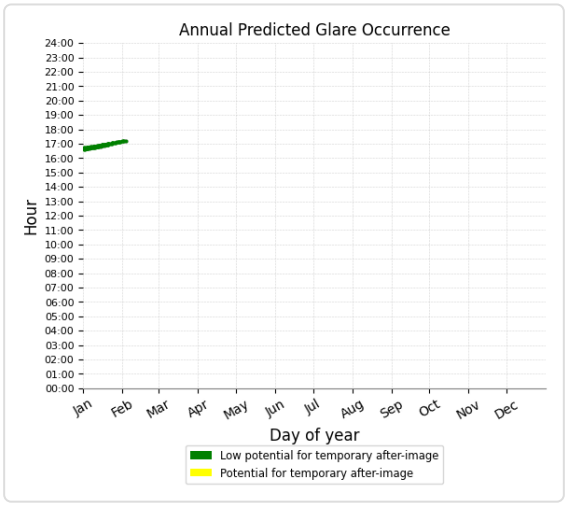


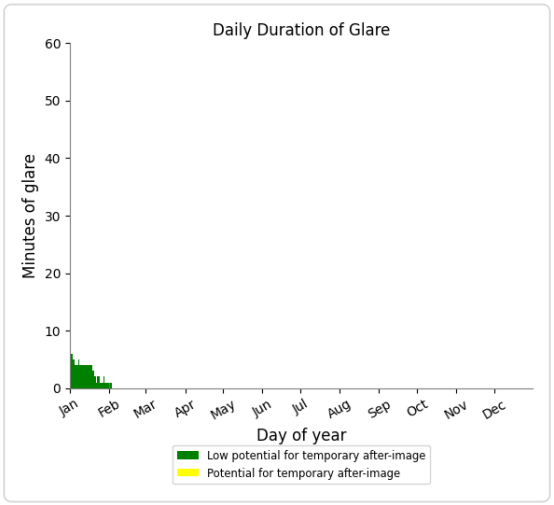


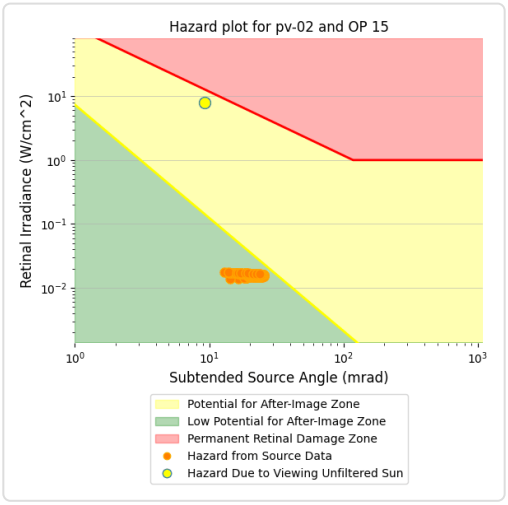


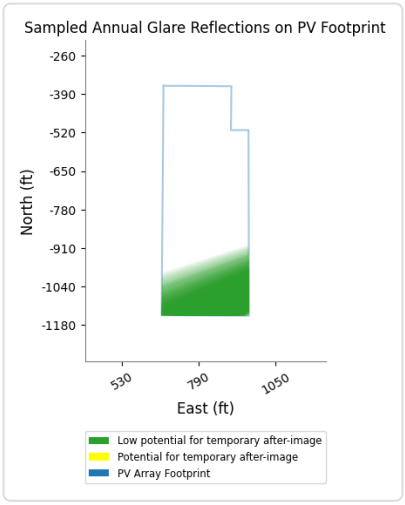
PV 02 and OP 15

Yellow glare: none
Green glare: 104 min.









PV 02 and OP 9

No glare found

PV 02 and OP 10

No glare found

PV 02 and OP 11

No glare found

PV 02 and OP 12

No glare found

PV 02 and OP 13

No glare found

PV 02 and OP 14

No glare found

PV 02 and OP 16

No glare found

PV: PV 03 potential temporary after-image

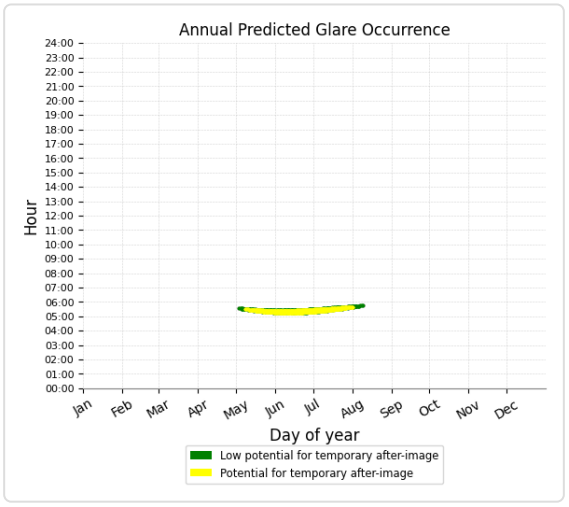
Receptor results ordered by category of glare

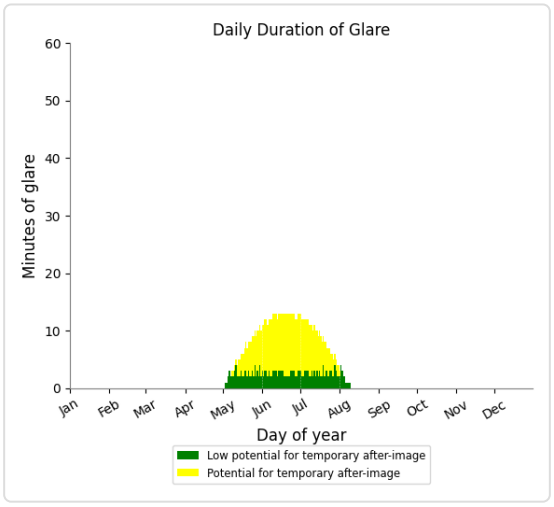
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Erwin Ranch Rd	245	4.1	606	10.1
Central Ln	0	0.0	0	0.0
Cypress Ln	0	0.0	0	0.0
Jensen Dr - Ringwood Trl	0	0.0	0	0.0
Lakewood Dr	0	0.0	0	0.0
Willow Ln	0	0.0	0	0.0
FP 1	0	0.0	0	0.0
FP 2	0	0.0	0	0.0
FP 3	0	0.0	0	0.0
OP 2	20	0.3	0	0.0
OP 1	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0

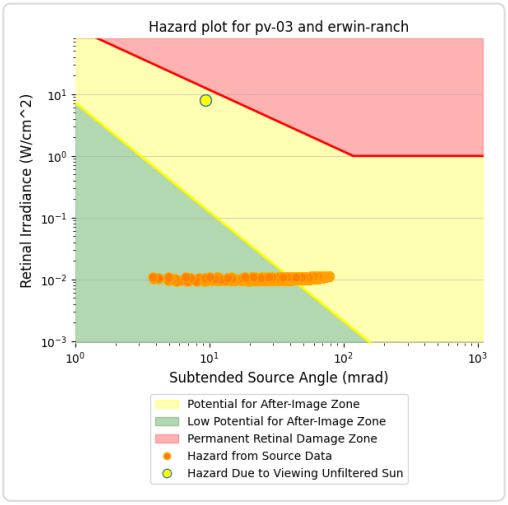
PV 03 and Route: Erwin Ranch Rd

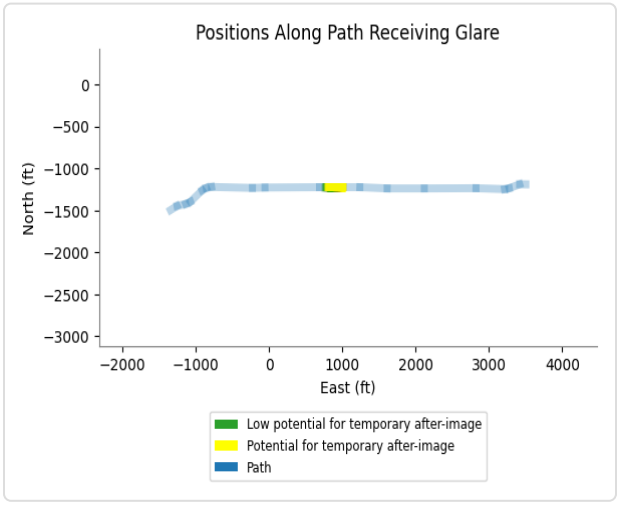
Yellow glare: 606 min.

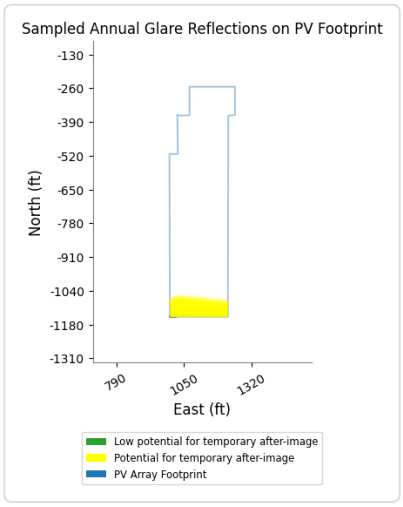
Green glare: 245 min.











PV 03 and Route: Central Ln

No glare found

PV 03 and Route: Cypress Ln

No glare found

PV 03 and Route: Jensen Dr - Ringwood Trl

No glare found

PV 03 and Route: Lakewood Dr

No glare found

PV 03 and Route: Willow Ln

No glare found

PV 03 and FP: FP 1

No glare found

PV 03 and FP: FP 2

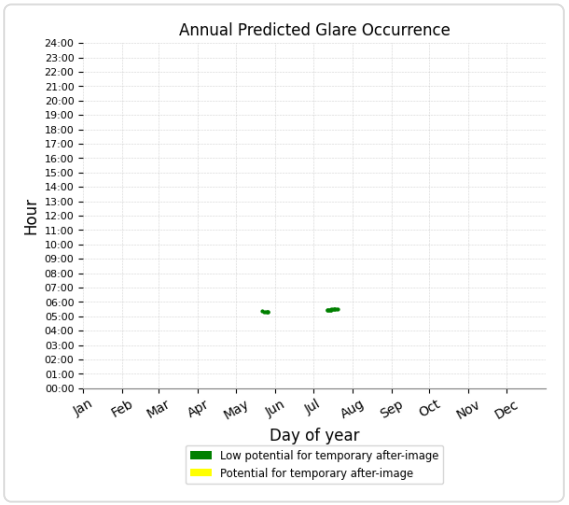
No glare found

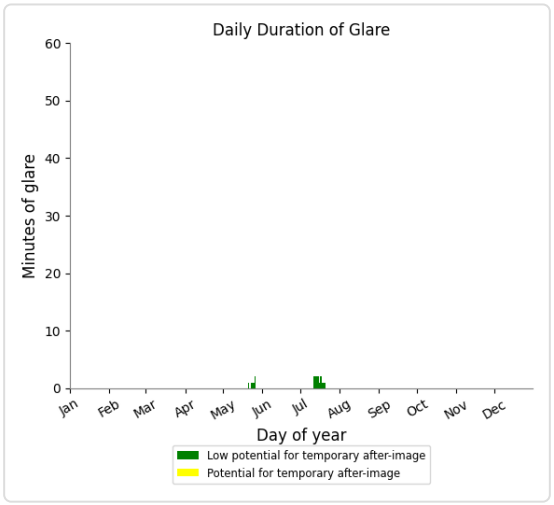
PV 03 and FP: FP 3

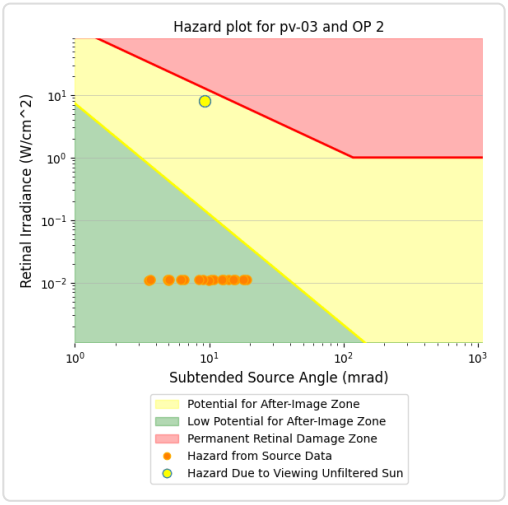
No glare found

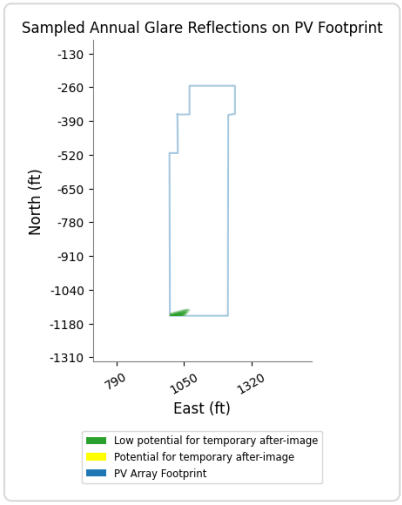
PV 03 and OP 2

Yellow glare: none
Green glare: 20 min.









PV 03 and OP 1

No glare found

PV 03 and OP 3

No glare found

PV 03 and OP 4

No glare found

PV 03 and OP 5

No glare found

PV 03 and OP 6

No glare found

PV 03 and OP 7

No glare found

PV 03 and OP 8

No glare found

PV 03 and OP 9

No glare found

PV 03 and OP 10

No glare found

PV 03 and OP 11

No glare found

PV 03 and OP 12

No glare found

PV 03 and OP 13

No glare found

PV 03 and OP 14

No glare found

PV 03 and OP 15

No glare found

PV 03 and OP 16

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

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APPENDIX C AIR QUALITY/GREENHOUSE GAS ASSESSMENT

Air Quality and Greenhouse Gas Assessment

Bear Valley Solar Energy Project

PREPARED FOR
EDF Renewables Distribution-Scale Power

DATE
31 July 20255

REFERENCE
0739207



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.	
DOCUMENT TITLE	Air Quality and Greenhouse Gas Assessment
DOCUMENT SUBTITLE	Bear Valley Solar Energy Project
PROJECT NUMBER	0739207
DATE	31 July 2025
VERSION (delete field if unneeded)	02
AUTHOR	Crispina O'Connor, Sunveer Bajwa, Carlos Ciudad-Real, Josie Sellers
CLIENT NAME	EDF Renewables Distribution-Scale Power

DOCUMENT HISTORY

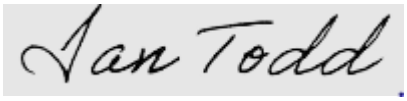
				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Version 1	000	Crispina O'Connor, Sunveer Bajwa, Carlos Ciudad-Real, Josie Sellers	Crispina O'Connor, Mat Carson	Ian Todd	11.7.24	
Version 1	001	Crispina O'Connor, Sunveer Bajwa, Carlos Ciudad-Real, Josie Sellers	Crispina O'Connor, Mat Carson	Ian Todd	11.14.24	
Version 2	000	Crispina O'Connor, Sunveer Bajwa, Carlos Ciudad-Real, Josie Sellers	Crispina O'Connor, Linnea Hofstrom, Mat Carson	Ian Todd	7.31.24	Response to County comments

SIGNATURE PAGE

Air Quality and Greenhouse Gas Assessment

Bear Valley Solar Energy Project

0739207



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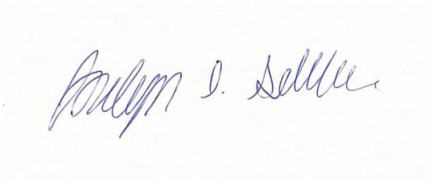

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
AAQS	ambient air quality standard
AB	Assembly Bill
AQMP	Air Quality Management Plan
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standard
CalEEMod	California Emissions Estimator Model
Cap-and-Trade Program	California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
ERM	Environmental Resources Management, Inc.
HAP	Hazardous air pollutant
LST	Localized Significance Threshold
MT	Metric ton
$MTCO_2e$	Metric tons of carbon dioxide equivalent
MW	Megawatt
NAAQS	National Ambient Air Quality Standard
NO_X	Nitrogen oxides

Acronym	Description
NR	Natural Resource
O&M	Operation and maintenance
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns and less
$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns and less
Project	Bear Valley Solar Energy Project
RE	Renewable Energy
RGHGRP	Regional Greenhouse Gas Reduction Plan
RPS	Renewables Portfolio Standard
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SF_6	sulfur hexafluoride
TAC	toxic air contaminant
USEPA	United States Environmental Protection Agency

1. INTRODUCTION

This study analyzes the potential air quality and greenhouse gas (GHG) emissions of the proposed Bear Valley Solar Energy Project (Project) near the City of Big Bear Lake in unincorporated San Bernardino County, California. The Project consists of a new, community-oriented approximately 5-megawatt (MW) alternating current solar photovoltaic (PV) facility situated on approximately 30 acres of privately owned land to meet local energy demand. Environmental Resources Management, Inc. (ERM) prepared this study under contract from EDF Renewables Distribution-Scale Power. The purpose of this study is to analyze the Project's potential air quality and GHG impacts related to both temporary construction activity and long-term operation of the Project. This analysis is part of the environmental review process to comply with the California Environmental Quality Act (CEQA).

2. AIR QUALITY

The Environmental Setting section of this study provides a description of the air quality in unincorporated San Bernardino County. The Regulatory Setting section provides a description of applicable federal, state, and local regulatory policies that were developed in part from information contained in the San Bernardino County Countywide Plan – Natural Resources Element, Goal NR -1: Air Quality[1]. Additional documents utilized are noted as appropriate. The Methodologies and Thresholds Section describes the methodologies used for determining significance as well as the thresholds used. The Impact Evaluation Section provides a description of the potential impacts of the Project and includes the identification of feasible mitigation measures (if necessary and feasible) to avoid or reduce the potential for significant impacts to less-than-significant levels.

2.1 ENVIRONMENTAL SETTING

2.1.1 GEOGRAPHY

The Project is located on unincorporated land in Big Bear Valley which is a part of the South Coast Air Basin (SCAB). The SCAB is bounded by the San Gabriel and San Bernardino Mountains to the north and the San Jacinto Mountains to the east. The relationship between geography and air quality is described in the following section on meteorology.

2.1.2 METEOROLOGY

Big Bear Valley has a climate characterized by warm summers and cold winters with precipitation occurring as rainfall in the warmer months and snowfall in the colder months. Average daily summer temperatures range between 60 to 70 degrees Fahrenheit, and average daily winter temperatures range between 35 to 40 degrees Fahrenheit[2]. Average annual precipitation is

[1] San Bernardino County. Countywide Plan – Natural Resources Element, Goal NR -1: Air Quality. https://countywideplan.sbcounty.gov/policy-plan/natural-resources/
[2] PRISM Climate Group, Oregon State University. 2024. https://prism.oregonstate.edu, data accessed September 2024.

21 inches and ranges from 0.12 inches in June to 4.73 in February[3]. The prevailing winds originate predominately from the west and southeast and have maximum speeds up to 5.7 meters per second.[4]

The San Bernardino Mountains surrounding Big Bear Valley create a barrier to airflow, which can trap air pollutants in the valley during unfavorable meteorological conditions and temperature inversions. Air stagnation can occur when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical flow caused by low surface heating reduces the influx of outside air and allows pollutants to become concentrated in the air. The surface concentrations of pollutants are highest when these conditions are combined with increased levels of smoke or when temperature inversions trap cool air, fog, and pollutants near the ground.

2.1.3 AMBIENT AIR QUALITY

As required by the federal-level Clean Air Act (CAA), the United States Environmental Protection Agency (USEPA) has identified six criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. The six criteria pollutants are ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, particulate matter with an aerodynamic diameter of 10 microns and less (PM_{10}) and particulate matter with an aerodynamic diameter of 2.5 microns and less ($PM_{2.5}$), and lead. To protect human health and the environment, the USEPA has set "primary" and "secondary" maximum ambient standards for each of the criteria pollutants. Primary standards were set to protect human health, particularly sensitive individuals such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings. The NAAQS are defined as the maximum acceptable concentration that may be reached, but not exceeded more than once per year.

California has adopted the California Ambient Air Quality Standards (CAAQS), which are more stringent ambient air quality standards (AAQS) for most of the criteria pollutants. The California Air Resources Board (CARB) is the State agency responsible for establishing CAAQS. If ambient air quality concentrations of the pollutants of concern are below the NAAQS and CAAQS standards, then health impacts are not anticipated. However, when concentrations of the air pollutants exceed the NAAQS and CAAQS standards, then health impacts are considered to vary based on the level of exceedance. The USEPA and CARB designate counties in California as being in attainment or non-attainment for the NAAQS and CAAQS, respectively. Table 2.1-1 summarizes the most stringent NAAQS/CAAQS and the attainment status of the SCAB.

[3] United States Geological Survey (USGS). 2012. Geohydrology of Big Bear Valley, California phase 1—Geologic Framework, Recharge, and Preliminary Assessment of the Source and Age of Groundwater. Available at: https://pubs.usgs.gov/sir/2012/5100/pdf/sir20125100.pdf. Accessed July 2024.
[4] South Coast Air Quality Management District (SCAQMD). 2024. AERMOD Table 1: Meteorological Sites. https://www.aqmd.gov/home/air-quality/meteorological-data/aermod-table-1, data accessed October 2024.

TABLE 2.1-1 MOST STRINGENT AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE SOUTH COAST AIR BASIN

Pollutant	Averaging Time	CAAQS Concentration	CAAQS Status	NAAQS Concentration	NAAQS Status
Ozone	8 hours	0.070 ppm	N	0.070 ppm	N
	1 hour	0.09 ppm	N	0.12 ppm[a]	N
Carbon Monoxide	8 hours	9 ppm	A	9 ppm	A
	1 hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide	1 hour	0.18 ppm	A	0.10	A
	Annual	0.03 ppm	A	0.053 ppm	A
Sulfur Dioxide	24 hours	0.04 ppm	A	-	-
	1 hour	-	-	0.075 ppm	A
Particulate Matter (PM_{10})	Annual	20 µg/m^3	N	-	-
	24 hours	50 µg/m^3	N	150 µg/m^3	N
Particulate Matter - Fine ($PM_{2.5}$)	Annual	12 µg/m^3	N	9.0 µg/m^3	To be determined[b]
	24 hours	-	-	35 µg/m^3	N
Sulfates	24 hours	25 µg/m^3	A	—	—
Lead	Rolling 3-Month Average	-	-	0.15 µg/m^3	A
	30-day average	1.5 µg/m^3	N	-	-

A=Attainment; N=Non-attainment; U=Unclassified
ppm = parts per million; µg/m^3 = micrograms per cubic meter

a) *1-hour O3 standard (0.12 ppm) was revoked, effective 15 June 2005; however, the Basin has not attained this standard and is still subject to anti-backsliding requirements.*
b) *In February 2024 the USEPA strengthened the NAAQS for PM2.5 to 9.0 µg/m3. The USEPA has 2 years to designate areas as in attainment or non-attainment so current monitoring data is still being analyzed. However, the air basin was not in attainment with the previous standard of 12.0 µg/m3 and based on monitoring data for 2020-2022, the air basin will likely not be in attainment with the more stringent threshold either.*

2.1.4 SENSITIVE RECEPTORS

Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses). The South Coast Air Quality Management District (SCAQMD) identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes. The Project site is bounded on the north and east by undeveloped land, on the south by Erwin Ranch Road, and on the west by Lakewood Drive. The site is in a rural area consisting mostly of ranches; however, there is a residential ranch house on the east, south, and west sides of the Project with the closest located adjacent to the south side of the Project site.

2.2 REGULATORY SETTING

This section summarizes the relevant laws, regulations, and policies related to air quality at federal, state, regional, and local levels.

2.2.1 FEDERAL

As discussed in the Ambient Air Quality section, the CAA establishes the statutory framework for regulation of air quality in the United States. Pursuant to this act, the USEPA has established various regulations to achieve and maintain acceptable air quality, including the adoption of NAAQS, mandatory State Implementation Plan or maintenance plan requirements to achieve and maintain NAAQS, and emission standards for both stationary and mobile sources of air pollution. The NAAQS were established in 1970 for six criteria pollutants because they are considered the most prevalent air pollutants known to be hazardous to human health. If a region is designated as non-attainment for a NAAQS, the CAA requires the state to develop a State Implementation Plan to demonstrate how the standard will be attained, including the establishment of specific requirements for review and approval of new or modified stationary sources of air pollution. The CAA Amendments of 1990 directed the USEPA to set standards for toxic air contaminants (TAC) and required facilities to sharply reduce emissions. Table 2.1-1 summarizes state and federal AAQS.

Another major component of the CAA is Hazardous Air Pollutants (HAPs). The 1977 CAA amendments required the USEPA to identify National Emission Standards for Hazardous Air Pollutants known as NESHAPs to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that are expected to result in a decrease of public health, based on scientific studies of exposure to humans and other mammals. The 1990 CAA amendments required the USEPA to set standard permissible ceilings for 187 substances and chemical families. The amendments also required businesses to implement risk-management programs for dealing with potential releases of hazardous substances.

2.2.2 STATE

The CARB is the State agency responsible for California air quality management. It establishes CAAQS, TAC standards, mobile source emission standards, and GHG regulations, as well as

oversight of regional air quality districts and preparation of implementation plans, including regulations for stationary sources of air pollution.

The CAAQS are generally more stringent than federal NAAQS, except for the 1-hour nitrogen dioxide and sulfur dioxide standards, and include more pollutants than the NAAQS (see Table 2.1-1). California specifies four additional criteria pollutants: visibility reducing particles, sulfates and hydrogen sulfide, and vinyl chloride. Similar to USEPA, CARB designates counties in California as being in attainment or non-attainment for the CAAQS.

State law has also established the framework for California's TAC identification and control program, which is generally more stringent than the Federal HAP program and aimed at TACs that are a problem in California. According to section 39655 of the California Health and Safety Code, a TAC is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." CARB has formally identified over 200 substances and groups of substances as TACs including diesel particulate matter (DPM). In addition, substances which have been listed as federal HAPs pursuant to section 7412 of Title 42 of the United States Code are TACs under California's air toxics program. CARB is adopting appropriate control measures for sources of these TACs. The following measures are required by California law to reduce DPM emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-Use Off-Road Diesel Vehicles (Title 13 California Code of Regulations, Chapter 9, Section 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.
- All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to 5 minutes; electric auxiliary power units should be used whenever possible.

2.2.3 REGIONAL - *SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)*

The Project site is located within the jurisdiction of the SCAQMD. The SCAQMD is the regional air agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution pursuant to delegated state and federal authority. Because the Project would not involve construction of new stationary sources, and most equipment that will be used for construction is classified as mobile sources and is thus exempt from stationary source permit requirements, there are no relevant air permitting regulations. The SCAQMD has published CEQA guidelines for analysis and mitigation of impacts from projects within its jurisdiction, and established thresholds of significance for construction impacts as well as impacts from operation of non-permitted equipment and activities.

Under the CAA, the SCAQMD is required to develop an air quality plan to achieve and/or maintain compliance with federal and state non-attainment criteria pollutants within its air district. The SCAQMD has taken action and developed attainment plans, namely the 2022 Air Quality

Management Plan (AQMP) and the SCAB Attainment Plan for the 2012 Annual $PM_{2.5}$ Standard, to achieve and/or maintain compliance with the federal and state ozone, PM_{10}, and $PM_{2.5}$ standards[5].

Notification Requirements under SCAQMD Rule 403. Rule 403 (Fugitive Dust) prohibits creation of dust plumes that are visible beyond the property line of the emission source and requires all active operations to implement applicable best available control measures. Enhanced dust control and notification requirements apply if the project is considered a "large operation" under this rule, which is any active operations on property that contains 50 or more acres of disturbed surface area. As the total parcel is approximately 30 acres with the disturbed area under 21 acres, enhanced dust control and notification requirements are not applicable.

2.2.4 LOCAL - *COUNTY OF SAN BERNARDINO*

Local jurisdictions, such as the County of San Bernardino, are responsible for the assessment and mitigation of air emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the County assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. The applicable San Bernardino County's Countywide Plan goals and policies and Development Code regulations are listed below.

2.2.4.1 SAN BERNARDINO COUNTY COUNTYWIDE PLAN / POLICY PLAN

The County's Countywide Plan, adopted on 27 October 2020, serves as a set of plans and tools for the County's unincorporated communities and complements the Countywide vision. The Countywide Plan consists of the Policy Plan, Business Plan, and Community Action Guides, together with the supporting environmental clearance. The Policy Plan is a component of the Countywide Plan that is an update and expansion of the County's General Plan for the unincorporated areas. The following goals and policies are applicable to the Project:

Natural Resources (NR) Element

"Goal NR-1: Air Quality
Air quality that promotes health and wellness of residents in San Bernardino County through improvements in locally generated emissions."

Policies:

"NR-1.1 Land use. We promote compact and transit-oriented development countywide and regulate the types and locations of development in unincorporated areas to minimize vehicle miles traveled and greenhouse gas emissions."

"NR-1.2 Indoor air quality. We promote the improvement of indoor air quality through the California Building and Energy Codes and through the provision of public health programs and services."

[5] South Coast Air Quality Management District (SCAQMD). 2009. Localized Significance Thresholds. https://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/localized-significance-thresholds

"NR-1.3 Coordination on air pollution. We collaborate with air quality management districts and other local agencies to monitor and reduce major pollutants affecting the county at the emission source."

"NR-1.6 Fugitive dust emissions. We coordinate with air quality management districts on requirements for dust control plans, revegetation, and soil compaction to prevent fugitive dust emissions."

"NR-1.8 Construction and operations. We invest in County facilities and fleet vehicles to improve energy efficiency and reduce emissions. We encourage County contractors and other builders and developers to use low-emission construction vehicles and equipment to improve air quality and reduce emissions."

"NR-1.9 Building design and upgrades. We use the CALGreen Code to meet energy efficiency standards for new buildings and encourage the upgrading of existing buildings to incorporate design elements, building materials, and fixtures that improve environmental sustainability and reduce emissions."

Renewable Energy (RE) Element

Policies:

"RE 4.1 Apply standards to the design, siting, and operation of all renewable energy facilities that protect the environment, including sensitive biological resources, air quality, water supply and quality, cultural, archaeological, paleontological, and scenic resources."

"RE 4.3.1 Define measures required to minimize ground disturbance, soil erosion, flooding, and blowing of sand and dust, with appropriate enforcements mechanisms in the Development Code."

2.2.4.2 SAN BERNARDINO COUNTY DEVELOPMENT CODE

Section 83.01.040

"(c) Diesel Exhaust Emissions Control Measures. The following emissions control measures shall apply to all discretionary land use projects approved by the County on or after January 15, 2009:

1) On-Road Diesel Vehicles. On-road diesel vehicles are regulated by the State of California Air Resources Board.
2) Off-Road Diesel Vehicle/Equipment Operations. All business establishments and contractors that use off-road diesel vehicle/equipment as part of their normal business operations shall adhere to the following measures during their operations in order to reduce DPM emissions from diesel-fueled engines:
    A. Off-road vehicles/equipment shall not be left idling on site for periods in excess of five minutes. The idling limit does not apply to:
        (I) Idling when queuing;
        (II) Idling to verify that the vehicle is in safe operating condition;
        (III) Idling for testing, servicing, repairing or diagnostic purposes;

(IV) Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane);

(V) Idling required to bring the machine system to operating temperature; and;

(VI) Idling necessary to ensure safe operation of the vehicle.

B. Use reformulated ultra-low-sulfur diesel fuel in equipment and use equipment certified by the U.S. Environmental Protection Agency (EPA) or that pre-dates EPA regulations.

C. Maintain engines in good working order to reduce emissions.

D. Signs shall be posted requiring vehicle drivers to turn off engines when parked.

E. Any requirements or standards subsequently adopted by the South Coast Air Quality Management District, the Mojave Desert Air Quality Management District or the California Air Resources Board.

F. Provide temporary traffic control during all phases of construction.

G. On-site electrical power connections shall be provided for electric construction tools to eliminate the need for diesel-powered electric generators, where feasible.

H. Maintain construction equipment engines in good working order to reduce emissions. The developer shall have each contractor certify that all construction equipment is properly serviced and maintained in good operating condition.

I. Contractors shall use ultra-low sulfur diesel fuel for stationary construction equipment as required by Air Quality Management District (AQMD) Rules 431.1 and 431.2 to reduce the release of undesirable emissions.

J. Substitute electric and gasoline-powered equipment for diesel-powered equipment, where feasible."

Section 84.29.035

(c) The finding of fact shall include the following:

20) "The proposed commercial solar energy generation facility will be designed, constructed, and operated so as to minimize dust generation, including provision of sufficient watering of excavated or graded soil during construction to prevent excessive dust. Watering will occur at a minimum of three (3) times daily on disturbed soil areas with active operations, unless dust is otherwise controlled by rainfall or use of a dust palliative, or other approved dust control measure.

21) All clearing, grading, earth moving, and excavation activities will cease during period of winds greater than 20 miles per hour (mph), averaged over one hour, or when dust

plumes of 20 percent or greater opacity impact public roads, occupied structures, or neighboring property, and in conformance with AQMD regulations.

22) For sites where the boundary of a new commercial solar energy generation facility will be located within one-quarter mile of a primary residential structure, an adequate wind barrier will be provided to reduce potentially blowing dust in the direction of the residence during construction and ongoing operation of the commercial solar energy generation facility.

23) Any unpaved roads and access ways will be treated and maintained with a dust palliative or graveled or treated by another approved dust control Chapter 83.09 of the Development Code.

24) On-site vehicle speed will be limited to 15 mph."

2.3 METHODOLOGY AND THRESHOLDS

2.3.1 THRESHOLDS OF SIGNIFICANCE

The thresholds of significance for this section are established by the SCAQMD significance thresholds identified in their document titled *South Coast AQMD Air Quality Significance Thresholds*.[6] The following are potential thresholds for significance:

- Result in an exceedance of an SCAQMD mass daily threshold during construction or operation.
- Result in exposure of sensitive receptors to emissions of TAC over the maximum health risk.
- Result in an odor nuisance as defined in SCAQMD Rule 402.
- Result in an exceedance of an AAQS for criteria pollutants.

To characterize the potential impact of criteria air pollutant emissions in the CEQA process, SCAQMD recommends use of regional significance thresholds for construction and for project-related operation emissions that are subject to CEQA review. The emissions from the activities of construction and operation of the project are compared to these SCAQMD regional significance thresholds to determine whether the project would result in adverse air quality impacts.

The project-level SCAQMD regional significance emissions thresholds for CEQA review are shown below in Figure 2.3-1.

[6] South Coast Air Quality Management District. South Coast AQMD Air Quality Significance Thresholds. https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25

FIGURE 2.3-1 SCAQMD REGIONAL SIGNIFICANCE EMISSIONS THRESHOLDS

South Coast AQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	

Source: SCAQMD 2023[7].

For emissions exceeding the regional significance thresholds, the SCAQMD also provides air quality significance thresholds for ambient air quality impact assessments, which may be used to calculate the downwind concentrations caused by the on-site portions of project emissions.

For emissions from sites that are near sensitive receptors and are 5 acres or less, SCAQMD developed the Localized Significance Thresholds (LSTs) to evaluate whether a mass emission rate from a project may generate significant adverse localized air quality impacts. The LSTs may be used by lead agencies as a way of indicating whether a project could locally exceed the AAQSs at a given distance from the site boundary. The LSTs vary depending on the meteorological conditions for each source receptor area within the SCAQMD jurisdiction. Since the Project would occupy approximately 21 acres of the 30-acre parcel, use of LSTs would not be appropriate for this Project. While SCAQMD recommends that proposed projects larger than 5 acres in area undergo air dispersion modeling to determine localized air quality, the Project would not include new stationary sources that could be subject to risk assessment programs.

2.3.2 METHODOLOGY

Air quality impacts associated with onsite construction and operational activities were calculated using the California Emissions Estimator Model (CalEEMod) version 2022.1.1.17. CalEEMod was developed for the California Air Pollution Control Officers Association in collaboration with California air districts to calculate air quality and GHG emissions associated with land use projects. The program analyzes construction (short-term) emissions by utilizing both default values for specific geographic areas and typical land use projects as well as project-specific values such as construction schedules and equipment rosters. The estimated use of construction equipment and the CalEEMod output are provided in Appendix A. It is assumed that minimal or no waste soil hauling will occur as a result of constructing the Project. CalEEMod was also set up to assume that

95 percent of the roads traveled by the construction crew are paved and that the remaining portion (5 percent) to access the site is unpaved.

The Project would be operated remotely and would be unstaffed. Operations would emit less than 0.005 tons per year of any criteria air pollutant. Project operations would entail infrequent maintenance inspections by part-time personnel, which would include local service businesses, as needed. Repair/servicing and replacement of equipment may be required periodically over the Project lifespan. These types of maintenance visits, assumed to occur within 1 to 2 workdays at most, would be comparable to the short-term construction emissions.

2.4 IMPACT EVALUATION

Appendix G, part III of the CEQA Environmental Checklist includes four questions relevant to the potential for impacts to air quality. Where available, the significance criteria established by the applicable air quality management district or air pollution control district (i.e., SCAQMD) may be relied upon to make the following determinations. The CEQA Environmental Checklist asks if the Project would:

a) Conflict with or obstruct implementation of the applicable air quality plan?

b) 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 AAQS (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

c) Expose sensitive receptors to substantial pollutant concentrations?

d) Create objectionable odors affecting a substantial number of people?

A. CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN?

For the Project area, the SCAQMD and CARB ensure implementation of California's AQMPs, known collectively as the State Implementation Plan. State-level air quality planning strategies to attain CAAQS are implemented through rules, regulations, and programs adopted by SCAQMD and CARB to control ozone precursors, PM_{10}, and $PM_{2.5}$. All construction and Project development-related activities, including operation and maintenance and eventual decommissioning, would comply with the applicable rules, regulations, and programs. Strategies and control measures identified within the SCAQMD 2016 AQMP, and the updated 2022 AQMP, apply directly to Project activities as promulgated through SCAQMD's rules and regulations.

All construction and operational activities and eventual decommissioning would comply with SCAQMD's Rule 402 and 403, which prevent nuisances and regulate fugitive dust emissions. The Project would also conform to the federal and state CAA requirements by complying with the rules and regulations that are contained in the air quality plan.

A project could be inconsistent with the applicable AQMP or attainment plan if it causes population and/or employment growth or growth in vehicle-miles traveled in excess of the growth forecasts included in the attainment plan. The Project would be operated remotely and employ no more than four part-time positions for ongoing operation and maintenance (O&M) related activities. The

construction workforce would involve only temporary employment for a period of approximately 6 -9 months. Accordingly, Project construction and operation would not result in activities that would conflict with or obstruct implementation of the applicable air quality plan, and this impact would be *less than significant.*

B. 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?

Construction-related activities of the proposed Project will most likely require approximately 6 months of continuous activity involving six overlapping phases during normal working hours, 5 days per week. It is not uncommon for construction projects to experience delays. Although CalEEMod was used to calculate emissions associated with the planned 6-month schedule, delays could extend construction to approximately 9 months. It is noted that construction-related activities that emit air emissions will be a mix of short-term, intermittent, and temporary durations; and will vary by phase and from equipment type usage.

Construction-related activities of the proposed Project will generate air pollutant emissions from entrained dust, off-road equipment use, and vehicle emissions. Off-site emissions will be generated by construction worker daily commute trips and heavy-duty diesel haul and vendor truck trips. Construction-related emissions could vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Exhaust emissions include ozone precursors (volatile organic compounds and nitrogen oxides [NO_x]), CO, and particulate matter (including PM_{10} and $PM_{2.5}$). Fugitive dust includes particulate matter from soil eroded by ground-disturbing activities and by travel on unpaved surfaces and on paved road surfaces. Dust control and engine exhaust would be subject to SCAQMD rules and regulations to avoid adverse levels of air pollutant concentrations.

Table 2.4-1 summarizes the maximum daily emissions rates anticipated for the 6-month Project lifespan.

TABLE 2.4-1 MAXIMUM DAILY CONSTRUCTION EMISSIONS

Pollutant	Emissions (max lb/day)	SCAQMD Air Quality Significance Thresholds	Below Threshold (Y/N)
VOC	2.45	75 lbs/day	Y
NO_x	20.8	100 lbs/day	Y
CO	23.0	550 lbs/day	Y
SO_x	0.04	150 lbs/day	Y
PM_{10} Total	63.3	150 lbs/day	Y

Pollutant	Emissions (max lb/day)	SCAQMD Air Quality Significance Thresholds	Below Threshold (Y/N)
$PM_{2.5}$ Total	6.67	55 lbs/day	Y

CO = carbon monoxide; lb/day = pounds per day; N = no; NO_x = nitrogen oxides; PM_{10} = particulate matter 10 micrometers or less in diameter; $PM_{2.5}$ = particulate matter 2.5 micrometers or less in diameter; SO_x = sulfur oxides; VOC = volatile organic compounds; Y = yes

As shown in Table 2.4-1, all maximum daily construction-related emissions without controls (both dust controls and off-road equipment controls) would be well below the SCAQMD daily thresholds for construction. Application of SCAQMD and San Bernardino County dust control and off-road equipment emissions controls as mitigation measures would even further reduce the construction emissions of NO_x and PM_{10} below the SCAQMD thresholds. As such, the Project would not 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 AAQS, and the impact would be *less than significant*.

C. EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS?

As discussed in Section 2.1.4, sensitive receptors are those individuals more susceptible to the effects of air pollution. Although the site is located in a rural region, there are several residences surrounding the property to east, west, and south. While these residences are in close proximity to the Project site, construction emissions are well below thresholds and would be short duration in nature; therefore, sensitive receptors would not be exposed to substantial pollutants concentrations.

As noted previously, operations would entail infrequent maintenance activities, as needed, resulting in minimal emissions from maintenance vehicles and equipment. Therefore, operations would not expose existing sensitive receptors to substantial pollutant concentrations.

In addition to impacts from criteria pollutants discussed under B., other emissions may include TACs or HAPs identified by the state and federal government, respectively. The greatest potential for TAC emissions during construction would be DPM emissions from heavy equipment operations and heavy-duty trucks. As shown in Table 2.4-1, maximum daily particulate matter (PM10 or PM2.5) emissions generated by construction equipment operation, combined with fugitive dust generated by equipment operation, would be well below the SCAQMD significance thresholds. During operation, the Project would include minimal sources of TAC emissions, potentially including use of pressure washers once annually for panel washing and use of water trucks for periodic water deliveries to the site. Given the minor increase in emissions, operational activities are not expected to be a significant source of DPM or associated potential health impacts.

Given that the estimated Project emissions are well below significance thresholds as shown in Table 2.4-1, any potential impacts from exposure to substantial pollutant concentrations during construction and project operations would be *less than significant*.

D. RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE)?

Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these odor-causing pollutants would exist during construction. An additional potential source of odor is diesel engine emissions. During construction, diesel exhaust produced by off-road construction equipment could generate odors; however, several pieces of construction equipment would need to operate concurrently in a relatively small area to generate a constant plume of diesel exhaust that could cause objectionable odors for a substantial number of people. These circumstances are not expected to occur as part of the Project because construction equipment would not all operate at the same time. In addition, with respect to Project operations, no odor-generating activities are expected to occur.

As described, because few sources of odor would exist and they would be short term in nature, the Project would not result in other emissions adversely affecting a substantial number of people and impacts due to other emissions would be *less than significant*.

3. GREENHOUSE GAS EMISSIONS

3.1 ENVIRONMENTAL SETTING

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The major concern in releasing excess GHG to the atmosphere is global climate change. Global climate change is a change in the average climate on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Human activity directly contributes to emissions of six primary anthropogenic GHGs: carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride (SF_6).[7] The most important and widely occurring anthropogenic GHG is CO_2, primarily from the use of fossil fuels as a source of energy.

Research by California's Office of Environmental Health Hazard Assessment documents climate change indicators by categorizing the effects as: changes in California's climate; impacts to physical systems including oceans, lakes, rivers, and snowpack; and impacts to biological systems including humans, vegetation, and wildlife. The primary observed changes in California's climate include increased annual average air temperatures, more-frequent extremely hot days and nights, and increased severity of drought. Impacts to physical systems affected by warming temperatures and changing precipitation patterns show decreasing snowmelt runoff, shrinking glaciers, and rising sea levels. Impacts to terrestrial, marine, and freshwater biological systems, with resulting changes in habitat, agriculture, and food supply are occurring in conjunction with the potential to impact human well-being[8].

The electricity sector in California has achieved substantial GHG emissions reductions through renewable and zero-carbon energy deployment. Moving forward, a clean, affordable, and reliable electricity grid will serve as a backbone to support deep decarbonization across California's

[7] California Air Resources Board. AB 32 Global Warming Solutions Act of 2006 Assembly Bill 32 Overview. https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006
[8] OEHHA (Office of Environmental Health Hazard Assessment, California Environmental Protection Agency). 2018. Indicators of Climate Change in California.

economy. Decarbonizing the electricity sector is a crucial pillar of achieving carbon neutrality, and CARB anticipates that the role of electricity in powering the economy will continue to grow while electric loads increase[9]. California continues to add zero-carbon energy resources to replace fossil-fuel generation and support growing demand. Moving to zero-carbon resources is critical to reducing GHG emissions and addressing the long-term impacts of climate change[10].

Renewable and zero-carbon sources of energy do not operate on-demand like traditional fossil fuel power plants. Energy storage improves California's ability to efficiently integrate renewable resources. The growth of zero-carbon resources, especially solar resources, has shifted the reliability concerns from the peak hour (hour with the highest energy demand) to net peak hours (hours when energy demand minus wind and solar generation is largest). The changing resource mix is driving a change in the characteristics of the electricity system and requires consideration of the net demand curve, total electricity demand less the wind and solar generation. The "duck curve" is characterized by more drastic increases in net demand in the evening hours as solar decreases, and a net peak that occurs later in the evening when solar generation is substantially diminished or nonexistent. Storing some midday solar generation flattens the duck's curve, and dispatching the stored solar generation in the evening shortens the duck's neck[11]. Presently, fossil-fuel natural gas-fired power plants provide about 75 percent of the flexible capacity for grid reliability. As more renewable power enters the system, other resources such as storage and demand-side management are essential to maintain reliability with high concentrations of renewables[9].

3.1.1 EXISTING CONDITIONS

In 2016, San Bernardino County generated approximately 16 million metric tons (MT) of carbon dioxide equivalents (CO_2e)[12]. The largest portion of these emissions (51 percent) is attributed to on-road vehicles, while the second largest portion (35 percent) is due to building energy. In 2030, San Bernardino County is forecast to generate approximately 17.6 million tons of CO_2e, a GHG emissions increase of 15 percent. The largest portion of these emissions (51 percent) is attributed to on-road vehicles, while the second largest portion (38 percent) is due to building energy.

3.2 REGULATORY SETTING

3.2.1 FEDERAL

The Supreme Court decision in Massachusetts et al. v. Environmental Protection Agency et al. (Supreme Court Case 051120) found that the USEPA has the authority to list GHGs as pollutants and to regulate emissions of GHGs under the federal-level CAA. On 17 April 2009, USEPA found that CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and SF_6 may contribute

[9] California Air Resources Board. 2022. California's Scoping Plan for Achieving Carbon Neutrality. December 2022. https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf.
[10] California Energy Commission. 2022. Final 2021 Integrated Energy Policy Report (IEPR), Volume II - Ensuring Reliability in a Changing Climate. https://efiling.energy.ca.gov/GetDocument.aspx?tn=241583.
[11] U.S. EIA (Energy Information Administration). 2023. Today in Energy: As solar capacity grows, duck curves are getting deeper in California. June. https://www.eia.gov/todayinenergy/detail.php?id=56880.
[12] San Bernardino County Transportation Authority. March 2021. San Bernardino County Regional Greenhouse Gas Reduction Plan. Appendix A. https://www.gosbcta.com/wp-content/uploads/2019/09/San_Bernardino_Regional_GHG_Reduction_Plan_Appendices_Mar_2021.pdf

to air pollution and may endanger public health and welfare. The USEPA has established reporting regulations that require specific facilities and industries to report their GHG emissions annually. *40 Code of Federal Regulations Part 98, Mandatory Reporting of Greenhouse Gases Rule* requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 MT of CO_2e ($MTCO_2e$) per year.

3.2.2 STATE

ASSEMBLY BILL 32: GLOBAL WARMING SOLUTIONS ACT OF 2006

In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32). AB 32 provides the framework for regulating GHG emissions in California. This law requires the CARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020.

The bill also requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions. The bill authorizes CARB to adopt market-based compliance mechanisms. The bill additionally requires the state board to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism adopted by the state board, pursuant to specified provisions of existing law. The bill also authorizes CARB to adopt a schedule of fees to be paid by regulated sources of GHG emissions. Because the bill requires CARB to establish emissions limits and other requirements, the violation of which would be a crime, this bill would create a state-mandated local program. Under AB 32, by 30 June 2007, CARB was to identify a list of discrete early action GHG reductions that will be legally enforceable by 2010. By 1 January 2008, CARB was also to adopt regulations that will identify and require selected sectors to report their statewide GHG emissions. By 1 January 2011, CARB must adopt rules and regulations to achieve the maximum technologically feasible and cost-effective reductions in GHG reductions. CARB is authorized to enforce compliance with the program that it develops.[13]

STATE EXECUTIVE ORDERS ON GHG EMISSIONS

State Executive Order S-3-05 (June 2005) established the initial GHG reduction targets for the State of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050.

In April 2015, Governor Brown signed Executive Order B-30-15, establishing the intermediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030, to ensure the state meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050 (Executive Order S-3-05). On 8 September 2016, Governor Brown signed SB 32 and AB 197, which codified the 2030 GHG emissions reduction target of 40 percent below 1990 levels and provided additional direction for updating the scoping plan.

[13] AB 32 Global Warming Solutions Act of 2006 Assembly Bill 32 Overview

In September 2018, Executive Order B-55-18 established a new statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. CARB was directed to develop the framework for implementing the goal of carbon neutrality.

RENEWABLES PORTFOLIO STANDARD (RPS) PROGRAM AND SENATE BILLS 350 & 100

On 10 September 2018, Governor Brown signed Senate Bill 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by 31 December 2045. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly-owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers must also have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. California must procure 100 percent of its energy from carbon-free energy sources by the end of 2045.[14]

Senate Bill 100 also creates new standards for the Renewables Portfolio Standard (RPS) goals established by Senate Bill 350 in 2015. The Clean Energy and Pollution Reduction Act of 2015 (Senate Bill 350) established California's state policy objectives on long-term energy planning and procurement as signed into law on October 7, 2015.

CAP-AND-TRADE PROGRAM (17 CALIFORNIA CODE OF REGULATIONS 95801 TO 96022)

The California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (Cap-and-Trade Program) was initially approved by CARB in 2011. The Cap-and-Trade Program applies to covered entities that fall within certain source categories, including suppliers of transportation fuels, retail providers of electricity, and operators of electricity generating facilities. The program is triggered when facility emissions exceed 25,000 $MTCO_2e$ in a year. The covered entities must hold compliance instruments sufficient to cover the actual GHG emissions, as evidenced through CARB's Mandatory Reporting Regulation requirements. This means that transportation fuel suppliers bear the GHG compliance obligation in the Cap-and-Trade Program for the GHG emissions from motor vehicle and off-road equipment fuels used by construction workforces and crews. No specific reporting requirements apply to electric power generation from solar resources.

SENATE BILLS 97 AND 743

SB 97, enacted in 2007, amended the CEQA statue to establish that GHG emissions and their effects are a prominent environmental issue that require analysis and identification of feasible mitigation under CEQA. GHG emissions were incorporated into the CEQA guidelines on 18 March 2010.

With the passing of SB 743 in 2013, the Governor's Office of Planning and Research further amended the State CEQA Guidelines providing alternative criteria to level of service for evaluating transportation impacts. One of the goals of the new criteria is to promote the reduction of GHG.

[14] Senate Bill 100. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100.

Local jurisdictions were required to implement SB 743 by 1 July 2020 or do additional transportation analysis on a project-by-project basis.

EMISSION REDUCTIONS OF SF_6 FROM GAS INSULATED EQUIPMENT (17 CALIFORNIA CODE OF REGULATIONS 95350 TO 95359)

Electric power gas insulated equipment and switchgear used in transmission and distribution systems are subject to this regulation for reducing or phasing-out SF_6 emissions and leaks. The regulation, initially adopted by CARB in 2010 and amended in 2022, requires owners of such gas-insulated equipment or switchgear to phase out use of SF_6, maintain records and inventories of their gas-insulated equipment and capacities, and report CO_2e emissions to demonstrate compliance with annual limits set by the rule.

CLIMATE CHANGE SCOPING PLAN

CARB published a Climate Change Scoping Plan in December 2022 that outlines reduction measures to lower the state's GHG emissions and achieve a 85 percent reduction from 1990 levels as required by AB 1279.[15] Key elements for reducing California's GHG emissions to 85 percent of 1990 levels by 2045 include:

- Direct emission reduction for sources covered by the AB 32 Inventory;
- Reducing demand for petroleum fuels;
- Carbon capture and sequestration for petroleum refineries and manufacturing facilities; and
- Electrification of industrial, commercial, and residential energy use

3.2.3 REGIONAL - *SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)*

On 5 December 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. This interim guidance includes a numeric threshold to determine significance for industrial projects where SCAQMD is the lead agency[16]. This interim guidance has continued to be used and is repeated in SCAQMD's Air Quality Significance thresholds that were published in March 2023.[17]

3.2.4 LOCAL – *COUNTY OF SAN BERNARDINO*

Local jurisdictions, such as the County of San Bernardino, have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the County is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the County assesses the global climate change potential of new development projects, requires mitigation of

[15] California Air Resources Board. 2022 Scoping Plan Documents. https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents
[16] SCAQMD Governing Board Agenda Item 31. 5 December 2008. https://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2
[17] SCAQMD Air Quality Significance Thresholds. March 2023. https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25

potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

The *Greenhouse Gas Emissions Development Review Processes* (GHG Review Processes), prepared for the County of San Bernardino, March 2015, provides project level direction on how the County plans to achieve the reduction in GHG Emissions[18]. Further, the San Bernardino Policy Plan[19] includes goals and policies that all new projects are required to comply with, as applicable. The following goals and policies are applicable to this community oriented Project:

- "NR 1.7: **Greenhouse gas reduction targets.** We strive to meet the 2040 and 2050 greenhouse gas emission reduction targets in accordance with state law."
- "RE 2.1: Support solar energy generation, solar water heating, wind energy and bioenergy systems that are consistent with the orientation, siting and environmental compatibility policies of the General Plan."
- "RE 3.2: Encourage community-oriented renewable energy (CORE) generation that primarily serves local uses in the county."

3.2.4.1 SAN BERNARDINO COUNTY 2014 REGIONAL GREENHOUSE GAS REDUCTION PLAN (RGHGRP)

In addition, the County participated with San Bernardino Associated Government's regional planning efforts in the adoption of the San Bernardino County 2014 RGHGRP. The 2014 RGHGRP was developed to meet the requirements of AB 32 and SB 375 and includes a regional GHG emissions inventory, summarizes actions that participating jurisdictions have selected to reduce GHG emissions to 1990 levels by 2020, and provides specific reduction goals for each participating jurisdiction. In March 2021, San Bernardino Council of Governments prepared an update to the 2021 RGHGRP in order to address SB 32, which mandates a 40 percent reduction in GHG emissions from 1990 levels by 2030. The 2021 RGHGRP was prepared in accordance with the GHG reduction measures provided in California's 2017 Climate Change Scoping Plan, November 2017[20].

3.3 METHODOLOGY AND SIGNIFICANCE THRESHOLD

Similar to criteria pollutants, GHG impacts associated with onsite construction were calculated using the CalEEMod version 2022.1.1.17. CalEEMod was developed for the California Air Pollution Control Officers Association in collaboration with California air districts to calculate air and GHG emissions associated with land use projects. The program analyzes construction (short-term) emissions by utilizing both default values for specific geographic areas and typical land use projects as well as Project-specific values such as construction schedules and equipment rosters. There is not an appropriate land use type for solar facilities, so Industrial was selected which would overestimate operational emissions. The estimated use of construction equipment and the

[18] County of San Bernardino, Greenhouse Gas Emissions Development Review Processes County of San Bernardino, California, March 2015
[19] County of San Bernardino, County Policy Plan, October 2020.
[20] California Air Resources Board (CARB), Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets, February 2018.

CalEEMod output are provided in Appendix A. It is assumed that no waste hauling will occur as a result of constructing the Project.

The threshold of significance for GHG emissions from industrial facilities in the SCAQMD is 10,000 $MTCO_2e$ per year.[17] Project-related GHG emissions would be considered to have a significant impact on the environment if total project emissions (direct and indirect effects) would exceed this threshold.

The SCAQMD's thresholds specifically allow for amortization of construction emissions over 30 years, to be combined with annual operational emissions to determine total annual average GHG emissions to be compared to the numerical threshold[17].

For the purposes of this assessment, the estimated construction-phase GHG emissions arising from short-term construction and decommissioning activities were amortized over 30 years and added to the operational emissions for comparison with the threshold.

3.4 IMPACT EVALUATION

Appendix G, part VIII of the CEQA Environmental Checklist includes two questions relevant to the potential for impacts to GHG emissions. The CEQA Environmental Checklist asks if the Project would:

A. GENERATE GHG EMISSIONS, EITHER DIRECTLY OR INDIRECTLY, THAT MAY HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT?

Construction and eventual decommissioning activities would cause GHG emissions resulting from fossil-fuel combustion in the engines of construction equipment and the vehicles carrying construction materials and workers to and from the site. Diesel fuel or gasoline will be used in mobilizing the heavy-duty construction equipment during all six phases of the Project: site preparation, pile and skid foundations, module install, electrical install, and commissioning.

The Project would be operated on an autonomous, unstaffed basis, and monitored remotely from an existing off-site facility. It is anticipated that maintenance requirements will be minimal as the proposed Project's photovoltaic arrays will operate with limited moving parts. Operational activities are limited to monitoring plant performance, periodic mowing, and unscheduled preventative maintenance. The Project will operate during daylight hours only, and no heavy equipment will be used during routine Project operation. Default operational emissions from CalEEMod are based on land type, land amount, and local area precipitation. The major contributor to GHG emissions is the default water use number of 20 million gallons annually based on the equation used in Department of Water Resources Model Water Efficient Landscape Ordinance. These operational emissions are a gross over assumption as native drought tolerant plants will be used; however, these default values are used to be conservative.

Equipment and vehicle use over the duration of construction would amount to approximately 143 $MTCO_2e$ of GHG emissions (See Appendix A for CalEEMod Output). For assessing the overall rate of project GHG emissions, San Bernardino County as CEQA lead agency allows short-term construction GHG emissions to be included with operational emissions by averaging construction effects over a 30-year life of the project, as recommended by SCAQMD. The overall construction

GHG emissions amortized over 30 years would be equivalent to an annualized rate of 5 $MTCO_2e$/year. It is assumed that decommissioning activities would be similar in nature and duration to construction activities, so decommissioning emissions are assumed to be the same as construction emissions. Decommissioning is typically faster than construction, so this is a conservative assumption. During the operational life of the project, direct on-site O&M activities would contribute an additional 46.2 $MTCO_2e$ per year. The emissions of O&M activities are shown with the one-time and annualized GHG emissions rates of construction in Table 3.4-1.

The data provided in Table 3.4-1 shows that the proposed Project would create a total of 56 $MTCO_2e$ per year, which is well within the SCAQMD threshold of 10,000 $MTCO_2e$ per year. Even if the construction schedule slipped, and GHG emissions were doubled, it would still be well below thresholds.

TABLE 3.4-1 BEAR VALLEY ESTIMATED GREENHOUSE GAS EMISSIONS

Category	Total ($MTCO_2e$)
Total Construction Emissions	143
Amortized Construction Emissions (30 years)	4.77
Amortized Decommissioning Emissions (30 years)	4.77
Annual Operational Emissions	46
Total Annual Emissions (includes operational and amortized construction and decommissioning activities)	**55.54**
SCAQMD Annual Threshold	**10,000**
Below Threshold (Y/N)	**Y**

$MTCO_2e$ = metric tons of carbon dioxide equivalent; N = no; Y = yes

Further, operation of the solar facility will offset GHG emissions by displacing power produced by carbon-based fuels that would otherwise be used to meet electricity demand. The power displaced is incremental power provided by generators elsewhere on the grid, typically from natural gas power plants. The Project will generate an estimated 13,987 megawatt-hours of solar-generated electricity each year that will be added to the power grid and be used in place of electricity generated by fossil-fuel sources. One hundred percent of the power produced by the Project will be consumed locally within Bear Valley Electric Service, Inc. service territory.

Therefore, because GHG emissions from the Project are well below the threshold and because this Project would displace conventional fossil-fueled electricity generation a less than significant

generation of GHG emissions would occur from development of the proposed Project. Impacts to the environment would be *less than significant*.

B. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

The Project would produce electricity in a manner that improves California's ability to supply renewable energy to end-use customers and to achieve statewide renewable energy goals. Electricity from the solar generating station would be used to serve the needs of California's customers and would facilitate compliance with California's RPS and CARB's 2022 Climate Change Scoping Plan.

The San Bernardino County 2021 RGHGRP includes GHG inventories, and local GHG reduction strategies for each partnership jurisdiction including the unincorporated areas of San Bernardino County. The RGHGRP demonstrates how unincorporated San Bernardino County could achieve its selected goal of reducing its GHG emissions to 40 percent below its 2020 GHG emissions level by 2030. The majority (approximately 80 percent) of unincorporated San Bernardino County's GHG reduction goal will be achieved through state efforts such as vehicle standards, the state's low carbon fuel standard, the RPS, and other state measures to reduce GHG emissions in the on-road, solid waste, and building energy sectors in 2030. According to the RGHGRP, the remaining 20 percent needed to meet its goal could be achieved "primarily through the following local measures, in order of reductions achieved: Solar Installation for Existing Commercial/Industrial (Energy-8); Waste Diversion and Reduction (Waste-2); Solar Installation for Existing Housing (Energy-7)."

Further, the proposed Project is consistent with the GHG goals and policies in the San Bernardino Policy Plan, specifically NR-1.7, RE 2.1, RE 4.1 and RE 4.3.1.

The Project is consistent with the County's RGHGRP and County Policy Plan goal to encourage renewable energy, including solar facilities. The Project would be consistent with state and regional plans to reduce GHG emissions and would result in *no impact*.

APPENDIX A CALEEMOD SUMMARY AND DETAILED REPORT

Bear Valley Solar Summary Report

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1.1. Basic Project Information

Data Field	Value
Project Name	Bear Valley Solar
Construction Start Date	4/7/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.30
Precipitation (days)	14.2
Location	2151 Erwin Ranch Rd, Big Bear, CA 92314, USA
County	San Bernardino-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5156
EDFZ	10
Electric Utility	Bear Valley Electric Service
Gas Utility	Southwest Gas Corp.
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1,307	User Defined Unit	30.0	0.00	1,307,000	—	—	Solar Facility

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.45	20.8	23.0	0.04	1.08	63.3	63.4	0.99	6.40	6.67	5,403
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.29	2.36	3.19	0.01	0.10	14.4	14.5	0.09	1.46	1.55	862
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.43	0.58	< 0.005	0.02	2.63	2.65	0.02	0.27	0.28	143

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	279
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	279
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—

Unmit.	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	46.2

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	19.0
Healthy Places Index Score for Project Location (b)	41.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Bear Valley Solar
Construction Start Date	4/7/2025
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.30
Precipitation (days)	14.2
Location	2151 Erwin Ranch Rd, Big Bear, CA 92314, USA
County	San Bernardino-South Coast
City	Unincorporated
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5156
EDFZ	10
Electric Utility	Bear Valley Electric Service
Gas Utility	Southwest Gas Corp.
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1,307	User Defined Unit	30.0	0.00	1,307,000	—	—	Solar Facility

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.45	20.8	23.0	0.04	1.08	63.3	63.4	0.99	6.40	6.67	5,403
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.29	2.36	3.19	0.01	0.10	14.4	14.5	0.09	1.46	1.55	862
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.43	0.58	< 0.005	0.02	2.63	2.65	0.02	0.27	0.28	143

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2026	2.45	20.8	23.0	0.04	1.08	63.3	63.4	0.99	6.40	6.67	5,403
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2026	0.29	2.36	3.19	0.01	0.10	14.4	14.5	0.09	1.46	1.55	862
Annual	—	—	—	—	—	—	—	—	—	—	—
2026	0.05	0.43	0.58	< 0.005	0.02	2.63	2.65	0.02	0.27	0.28	143

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	279
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	279
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	46.2

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	279
Waste	—	—	—	—	—	—	—	—	—	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Area	0.00	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	279
Waste	—	—	—	—	—	—	—	—	—	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	279
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.03
Area	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	279
Waste	—	—	—	—	—	—	—	—	—	—	0.00
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	279
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.01
Area	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Water	—	—	—	—	—	—	—	—	—	—	46.2
Waste	—	—	—	—	—	—	—	—	—	—	0.00
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	46.2

3. Construction Emissions Details

3.1. Site Prep (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.54	12.1	9.52	0.02	0.69	—	0.69	0.64	—	0.64	2,612
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.66	0.52	< 0.005	0.04	—	0.04	0.03	—	0.03	143
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.12	0.10	< 0.005	0.01	—	0.01	0.01	—	0.01	23.7
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	1.08	0.00	0.00	20.6	20.6	0.00	2.08	2.08	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.80	0.46	< 0.005	0.01	14.9	14.9	0.01	1.52	1.53	714
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	1.09	1.09	0.00	0.11	0.11	10.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	0.05	0.03	< 0.005	< 0.005	0.78	0.79	< 0.005	0.08	0.08	39.1
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	0.20	0.20	0.00	0.02	0.02	1.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.14	0.14	< 0.005	0.01	0.01	6.47

3.3. Commissioning (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36	2.04	2.82	0.01	0.07	—	0.07	0.06	—	0.06	1,372
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.22	0.31	< 0.005	0.01	—	0.01	0.01	—	0.01	150
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	24.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.36	0.00	0.00	6.87	6.87	0.00	0.69	0.69	70.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.72	0.72	0.00	0.07	0.07	7.13
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	0.13	0.13	0.00	0.01	0.01	1.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Module Install (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	1.93	2.98	< 0.005	0.06	—	0.06	0.06	—	0.06	446
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.34	0.53	< 0.005	0.01	—	0.01	0.01	—	0.01	79.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	13.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	1.08	0.00	0.00	20.6	20.6	0.00	2.08	2.08	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	3.53	3.53	0.00	0.36	0.36	34.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.64	0.64	0.00	0.07	0.07	5.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Electrical Install (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.59	2.47	< 0.005	0.05	—	0.05	0.04	—	0.04	370
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.28	0.44	< 0.005	0.01	—	0.01	0.01	—	0.01	65.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	10.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	1.08	0.00	0.00	20.6	20.6	0.00	2.08	2.08	210
Vendor	0.01	0.66	0.36	< 0.005	0.01	15.2	15.2	0.01	1.54	1.55	637
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.15	0.00	0.00	3.53	3.53	0.00	0.36	0.36	34.8
Vendor	< 0.005	0.12	0.06	< 0.005	< 0.005	2.60	2.60	< 0.005	0.26	0.27	113
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.64	0.64	0.00	0.07	0.07	5.75
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	0.47	0.47	< 0.005	0.05	0.05	18.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Skid Foundations (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.50	3.82	4.04	0.01	0.14	—	0.14	0.13	—	0.13	1,308
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.21	0.22	< 0.005	0.01	—	0.01	0.01	—	0.01	71.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	1.08	0.00	0.00	20.6	20.6	0.00	2.08	2.08	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	1.09	1.09	0.00	0.11	0.11	10.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	0.20	0.20	0.00	0.02	0.02	1.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Pile Foundations (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	7.75	10.9	0.02	0.38	—	0.38	0.35	—	0.35	1,656
Paving	0.00	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.42	0.60	< 0.005	0.02	—	0.02	0.02	—	0.02	90.8
Paving	0.00	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.0
Paving	0.00	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	1.08	0.00	0.00	20.6	20.6	0.00	2.08	2.08	210
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	1.09	1.09	0.00	0.11	0.11	10.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	0.20	0.20	0.00	0.02	0.02	1.77
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	0.00	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—
Total	0.00	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	279

Total	—	—	—	—	—	—	—	—	—	—	279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	279
Total	—	—	—	—	—	—	—	—	—	—	279
Annual	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	46.2
Total	—	—	—	—	—	—	—	—	—	—	46.2

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Prep	Site Preparation	4/1/2026	4/28/2026	5.00	20.0	—
Commissioning	Site Preparation	8/1/2026	9/25/2026	5.00	40.0	—
Module Install	Building Construction	6/1/2026	8/29/2026	5.00	65.0	—
Electrical Install	Building Construction	7/1/2026	9/29/2026	5.00	65.0	—
Skid Foundations	Building Construction	5/5/2026	6/1/2026	5.00	20.0	—
Pile Foundations	Paving	4/1/2026	4/28/2026	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Prep	Excavators	Diesel	Average	1.00	8.00	367	0.40
Site Prep	Skid Steer Loaders	Diesel	Average	1.00	8.00	84.0	0.37
Site Prep	Rollers	Diesel	Average	1.00	4.00	376	0.38
Site Prep	Off-Highway Trucks	Diesel	Average	1.00	4.00	148	0.41
Commissioning	Other General Industrial Equipment	Diesel	Average	2.00	4.00	367	0.40
Module Install	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Module Install	Skid Steer Loaders	Diesel	Average	2.00	4.00	71.0	0.37
Module Install	Other General Industrial Equipment	Diesel	Average	2.00	4.00	35.0	0.34
Electrical Install	Other General Industrial Equipment	Diesel	Average	2.00	4.00	35.0	0.34
Electrical Install	Skid Steer Loaders	Diesel	Average	2.00	4.00	71.0	0.37
Skid Foundations	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Skid Foundations	Off-Highway Trucks	Diesel	Average	1.00	4.00	376	0.38
Skid Foundations	Cranes	Diesel	Average	1.00	4.00	367	0.29
Pile Foundations	Skid Steer Loaders	Diesel	Average	2.00	8.00	71.0	0.37

Pile Foundations	Forklifts	Diesel	Average	1.00	4.00	82.0	0.20
Pile Foundations	Other General Industrial Equipment	Diesel	Average	2.00	4.00	35.0	0.34
Pile Foundations	Other Construction Equipment	Diesel	Average	3.00	8.00	82.0	0.42

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Prep	—	—	—	—
Site Prep	Worker	15.0	18.5	LDA,LDT1,LDT2
Site Prep	Vendor	—	10.2	HHDT,MHDT
Site Prep	Hauling	10.0	20.0	HHDT
Site Prep	Onsite truck	—	—	HHDT
Pile Foundations	—	—	—	—
Pile Foundations	Worker	15.0	18.5	LDA,LDT1,LDT2
Pile Foundations	Vendor	—	10.2	HHDT,MHDT
Pile Foundations	Hauling	0.00	20.0	HHDT
Pile Foundations	Onsite truck	—	—	HHDT
Module Install	—	—	—	—
Module Install	Worker	15.0	18.5	LDA,LDT1,LDT2
Module Install	Vendor	0.00	10.2	HHDT,MHDT
Module Install	Hauling	0.00	20.0	HHDT
Module Install	Onsite truck	—	—	HHDT
Commissioning	—	—	—	—
Commissioning	Worker	5.00	18.5	LDA,LDT1,LDT2
Commissioning	Vendor	—	10.2	HHDT,MHDT
Commissioning	Hauling	0.00	20.0	HHDT

Commissioning	Onsite truck	—	—	HHDT
Electrical Install	—	—	—	—
Electrical Install	Worker	15.0	18.5	LDA,LDT1,LDT2
Electrical Install	Vendor	20.0	10.2	HHDT,MHDT
Electrical Install	Hauling	0.00	20.0	HHDT
Electrical Install	Onsite truck	—	—	HHDT
Skid Foundations	—	—	—	—
Skid Foundations	Worker	15.0	18.5	LDA,LDT1,LDT2
Skid Foundations	Vendor	0.00	10.2	HHDT,MHDT
Skid Foundations	Hauling	0.00	20.0	HHDT
Skid Foundations	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Prep	—	—	0.00	0.00	—
Pile Foundations	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	912	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.00	52.0	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
User Defined Industrial	0.00	912	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
User Defined Industrial	0.00	20,989,274

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
User Defined Industrial	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	39.3	annual days of extreme heat
Extreme Precipitation	4.40	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	31.0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	97.6
AQ-PM	1.68
AQ-DPM	4.41
Drinking Water	60.7
Lead Risk Housing	11.6
Pesticides	11.0
Toxic Releases	8.39
Traffic	1.35
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	0.00
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	0.00
Solid Waste	11.6
Sensitive Population	—
Asthma	63.6
Cardio-vascular	92.9
Low Birth Weights	66.3
Socioeconomic Factor Indicators	—
Education	33.5
Housing	22.1
Linguistic	8.49
Poverty	67.0
Unemployment	64.5

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	54.07416913
Employed	2.34826126
Median HI	47.09354549
Education	—
Bachelor's or higher	24.38085461
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	86.34672142
Active commuting	8.161170281
Social	—
2-parent households	29.38534582
Voting	73.38637239
Neighborhood	—
Alcohol availability	87.1423072
Park access	51.00731426
Retail density	9.110740408
Supermarket access	10.57359168
Tree canopy	85.29449506
Housing	—
Homeownership	77.15898884
Housing habitability	49.54446298
Low-inc homeowner severe housing cost burden	35.91684845
Low-inc renter severe housing cost burden	3.708456307

Uncrowded housing	96.93314513
Health Outcomes	—
Insured adults	30.92518927
Arthritis	0.0
Asthma ER Admissions	46.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	16.7
Cognitively Disabled	5.2
Physically Disabled	5.0
Heart Attack ER Admissions	10.8
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	59.1
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	87.1
SLR Inundation Area	0.0

Children	65.5
Elderly	25.8
English Speaking	82.2
Foreign-born	0.7
Outdoor Workers	31.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	94.7
Traffic Density	3.7
Traffic Access	23.0
Other Indices	—
Hardship	62.9
Other Decision Support	—
2016 Voting	81.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	19.0
Healthy Places Index Score for Project Location (b)	41.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project size is 30 acres
Construction: Construction Phases	Durations scaled from a similar project
Construction: Off-Road Equipment	Per project team
Construction: Trips and VMT	Per project team
Construction: Dust From Material Movement	no import/export
Construction: On-Road Fugitive Dust	Unpaved Erwin Ranch Road

APPENDIX D BIOLOGICAL RESOURCES ASSESSMENT

Biological Resources Assessment

Bear Valley Solar Energy Project

PREPARED FOR

EDF Renewables Distribution-Scale Power

DATE
10 October 2024

REFERENCE
0739207



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.	
DOCUMENT TITLE	Biological Resources Assessment
DOCUMENT SUBTITLE	Bear Valley Solar Energy Project
PROJECT NUMBER	0739207
Date	10 October 2024
Version	01
Author	Nicholas Smith
Client name	EDF Renewables Distribution-Scale Power

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Version	000	Nicholas Smith	Ted Hermansen, Mat Carson	Ian Todd	10.10.2024	
Version	001	Nicholas Smith	Mat Carson, Ingrid Eich	Ian Todd	11.5.2024	
Version	002	Nicholas Smith	Mat Carson	Ian Todd	1.27.2025	

SIGNATURE PAGE

Biological Resources Assessment

Bear Valley Solar Energy Project

0739207



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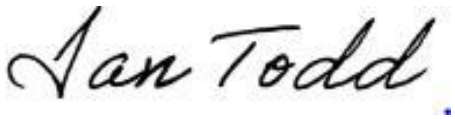

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ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
APN	Assessor's Parcel Number
APT	Antecedent Precipitation Tool
CCH	Consortium of California Herbaria
CDFW	California Department of Fish and Wildlife
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWHR	California Wildlife Habitat Relationships
EDFR-DSP	EDF Renewables Distribution Scale Power
ERM	Environmental Resources Management
FEMA	Federal Emergency Management Agency
IPaC	Information for Planning and Conservation
MW	Megawatt
NHD	National Hydrology Dataset
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration's

NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
Project	Bear Valley Solar Energy Project
Project Area	Assessor's Parcel Number 031440129
PV	Photovoltaic
RPI	Rare Plant Inventory
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
USFS	United States Forest Service
USGS	United States Geological Survey

1. INTRODUCTION

Environmental Resources Management, Inc. (ERM), was retained by EDF Renewables Distribution-Scale Power to provide biological services in support of the Bear Valley Solar Energy Project (Project) located on a privately owned parcel, near the City of Big Bear Lake in unincorporated San Bernardino County, California (Appendix A, Figure 1, *Regional Map*; Appendix A, Figure 2, *Vicinity Map*). ERM was tasked with conducting a biological resources assessment for the 29.53-acre parcel where the Project is proposed to be developed ([Project Area] Appendix A, Figure 3). The purpose of this assessment was to evaluate the site's potential to support special-status species or sensitive habitats, to identify any potential biological site constraints related to permits needed to execute Project-related activities, and to assess the potential for significant impacts to biological resources and propose recommendations. This assessment is part of the environmental review process to comply with the California Environmental Quality Act (CEQA). To complete this assessment, ERM reviewed publicly available data from the Project vicinity and conducted a reconnaissance-level ecological survey of the site. This report summarizes the results of these assessments.

1.1 PROJECT DESCRIPTION

The Project proposes to construct a new, approximately 5-megawatt (MW) alternating current (AC) solar photovoltaic (PV) facility. The Project is owned by Bear Valley Electric Service, Inc. (BVES; Applicant) and being designed, permitted, and developed by EDF Renewables Distribution-Scale Power (EDFR-DSP).

1.2 LOCATION

The Project is situated within a 29.53-acre parcel, referred to as Assessor's Parcel Number (APN) 031440129, located at 2151 Erwin Ranch Road, near the City of Big Bear Lake in unincorporated San Bernardino County, California. The Project is approximately 2.5 miles to the southeast of Big Bear City, California, approximately 4 miles to the southeast of Big Bear Lake, approximately 1.5 miles to the south of Baldwin Lake, and approximately 0.6 miles northwest of Erwin Lake (Appendix A, Figure 1, *Regional Map*; Appendix A, Figure 2, *Vicinity Map*). Local access is provided by Erwin Ranch Road and Lakewood Drive, and regional access is provided by State Route 38. The Project is in the United States Geological Survey (USGS) 7.5-minute quadrangle for Big Bear City, California, within Section 17 of Township 2 North, Range 2 East. The San Bernardino National Forest borders the Project Area on the north but does not extend into the bounds of the Project Area. Additionally, the Project Area does not contain residential properties but is visible from Erwin Ranch Road, Lakewood Drive, and the neighboring rural residences on the east, west, and south.

2. REGULATORY FRAMEWORK

Table 1 summarizes the regulatory framework relevant to the potential biological resources within the Project Area that could be triggered by the development of the proposed Project.

TABLE 1 REGULATORY SETTING

Regulations	Responsible Agency
Federal Regulations	
Federal Endangered Species Act	United States Fish and Wildlife Service
Bald and Golden Eagle Protection Act	United States Fish and Wildlife Service
Migratory Bird Treaty Act	United States Fish and Wildlife Service
State Regulations	
California Endangered Species Act	California Department of Fish and Wildlife
California Environmental Quality Act	San Bernardino County
California Desert Native Plants Act; California Food and Agriculture Code Sections 80001-80201	California Department of Fish and Wildlife
Native Plant Protection Act; California Fish and Game Code Sections 1900-1913	California Department of Fish and Wildlife
Natural Community Conservation Plan; California Fish and Game Code Section 2800	California Department of Fish and Wildlife
Fully Protected Species; California Fish and Game Code Sections 3511, 3515, 3800, 4700, 5050 and 5515	California Department of Fish and Wildlife
Fully Protected Fur Bearing Mammals; California Code of Regulations Title 14, § 460, and California Fish and Game Code Section 4000	California Department of Fish and Wildlife
Protection of Birds, Eggs and Nests; California Fish and Game Code Section 3503, 3503.5 and 3513	California Department of Fish and Wildlife
Western Joshua Tree Conservation Act; California Fish and Game Code Section 1927	California Department of Fish and Wildlife
Local Regulations/Planning Documents	
San Bernardino County Countywide Plan – Natural Resources Element; Goal NR-5: Biological Resources	San Bernardino County
San Bernardino Countywide Plan - Renewable Energy and Conservation Element; Goal RE-4 Environmental Compatibility	San Bernardino County

3. BASELINE CONDITIONS

3.1 TOPOGRAPHY & REGIONAL CONTEXT

The Project Area is located within the U.S. Environmental Protection Agency (USEPA) Level IV Ecoregion 8f, also known as the Southern California Montane Conifer Forest, which occurs on the igneous-dominated mountains of the eastern Transverse Range and the Peninsular Ranges. The Project Area is located within the USGS Baldwin Lake Sub-Watershed (Hydrologic Unit Code 12 180702030101) and California's Regional Water Quality Control Board (RWQCB) / State Water Resources Control Board (SWRCB) Baldwin Hydrologic Subarea (801.73). The Project Area is in the Big Bear Valley and consists of a sloped pinyon-juniper woodland in the north, a minor topographic depression comprised of upland mustards and other ruderal vegetation in the northwestern to north central area, and a flat big sagebrush plant community in the south (Appendix A, Figure 1, *Regional Map*, Figure 2, *Vicinity Map*, Figure 5, *Vegetation Community and Land Cover Map*). The sloped pinyon-juniper woodland is characterized by 30 to 50 percent slopes and occurs between approximately 6,785 and 6,875 feet above mean sea level (Google Earth 2024). The minor topographic depression is characterized by 0 to 2 percent slopes at the toe-of-slope of the wooded hillside and occurs between approximately 6,780 and 6,785 feet above mean sea level. The flat big sagebrush community is characterized by 0 to 2 percent slopes and occurs between approximately 6,785 and 6,790 feet above mean sea level. The minor topographic depression is demarcated by slight changes in elevation (approximately 1 to 2 feet) associated with the toe of slope at the base of the woodland to the north, Lakewood Drive to the west, the residence with the equestrian facility to the southwest, the flat big sagebrush community to the south, and a 5-foot by 5-foot abandoned mineshaft and associated mining facilities to the east (Google Earth 2024).

3.2 CLIMATE

Big Bear Valley has warm summers and cold winters with precipitation occurring as rainfall in the warmer months and snowfall in the colder months. Average daily summer temperatures range between 60 to 70 degrees Fahrenheit, and average daily winter temperatures range between 35 to 40 degrees Fahrenheit (PRISM Climate Group 2024; USGS 2012). Due to the rain shadow effect of the San Bernardino Mountains, annual precipitation distribution within the valley is variable, ranging from approximately 35 inches on the western edge of Big Bear Lake to approximately 18 inches on the eastern edge of Baldwin Lake (USGS 2012).

Thirty-year climatological normals (1991-2020) for the 4-square-kilometer grid cell containing the Project Area interpolated by the data values among the surrounding grid cells indicate an annual average precipitation of 20.88 inches, (ranging from 0.12 inches in June, the driest month, to 4.73 inches in February, the wettest month) with an average July maximum temperature of 80.1 degrees Fahrenheit, and an average December minimum temperature of 23.1 degrees Fahrenheit (PRISM Climate Group 2024). Historical precipitation data from 2014 to 2023 indicates the most winter precipitation occurred in February 2019 (11.76 inches) and the most summer precipitation occurred in August 2023 (4.31 inches). The U.S. Army Corps of Engineers (USACE) Antecedent Precipitation Tool (APT) Version 2.0, which is a desktop tool that compares antecedent precipitation with normal ranges based on National Oceanic and Atmospheric Administration's

(NOAA) Daily Global Historical Climatology Network, indicates that weather conditions at the time of the field investigation represent normal conditions (USACE 2023).

4. METHODS

4.1 DESKTOP INVESTIGATION

A database and literature review were conducted to assess biological resources and habitats with potential to occur in the Project Area and form a list of target special-status species to assess during the reconnaissance-level survey. The following databases and resources were queried for the USGS 7.5-minute quadrangle within which the Project Area is located, Big Bear City, as well as the 8 surrounding quadrangles: Big Bear Lake, Cougar Buttes, Fawnskin, Lucerne Valley, Moonridge, Old Woman Springs, Onyx Peak, and Rattlesnake Canyon (Appendix A, Figure 1, *Regional Map*).

- Calflora: a database providing information on wild California plants (Calflora 2024);
- California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2024a);
- California Department of Fish and Wildlife's (CDFW) California Wildlife Habitat Relationships (CWHR) (CDFW 2024d);
- California Native Plant Society (CNPS) Rare Plant Inventory (RPI) (CNPS 2024a);
- Consortium of California Herbaria (CCH) (CCH 2024);
- eBird: a citizen-based bird observation network (eBird 2024);
- Google Earth Imagery (Google 2024);
- iNaturalist: a citizen-based organism observation network (iNaturalist 2024);
- United States Fish and Wildlife Service (USFWS) Critical Habitat (USFWS 2024a);
- USFWS Information for Planning and Conservation (IPaC) (USFWS 2024b);
- USFWS National Wetland Inventory (NWI) (USFWS 2024c);
- National Marine Fisheries Service (NMFS) Critical Habitat (NMFS 2024);
- USGS's National Hydrology Dataset (NHD) (USGS 2024); and
- United States Department of Agriculture's (USDA) Natural Resources Conservation Service's (NRCS) Web Soil Survey (Soil Survey Staff 2024);

A list of special-status species was produced by querying special-status species occurrence data in the vicinity of the Project Area. For environmental reviews, conducting a nine-quadrangle (9-quad) search for special-status species surrounding a Project Area serves as a baseline for evaluating potential species' occurrence data and follows the regulatory guidance set forth by CDFW (CDFW 2018a; CDFW 2019; CNPS 2024c). The CNDDB and the CNPS RPI were queried using a 9-quad search from the Project Area. A federal special-level species list report was also produced by the USFWS IPaC system.

4.2 FIELD SURVEY

ERM biologists Nicholas Smith and Marissa Juarez conducted an aquatic resource delineation and site constraints survey within the Project Area (Appendix A, Figure 3) on Monday, 01 July 2024. The purpose of the initial site visit was to determine whether wetlands and non-wetlands waters potentially subject to federal jurisdiction under Section 404 of the Clean Water Act (CWA) and

potentially subject to state jurisdiction under Section 401 of the CWA, the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and Section 1600 of the California Fish and Game Code (CFGC) are present, and if so, their extent within the Project Area (ERM 2024b).

Nicholas Smith returned to the Project Area to conduct a general biological resources survey on Wednesday, 04 September 2024. The focus of both the aquatic resources and biological resources surveys was to map the existing vegetation communities and aquatic resources, if present, document the presence of habitat that could support special-status species, if present, and develop a compendium of floral and faunal species present at the time of the survey. The surveys were conducted via meandering transects on foot with use of binoculars for wildlife observation. During the time of the surveys, temperatures ranged from 51 degrees Fahrenheit in the early morning to 83 degrees Fahrenheit in the afternoon. Vegetation classification and mapping was conducted in accordance with the Survey of California Vegetation Classification and Mapping Standards (CDFW 2022) and Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Sensitive Natural Communities (CDFW 2018a), using CDFW's Vegetation Classification and Mapping Program's current list of natural communities (CDFW 2024b) and the membership rules published in the Manual of California Vegetation (CNPS 2024b). Wildlife and plants were identified using relevant field guides and dichotomous keys (Jepson eFlora 2024, Sibley 2014, Nafis 2024). Geospatial information was recorded using a global position system unit with 15-foot accuracy. Representative site photographs are provided in Appendix B (Photos 1 and 2). Floral and faunal compendia are provided in Appendix C.

5. RESULTS

5.1 GENERAL SITE CONDITION

The overall site condition was moderately disturbed. During the July 2024 survey, most of the vegetation was intact; however, during the September 2024 visit, approximately one-third of the vegetation in the western portion of the parcel had been mowed. Furthermore, approximately thirty wild donkeys were observed grazing vegetation during the time of the September 2024 survey. Anecdotal claims by a neighboring resident described the site as a former pastureland for Erwin Ranch. Foot paths traversed the site, and an unpaved access drive runs along the eastern boundary of the extent of the property.

In terms of historical land use, aerial photographs from between the late 1940s to the late 1960s, show what appears to be ground disturbance onsite due to mining operations within the pinyon-juniper woodland along the northern hillside of the Project Area (NETROnline 2024). The USGS Mineral Resource Data System indicates that the Gold Hill Mine, developed in 1942 and no longer active, is located near the northeast corner of the Project Area. The record indicates that the mine workings include surface and underground openings with an overall depth of 16.46 meters and comprised of shafts, 100 feet of trenches, and a crosscut adit at 1,200 feet long with 200 feet of drifts plus several additional adits. At the time of ERM's July 2024 site visit, a partially backfilled excavation approximately 5 feet by 5 feet wide and 10 feet deep was observed on the northeastern portion of the Project Impact Footprint. The excavation appears to be an abandoned mineshaft (Appendix A, Figure 7, and Appendix B, Photo 13). The opening of the shaft is partially blocked with heavily weathered and degraded wooden planks and was flooded to within 10 or 15 feet of the surface. What appears to be a small tailing pile was observed adjacent to the mineshaft (Appendix A, Figure 7, and Appendix B, Photo 14). A former ventilation shaft within a 10-foot by 10-foot concrete slab and production shaft with subgrade machinery were also observed on the hillslope near the northeastern corner of the Project Site approximately 250-300 feet northeast of the mineshaft. The ventilation shaft was capped, and the production shaft was backfilled with soil and covered with a metal grate.

5.2 SOILS

Based on the USDA NRCS online Web Soil Survey data (Soil Survey Staff 2024 Appendix A, Figure 4, *Soils Map*) the Project area consists of three different soil types including:

- **Aquents-Grunney complex, 0 to 4 percent slopes (2dvmq)** – This complex of poorly drained soils is comprised of Aquents and Grunney soils. Aquents soils formed in mixed alluvium and occur in floodplains and treads. They are typically comprised of sandy loam, have an occasional frequency of flooding, and are characterized as hydric soils. Grunney soils formed in mixed alluvium and occur in floodplains and treads. They are typically comprised of muck, mucky loam, and sandy loam, have an occasional frequency of flooding and ponding, range from non-saline to very slightly saline, and are characterized as hydric soils (Soil Survey Staff 2024).

- **Moonridge-Shayroad-Caribоucreek complex, 0 to 4 percent slopes (2dvn1)** – This complex of well-drained soils is comprised of Moonridge, Shayroad, and Caribоucreek soils. Moonridge soils formed in alluvium derived primarily from granite and related rocks and occur within alluvial fans and treads. They are typically comprised of loam, have an occasional frequency of flooding, and are not characterized as hydric soils. Shayroad soils formed in alluvium derived primarily from granite and related rocks and occur within alluvial fans and treads. They are typically comprised of sandy loam, range from non-saline to very slightly saline, and are not characterized as hydric soils. Caribоucreek soils formed in mixed alluvium and occur within alluvial fans and treads. They are typically comprised of loam and clay loam, have an occasional frequency of flooding, and are not characterized as hydric soils (Soil Survey Staff 2024).

- **Goldmountain-Deadmansridge-Deadpan complex, 30 to 50 percent slopes (2dvn6)** – This complex of well-drained is comprised of Goldmountain, Deadmansridge, and Deadpan soils. Goldmountain soils formed in colluvium derived from metasedimentary rock and occur on mountain slopes. They are typically comprised of very gravelly loam to extremely gravelly loam with lithic bedrock restriction at approximately 20 and 30 inches of depth and are not characterized as hydric soils. Deadmansridge soils formed in colluvium derived from igneous and metamorphic rock and occur on mountain slopes. They are typically comprised of very gravelly loam to very cobbly loam and are not characterized as hydric soils. Deadpan soils formed in formed in colluvium derived from igneous and metamorphic rock and occur on mountain slopes. They are typically comprised of cobbly loam to cobbly clay loam and are not characterized as hydric soils (Soil Survey Staff 2024).

5.3 CRITICAL HABITAT

No areas designated as Critical Habitat overlap the Project Area; the nearest Critical Habitat is located approximately 0.4 miles northeast of the Project Area (for the species Bear Valley sandwort, *Eremogone ursina*).

5.4 AQUATIC RESOURCES

ERM conducted an aquatic resources delineation in 2024 (ERM 2024b) and did not identify any USACE jurisdictional wetlands in the project site or within 200 feet of the project site. No NHD or NWI features occurred within the Project Area. However, NWI imagery depicts a seasonally flooded, riverine intermittent stream bed (R4SBC) approximately 65 feet from the northwestern area of the parcel, a semi-permanently flooded riverine system with an unconsolidated bottom (R5UBF) approximately 125 feet from the northwestern area of the Project Area, and a seasonally saturated palustrine emergent wetland (PEM1B) approximately 290 feet from the northwestern area of the Project Area (USFWS 2024) (Appendix A, Figure 2, *Vicinity Map*). Historic aerial imagery from 1938 indicates inundation and surface hydrologic connectivity between the northern sections of the Project Area and the adjacent seasonally saturated palustrine emergent wetland; however, all subsequent aerial imagery displays no evidence of surface hydrologic connectivity (NETROnline 2024).

The Federal Emergency Management Agency (FEMA) mapped floodplain classifies the entire Project Area as an area of minimal flood hazard (FEMA 2024). However, the California Department of Water Resources (DWR) Best Available Maps (BAM) Awareness dataset mapped the northwestern area of the parcel as within a 100-year floodplain (DWR 2024). While DWR BAM Awareness 100-year floodplains are not intended to replace FEMA regulatory floodplains, these maps identify areas where storm flows have a 1% chance of being equaled or exceeded in any year (DWR 2024).

5.5 VEGETATION COMMUNITIES & LAND COVER TYPES

Forty-seven plants (Appendix C, Table 4, *Floral Compendium*) were documented on site during the surveys. Following the dichotomous key and membership rules as defined in the Manual of California Vegetation (CNPS 2024b), three vegetative communities were also determined to occur within the Project Area, none of which are designated as sensitive by CDFW (see Table 2 below).

An overview of the spatial composition of the vegetation communities and land cover types can be viewed on the Appendix A, Figure 5, *Vegetation Communities and Land Cover Map*. Figure 5 depicts the vegetation communities from the Manual of California Vegetation (CNPS 2024b) in relation to the USDA NRCS soils mapped within the Project Area. Table 2 below includes the acreages for each natural community based on the Manual of California Vegetation schema within the Project Area, including their full scientific name and CDFW code. None of the communities identified on site are sensitive.

TABLE 2 VEGETATION COMMUNITIES, LAND COVER TYPES AND ACREAGES

Common Name	Scientific Name	Primary Life Form	Rarity Rank*	CDFW Sensitive	CDFW Natural Community Code	Acres
Big Sagebrush	*Artemisia tridentata* Shrubland Alliance	Shrub	G5S5	No	35.110.01	12.8
Upland Mustards or Star-Thistle Fields	*Brassica nigra* - *Centaurea (solstitialis, melitensis)* Herbaceous Semi-Natural Alliance	Herbaceous	GNA / SNA	No	42.013.00	7.1
Singleleaf Pinyon – Utah Juniper Woodlands	*Pinus monophylla* – (*Juniperus osteosperma*) Woodland	Tree	G5S4	No	87.040.16	9.6

*Rarity Rank Definitions
GNA/SNA = Not Applicable — Global/State rank not applicable because ecosystem is not a suitable target for conservation activities.
G4/S4 = Global/State Apparently Secure — At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
G5/S5 = Global/State Secure — At very low risk of extinction or elimination due to a very extensive range, abundant populations, or occurrences, and little to no concern from declines or threats.

5.5.1 BIG SAGEBRUSH

The Project Area consists of approximately 12.8 acres of big sagebrush shrubland. Big sagebrush shrublands are natural communities dominated by big sagebrush (*Artemesia tridentata*) with open to continuous canopies that occur on plains, alluvial fans, bajadas, pediments, lower slopes, valley bottoms, hills, ridges, seasonal and perennial stream channels, and dry washes within well-drained, deep, sandy to loamy soils (CNPS 2024). Within the Project Area, big sagebrush is the dominant species with rubber rabbitbrush (*Ericameria nauseosa*), tansy mustard (*Descurainia sophia*), quack grass (*Elymus repens*), and Pacific lupine (*Lupinus lepidus*) occurring in subdominant proportions. Numerous individuals of California primrose (*Oenothera californica*) were observed along the eastern boundary of this community. Blue flag iris (*Iris missouriensis*) was observed in minor topographic depressions within this section of the site. Representative photos are included in Appendix B, Photo 3.

5.5.2 UPLAND MUSTARD FIELDS

The Project Area consists of approximately 7.1 acres of upland mustard fields. Upland mustard fields are semi-natural herbaceous communities with an open to continuous canopy that occur in fallow fields, rangelands, grasslands, roadsides, levee slopes, disturbed coastal scrub, riparian areas, cleared roadsides, and waste places. Soils typically consist of clays or sandy loams. Members of this community are highly variable though often contain over 80% relative cover of non-native ruderal forbs (CNPS 2024). During the July 2024 survey, the Project Area was dominated by non-native mustards such as tansy mustard and tumble mustard (*Sisymbrium altissimum)*. However, during the September survey, most of the desiccated mustard stalks were absent, and the site was dominated by other non-native species including pigweed amaranth (*Amaranthus albus*), strawberry blite (*Amaranthus biltoides*), dwarf mallow (*Malva neglecta*), intermediate wheatgrass (*Elymus hispidus*), and quack grass. Substantial patches of bare ground were also present. The dominant native species within this community is western mountain aster (*Symphyotrichum spathulatum*), and trace occurrences of other native plants include mugwort (*Artemesia ludoviciana)*, Pacific lupine, yarrow (*Achillea millefolium*), and rattlesnake sandmat (*Euphorbia albomarginata*). Representative photos are included in Appendix B, Photos 4 through 7, depicting these communities as observed in both July 2024 and September 2024.

5.5.3 SINGLELEAF PINYON – UTAH JUNIPER WOODLANDS

The Project Area consists of approximately 9.6 acres of singleleaf pinyon – Utah juniper woodlands. Singleleaf pinyon – Utah juniper woodlands are natural communities with an open to intermittent canopy that typically occur on alluvial fans, pediments, slopes, ridges, canyons, and ravines with well drained soils. Within the Project Area, this community dominates the sloping hillside in the northern section of the site. Singleleaf pinyon (*Pinus monophylla)* is dominant in the tree canopy with lower relative canopy cover of California juniper (*Juniperus californica*). Individuals of Jeffrey pine (*Pinus jeffreyi*) and Sierra juniper (*Juniperus grandis*) occur at higher elevations along the hillside. The intermittent to continuous shrub layer includes big sagebrush, rubber rabbitbrush, plains pricklypear (*Opuntia polyacantha*), and bitterbrush (*Purshia tridentata*).

Vegetation in the herbaceous layer is sparse and is dominated by cheatgrass (*Bromus tectorum*). Representative photos are included in Appendix B, Photo 8.

5.6 SPECIAL-STATUS SPECIES

Desktop investigations produced a list of 198 special-status species (132 vascular plants and 66 animals) to analyze for occurrence potential from previously existing records in the vicinity of the Project site (Appendix A, Figure 6, *Special Status Species Occurrence Map*). Likelihood of Occurrence determinations were made by analyzing specific required habitat components (e.g., vegetation community, vegetation density/structure, correct soils/soil friability, water resources, salinity, substrates, food availability, etc.) and other relevant information such as geographic range, elevation range, disturbance regime, and quality of records. The comprehensive evaluation of all 198 special-status species in conjunction with their record sources, habitat requirements, and their Likelihood of Occurrence designations can be viewed in Appendix D, Table 6. Biologists conducting this review used their best professional judgment to designate each species' Likelihood of Occurrence to one of the categories below:

- **Present**: Appropriate species-specific survey methodology and protocols were followed by qualified biologist(s) during an appropriate time of year and produced unequivocal positive results for species occurrence.
- **High Potential**: Project Area is within the range of the species and suitable habitat is present, and/or there is reasonably high certainty to assume a high potential to occur based on existing data. Bird and bat species have potential for occurrence further categorized as breeding, nesting, foraging, and/or wintering.
- **Moderate Potential**: Project Area is within the range of the species and moderately suitable habitat is present, and/or there is reasonably high certainty to assume a moderate potential to occur based on existing data. Bird and bat species have potential for occurrence further categorized as breeding, nesting, foraging, and/or wintering.
- **Low Potential**: Project Area is within the range of the species, but habitat is marginal, nearby records are historic/unreliable, or there is reasonably high certainty to assume a low potential to occur based on existing data. Bird and bat species have potential for occurrence further categorized as breeding, nesting, foraging, and/or wintering.
- **Does Not Occur**: Project Area is outside the range of the species, lacks suitable habitat, and/or there is reasonable certainty to assume the species does not occur based on existing data and range distribution.
- **Absent**: Appropriate species-specific survey methodology and protocols were followed by qualified biologist(s) during an appropriate time of year and produced unequivocal negative results for species occurrence.

An abbreviated table is provided in Table 3 below, which only includes the species that were found to be Present or have a Moderate-to-High potential to occur within the Project Area, omitting species that are Absent, Do Not Occur, or have a Low potential to occur within the Project Area. In total, 15 special-status species are present or have a moderate to high potential to occur within the Project area, including 5 plant species and 10 animal species.

TABLE 3 SPECIAL-STATUS SPECIES WITH A POTENTIAL TO OCCUR ONSITE

Scientific Name	Common Name	Special Status[a]	Habitat[b]	Record Source[c]	Potential to Occur[d]
Plants					
Astragalus lentiginosus var. *sierrae*	Big Bear Valley milk-vetch	CRPR 1B.2	Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: gravelly (sometimes), rocky (sometimes). Blooming Period: April through August. Elevation: 5,905 to 8,530 feet.	CNDDB, RPI	**Present.** A population comprised of two individuals was observed within the Project Area during the July 2024 field visit within the Upland Mustards- Herbaceous Semi-Natural Alliance near the toe of the south-facing slope that occupies the northeastern portion of the site.
Boechera dispar	Pinyon rockcress	CRPR 2B.3	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: granitic, gravelly. Blooming period: March through June. Elevation: 3,935 to 8,335 feet.	CNDDB, RPI	**Moderate Potential.** There are 14 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record occurs within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.8 miles southeast. The Project Area is located along the western margin of the species range. Gravelly areas within the pinyon and juniper woodland and big sagebrush shrubland on site may provide suitable habitat.
Boechera parishii	Parish's rockcress	CRPR 1B.2	Pebble (pavement) plain, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: quartzite on clay, carbonate (sometimes), rocky. Blooming Period: April through May. Elevation: 5,805 to 9,810 feet.	CNDDB, RPI	**High Potential.** There are 7 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Four CNDDB records occur within a 1-mile radius of the Project Area with the nearest specific area occurrence (2012) overlapping the eastern section of

Scientific Name	Common Name	Special Status[a]	Habitat[b]	Record Source[c]	Potential to Occur[d]
					the Project Area. Rocky areas within the big sagebrush shrubland – pinyon and juniper woodland ecotone on-site may provide suitable habitat.
Dudleya abramsii ssp. affinis	San Bernardino Mountains dudleya	CRPR 1B.2, FT	Pebble (Pavement) plain, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: quartzite (sometimes), carbonate (sometimes), granitic (sometimes). Blooming period: April through June. Elevation: 4,100 to 8,530 feet.	CNDDB, RPI	**High Potential.** There are 18 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.25 miles east. South-facing slopes within the pinyon and juniper woodland on site may provide suitable habitat. However, this habitat type would not be affected by project activities because it occurs on a hillside and will not be developed.
Linanthus killipii	Baldwin Lake linanthus	CRPR 1B.2	Joshua tree "woodland", meadows and seeps (alkaline), pebble (pavement) plain, pinyon and juniper woodland. Blooming period: May through July. Elevation: 5,580 to 7,875 feet.	CNDDB, RPI	**Present**. A population comprised of eight desiccated individuals was observed within the Project Area during the September 2024 field visit on the south-facing slope that occupies the northeast portion of the site. However, this habitat type would not be affected by project activities because it occurs on a hillside and will not be developed.
Reptiles					
Charina umbratica	Southern rubber boa	ST	Meadow & seep, riparian forest, riparian woodland, upper montane coniferous forest, wetland. Found in a variety of montane forest habitats.	CNDDB	**Moderate Potential.** There are 29 CNDDB records within a 10-mile radius of the site. There are four records from the Big Bear

Scientific Name	Common Name	Special Status[a]	Habitat[b]	Record Source[c]	Potential to Occur[d]
			Requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under leaf litter and debris.		City Quad. If present, the species is most likely to occur on the south-facing slope in association with rock outcrops. If present, they could move through the northwest corner of the Project Area to reach the perennial damp meadows to the west of the Project Area. However, shelter within this portion of the site is limited. Leaf litter, logs, and debris are generally absent, so the species would not be anticipated to shelter within project footprint.
Phrynosoma blainvillii	Coast horned lizard	SSC	Chaparral, cismontane woodland, coastal bluff scrub, coastal scrub, desert wash, pinon & juniper woodlands, riparian scrub, riparian woodland, valley & foothill grassland. Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	CNDDB	**Moderate Potential.** Pinyon-juniper woodland within the Project Area may provide some suitable habitat for this species. Four CNDDB records (1907 to 2004) occur within a 10-mile radius of site. The nearest CNDDB record (2004) occurred 3.6 miles north of the site.
Birds					
Aquila chrysaetos	Golden eagle	FP, WL	Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland, Great Basin scrub, lower montane coniferous forest, pinon & juniper woodlands, upper montane coniferous forest, valley & foothill grassland. Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting	CNDDB, IPaC	**Moderate Potential – Foraging.** No eagle nests were observed during biological surveys. Four CNDDB records (from 1992 to 2010) occur within a 10-mile radius of the site. Pinyon-juniper woodlands within the Project Area may provide suitable foraging habitat for this species. However, this habitat type would not be

Scientific Name	Common Name	Special Status[a]	Habitat[b]	Record Source[c]	Potential to Occur[d]
			habitat in most parts of range; also, large trees in open areas.		affected by project activities because it occurs on a hillside and will not be developed.
Spinus lawrencei	Lawrence's goldfinch	SA	Broadleaved upland forest, chaparral, pinyon & juniper woodlands, riparian woodland. Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	CNDDB	**Moderate Potential – Breeding, Nesting, Foraging.** While this species is closely associated with oaks, which are absent within the Project Area, pinyon-juniper woodlands may provide suitable nesting and foraging habitat. One unprocessed CNDDB record (2024) occurs within the Project Area's USGS 7.5-minute quadrangle (Big Bear City).
Mammals					
Callospermophilus lateralis bernardinus	San Bernardino golden-mantled ground squirrel	SA	Mixed conifer, ponderosa pine, Jeffrey pine, lodgepole pine, limber pine, pinyon-juniper, montane riparian, aspen, and alpine meadow. Prefer open canopy without dense understory, with logs, stumps, talus, and other rocks for cover. Digs burrows or may use pocket gopher burrows.	CNDDB	**Moderate Potential.** Pinyon-juniper woodlands and open areas may provide suitable habitat within the Project Area, however, the project footprint does not support this habitat type. Two of five unprocessed CNDDB records (2024) list occurrences of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City).
Corynorhinus townsendii	Townsends big-eared bat	SSC	Broadleaved upland forest, chaparral, chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, meadow & seep, Mojavean desert scrub, riparian forest, riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, upper montane coniferous forest, valley & foothill grassland. Roosts in caves and	CNDDB	**Moderate Potential.** Four of five CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the project footprint may provide short-term roosting habitat but would not provide the necessary

Scientific Name	Common Name	Special Status[a]	Habitat[b]	Record Source[c]	Potential to Occur[d]
			mines. Extremely sensitive to human disturbance.		microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the project footprint may provide bats with access to the mine for longer-term roosting.
Myotis ciliolabrum	Western small-footed myotis	SA	Wide range of habitats mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines, and crevices. Roosts individually or in small numbers. Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	CNDDB	**Moderate Potential.** Two of three CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the project footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the project footprint may provide bats with access to the mine for longer-term roosting.
Myotis evotis	Long-eared myotis	SA	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests. Forms small nursery colonies in buildings, caves, mines, crevices, spaces under bark, and snags. Also switch roosts frequently (Snider et. al. 2013).	CNDDB	**Moderate Potential.** One CNDDB record (1998) approximately 8.2 miles east of the Project Area identified a maternity roost for this species in an abandoned mine surrounded by pinyon-juniper woodland. The flooded mine shaft within the project footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or

Scientific Name	Common Name	Special Status[a]	Habitat[b]	Record Source[c]	Potential to Occur[d]
					hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the project footprint may provide bats with access to the mine for longer-term roosting.
Myotis thysanodes	Fringed myotis	SA	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.	CNDDB	**Moderate Potential.** Three of four CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in pinyon-juniper woodlands. The flooded mine shaft within the project footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the project footprint may provide bats with access to the mine for longer-term roosting.
Myotis volans	Long-legged myotis	SA	Upper montane coniferous forest. Most common in woodland and forest habitats above 4000 ft. Trees are important day roosts; caves and mines are night roosts. Maternity habitat is usually under bark or in hollow trees and changes every few days (Baker and Lacki 2006). Occasionally roosts in crevices, mines or buildings.	CNDDB	**Moderate Potential.** Two of three CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the project footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the project

Scientific Name	Common Name	Special Status[a]	Habitat[b]	Record Source[c]	Potential to Occur[d]
					footprint may provide bats with access to the mine for longer-term roosting.

[a] Habitat descriptions source: California Department of Fish and Wildlife, Biogeographic Data Branch (2023) and Rare Plant Inventory, California Native Plant Society (2023)

[b] Special-Status Definitions (CDFW 2023c, CDFW 2023d):

CRPR = California Rare Plant Rank
- 1B = Plants rare, threatened, or endangered in California and elsewhere
- 2B = Plants rare, threatened, or endangered in California but more common elsewhere
- 3 = Review List: Plants about which more information is needed
- 4 = Watch List: Plants of limited distribution
  - 0.1 = Seriously threatened in California
  - 0.2 = Moderately threatened in California
  - 0.3 = Not very threatened in California

SA = California Department of Fish and Wildlife - Special Animal
WL = California Department of Fish and Wildlife – Watch List
FP = California Department of Fish and Wildlife - Fully Protected
SSC = California Department of Fish and Wildlife - Species of Special Concern
FE = Federal Endangered Species Act - Endangered
FT = Federal Endangered Species Act - Threatened
FD = Federal Endangered Species Act - Delisted
FC = Federal Endangered Species Act - Candidate
ST = California Endangered Species Act - Threatened
SE = California Endangered Species Act - Endangered
SCE = California Endangered Species Act - Candidate Endangered
FTP = Federal Endangered Species Act - Proposed Threatened

[c] Record Source Definitions:

CNDDB = California Natural Diversity Database (California Department of Fish and Wildlife)
IPaC = Information for Planning and Consultation (U.S. Fish and Wildlife Service)
RPI = Rare Plant Inventory (California Native Plant Society)

[d] Potential to Occur Definitions:

Present: Appropriate species-specific survey methodology and protocols were followed by qualified biologist(s) during an appropriate time of year and produced unequivocal positive results for species occurrence.

High Potential: Project Area is within the range of the species and suitable habitat is present, and/or there is reasonably high certainty to assume a high potential to occur based on existing data. Bird species are further categorized as breeding, foraging and/or wintering.
Moderate Potential: Project Area is within the range of the species and moderately suitable habitat is present, and/or there is reasonably high certainty to assume a moderate potential to occur based on existing data. Bird species are further categorized as breeding, foraging and/or wintering.
Low Potential: Project Area is within the range of the species, but habitat is marginal, nearby records are historic/unreliable, or there is reasonably high certainty to assume a low potential to occur based on existing data. Bird species are further categorized as breeding, foraging and/or wintering.
Does Not Occur: Project Area outside the range of the species, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume species does not occur based on existing data and range distribution.
Absent: Appropriate species-specific survey methodology and protocols were followed by qualified biologist(s) during an appropriate time of year and produced unequivocal negative results for species occurrence.

5.6.1 SPECIAL- STATUS PLANTS

Two special-status plants (Big Bear Valley milk-vetch and Baldwin Lake linanthus) were observed within the Project Area during biological surveys conducted by ERM in July and September, 2024, respectively (Appendix A, Figure 7, *Biological Resources and Potential Habitat Features* and Appendix B, Photos 9 and 10). Big Bear Valley milk-vetch was observed within flat terrain (Aquents-Grunney complex), which will be developed; Baldwin Lake linanthus was observed on sloping habitat (Goldmountain-Deadmansridge-Deadpan complex) consisting of pinyon-juniper woodland, which will not be affected by Project activities. Three additional species have potential to occur based on the presence of suitable habitat including San Bernardino Mountains dudleya (*Dudleya abramsii* ssp. *affinis*), Parish's rockcress (*Boechera parishii*) and pinyon rockcress (*Boechera dispar*). Like the Baldwin Lake linanthus, San Bernardino Mountains dudleya would occur on the south-facing slope that will not be developed. Therefore, neither species would be affected by Project activities. However, like Bear Valley milk-vetch, Parish's rockcress and pinyon rockcress have potential to occur within the flat terrain, which will be subject to development. Therefore, Project activities have potential to directly impact all three of these species.

Due to the disturbed nature of the site including historic mining activities and intensive grazing, the site is not anticipated to support large populations of any of the three species as suggested by the single Bear Valley milk-vetch that was observed within the Project Area. The Project Area also represents a small proportion of suitable habitat available for these species. Specifically, the range for the Bear Valley milk-vetch in the San Bernardino Mountains alone totals approximately 350 square miles much of which consists of suitable habitat communities (Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland, upper montane coniferous forest). Additional populations are recorded in the San Gabriel Mountains, Tehachapi Mountains, Santa Rosa Mountains and on Frazier Mountain. The loss of two individuals and a small amount of disturbed habitat (less than 20 acres which equates to less than 0.008-percent of suitable habitat within the species range within the San Bernardino Mountains) would not significantly affect the species' long-term survival.

Similarly, pinyon rockcress is dispersed across Riverside, San Bernardino, Tulare, Kern, Inyo, and Mono Counties in California and Nye County in Nevada. With such a broad range, the potential loss of 20 acres of suitable habitat, even if occupied, would not significantly affect the species' long-term sustainability.

Parish's rockcress exhibits a slightly more restricted range. It is known only from San Bernardino County, but it occupies a range of approximately 500 square miles based on 199 CCH and 44 CNDDB records. According to data associated with the records, the overall population numbers exceed 30,000 individuals with the core of the population concentrated on approximately 250 square miles surrounding Big Bear Lake and Baldwin Lake. The record that overlaps the eastern portion of the project site indicates that approximately 16,730 individuals were observed in 2005 over an area of approximately 420 acres or approximately 40 individuals/acre. Approximately 1 acre of that area overlays the property which suggests that approximately 40 individuals (or approximately 0.1-percent of the existing population), may be lost due to project construction.

The loss of such a small proportion of the population is not anticipated to significantly affect the species' long-term sustainability.

5.6.2 SOUTHERN RUBBER BOA

Based on species records depicted in the USFWS 2021 Special Status Assessment Report for the Southern Rubber Boa, the nearest records for the species occur north of Baldwin Lake. The next nearest records occur approximately 1.3 miles to the southeast near Deadman's Ridge. The Project Area does contain habitat features that are consistent with suitable habitat for southern rubber boa, such as rock outcrops, surface rock, logs, forest litter, and rodent burrows. However, these features are generally limited to the south-facing hillslope which will not be impacted. Damp or moist soil and associated wet meadow or seep habitat does not occur within the Project Area. Additionally, within the flat terrain that characterizes the southern three-quarters of the site where development would occur, tree canopy is absent, the soil is somewhat compacted and large areas of ground are bare due to intensive grazing by donkeys. Although some small mammal burrows were observed, moisture-retaining leaf litter, logs, and bark are also generally absent in these areas, so the species is unlikely to shelter on site. However, if the species is present on the hillside along the northern portion of the site in association with rock outcrops, it could pass through the extreme northwest corner of the Project Area to reach the perennial wet meadows to the west of the site.

Because southern rubber boa is nocturnal, if an individual did pass through the site, it would do so when no construction activities were occurring. Therefore, the potential for ground-disturbing activities and vehicle traffic during construction or vehicle traffic during operations to harm or kill a southern rubber boa is limited. However, if such an impact occurred, it would be considered significant.

5.6.3 COAST HORNED LIZARD

Although there was no evidence of loose sandy soil due to compaction by wild donkeys in the development footprint, surrounding habitat on slopes could provide suitable habitat for this species. However, the Project will not develop in this habitat type. Therefore, the Project is not expected to affect this species.

5.6.4 GOLDEN EAGLE AND NESTING BIRDS PROTECTED BY THE MIGRATORY BIRD TREATY ACT

If present, Lawrence's goldfinch may forage within areas that would be developed; however, this species would nest in the pinyon and juniper woodland that will not be affected by project activities. Therefore, the species is unlikely to be impacted by this Project.

Similarly, golden eagle is known to occur in the region (four CNDDB records within 10 miles of the Project Area) and nests in trees. Golden eagle could forage within the pinyon pine habitat that will not be affected by Project activities. Therefore, golden eagle is unlikely to be affected by Project activities.

Birds protected by the Migratory Bird Treaty Act have the potential to nest within or near the development footprint and therefore could be affected by Project activities.

5.6.5 SPECIAL-STATUS BATS

Potential roosting habitat for special-status bats (Townsend's big-eared bat, western small-footed myotis, long-eared myotis, fringed myotis, and long-legged myotis) within the Project Site include the flooded mineshaft within the Project Impact Footprint, the mine shaft on the south-facing slope near the northeast corner of the Project Site and within logs or snags and under exfoliating bark on that same hillslope (see Appendix A, Figure 7, *Biological Resources and Potential Habitat Features*). However, the upper 10-15 feet of the flooded mine shaft within the Project Impact Footprint would provide only low-quality, short-term bat roosting habitat due to the lack of suitable airflow and shelter. The loss of short-term bat roosting habitat provided by the flooded mine shaft would not be significant given that mines similar to Gold Hill occur throughout the area surrounding Baldwin Lake.

However, if project construction directly disturbed a colony of hibernating individuals or an active maternity colony, the impacts could be significant for those species that do gather in large numbers. For bat species that roost individually or in small numbers, often change roosts, and use a wide variety of roost habitat, such as western small-footed myotis, long-legged myotis, and long-eared myotis, potential short-term disturbance to a few isolated roosting individuals would not significantly affect their long-term sustainability given their wide ranges. However, for those species that may roost in larger colonies, like fringed myotis, or roost in larger colonies and exhibit lower genetic diversity and utilize a narrower variety of roosts, like Townsend's big-eared bat, disturbance of a hibernating colony or active maternity colony could be significant depending upon the number of individuals impacted.

Project noise and vibration produced by construction activities have potential to affect bats if they forage or roost in the immediate vicinity of the Project Impact Footprint. However, like many species, bats can become accustomed to low levels of disturbance and avoid disturbance by seeking alternative foraging and roosting habitat, which is plentiful in the vicinity of the Project. Additionally, nearby colonial roosts in mine shafts, if present, benefit from the dampening of both noise and vibrational disturbances due to the depth of the underground structures they may be utilizing. For example, the Gold Hill Mine Tunnel and underground passageways (adits) are up to 16.5 meters deep. Therefore, construction and operational noise and vibrations are not anticipated to significantly disturb hibernations or maternity roosting, if occurring in the vicinity of the Project. Construction and operational lighting could be disorienting for bats as they exit and return for foraging; however, construction and operational lighting will not be needed during the Project and is therefore not likely to have an adverse impact. Additionally, the photovoltaic solar panels will be angled to the south and away from the potentially suitable bat habitat north of the Project, and, given that bat activity would peak near dusk when bats would exit the roost to forage, disorientation from reflected light is not anticipated. Therefore, no significant impacts to bats are anticipated.

5.6.6 SAN BERNARDINO GOLDEN-MANTLED GROUND SQUIRREL

Potential habitat for San Bernardino golden-mantled ground squirrel exists in the pinyon pine forest habitat on the slope; however, the Project will not develop in this habitat type. Therefore, the Project is not expected to affect this species.

5.7 WILDLIFE MOVEMENT

In the broader context, the Project is located within historically disturbed lands previously used for mining and grazing and continues to provide habitat for wild donkeys, although it has regained some of its natural characteristics. The Project Area is bound by Lakewood Drive to the west, Erwin Ranch Road to the south, an unpaved access drive to the east, and San Bernardino National Forest to the north. Residential development occurs immediately south, southwest, and approximately 0.1 miles east of the Project Area, with the residence bordering to the southwest also containing an equestrian facility. Existing uses surrounding the site would largely remain unchanged. Therefore, the site will not likely prevent wildlife movement through the region as the adjacent pinyon pine habitat will remain unfenced and accessible.

6. CONCLUSIONS

The Project Area does not contain any sensitive Natural Communities as designated by CDFW, and it also does not overlap with any federally designated Critical Habitat. Therefore, no impacts are anticipated to these resources.

As indicated in Table 3 above, the Project Area is known to support or have moderate-to-high potential to support 15 special-status species. The proposed Project has potential to significantly affect three species: Fringed myotis, Townsend's big-eared bat, and southern rubber boa. The Project also has the potential to impact nesting birds that are protected under the Migratory Bird Treaty Act. However, with the implementation of the below avoidance and minimization measures, impacts on special-status species and nesting birds would be less than significant.

6.1 RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES

ERM recommends the following avoidance and minimization measures to comply with the state, federal, and local regulations related to biological resources. These measures are typical for projects in San Bernardino County that have potential to impact similar biological resources such as the proposed Project. Environmental regulatory agencies may provide additional recommendations through the CEQA Process:

6.1.1 DESIGN

- Shield any necessary lighting and angle away from adjacent undeveloped land to the north of the Project to avoid disturbing wildlife, including rare bats.
- Construct a reptile exclusion fence around the perimeter of the Project area to avoid potential impacts to rubber boa.

6.1.2 PRE-CONSTRUCTION

- Prior to construction, conduct the following pre-construction clearance surveys:
  - A qualified biologist will conduct pre-construction surveys for nesting birds (including raptors) on and closely adjacent to the Project site no more than 10 days prior to any ground disturbance, if ground disturbance is to occur during the breeding season (February 1 through August 31).
    - If an active nest is detected, a 100-foot work avoidance buffer will be implemented for non-raptors and a 500-foot work avoidance buffer will be implemented for raptors.
    - nesting buffers may be reduced based upon the judgment of the biological monitor and should include monitored to detect any behavioral changes due to the reduced buffer. If behavioral changes are observed, the buffer will be restored to the original radii.
  - A qualified biologist will conduct pre-construction surveys for southern rubber boa within all disturbance areas plus a 100-foot buffer no more than 3 days prior to any ground disturbance during the active/breeding season (April 1 through October 31). Should southern rubber boa be observed, work shall be halted within 100 feet of the individual until it has moved out of area.

6.1.3 CONSTRUCTION

- A qualified biologist will conduct an education program for construction personnel. Topics to be discussed will include occurrence and distribution of special-status plants, rubber boa and bats; take avoidance measures being implemented during the Project, reporting requirements if incidental take occurs; and applicable definitions and prohibitions under the California Endangered Species Act. A fact sheet conveying this information will be prepared for distribution to Project personnel.
- A qualified biologist shall be on-site to conduct daily pre-construction sweeps for rubber boa during ground-disturbing activities initiated between April 1 and October 31. Once a reptile exclusion fence around the perimeter of the Project is constructed, daily pre-construction sweeps would not be required. In the event of unanticipated discovery of rubber boa within the site, construction personnel shall follow the guidance within the worker education program, including but not limited to halting construction and contacting a qualified biologist, etc.
- Project-related vehicles will observe a daytime speed limit of 15 miles per hour throughout the site in all Project Areas, except on county roads and state and federal highways. Nighttime construction will be minimized to the extent possible; however, if it does occur, then the speed limit shall be reduced to 10 miles per hour. Off-road traffic outside of designated Project Areas will be prohibited.
- To prevent inadvertent entrapment of wildlife during the construction phase of the Project, all excavated, steep-walled holes or trenches more than 2 feet deep will be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.
- All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed at least once a week from the Project site.
- No firearms will be allowed on the Project Area, excluding law enforcement personnel.
- No pets, such as dogs or cats, will be permitted on the Project Area.
- All spills of hazardous materials will be cleaned up immediately.
- Use of rodenticides and herbicides in Project Areas will be restricted.
- Should any vertical tubes, such as solar mount poles, chain link fencing poles, or any other hollow tubes or poles be utilized on the Project site, the poles will be capped immediately after installation to prevent entrapment of birds.

7. REFERENCES

Baker, MD and Lacki, MJ. 2006. "Day-Roosting Habitat of Female Long-Legged Myotis in Ponderosa Pine Forests," Journal of Wildlife Management 70(1), 207-215, (1 January 2006).

Calflora: Information on California plants for education, research and conservation. (Web application). 2024. Berkeley, California: The Calflora Database [a non-profit organization]. Available: https://www.calflora.org.

California Department of Fish and Wildlife (CDFW). 2018a. Re: 2018 Prioritization of Forest Practice Rule Updates for Botanical Resources. [Written Correspondence]. California Board of Forestry and Fire Protection. November 15, 2018. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=171112.

_____. 2018b. Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Sensitive Natural Communities. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959.

_____. 2019. Re: CDFW's Comments on the IS/MND for the Tahoe Valley Stormwater and Greenbelt Improvement Project (SCH 2019029152). [Written Correspondence]. City of South Lake Tahoe. March 29, 2019. Available at: https://www.cityofslt.us/DocumentCenter/View/12732/TVGreenbelt_PCSRAttachment6_CDFGComments_20190329?bidId=.

_____. 2022. November 4. Survey of California Vegetation Classification and Mapping Standards. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=102342&inline.

_____. 2023. June 1. California Natural Community List. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153398&inline.

_____. 2024a. California Natural Diversity Database (CNDDB) – Government version dated July 1st, 2024. https://apps.wildlife.ca.gov/bios6/?bookmark=327.

_____. 2024b. July. Special Animals List. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline.

_____. 2024c. July. Special Vascular Plants, Bryophytes, and Lichens list. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline.

_____. 2024d. California Wildlife Habitat Relationships (CWHR) System version 10.1.29. Available at: https://apps.wildlife.ca.gov/cwhr/index.shtml.

California Department of Water Resources. 2024. Best Available Maps (BAM) 100-Year Floodplain Awareness Dataset. Available online at: https://gis.bam.water.ca.gov/bam/. Accessed July 2024.

California Native Plant Society (CNPS), Rare Plant Program. 2024a. Rare Plant Inventory (RPI) (online edition, v9.5). Website https://www.rareplants.cnps.org.

_____. 2024b. A Manual of California Vegetation, Online Edition. http://www.cnps.org/cnps/vegetation/; California Native Plant Society, Sacramento, California.

_____. 2024c. Conducting plant searches - closing the gaps of environmental review. Retrieved September 2024, from https://ct.cnps.org/get-involved/conducting-plant-searches/

Consortium of California Herbaria (CCH) Portal. 2024. Biodiversity data provided by the participants of the Consortium of California Herbaria https://www.cch2.org/portal.

County of San Bernardino. 2007. Bear Valley Community Plan. Accessed: July 2024. Retrieved from: https://www.sbcounty.gov/Uploads/lus/CommunityPlans/BearValleyCP.pdf.

_____. 2019. General Plan - Renewable Energy and Conservation Element. Accessed: September 2024. Retrieved from: https://countywideplan.com/wp-content/uploads/sites/68/2021/02/REC-Element.pdf.

_____. 2020. Countywide Plan. Accessed: July 2024. Retrieved from: https://countywideplan.com/.

_____. 2024a. County Code of Ordinances, Development Code. Accessed: June 2024. Retrieved from: https://codelibrary.amlegal.com/codes/sanbernardino/latest/sanberncty_ca/0-0-0-166578.

Environmental Resources Management, Inc. (ERM). 2024b. Aquatic Resources Delineation Report: Bear Valley Solar Energy Project. Prepared for Bear Valley Electric Service (BVES) and EDF Renewables Distribution-Scale Power (EDFR-DSP). 2 August 2024.

Federal Emergency Management Agency (FEMA). 2024. National Flood Hazard Layer (NFHL) Viewer. Available online at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Accessed July 2024.

Habitat eBird. 2024. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org.

Google Earth 7.3.6.9345 (64-bit). 2024 [Online] Available at: https://earth.google.com/web/.

Griffith, G. E., Omernik, J. M., Smith, D. W., Cook, T. D., Tallyn, E. D., Moseley, K., & Johnson, C. B. "Ecoregions of California." US Geological Survey Open-File Report 1021. 2016. https://gaftp.epa.gov/EPADataCommons/ORD/Ecoregions/ca/CA_eco_PosterText_Final_Feb2016.docx

iNaturalist. 2024. Web application. California Academy of Sciences, National Geographic Society. Available from https://www.inaturalist.org.

Jepson Flora Project (eds.) 2024. Jepson eFlora, https://ucjeps.berkeley.edu/eflora/.

Nafis, Gary. 2024. California Herps - A Guide to the Amphibians and Reptiles of California. Available at: http://www.californiaherps.com/.

National Marine Fisheries Service (NMFS). 2024. Endangered Species Act (ESA) Critical Habitat spatial data. Available at: https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=68d8df16b39c48fe9f60640692d0e318.

PRISM Climate Group, Oregon State University. 2024. https://prism.oregonstate.edu, data accessed September 2024.

Sibley, David Allen. 2014.The Sibley Guide to Birds, 2nd Edition. National Audubon Society, 11 March 2014.

E. Apple Snider, Paul M. Cryan, Kenneth R. Wilson, Roost selection by western long-eared myotis (Myotis evotis) in burned and unburned piñon–juniper woodlands of southwestern Colorado, Journal of Mammalogy, Volume 94, Issue 3, 11 June 2013, Pages 640–649

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. 2024. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed September 2024.

United States Army Corps of Engineers (USACE). 2023. Antecedent Precipitation Tool (APT) Version 2.0.0. [Software] Available for download online at: https://github.com/erdc/Antecedent-Precipitation-Tool. Accessed July 2024.

United States Department of Agriculture (USDA). 2024. List of Hydric Soils. Available online at: https://efotg.sc.egov.usda.gov/references/Public/IL/State_List_NRCS_Hydric_Soils_Report_Dynamic_Data.html.

U.S. Fish and Wildlife Service (USFWS). 2021. Species Status Assessment Report for the Southern Rubber Boa (*Charina umbratica*), Version 1.1. Carlsbad Ecological Services Field Office, Carlsbad, California.

United States Geological Survey (USGS). 2012. Geohydrology of Big Bear Valley, California phase 1—Geologic Framework, Recharge, and Preliminary Assessment of the Source and Age of Groundwater. Available at: https://pubs.usgs.gov/sir/2012/5100/pdf/sir20125100.pdf. Accessed July 2024.

United States Geological Survey (USGS). 2024. USGS The National Map (TNM) National Hydrography Dataset (NHD), at URL https://apps.nationalmap.gov/viewer/.

United States Fish and Wildlife Service (USFWS). 2024a. Critical Habitat. Available at https://www.fws.gov/program/national-wetlands-inventory. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

_____. 2024b. Information for Planning and Conservation (IPaC). Available at https://ipac.ecosphere.fws.gov/. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

_____. 2024c. National Wetlands Inventory (NWI). Available at https://www.fws.gov/program/national-wetlands-inventory. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

APPENDIX A MAPS

FIGURE 1 REGIONAL MAP

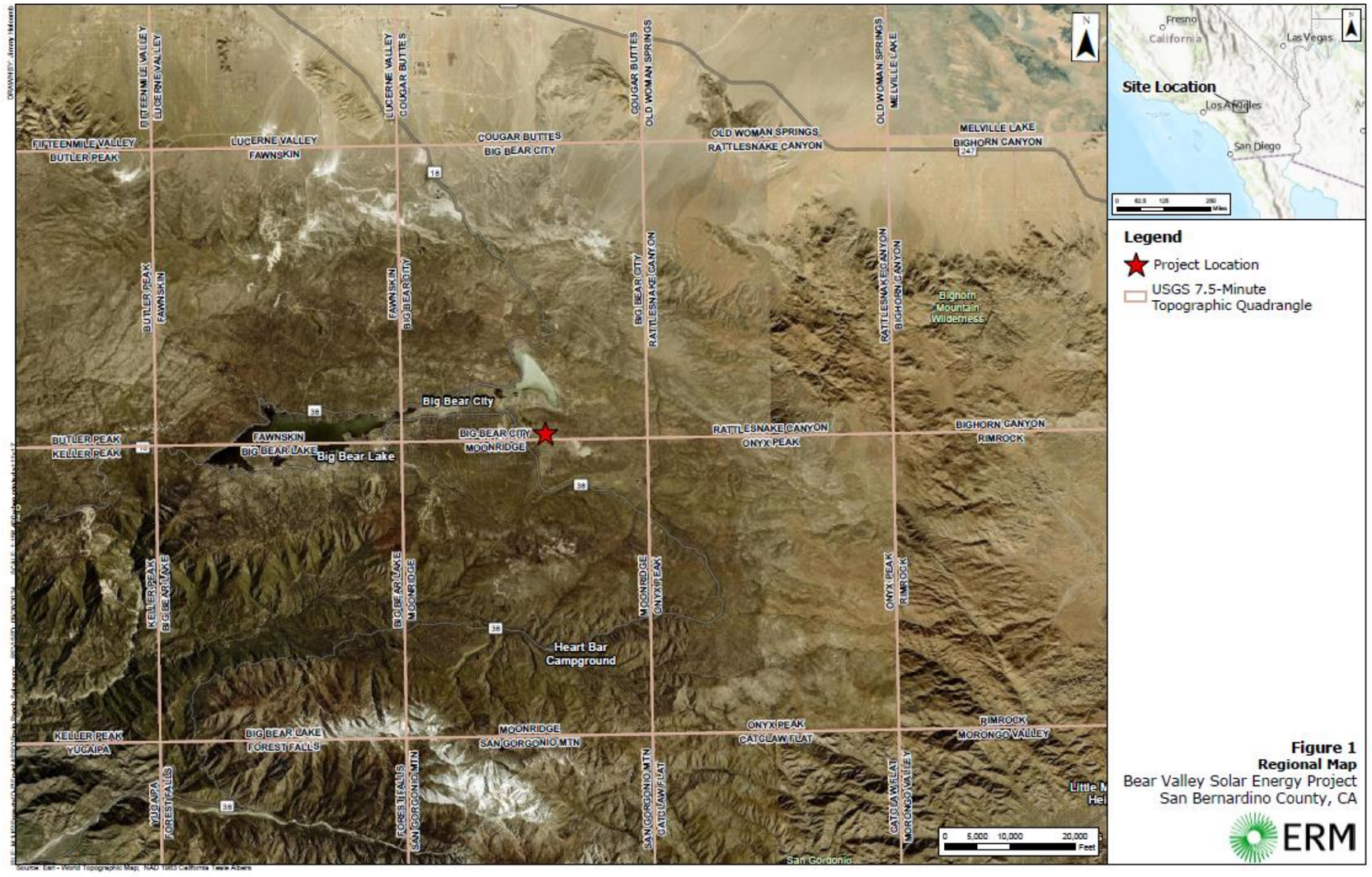


FIGURE 2 VICINITY MAP

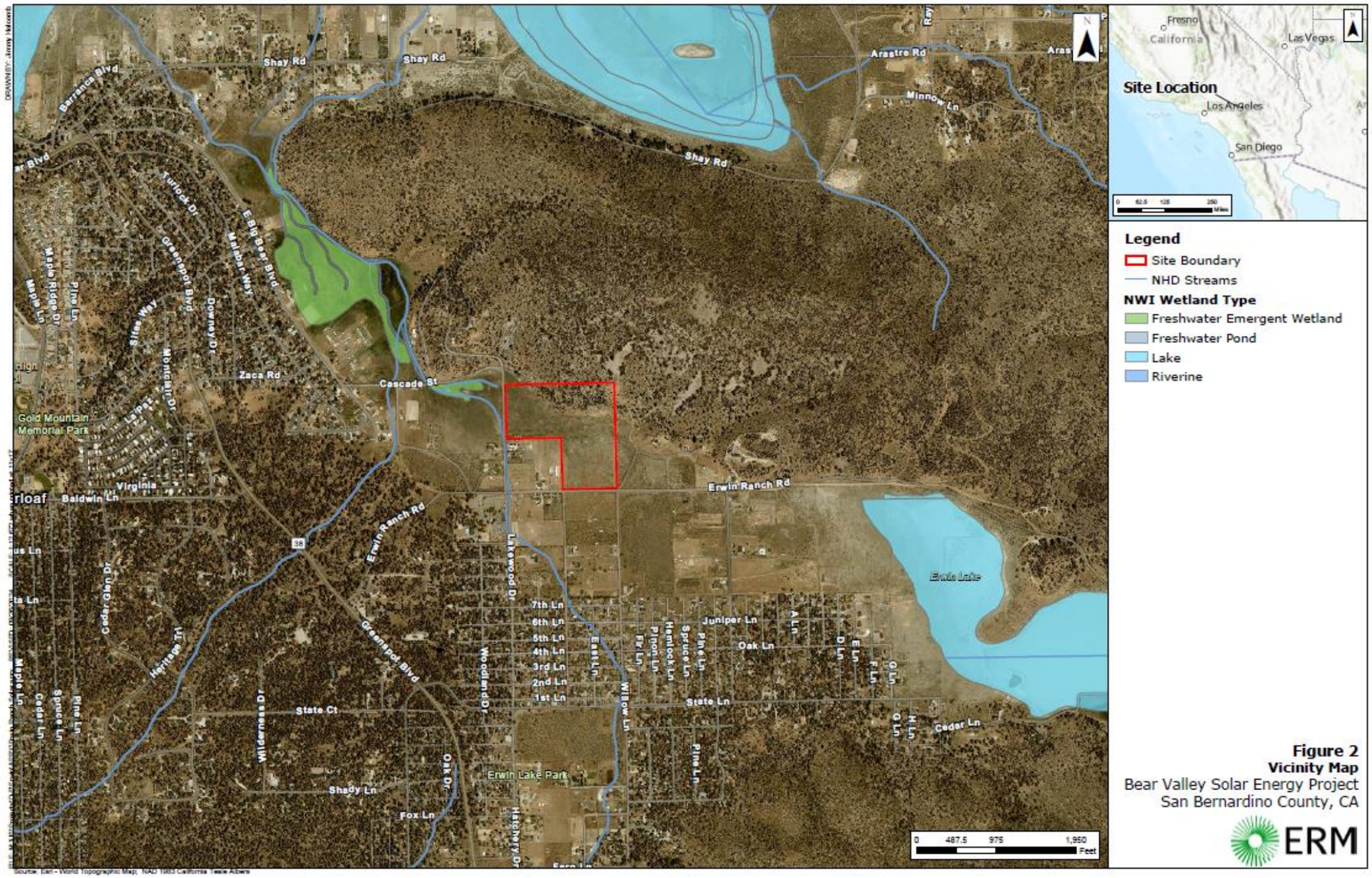


Figure 2
Vicinity Map
Bear Valley Solar Energy Project
San Bernardino County, CA

FIGURE 3 PROJECT AREA MAP

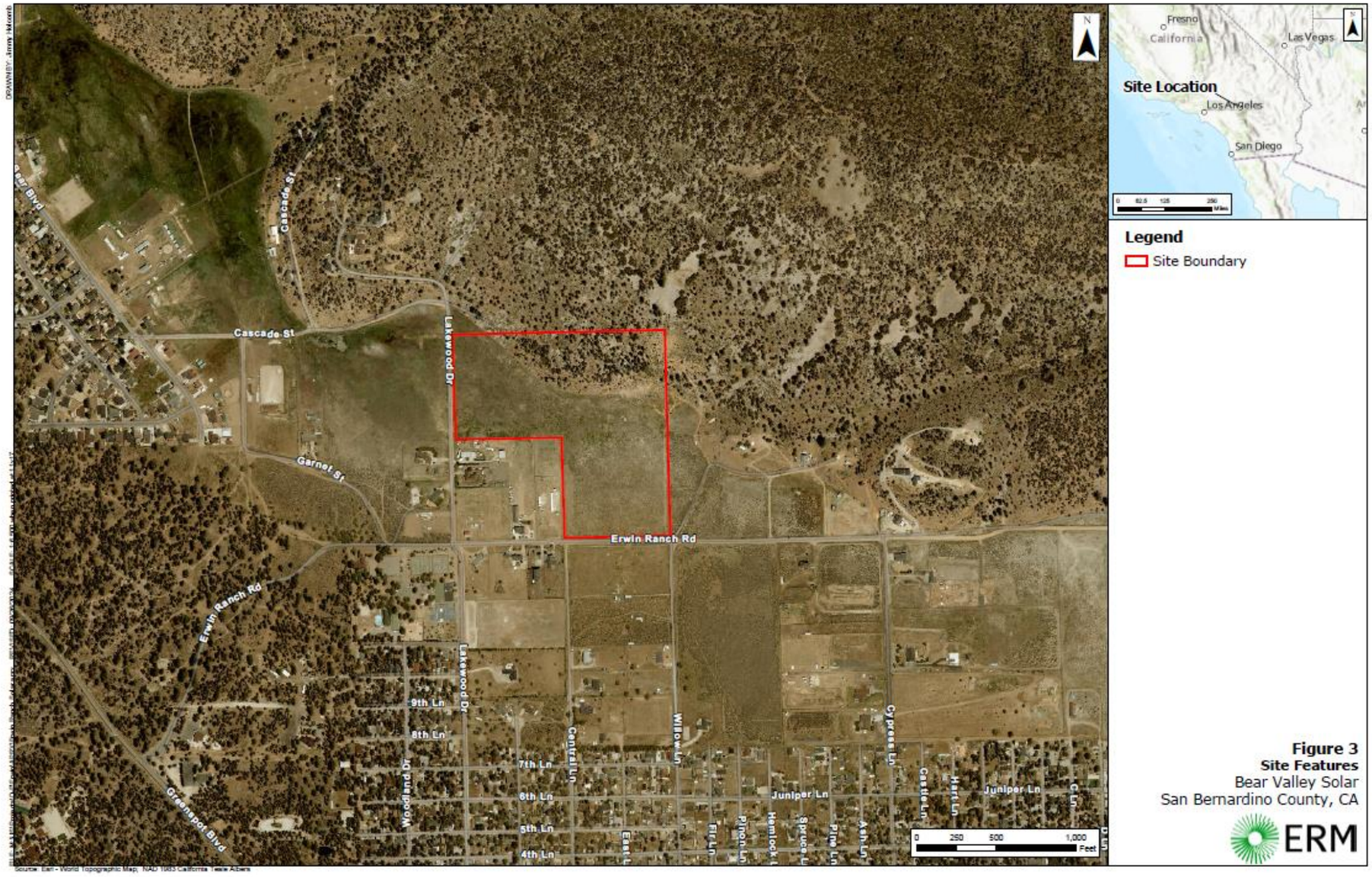


FIGURE 4 SOIL MAP

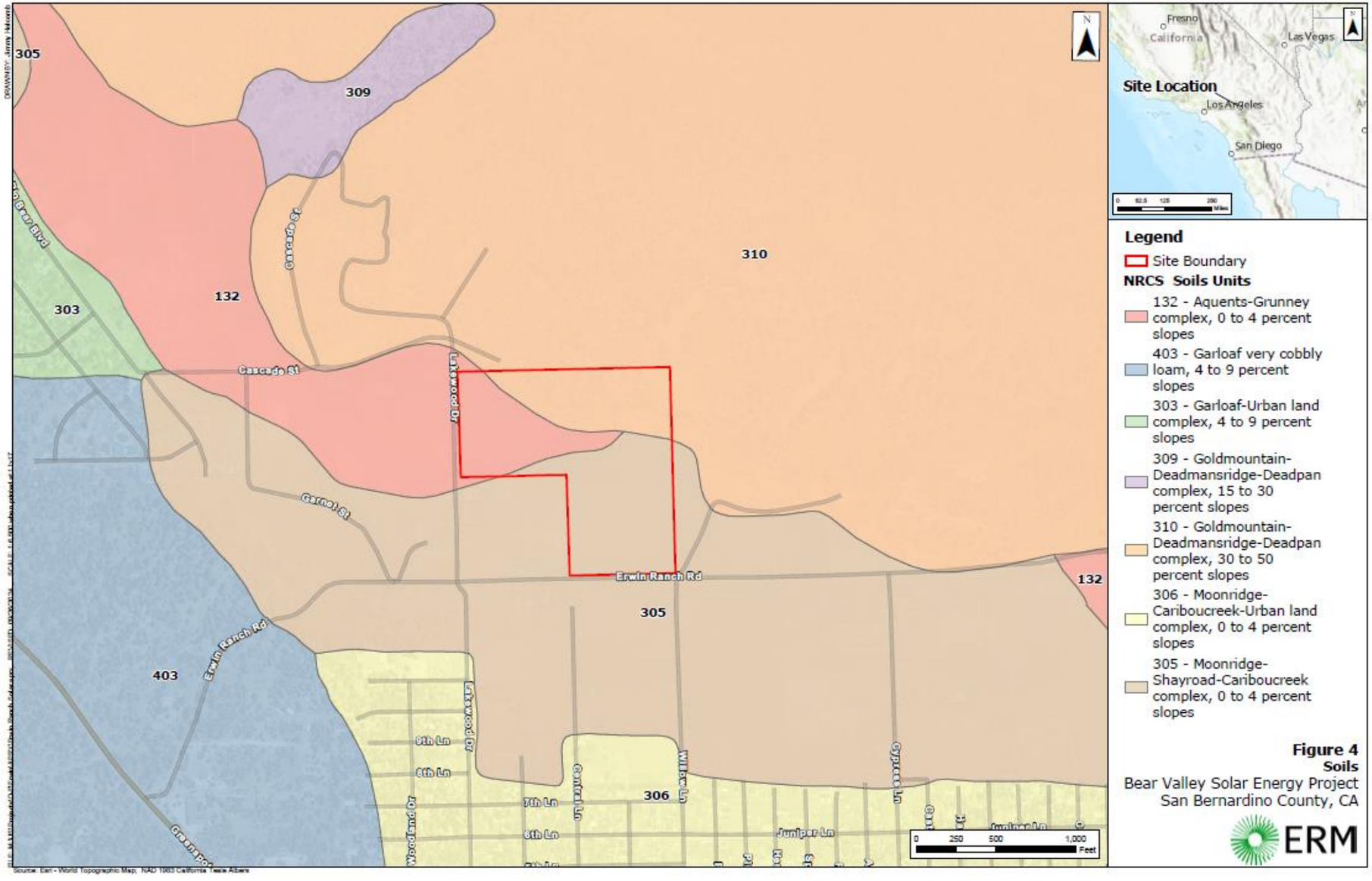


Figure 4
Soils
Bear Valley Solar Energy Project
San Bernardino County, CA

FIGURE 5 VEGETATION COMMUNITY AND LAND COVER MAP

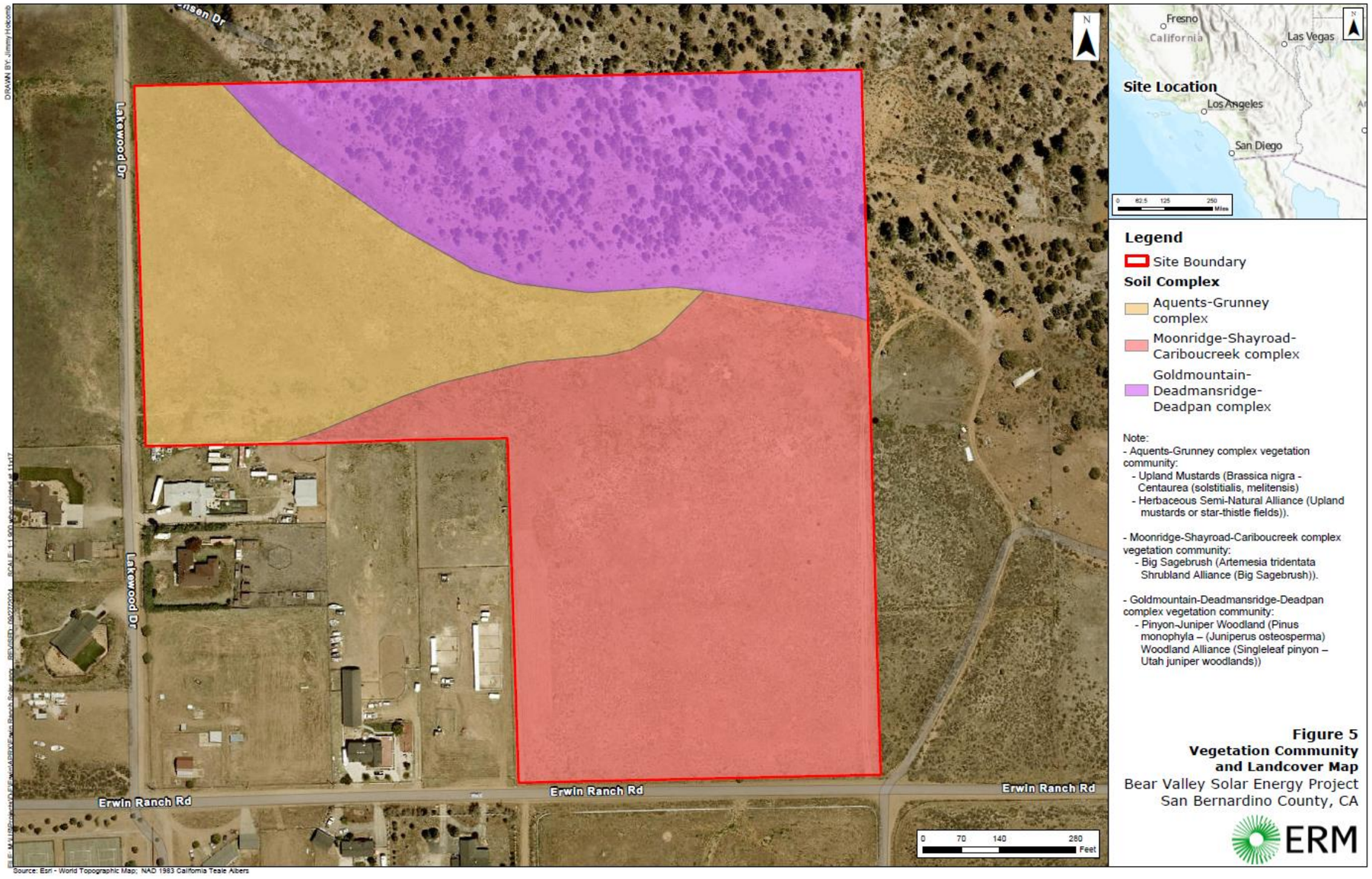


FIGURE 6 SPECIAL STATUS SPECIES RECORDS MAP

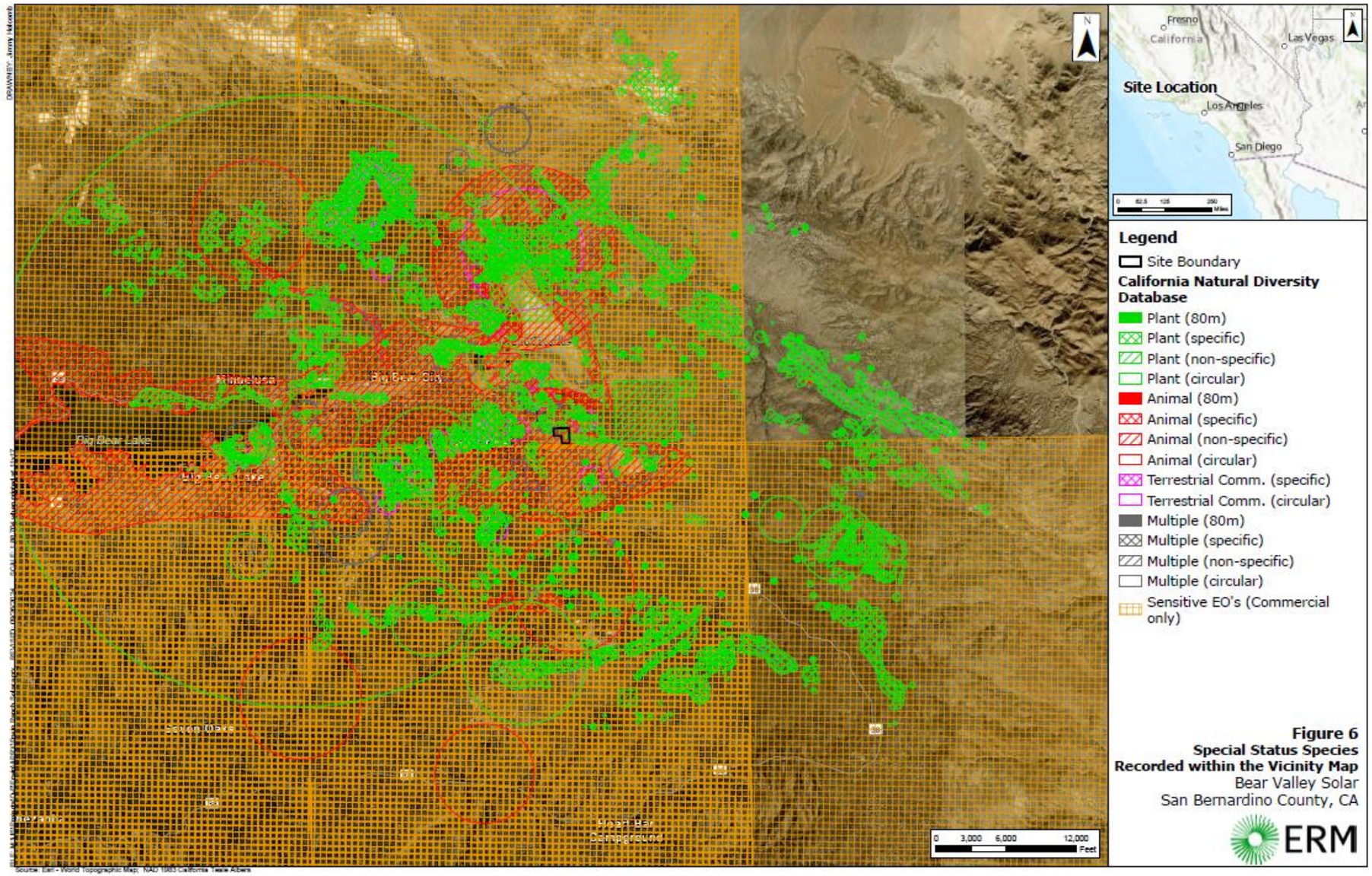
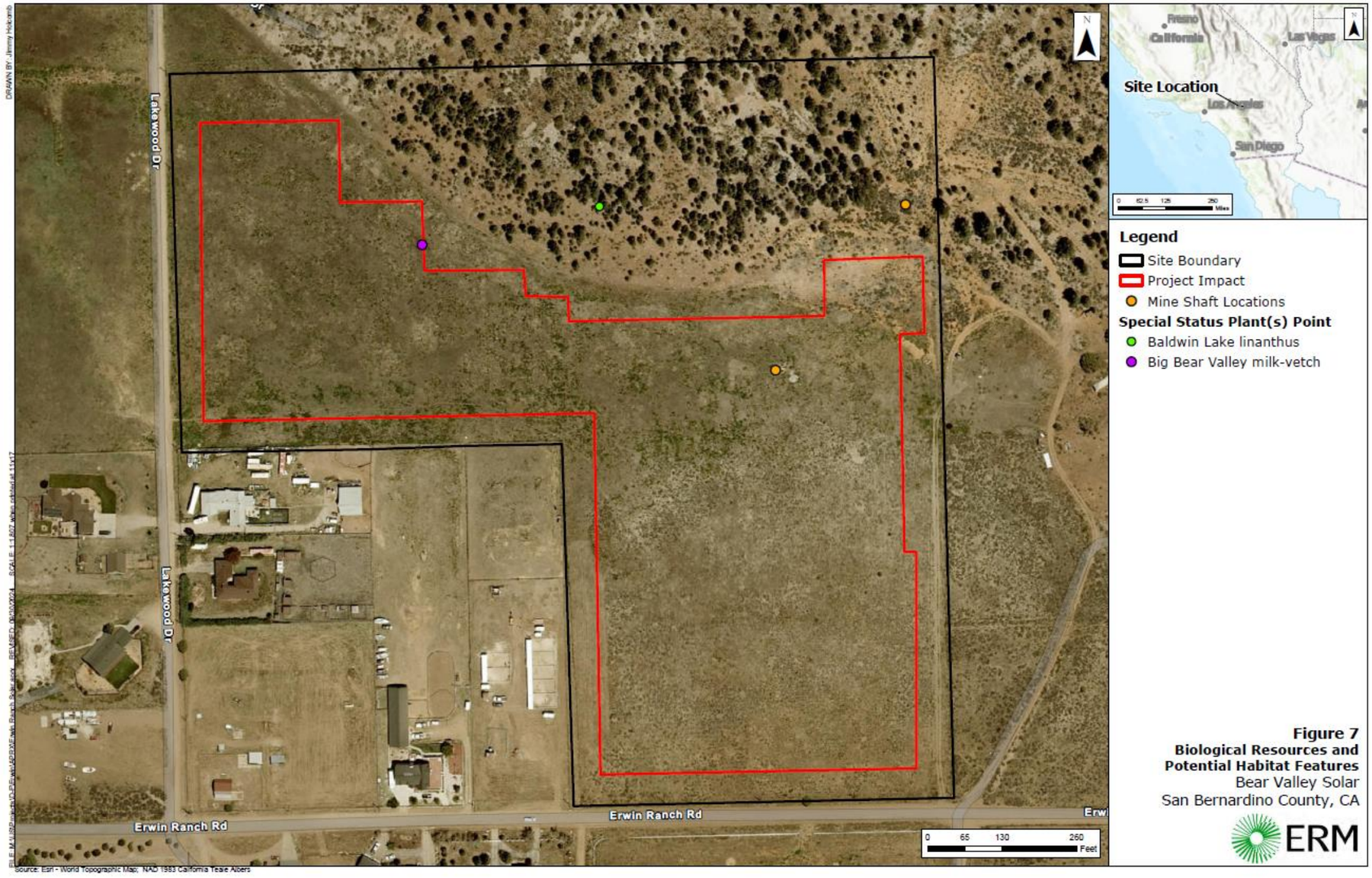


FIGURE 7 BIOLOGICAL RESOURCES AND POTENTIAL HABITAT FEATURE



APPENDIX B PHOTOGRAPHS

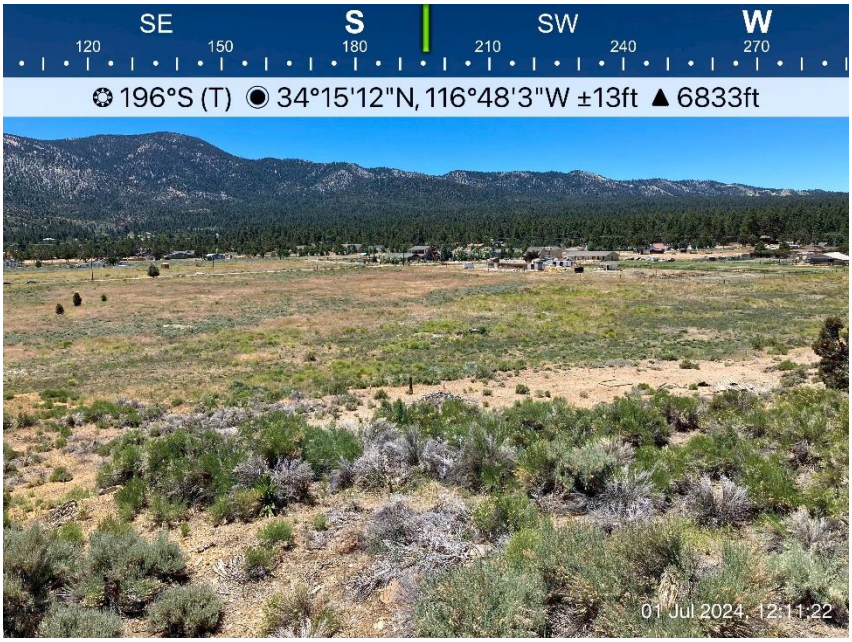


Photo 1. Overview photo of the proposed solar development site taken from the hillside near the northern boundary of the Project Area facing south.



Photo 2. General site overview photo taken from the southeastern area of the site, facing north.

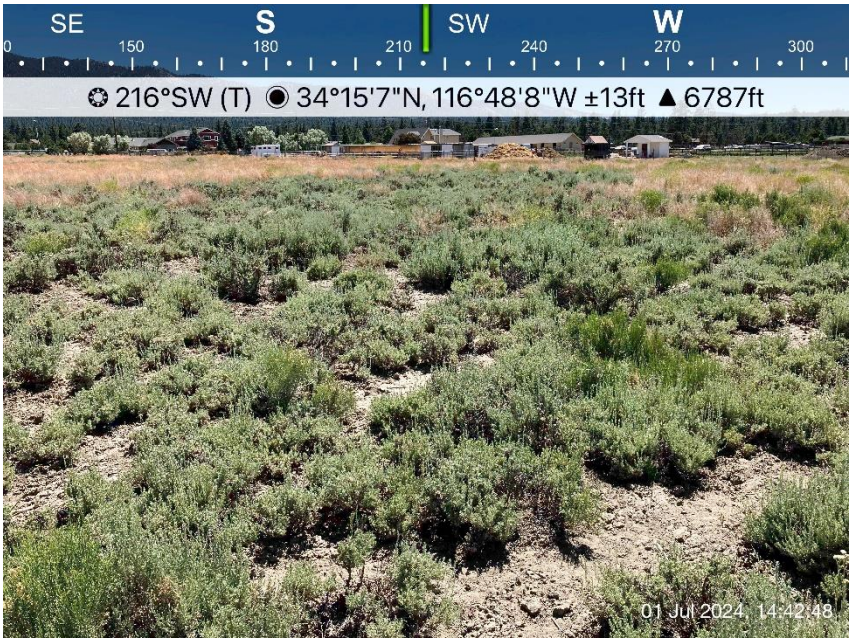


Photo 3. Representative photo of the Big Sagebrush vegetation community with the neighboring equestrian facility in the background facing southwest.



Photo 4. Representative photo of the outer boundary of the Upland Mustard Field vegetation community taken in July 2024, facing east.



Photo 5. Representative photo of the outer boundary of the Upland Mustard Field vegetation community taken in September 2024, facing east.

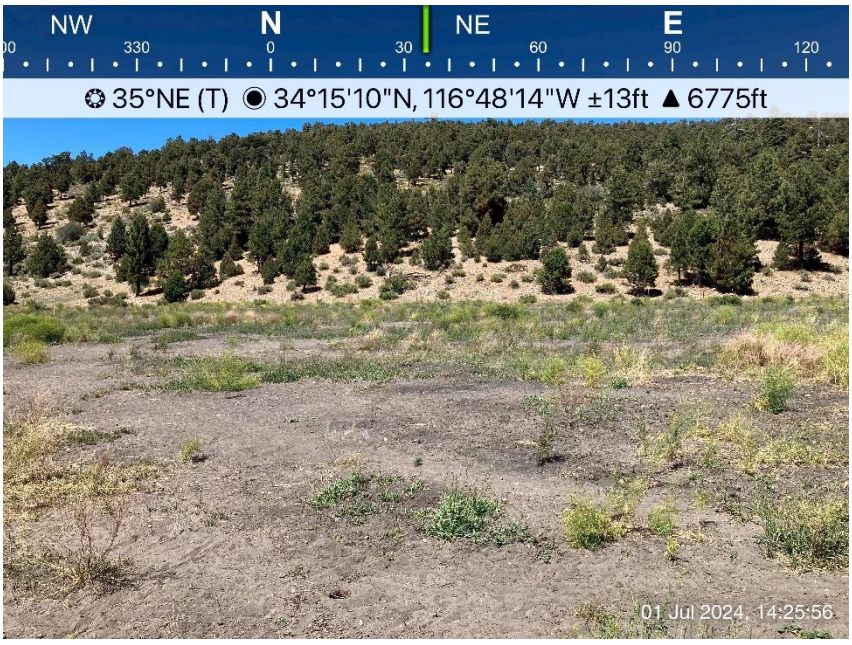


Photo 6. Representative photo of the sparsely vegetated western margin of the Upland Mustard Field vegetation community taken in July 2024, facing northeast.



Photo 7. Representative photo of the sparsely vegetated western margin of the Upland Mustard Field vegetation community inhabited by wild donkeys taken in September 2024, facing west.



Photo 8. Representative photo of the Singleleaf Pinyon – Utah Juniper Woodland on the hillside near the northern boundary of the Project Area, facing north.



Photo 9. Close-up of Big Bear Valley milk vetch (*Astragalus lentiginosus* var. *sierrae*), a CRPR 1B.2 Special Status Plant, facing southeast.



Photo 10. Close-up of desiccated remains of Baldwin Lake linanthus (*Linanthus killpii*), a CRPR 1B.2 Special Status Plant, facing northwest.



Photo 11. Close-up of burrow within the sparsely vegetated area of the Upland Mustard Field, facing southeast.



Photo 12. Close-up of Southern Pacific rattlesnake (*Crotalus oreganus helleri*) within thatch at the base of the Singleleaf Pinyon – Utah Juniper Woodland, facing north.



Photo 13. Abandoned mineshaft containing standing water at a depth of 10 to 15 feet at the time of the field investigation, facing northwest.

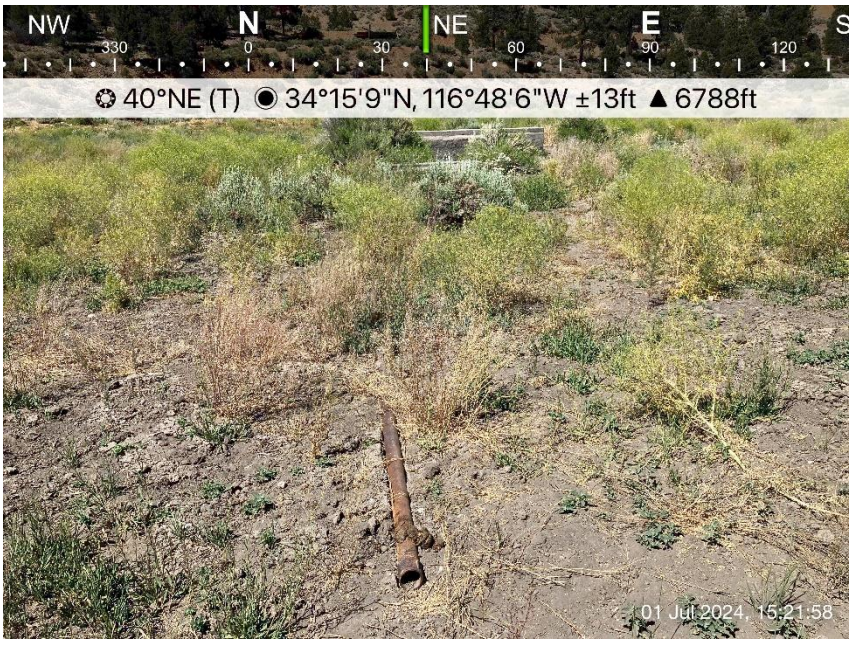


Photo 14. Suspected tailing pipe (foreground) emerging from the abandoned mineshaft (background) in the north central section of the Project Area, facing northeast.

APPENDIX C FLORAL & FAUNAL COMPENDIA

TABLE 4 FLORAL COMPENDIUM

Phylogenetic Category	Family	Scientific Name	Common Name	Lifeform	Native Status
Angiosperms (Eudicots)	Amaranthaceae	*Amaranthus albus*	pigweed amaranth	annual herb	non-native
		Amaranthus biltoides	mat amaranth	annual herb	non-native
	Asteraceae	*Achillea millefolium*	common yarrow	perennial herb	native
		Artemesia ludoviciana	mugwort	perennial herb	native
		Artemesia tridentata	big sagebrush	shrub	native
		Ericameria nauseosa	rubber rabbitbrush	shrub	native
		Gutierrezia sarothrae	broom snakeweed	shrub	native
		Pseudognaphalium canescens	Wright's cudweed	perennial herb	native
		Stephanomeria exigua	small wirelettuce	annual herb	native
		Symphyotrichum spathulatum	western mountain aster	perennial herb	native
	Boraginaceae	*Helitropium curassavicum*	salt heliotrope	perennial herb	native
		Lappula redowskii	stickweed	annual herb	native
	Brassicaceae	*Descurainia sophia*	flix weed	annual herb	non-native
		Sisymbrium altissimum	tall tumble mustard	annual herb	non-native
	Cactaceae	*Echinocereus triglochidiatus mojaviensis*	Mojave kingcup cactus	shrub (stem succulent)	native
		Opuntia polyacantha	plains pricklypear	shrub (stem succulent)	native

Phylogenetic Category	Family	Scientific Name	Common Name	Lifeform	Native Status
	Chenopodiaceae	*Chenopodium berlandieri*	pit seed goosefoot	annual herb	native
		Chenopodium capitatum	strawberry blite	annual herb	non-native
		Krascheninnikovia lanata	winterfat	shrub	native
	Cupressaceae	*Juniperus californica*	California juniper	shrub	native
		Juniperus grandis	sierra juniper	tree	native
	Ephedraceae	*Ephedra viridis*	Mormon tea	shrub	native
	Euphorbiaceae	*Euphorbia albomarginata*	rattlesnake sandmat	perennial herb	native
		Euphorbia lurida	woodland spurge	perennial herb	native
	Fabaceae	*Astragalus lentiginosus* var. *sierrae*	Bear Valley milkvetch	perennial herb	native
		Lupinus excubitus	grape lupine	shrub	native
		Lupinus lepidus	Pacific lupine	perennial herb	native
	Malvaceae	*Malva neglecta*	dwarf mallow	annual, perennial herb	non-native
		Sphaeralcea ambigua	apricot mallow	perennial herb	native
	Namaceae	*Eriodictyon trichocalyx*	hairy yerba santa	shrub	native
	Nyctaginaceae	*Mirabilis laevis*	desert wishbone bush	perennial herb	native
	Onagraceae	*Oenothera californica*	California primrose	perennial herb	native
	Pinaceae	*Pinus jeffreyi*	Jeffrey pine	tree	native
		Pinus monophylla	single leaf pinyon pine	tree	native
	Polemoniaceae	*Linanthus killpii*	Baldwin lake linanthus	annual herb	native

Phylogenetic Category	Family	Scientific Name	Common Name	Lifeform	Native Status
	Polygonaceae	*Eriogonum davidsonii*	Davidson's buckwheat	annual herb	native
	Pteridaceae	*Pellaea mucronata*	birdfoot fern	fern	native
	Rosaceae	*Amelanchier utahensis*	western serviceberry	shrub	native
		Cercocarpus ledifolius	desert mountain mahogany	tree, shrub	native
		Purshia tridentata	antelope bitterbrush	shrub	native
		Rosa woodsii	Woods' rose	shrub	native
	Scophulariaceae	*Verbascum thapsus*	common mullein	perennial herb	non-native
Angiosperms (Monocots)	Iridaceae	*Iris missouriensis*	blue flag iris	perennial herb	native
	Poaceae	*Bromus tectorum*	cheatgrass	annual grass	invasive
		Elymus hispidus	intermediate wheatgrass	perennial grass	non-native
		Elymus repens	quackgrass	perennial grass	non-native
		Poa secunda	one-sided bluegrass	perennial grass	native

TABLE 5 FAUNAL COMPENDIUM

Phylogenetic Category	Scientific Name	Common Name	Native Status
Bird	*Buteo jamaicensis*	Red-tailed hawk	native
	Cathartes aura	Turkey vulture	native
	Calypte anna	Anna's hummingbird	native
	Cyanocitta stelleri	Steller's jay	native
	Gymnorhinus cyanocephalus	Pinyon jay	native
	Haemorhous mexicanus	House finch	native
	Poecile gambeli	Mountain chickadee	native

Phylogenetic Category	Scientific Name	Common Name	Native Status
	Sayornis nigricans	Black phoebe	native
	Stelgidopteryx serripennis	Northern rough-winged swallow	native
	Tachycineta thalassina	Violet-green swallow	native
	Tyrannus vociferans	Cassin's kingbird	native
	Zenaida macroura	Mourning dove	native
Invertebrate	*Heliopetes ericetorum*	Northern white skipper	native
	Vanessa cardui	Painted lady	native
Mammal	*Equus asinus*	Donkey	non-native
	Sciurus griseus	Western gray squirrel	native
	Sylvilagus audubonii	Desert cottontail	native
Reptile	*Crotalus oreganus helleri*	Southern Pacific rattlesnake	native

APPENDIX D SPECIAL-STATUS SPECIES OCCURRENCE POTENTIALS

TABLE 6 SPECIAL-STATUS SPECIES EVALUATED FOR POTENTIAL OCCURRENCE

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Plants						
Abronia nana var. *covillei*	Coville's dwarf abronia	CRPR 4.2	Plant (perennial herb)	Great Basin scrub, Joshua tree "woodland", pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest. Microhabitat: carbonate, sandy. Blooming period: May through August. Elevation: 5,000 to 10,170 feet.	CNDDB, RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. There are 16 records (from 1937 to 2014) of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City) (Calflora 2024, CCH 2024). However, the species was not observed during surveys, which occurred during the blooming period for this species.
Acanthoscyphus parishii var. *cienegensis*	Cienaga Seca oxytheca	CRPR 1B.3	Plant (annual herb)	Joshua tree "woodland", pinyon and juniper woodland, upper montane coniferous forest (granitic, sandy). Blooming period: (May) June through September. Elevation: 6,905 to 8,040 feet.	CNDDB, RPI	**Low Potential.** Pinyon and juniper woodland on site may provide suitable habitat for this species; however, the Project Area is slightly below the elevation range for this species and the nearest known populations are

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						highly localized near Cienega Seca and Coon Creek (Calflora 2024, Jepson eFlora 2024).
Acanthoscyphus parishii var. *goodmaniana*	Cushenbury oxytheca	CRPR 1B.1, FE	Plant (annual herb)	Pinyon and juniper woodland (carbonate, talus). Microhabitat: carbonate, sandy. Blooming period: June through September. Elevation: 4,000 to 7,800 feet.	CNDDB, RPI, IPaC	**Low Potential.** Pinyon-juniper woodland within Project Area may provide suitable habitat for this species. Fifteen CNDDB records (from 1994 to 2019) occur within a 10-mile radius of the site. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Acanthoscyphus parishii var. *parishii*	Parish's oxytheca	CRPR 4.2	Plant (annual herb)	Chaparral, lower montane coniferous forest. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: May through August. Elevation: 4,005 to 8,530 feet.	CNDDB, RPI	**Does Not Occur.** Project Area does not contain suitable habitat (chapparal or lower montane coniferous forest) for this species.
Allium parishii	Parish's onion	CRPR 4.3	Plant (perennial bulbiferous herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: rocky. Blooming period: April through May. Elevation: 2,955 to 5,695 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Androsace elongata ssp. *acuta*	California androsace	CRPR 4.2	Plant (annual herb)	Chaparral, cismontane woodland, coastal scrub, meadows and seeps,	CNDDB, RPI	**Does Not Occur**. Project Area is outside of

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				pinyon and juniper woodland, valley and foothill grassland. Blooming period: March through June. Elevation: 490 to 4,280 feet.		the elevational range for this species.
Antennaria marginata	White-margined everlasting	CRPR 2B.3	Plant (perennial stoloniferous herb)	Lower montane coniferous forest, upper montane coniferous forest. Blooming period: May through August. Elevation: 6,955 to 11,000 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (lower montane coniferous forest and upper montane coniferous forest) for this species absent.
Arctostaphylos parryana ssp. *tumescens*	Interior manzanita	CRPR 4.3	Plant (perennial evergreen shrub)	Chaparral (montane), cismontane woodland. Blooming period: February through April. Elevation: 6,890 to 7,580 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral [montane] and cismontane woodland) for this species absent.
Arenaria lanuginosa var. *saxosa*	Rock sandwort	CRPR 2B.3	Plant (perennial herb)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: mesic, sandy. Blooming period: July to August. Elevation: 4,775 to 8,350 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (subalpine coniferous forest, upper montane coniferous forest) for this species.
Astragalus albens	Cushenbury milk-vetch	CRPR 1B.1, FE	Plant (perennial herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: carbonate (usually), granitic (rarely).	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Blooming Period: March through June. Elevation: 3,595 to 6,560 feet.		
Astragalus bernardinus	San Bernardino milk-vetch	CRPR 1B.2	Plant (perennial herb)	Joshua tree "woodland", pinyon and juniper woodland. Microhabitat: carbonate (often), granitic (often). Blooming Period: April through June. Elevation: 2,955 to 6,560 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Astragalus bicristatus	Crested milk-vetch	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, upper montane coniferous forest. Microhabitat: carbonate (usually), rocky (sometimes), sandy (sometimes). Blooming period: May through August. Elevation: 5,580 to 9,005 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (lower montane coniferous forest, upper montane coniferous forest) for this species.
Astragalus lentiginosus var. *sierrae*	Bear Valley milk-vetch	CRPR 1B.2	Plant (perennial herb)	Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: gravelly (sometimes), rocky (sometimes). Blooming Period: April through August. Elevation: 5,905 to 8,530 feet.	CNDDB, RPI	**Present.** A population comprised of two individuals was observed within the Project Area zone mapped as containing hydric soils during the July 2024 field visit.
Astragalus leucolobus	Big Bear Valley woollypod	CRPR 1B.2	Plant (perennial herb)	Lower montane coniferous forest, pebble (Pavement) plain, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: rocky. Blooming Period: May through July. Elevation: 3,600 to 9,465 feet.	CNDDB, RPI	**Low Potential.** There are 25 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Six CNDDB records occur within a 1-mile radius of the Project

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						Area with the nearest occurrence (2001) documented approximately 0.1 miles northwest. Pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Astragalus tidestromii	Tidestrom's milk-vetch	CRPR 2B.2	Plant (perennial herb)	Mojavean desert scrub. Microhabitat: carbonate, gravelly (sometimes), sandy (sometimes). Blooming Period: (January) April through July. Elevation: 1,970 to 5,855 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Atriplex parishii	Parish's brittlescale	CRPR 1B.1	Plant (annual herb)	Chenopod scrub, playas, vernal pools. Microhabitat: alkaline. Blooming period: June through October. Eleveation: 80 to 6,235 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chenopod scrub, playas, vernal pools, alkaline soils) for this species absent.
Berberis fremontii	Fremont barberry	CRPR 2B.3	Plant (perennial evergreen shrub)	Joshua tree "woodland", pinyon and juniper woodland. Microhabitat: granitic (sometimes), rocky. Blooming period: March through May. Elevation: 3,755 to 5,645 feet.	RPI	**Does Not Occur.** Project Area is outside of the elevational range for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Boechera dispar	Pinyon rock cress	CRPR 2B.3	Plant (perennial herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: granitic, gravelly. Blooming period: March through June. Elevation: 3,935 to 8,335 feet.	CNDDB, RPI	**Moderate Potential.** There are 14 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record occurs within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.8 miles southeast. Gravelly areas within the pinyon and juniper woodland on site may provide suitable habitat.
Boechera lincolnensis	Lincoln rockcress	CRPR 2B.3	Plant (perennial herb)	Chenopod scrub, Mojavean desert scrub. Microhabitat: carbonate. Blooming period: March through May. Elevation: 3,610 to 8,875 feet.	RPI	**Low Potential.** Suitable habitat (chenopod scrub, Mojavean desert scrub) for this species absent. While CNDDB considers this species presumed extant, the last CNDDB occurrence record was documented in 1928.
Boechera parishii	Parish's rock cress	CRPR 1B.2	Plant (perennial herb)	Pebble (Pavement) plain, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: quartzite on clay, carbonate (sometimes), rocky. Blooming Period: April through	CNDDB, RPI	**High Potential.** There are 7 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Four CNDDB records occur within a 1-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				May. Elevation: 5,805 to 9,810 feet.		mile radius of the Project Area with the nearest specific area occurrence (2012) overlapping the eastern section of the Project Area. Rocky areas within the big sagebrush shrubland – pinyon and juniper woodland ecotone on site may provide suitable habitat.
Boechera peirsonii	San Bernardino rock cress	CRPR 1B.2	Plant (perennial herb)	Subalpine coniferous forest (rocky). Blooming period: March through August. Elevation: 8,860 to 10,500 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Boechera shockleyi	Shockley's rock cress	CRPR 2B.2	Plant (perennial herb)	Pinyon and juniper woodland (carbonate, gravelly, quartzite, rocky). Blooming Period: May through June. Elevation: 2,870 to 7,580 feet.	CNDDB, RPI	**Low Potential.** One CNDDB record occurs approximately 1.2 miles west of Project Area. Pinyon and juniper woodland on site may provide suitable habitat.
Botrychium crenulatum	Scalloped moonwort	CRPR 2B.2	Plant (perennial rhizomatous herb)	Bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps (freshwater), upper montane coniferous forest. Blooming period: June through September. Elevation: 4,160 to 10,760 feet.	RPI	**Low Potential.** Aside for the hydric soils in the northwestern portion of the Project Area, this site does not contain suitable habitat (bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps (freshwater), upper montane

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						coniferous forest) for this species.
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	CRPR 1B.2	Plant (perennial bulbiferous herb)	Chaparral, lower montane coniferous forest, meadows and seeps. Microhabitat: mesic. Blooming Period: April through July. Elevation: 2,330 to 7,840 feet.	CNDDB, RPI	**Low Potential.** Project Area does not contain suitable habitat (chaparral, lower montane coniferous forest, meadows and seeps) for this species.
Calochortus plummerae	Plummer's mariposa lily	CRPR 4.2	Plant (perennial bulbiferous herb)	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Microhabitat: granitic, rocky. Blooming Period: May through July. Elevation: 330 to 5,580 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland) for this species absent.
Calochortus striatus	Alkali mariposa lily	CRPR 1B.2	Plant (perennial bulbiferous herb)	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps. Microhabitat: alkaline, mesic. Blooming period: April through June. Elevation: 230 to 5,235 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps) for this species absent.
Calyptridium pygmaeum	Pygymy pussypaws	CRPR 1B.2	Plant (annual herb)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: gravelly	CNDDB, RPI	**Does Not Occur.** Project Area does not contain suitable habitat

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				(sometimes), sandy (sometimes). Blooming Period: June through August. Elevation: 6,495 to 10,205 feet.		(subalpine coniferous forest, upper montane coniferous forest) for this species.
Camissonia integrifolia	Kern River evening primrose	CRPR 1B.3	Plant (annual herb)	Chaparral, Mojavean desert scrub. Toeslopes and terraces along drainages. Microhabitat: openings, sandy. Blooming period: (April) May. Elevation: 2,295 to 3,935 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral, chenopod scrub, Mojavean desert scrub, toeslopes and terraces along drainages) for this species absent.
Canbya candida	White pygmy poppy	CRPR 4.2	Plant (annual herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: granitic, gravelly, sandy. Blooming period: March through June. Elevation: 1,970 to 4,790 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Carex occidentalis	Western sedge	CRPR 2B.3	Plant (perennial rhizomatous herb)	Lower montane coniferous forest, meadows and seeps. Blooming period: June through August. Elevation: 5,395 to 10,285 feet.	RPI	**Absent.** Although the Project Area contains suitable habitat (hydric soils) for this species, no hydrophytic graminoids were detected during the site visit.
Carex scirpoidea ssp. *pseudoscirpoidea*	Western single-spiked sedge	CRPR 2B.2	Plant (perennial rhizomatous herb)	Alpine boulder and rock field, meadows and seeps, subalpine coniferous forest (rocky). Microhabitat: carbonate (often),	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				mesic. Blooming period: July through September. Elevation: 9,810 to 12,140 feet.		
Castilleja cinerea	Ash-gray Indian paintbrush	CRPR 1B.2, FT	Plant (perennial hemi-parasitic herb)	Mojavean desert scrub, meadows and seeps, pebble (pavement) plain, pinyon and juniper woodland, upper montane coniferous forest (clay, openings). Blooming period: June through August. Elevation: 5,905 to 9,710 feet.	CNDDB, RPI, IPaC	**Low Potential.** There are 14 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Eight CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.3 miles northeast. Rocky areas within the pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Castilleja lasiorhyncha	San Bernardino Mountains owl's clover	CRPR 1B.2	Plant (annual hemi-parasitic herb)	Chaparral, meadows and seeps, pebble (pavement) plain, riparian woodland, upper montane coniferous forest. Microhabitat: mesic. Blooming period: May through August. Elevation: 4,265 to 7,840 feet.	CNDDB, RPI	**Low Potential.** There are 5 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Two CNDDB records occur within a 1-mile radius of the Project Area with the nearest

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						occurrence (1982) documented approximately 0.3 miles southwest. Open areas along the upland mustard-pinyon and juniper woodland ecotone on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Castilleja montigena	Heckard's paintbrush	CRPR 4.2	Plant (perennial hemi-parasitic herb)	Lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Blooming period: May through August. Elevation: 6,400 to 9,185 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within Project Area may provide suitable habitat for this species. There are three records (2019-2021) approximately 2.3 miles south of the site (Calflora 2024, CCH 2024). However, the species was not observed during surveys, which occurred during the blooming period for this species.
Castilleja plagiotoma	Mojave paintbrush	CRPR 4.3	Plant (perennial hemi-parasitic herb)	Great Basin scrub (alluvial), Joshua tree "woodland", lower montane coniferous forest, pinyon and juniper woodland. Blooming period: April through June. Elevation: 985 to 8,205 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. There is one record (Calflora

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						2024) of this species occurring within the Big Bear City USGS 7.5-minute quadrangle.
Chorizanthe spinosa	Mojave spineflower	CRPR 4.2	Plant (annual herb)	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, playas. Microhabitat: alkaline (sometimes). Blooming period: March through July. Elevation: 20 to 4,265 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, playas) for this species absent.
Chorizanthe xanti var. *leucotheca*	White-bracted spineflower	CRPR 1B.2	Plant (annual herb)	Coastal scrub (alluvial fans), Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: April through June. Elevation: 985 to 3,935 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Claytonia peirsonii ssp. *bernardinus*	San Bernardino spring beauty	CRPR 1B.1	Plant (perennial herb)	Pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: carbonate, openings (usually), rocky, talus. Blooming Period: March through April. Elevation: 7,745 to 8,090 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Claytonia peirsonii ssp. *californacis*	Furnace spring beauty	CRPR 1B.1	Plant (perennial herb)	Pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: carbonate, openings (usually), rocky, talus. Blooming	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Period: March through May. Elevation: 7,545 feet.		
Cleomella brevipes	Short-pedicelled cleomella	CRPR 4.2	Plant (annual herb)	Meadows and seeps, marshes and swamps, playas. Microhabitat: alkaline. Blooming period: May through October. Elevation: 1,295 to 7,200 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (meadows and seeps, marshes and swamps, playas) for this species.
Cordylanthus eremicus ssp. *eremicus*	Desert bird's-beak	CRPR 4.3	Plant (annual hemi-parasitic herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Blooming period: July through October. Elevation: 3,280 to 9,845 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. The nearest record (1998) occurs approximately 5.3 miles northeast of the site (Calflora 2024, CCH 2024).
Cymopterus multinervatus	Purple-nerve cymopterus	CRPR 2B.2	Plant (perennial herb)	Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: March through April. Elevation: 2,590 to 5,905 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Delphinium parryi ssp. *purpureum*	Mt. Pinos larkspur	CRPR 4.3	Plant (perennial herb)	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Blooming period: May through June. Elevation: 3,280 to 8,530 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. However, the nearest record (1927), which occurred

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						approximately 6.9 miles west of the site, is 97 years old, suggesting the likelihood of this species occurring on site is low.
Diplacus johnstonii	Johnston's monkey-flower	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest (disturbed areas, gravelly, roadsides, rocky, scree). Blooming period: May through August. Elevation: 3,200 to 9,580 feet.	RPI	**Low Potential.** Pinyon-juniper woodland around the mining disturbance within the Project Area may provide suitable habitat for this species. The nearest record (2011) occurred 10.1 miles northwest of the site (Calflora 2024, CCH 2024).
Diplacus mohavensis	Mojave mokey-flower	CRPR 1B.2	Plant (annual herb)	Joshua tree "woodland", Mojavean desert scrub. Microhabitat: gravelly (sometimes), sandy (sometimes), washes (often). Blooming period: April through June. Elevation: 1,970 to 3,935 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Drymocallis cuneifolia var. *cuneifolia*	Wedgeleaf woodbeauty	CRPR 1B.1	Plant (perennial herb)	Riparian scrub, upper montane coniferous forest. Microhabitat: carbonate (sometimes). Blooming period: June through August. Elevation: 5,905 to 7,925 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (riparian scrub, upper montane coniferous forest) for this species.
Dryopteris filix-mas	Male fern	CRPR 2B.3	Plant (perennial	Upper montane coniferous forest (granitic, rocky). Blooming period:	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
			rhizomatous herb)	July through September. Elevation: 7,875 to 10,170 feet.		species. Suitable habitat (upper montane coniferous forest) for this species absent.
Dudleya abramsii ssp. affinis	San Bernardino Mountains live-forever	CRPR 1B.2	Plant (perennial fern)	Pebble (Pavement) plain, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: quartzite (sometimes), carbonate (sometimes), granitic (sometimes). Blooming period: April through June. Elevation: 4,100 to 8,530 feet.	CNDDB, RPI	**High Potential.** There are 18 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.25 miles east. South facing slopes within the pinyon and juniper woodland on site may provide suitable habitat.
Elymus salina	Salina Pass wild-rye	CRPR 2B.3	Plant (perennial grass)	Pinyon and juniper woodland (rocky). Blooming period: May through June. Elevation: 4,430 to 7,005 feet.	RPI	**Does Not Occur.** Project Area is outside the Jepson geographic range (Desert Mountains) for this species.
Eremogone ursina	Big Bear Valley sandwort	CRPR 1B.2, FT	Plant (perennial herb)	Meadows and seeps, pebble (pavement) plain, pinyon and juniper woodland. Microhabitat: mesic, rocky. Blooming period: May through August. Elevation: 5,905 to 9,515 feet.	CNDDB, RPI, IPaC	**Low Potential.** There are 9 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Four CNDDB records occur within a 1-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.2 miles northeast within USFWS final critical habitat for this species. The most recent occurrence (2021) documented approximately 0.6 miles west. Pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Eremothera boothii ssp. *boothii*	Booth's evening primrose	CRPR 2B.3	Plant (annual herb)	Joshua tree "woodland", pinyon and juniper woodland. Blooming period: April through September. Elevation: 2,675 to 7,875 feet.	RPI	**Does Not Occur.** Project Area is outside the Jepson geographic range (East of Sierra Nevada, White and Inyo Mountains) for this species.
Erigeron breweri var. *jacinteus*	San Jacinto Mountains daisy	CRPR 4.3	Plant (perennial rhizomatous herb)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: rocky. Blooming period: June through September. Elevation: 8,860 to 9,515 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (subalpine coniferous forest, upper montane coniferous forest) for this species absent.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Erigeron parishii	Parish's fleabane	CRPR 1B.1, FT	Plant (perennial herb)	Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: carbonate (usually), granitic (sometimes). Blooming period: May through August. Elevation: 2,625 to 6,560 feet.	CNDDB, RPI, IPaC	**Low Potential**. Although the Project Area is just over 200 feet outside of the elevational range for this species, there are 7 CNDDB records (1988-2014) within a 5-mile radius of the site.
Eriogonum evanidum	Vanishing wild buckwheat	CRPR 1B.1	Plant (annual herb)	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: July through October. Elevation: 3,610 to 7,300 feet.	CNDDB, RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. Four CNDDB records (1929 to 2008) occur within a 10-mile radius of the Project Area. However, the nearest occurrence approximately 1.4 miles west of site was recorded in 1929. Thus, the probability of this species occurring on site is low.
Eriogonum kennedyi var. *alpigenum*	Southern alpine buckwheat	CRPR 1B.3	Plant (perennial herb)	Alpine boulder and rock field, subalpine coniferous forest. Microhabitat: granitic, gravelly. Blooming period: July through September. Elevation: 8,530 to 11,485 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Eriogonum kennedyi var. *austromontanum*	Southern mountain buckwheat	CRPR 1B.2, FT	Plant (perennial herb)	Lower montane coniferous forest (gravelly), pebble (pavement) plain. Blooming period: June	CNDDB, RPI, IPaC	**Low Potential.** There are 9 CNDDB records of this species within the Project Area's USGS 7.5-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				through September. Elevation: 5,805 to 9,480 feet.		minute quadrangle (Big Bear City). Five CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.2 miles northeast. Gravelly soils on the periphery of the pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Eriogonum microthecum var. *johnstonii*	Johnston's buckwheat	CRPR 1B.3	Plant (perennial deciduous shrub)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: rocky. Blooming period: July through September. Elevation: 6,000 to 9,600 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (subalpine coniferous forest, upper montane coniferous forest) for this species.
Eriogonum microthecum var. *lacus-ursi*	Bear Lake buckwheat	CRPR 1B.1	Plant (perennial shrub)	Great Basin scrub, lower montane coniferous forest. Microhabitat: clay outcrops, clay. Blooming period: July through August. Elevation: 6,560 to 6,890 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (Great Basin scrub, lower montane coniferous forest, clay outcrops, clay soils) for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Eriogonum microthecum var. *lapidicola*	Inyo Mountains buckwheat	CRPR 4.3	Plant (perennial deciduous shrub)	Pinyon and juniper woodland, subalpine coniferous forest. Microhabitat: carbonate, rocky. Blooming period: July through September. Elevation: 8,530 to 10,170 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Eriogonum ovalifolium var. *vineum*	Cushenbury buckwheat	CRPR 1B.1, FE	Plant (perennial herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: carbonate. Blooming period: May through August. Elevation: 4,595 to 8,005 feet.	CNDDB, RPI, IPaC	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. Ten CNDDB records (1979 to 2021) occur within a 5-mile radius of the Project Area, with the nearest occurrence approximately 2.6 miles northeast. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Eriogonum umbellatum var. *minus*	Alpine sulfur-flowered buckwheat	CRPR 4.3	Plant (perennial herb)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: gravelly. Blooming period: June through September. Elevation: 5,905 to 10,065 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (subalpine coniferous forest, upper montane coniferous forest) for this species.
Eriophyllum lanatum var. *obovatum*	Southern Sierra woolly sunflower	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, upper montane coniferous forest. Microhabitat: loam, sandy. Blooming period: June through	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (lower montane coniferous

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				July. Elevation: 3,655 to 8,205 feet.		forest, upper montane coniferous forest) for this species.
Erythranthe exigua	San Bernardino Mountains monkey-flower	CRPR 1B.2	Plant (annual herb)	Meadows and seeps, pebble (pavement) plain, upper montane coniferous forest. Microhabitat: clay, mesic. Blooming period: May through July. Elevation: 5,905 to 7,595 feet.	CNDDB, RPI	**Does Not Occur.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area. Two occurrences documented in 1980 observed approximately 0.4 miles north and southwest; however, not observed in subsequent surveys. The nearest recent occurrence (2000) occurred 0.7 miles west. Suitable substrate is not present.
Erythranthe purpurea	Little purple monkey-flower	CRPR 1B.2	Plant (annual herb)	Meadows and seeps, pebble (pavement) plain, upper montane coniferous forest. Blooming Period: May through June. Elevation: 6,235 to 7,545 feet.	CNDDB, RPI	**Does Not Occur.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record occurs within a 1-mile radius of the Project Area with the nearest occurrence (1980) approximately 0.4 miles southwest. The Project

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						site is east of all but one record for the species and meadow/ seep, pebble (pavement) plain, upper montane coniferous forest habitat is absent.
Euphorbia platysperma	Flat-seeded spurge	CRPR 1B.2	Plant (annual herb)	Desert dunes, Sonoran desert scrub (sandy). Blooming period: February through September. Elevation: 215 to 330 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and Jepson geographic range (Sonoran Desert) for this species.
Frasera neglecta	Pine green gentian	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Blooming period: May through July. Elevation: 4,595 to 8,205 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. The nearest recent record (2017) occurs approximately 3.1 miles northwest of the site (Calflora 2024).
Fritillaria pinetorum	Pine fritillary	CRPR 4.3	Plant (perennial bulbiferous herb)	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest. Microhabitat: granitic (sometimes), metamorphic (sometimes). Blooming period: May through July (September). Elevation: 5,695 to 10,825 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. The nearest record (2020) occurs approximately 1.5 miles southwest of the site (Calflora 2024, CCH 2024).

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Funastrum utahense	Utah vine milkweed	CRPR 4.2	Plant (perennial herb)	Mojavean desert scrub, Sonoran desert scrub. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: (March) April through June (September to October). Elevation: 330 to 4,710 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and Jepson geographic range (Desert Mountains, Mojave Desert, Sonoran Desert) for this species.
Galium angustifolium ssp. *gabrielense*	San Antonio Canyon bedstraw	CRPR 4.3	Plant (perennial herb)	Chaparral, lower montane coniferous forest. Microhabitat: granitic, rocky (sometimes), sandy (sometimes). Blooming period: April through August. Elevation: 3,935 to 8,695 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (chaparral, lower montane coniferous forest) for this species.
Galium angustifolium ssp. *gracillimum*	Slender bedstraw	CRPR 4.2	Plant (perennial herb)	Joshua tree "woodland", Sonoran desert scrub. Microhabitat: granitic, rocky. Blooming period: April through June (July). Elevation: 425 to 5,085 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Galium jepsonii	Jepson's bedstraw	CRPR 4.3	Plant (perennial rhizomatous herb)	Lower montane coniferous forest, upper montane coniferous forest. Microhabitat: granitic, gravelly (sometimes), rocky (sometimes). Blooming period: July through August. Elevation: 5,055 to 8,205 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (lower montane coniferous forest, upper montane coniferous forest) for this species.
Galium johnstonii	Johnston's bedstraw	CRPR 4.3	Plant (perennial herb)	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, riparian woodland. Blooming period: June through July. Elevation: 4,005 to 7,545 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within Project Area may provide suitable habitat for this species. The nearest record (2006) occurs approximately 2.7 miles

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						southwest of the site (Calflora 2024, CCH 2024).
Gentiana fremontii	Fremont's gentian	CRPR 2B.3	Plant (annual herb)	Meadows and seeps (mesic), upper montane coniferous forest. Blooming period: June through August. Elevation: 7,875 to 8,860 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Gilia leptantha ssp. *leptantha*	Fine flower gilia	CRPR 1B.3	Plant (annual herb)	Lower montane coniferous forest (gravelly, sandy). Blooming period: June through August. Elevation: 4,920 to 8,400.	CNDDB, RPI	**Does Not Occur.** Project Area does not provide suitable habitat (gravelly, sandy lower montane coniferous forest) for this species.
Gilia leptantha ssp. *pinetorum*	Pine gilia	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest (rocky, sandy). Blooming period: May through July. Elevation: 4,920 to 9,185 feet.	RPI	**Does Not Occur.** Project Area does not provide suitable habitat (rocky, sandy lower montane coniferous forest) for this species. Only one quadrangle level record for this species in Moonridge USGS 7.5-minute quadrangle (CalFlora 2024).
Heuchera caespitosa	Urn-flowered alumroot	CRPR 4.3	Plant (perennial rhizomatous herb)	Cismontane woodland, lower montane coniferous forest, riparian forest (montane), upper montane coniferous forest. Microhabitat: rocky. Blooming period: May through August. Elevation: 3,790 to 8,695 feet.	RPI	**Does Not Occur.** Project Area does not provide suitable habitat (cismontane woodland, lower montane coniferous forest, riparian forest (montane), upper

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						montane coniferous forest) for this species. Only one quadrangle level record for this species in Moonridge USGS 7.5-minute quadrangle (CalFlora 2024).
Heuchera parishii	Parish's alumroot	CRPR 1B.3	Plant (perennial herb)	Alpine boulder and rock field, lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest. Blooming period: June through August. Elevation: 4,920 to 12,470 feet.	CNDDB, RPI	**Does Not Occur**. Project Area does not provide suitable habitat (alpine boulder and rock field, lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest) for this species.
Horkelia wilderae	Barton Flats horkelia	CRPR 1B.1	Plant (perennial herb)	Chaparral (edges), lower montane coniferous forest, upper montane coniferous forest. Blooming period: May through September. Elevation: 5,495 to 9,595 feet.	RPI	**Does Not Occur.** Project Area does not provide suitable habitat (chapparal, lower montane coniferous forest, upper montane coniferous forest) for this species. The nearest CNDDB record (2009) is approximately 6.4 miles southwest.
Hulsea vestita ssp. *parryi*	Parry's sunflower	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: carbonate (sometimes), granitic	RPI	**Low Potential.** Pinyon-juniper woodlands in Project Area may provide suitable habitat for this species. However, the

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				(sometimes), openings, rocky. Blooming period: April through August. Elevation: 4,495 through 9,500 feet.		nearest record (2006) is approximately 2.7 miles southwest (CalFlora 2024, CCH 2024).
Hulsea vestita ssp. *pygmaea*	Pygmy hulsea	CRPR 1B.3	Plant (perennial herb)	Alpine boulder and rock field, subalpine coniferous forest. Microhabitat: granitic, gravelly. Blooming period: June through October. Elevation: 9,300 to 12,795 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and suitable habitat (alpine boulder and rock field, subalpine coniferous forest) does not occur for this species.
Ivesia argyrocoma var. *argyrocoma*	Silver-haired ivesia	CRPR 1B.2	Plant (perennial herb)	Meadows and seeps (alkaline), pebble (pavement) plain, upper montane coniferous forest. Blooming period: June through August. Elevation: 4,800 to 9,710 feet.	CNDDB, RPI	**Does Not Occur.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Six CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) approximately 0.3 miles northeast. Alkaline meadow/ seep, pebble (pavement) plain, upper montane coniferous forest habitat is absent.
Johnstonella holoptera	Winged cryptantha	CRPR 4.3	Plant (annual herb)	Mojavean desert scrub, Sonoran desert scrub. Blooming period: March through April. Elevation: 330 to 5,545 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and does not include suitable habitat (Mojavean desert

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						scrub, Sonoran desert scrub) for this species.
Juncus duranii	Duran's rush	CRPR 4.3	Plant (perennial rhizomatous herb)	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Microhabitat: mesic. Blooming period: July through August. Elevation: 5,800 to 9,200 feet.	RPI	**Low Potential.** Hydric soil associated with seep on site may provide suitable habitat for this species. However, the nearest records (2016) occur in the southern section of the Big Bear Lake USGS 7.5-minute quadrangle, approximately 9.1 miles southwest of site (CalFlora 2024, CCH 2024). Thus, the probability for this species to occur is unlikely.
Lewisia brachycalyx	Short-sepaled lewisia	CRPR 2B.2	Plant (perennial herb)	Lower montane coniferous forest, meadows and seeps. Microhabitat: mesic. Blooming Period: (February) April through June (July). Elevation: 4,495 to 7,545 feet.	CNDDB, RPI	**Low Potential.** Hydric soil associated with seep on site may provide suitable habitat for this species. However, the nearest CNDDB record (1981) occurs approximately 1.8 miles northwest of Project Area and consists of a single individual (CalFlora 2024, CCH 2024). Thus, the probability for this species to occur is unlikely.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Lilium humboldtii ssp. *ocellatum*	Ocellated Humboldt lily	CRPR 4.2	Plant (perennial bulbiferous herb)	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland. Microhabitat: openings. Blooming period: March through July (August). Elevation: 100 to 5,905 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and does not include suitable habitat (chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland) for this species.
Lilium parryi	Lemon lily	CRPR 1B.2	Plant (perennial herb)	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest. Microhabitat: mesic. Blooming period: July through August. Elevation: 4,005 to 9,005 feet.	CNDDB, RPI	**Low Potential.** Hydric soil associated with seep on site may provide suitable habitat for this species. However, the nearest CNDDB record (2014) occurs approximately 2.3 miles south of Project Area and consists of a single individual. Thus, the probability for this species to occur is unlikely.
Linanthus killpii	Baldwin Lake linanthus	CRPR 1B.2	Plant (annual herb)	Joshua tree "woodland", meadows and seeps (alkaline), pebble (pavement) plain, pinyon and juniper woodland. Blooming period: May through July. Elevation: 5,580 to 7,875 feet.	CNDDB, RPI	**Present.** A population comprised of eight desiccated individuals was observed within the Project Area during the September 2024 field visit. Although the field survey was conducted outside the blooming period, surveyors were

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						able to identify the remains of the fruiting structures.
Linanthus maculatus ssp. *maculatus*	Little San Bernardino Mountains linanthus	CRPR 1B.2	Plant (annual herb)	Desert dunes, Joshua tree "woodland", Mojavean desert scrub, Sonoran desert scrub. Microhabitat: sandy. Blooming period: March through May. Elevation: 460 to 4,005 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and does not include suitable habitat (desert dunes, Joshua tree "woodland", Mojavean desert scrub, Sonoran desert scrub) for this species.
Malaxis monophyllos var. *brachypoda*	White bog adder's-mouth	CRPR 2B.1	Plant (perennial bulbiferous herb)	Bogs and fens, meadows and seeps, upper montane coniferous forest. Microhabitat: mesic. Blooming period: June through August. Elevation: 7,220 to 9,000 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Furthermore, seeps within the Project Area are marginal and would doubtfully support this species.
Mentzelia tridentata	Creamy blazing star	CRPR 1B.3	Plant (annual herb)	Mojavean desert scrub. Microhabitat: gravelly, rocky, sandy. Blooming period: March through May. Elevation: 2,295 to 3,855 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (Mojavean desert scrub) not present on site.
Monardella exilis	Mojave monardella	CRPR 4.2	Plant (annual herb)	Chenopod scrub, desert dunes, Great Basin scrub, Joshua tree "woodland", lower montane coniferous forest, Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: sandy.	RPI	**Does Not Occur**. Project Area is slightly above the elevation range for this species. Although the site contains pinyon-juniper woodland, the nearest

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Blooming period: April through September. Elevation: 1,970 to 6,725 feet.		documented occurrence (1927) is approximately 10 miles northwest in the Mojave Desert Region (CalFlora 2024, CCH 2024).
Muilla coronata	Crowned muilla	CRPR 4.2	Plant (perennial bulbiferous herb)	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Blooming period: March through April (May). Elevation: 2,200 to 6,430 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Myosurus minimus ssp. *apus*	Little mousetail	CRPR 3.1	Plant (annual herb)	Valley and foothill grassland, vernal pools (alkaline). Blooming period: March through June. Elevation: 65 to 2,100 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Navarretia peninsularis	Baja navarretia	CRPR 1B.2	Plant (annual herb)	Chaparral (openings), lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland. Microhabitat: mesic. Blooming period: (May) June through August. Elevation: 4,920 to 7,545 feet.	CNDDB, RPI	**Moderate Potential.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Two CNDDB records occurs within a 2-mile radius of the Project Area with the nearest occurrence (2010) documented approximately 1.7 miles southwest. Hydric soils and the pinyon and juniper woodland on site

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						may provide suitable habitat for this species.
Nemacladus gracilis	Slender nemacaldus	CRPR 4.3	Plant (annual herb)	Cismontane woodland, valley and foothill grassland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: March through May. Elevation: 395 to 6,235 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat for this species (cismontane woodland, valley and foothill grassland) not present.
Oreonana vestita	Woolly mountain parsley	CRPR 1B.3	Plant (perennial herb)	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest. Microhabitat: gravelly (sometimes), talus (sometimes). Blooming period: March through September. Elevation: 5,300 to 11,485 feet.	CNDDB, RPI	**Low Potential.** Nearest CNDDB occurrence (2015) recorded approximately 3.7 miles southwest of Project Area in mixed conifer forest associated with *Pinus monophylla*, the dominant species in the Project Area's pinyon and juniper woodland.
Oxytropis oreophila var. *oreophila*	Mountain oxytrope	CRPR 2B.3	Plant (perennial herb)	Alpine boulder and rock field, subalpine coniferous forest. Microhabitat: gravelly (sometimes), rocky (sometimes). Blooming period: June through September. Elevation: 11,155 feet to 12,470 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Packera bernardina	San Bernardino ragwort	CRPR 1B.2	Plant (perennial herb)	Meadows and seeps (mesic, sometimes alkaline), pebble (pavement) plain, upper montane coniferous forest. Blooming	CNDDB, RPI	**Low Potential.** Although there are 7 CNDDB records of this species within the Project Area's

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				period: May through July. Elevation: 5,905 to 7,545 feet.		USGS 7.5-minute quadrangle (Big Bear City) and 2 CNDDB records within a 1-mile radius of the Project Area, populations of this species tend to occur within wet meadows associated with the mesic shorelines of Baldwin and Erwin Lakes.
Packera ionophylla	Tehachapi ragwort	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, upper montane coniferous forest. Microhabitat: granitic, rocky. Blooming period: June through July. Elevation: 4,920 to 8,860 feet.	RPI	**Low Potential.** One historic occurrence recorded approximately 0.5 miles south of Project Area (CalFlora 2024, CCH 2024). Numerous recent records (from 2008 to 2010) identified populations of this species in the vicinity of Sugarloaf Mountain. Suitable microhabitat conditions (rocky soils) present on site.
Perideridia parishii ssp. *parishii*	Parish's yampah	CRPR 2B.2	Plant (perennial herb)	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Blooming period: June through August. Elevation: 4,805 to 9,845 feet.	CNDDB, RPI	**Low Potential.** There are 3 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City) and one CNDDB record (1984) within a 1-mile radius of the Project Area.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						Populations of this species tend to occur within wet meadows associated with the mesic shorelines of Baldwin and Erwin Lakes.
Phacelia exilis	Transverse Range phacelia	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest, meadows and seeps, pebble (pavement) plain, upper montane coniferous forest. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: May through August. Elevation: 3,610 to 8,860 feet.	RPI	**Low Potential.** Pinyon and Juniper woodland may provide suitable habitat based on a CCH record in similar habitat and soils 0.4-mile northwest of the Project Area. Six records (from 1941 to 2020) occur within a 1-mile radius of Project Area (CalFlora 2024, CCH 2024). However, the species was not observed during surveys, which occurred during the blooming period for this species.
Phacelia mohavensis	Mojave phacelia	CRPR 4.3	Plant (annual herb)	Cismontane woodland, lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: April through August. Elevation: 4,595 to 8,205 feet.	RPI	**Low Potential.** Pinyon and juniper woodlands and hydric soils may provide suitable habitat for this species within Project Area. Nearest occurrence (1979) approximately 2.8 miles north along northern shore of Baldwin Lake in sagebrush scrub (CalFlora

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						2024, CCH 2024). Lack of recent records suggests likelihood of occurrence on site is low.
Phacelia parishii	Parish's phacelia	CRPR 1B.1	Plant (annual herb)	Mojavean desert scrub, playas. Microhabitat: alkaline (sometimes), clay (sometimes). Blooming period: April through May (June to July). Elevation: 1,770 to 3,935 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and does not contain suitable habitat (Mojavean desert scrub, playas) for this species.
Phlox dolichantha	Big Bear Valley phlox	CRPR 1B.2	Plant (perennial herb)	Pebble (Pavement) plain, upper montane coniferous forest (openings). Blooming period: May through July. Elevation: 6,005 to 9,745 feet.	CNDDB, RPI	**Low Potential.** There are 10 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record occurs within a 1-mile radius of the Project Area with the nearest occurrence (1991) documented approximately 0.7 miles southwest. Rocky soils in the pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Physaria kingii ssp. *bernardina*	San Bernardino Mountains bladderpod	CRPR 1B.1, FE	Plant (perennial herb)	Lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest. Microhabitat: carbonate (usually). Blooming period: May through June. Elevation: 6,070 to 8,860 feet.	CNDDB, RPI, IPaC	**Does Not Occur.** There are 2 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record (2009) occurs within a 1-mile radius of the Project Area. Carbonate substrate is absent.
Plagiobothrys parishii	Parish's popcorn-flower	CRPR 1B.1	Plant (annual herb)	Great Basin scrub, Joshua tree "woodland". Microhabitat: alkaline, mesic. Blooming period: March through June (November). Elevation: 2,460 to 4,595 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Poa atropurpurea	San Bernardino bluegrass	CRPR 1B.2, FE	Plant (perennial rhizomatous grass)	Meadows and seeps (mesic). Blooming period: (April) May through July (August). Elevation: 4,460 to 8,055 feet.	CNDDB, RPI, IPaC	**Low Potential.** There are 7 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (1981) documented in the palustrine emergent wetland immediately west of Lakewood Drive. However, the species was not observed during surveys, which occurred

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						during the blooming period for this species.
Podistera nevadensis	Sierra podistera	CRPR 4.3	Plant (perennial herb)	Alpine boulder and rock field. Blooming period: July through September. Elevation: 9,845 to 13,125 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (alpine boulder and rock field) for this species not present.
Poliomintha incana	Frosted mint	CRPR 2A	Plant (perennial shrub)	Lower montane coniferous forest (mesic). Blooming period: June through July. Elevation: 5,250 to 5,580 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (lower montane conifer forest [mesic]) for this species not present.
Puccinellia parishii	Parish's alkali grass	CRPR 1B.1	Plant (annual grass)	Meadows and seeps (alkaline springs, seeps). Blooming period: April through May. Elevation: 2,295 to 3,280 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Puccinellia simplex	California alkali grass	CRPR 1B.2	Plant (annual grass)	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools. Microhabitat: alkaline, flats, lake margins, vernally mesic. Blooming period: March through May. Elevation: 5 to 3,050 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Pyrrocoma uniflora var. *gossypina*	Bear Valley pyrrocoma	CRPR 1B.2	Plant (perennial herb)	Meadows and seeps, pebble (pavement) plain. Blooming period: July through September. Elevation: 5,250 to 7,545 feet.	CNDDB, RPI	**Low Potential.** There are 7 CNDDB records of this species within the Project Area's USGS 7.5-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the most recent occurrence (1999) documented on the shores of Baldwin Lake approximately 0.9 miles northeast. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Rhinotropis acanthoclada	Thorny milkwort	CRPR 2B.3	Plant (perennial shrub)	Chenopod scrub, Joshua tree "woodland", pinyon and juniper woodland. Blooming period: May through August. Elevation: 2,495 to 7,495 feet.	RPI	**Does Not Occur.** Despite the potential for pinyon and juniper woodlands to provide suitable habitat for this species, Project Area is outside of Jepson geographic range (East of Sierra Nevada). Four CNDDB occurrences (from 1981 to 2008) recorded approximately 12 to 14.5 miles north/northwest of Project Area in Mojave Desert Region.
Rhinotropis intermontana	Inter-mountain milkwort	CRPR 2B.1	Plant (perennial shrub)	Pinyon and juniper woodland. Blooming period: June through July (October). Elevation: 6,595 to 10,105 feet.	RPI	**Does Not Occur.** Despite the potential for pinyon and juniper woodlands to provide suitable habitat

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						for this species, Project Area is outside of Jepson geographic range (East of Sierra Nevada). Nearest CNDDB occurrence (2013) approximately 11.5 miles north in Mojave Desert Region.
Rosa woodsii var. *glabrata*	Cushenbury rose	CRPR 1B.1	Plant (perennial shrub)	Mojavean desert scrub (springs). Blooming period: (April) May through August. Elevation: 2,985 to 4,710 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (Mojavean desert scrub [springs]) lacking on site.
Rupertia rigida	Parish's rupertia	CRPR 4.3	Plant (annual herb)	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, pebble (pavement) plain, valley and foothill grassland. Blooming period: June through August. Elevation: 2,295 to 8,205 feet.	RPI	**Low Potential.** Hydric soils may provide suitable habitat for this species. Six occurrences (from 1930 to 2020) recorded approximately 1.3 miles south of Project Area (CalFlora 2024).
Saltugilia latimeri	Latimer's woodland gilia	CRPR 1B.2	Plant (annual herb)	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: granitic (often), rocky (sometimes), sandy (sometimes), washes (sometimes). Blooming period: March through June. Elevation: 1,310 to 6,235 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Sedum niveum	Davidson's stonecrop	CRPR 4.2	Plant (perennial	Lower montane coniferous forest, subalpine coniferous forest, upper	RPI	**Low Potential.** Project Area at the lower limits of

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
			rhizomatous herb)	montane coniferous forest. Microhabitat: rocky. Blooming period: June through August. Elevation: 6,810 to 9,845 feet.		this species' elevation range. Numerous occurrences (from 1904 to 2010) documented near Sugarloaf Mountain in Project Area's adjacent USGS 7.5-minute quadrangle (Moonridge) (CalFlora 2024). Suitable habitat (lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest) lacking on site.
Selaginella asprella	bluish spike-moss	CRPR 4.3	Plant (lycophyte)	Cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest. Microhabitat: granitic, rocky. Blooming period: July. Elevation: 5,250 to 8,860 feet.	RPI	**Low Potential.** Pinyon and juniper woodlands may provide suitable habitat for this species. Numerous occurrences documented within a 2-mile radius of Project Area (CalFlora 2024).
Sidalcea hickmanii ssp. *parishii*	Parish's checkerbloom	CRPR 1B.2	Plant (perennial herb)	Chaparral, cismontane woodland, lower montane coniferous forest. Blooming period: (May) June through August. Elevation: 3,200 to 8,200 feet.	RPI	**Low Potential.** Suitable habitat (chaparral, cismontane woodland, lower montane coniferous forest) does not occur within Project Area. Nearest CNDDB occurrence (2005) approximately 5.5 miles southwest.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Sidalcea malviflora ssp. *dolosa*	Dwarf checker-bloom	CRPR 1B.2	Plant (perennial rhizomatous herb)	Lower montane coniferous forest (meadows, seeps), meadows and seeps, riparian woodland, upper montane coniferous forest (meadows, seeps). Blooming period: May through August. Elevation: 4,905 to 8,810 feet.	CNDDB, RPI	**Low Potential.** Relict hydric soils and open areas within Project Area may provide suitable habitat; however, lack of persistent hydrologic conditions may preclude this species' presence. Nearest CNDDB occurrence (2010) recorded approximately 2.5 miles south.
Sidalcea neomexicana	Salt spring checker-bloom	CRPR 2B.2	Plant (perennial herb)	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas. Microhabitat: alkaline, mesic. Blooming period: March through June. Elevation: 50 to 5,020 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas) for this species does not occur.
Sidalcea pedata	Birdfoot checker-bloom	CRPR 1B.1, SE, FE	Plant (perennial herb)	Meadows and seeps (mesic), pebble (pavement) plain. Blooming period: May through August. Elevation: 5,280 to 8,205 feet.	CNDDB, RPI	**Low Potential.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Two CNDDB records occur within a 1-mile radius of the Project Area with the most recent occurrence (2009) documented on the shores of Baldwin Lake approximately 0.9 miles

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						northeast. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Sidotheca caryophylloides	Chickweed oxytheca	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest (sandy). Blooming period: July through September (October). Elevation: 3,655 to 8,530 feet.	RPI	**Low Potential.** Presumed extant within Project Area's adjacent USGS 7.5-minute quadrangle (Big Bear Lake, Fawnskin) (RPI 2024). Lack of suitable habitat (lower montane coniferous forest) and location in a distinct HUC12 subwatershed reduce the likelihood of this species' presence within the Project Area.
Sisyrinchium longipes	Timberland blue-eyed grass	CRPR 2B.2	Plant (perennial herb)	Meadows and seeps. Microhabitat: mesic. Blooming period: June through August. Elevation: 6,760 feet.	RPI	**Low Potential.** Hydric soils and open areas within Project Area may provide suitable habitat for this species. A cluster of 13 occurrences (from 1905 to 2018) documented in a distinct HUC 12 subwatershed approximately 5.2 miles southeast of site (CalFlora 2024; USGS 2024). This difference in watershed location

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						reduces the likelihood of the species' presence on the project site.
Sphenopholis obtusata	Prairie wedge grass	CRPR 2B.2	Plant (perennial herb)	Cismontane woodland, meadows and seeps. Microhabitat: mesic. Blooming period: April through July. Elevation: 985 to 6,560 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Streptanthus bernardinus	Laguna Mountains jewel flower	CRPR 4.3	Plant (perennial herb)	Chaparral, lower montane coniferous forest. Blooming period: May through August. Elevation: 2,200 to 8,205 feet.	RPI	**Low Potential.** One record (CalFlora 2024, CCH 2024) from 1937 documented approximately 3.4 miles northwest of Project Area. Despite the presence of suitable habitat (pinyon and juniper woodland), the lack of subsequent records suggests this species is unlikely to occur on site.
Streptanthus campestris	Southern jewel flower	CRPR 1B.3	Plant (perennial herb)	Chaparral, lower montane coniferous forest, pinyon and juniper woodland. Microhabitat: rocky. Blooming period: (April) May through June. Elevation: 2,955 to 7,545 feet.	CNDDB, RPI	**Low Potential.** Six records (CalFlora 2024) of this species occur within a 10-mile radius of the Project Area. However, only one occurrence documented after the year 2000. Despite the presence of suitable habitat (pinyon and juniper woodland), the lack of recent records

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						suggests this species is unlikely to occur on site.
Streptanthus juneae	June's jewel flower	CRPR 1B.2	Plant (perennial herb)	Chaparral (montane), lower montane coniferous forest. Microhabitat: openings. Blooming period: June through August. Elevation: 7,070 to 7,775 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Symphyotrichum defoliatum	San Bernardino aster	CRPR 1B.2	Plant (perennial rhizomatous herb)	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic). Microhabitat: streambanks, near ditches, streams, springs. Blooming period: July through November. Elevation: 5 to 6,695 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Taraxacum californicum	California dandelion	CRPR 1B.1, FE	Plant (perennial herb)	Meadows and seeps (mesic). Blooming period: May through August. Elevation: 5,315 to 9,185 feet.	CNDDB, RPI, IPaC	**Low Potential.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (1988) documented approximately 0.6 miles northwest in the palustrine emergent wetland complex on the western side of Lakewood

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						Drive. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Thelypodium stenopetalum	Slender-petaled thelypodium	CRPR 1B.1, SE, FE	Plant (perennial herb)	Meadows and seeps (mesic, alkaline). Blooming period: May through September. Elevation: 5,250 to 8,205 feet.	CNDDB, RPI, IPaC	**Does Not Occur.** There are 4 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2019) documented approximately 0.7 miles northwest. Suitable alkaline substrate is absent.
Trichostema micranthum	Small-flowered bluecurls	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest Meadows and seeps. Microhabitat: mesic. Blooming period: June through September. Elevation: 5,005 to 7,545 feet.	RPI	**Low Potential.** One record (CalFlora 2024, CCH 2024) from 1946 documented approximately 0.3 miles southeast of Project Area. Absence of suitable habitat and subsequent records suggests this species is unlikely to occur on site.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Viola pinetorum ssp. *grisea*	Grey-leaved violet	CRPR 1B.2	Plant (perennial herb)	Meadows and seeps, subalpine coniferous forest, upper montane coniferous forest. Blooming period: April through July. Elevation: 4,920 to 11,155 feet.	CNDDB, RPI	**Low Potential.** One CNDDB record of this species (1886) occurs within the Project Area's USGS 7.5-minute quadrangle (Big Bear City) and overlaps the Project Area. However, the record is from 1886 and the exact location from which it was collected in unknown. Therefore, the record is represented by the CNDDB as occurring somewhere within a 5-mile radius if Big Bear City and described by CNDDB as a "best guess" area. The Project Area is more than 5 miles east of all CCH records and is likely outside of the range for the species.
Invertebrates						
Bombus caliginosus	Obscure bumble bee	SA	Insect	Coastal areas from Santa Barbara County north to Washington state. Food plant genera include *Baccharis*, *Cirsium*, *Lupinus*, *Lotus*, *Grindelia*, and *Phacelia*.	CNDDB	**Low Potential.** While *Lupinus* spp. within the Project Area may provide a food source for this species, the majority of CNDDB records occur along the coast from Santa Barbara northward. One CNDDB record

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						(1933) occurs approximately 9.6 miles southwest of site; however, the age of this record and absence of subsequent occurrences suggests it is unlikely that this species will occur on site.
Bombus crotchii	Crotch's bumble bee	SA	Insect	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Asclepias, Antirrhinum, Chaenactis, Lupinus, Medicago, Salvia, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.*	CNDDB	**Low Potential.** While *Lupinus* spp. and *Eriogonum* spp. within the Project Area may provide a food source for this species, their concentrations are low, suggesting it is unlikely this species will occur on site. Only two CNDDB records (1940, 2019) occur within a 10-mile radius of the site, and the most recent record observed a single individual.
Bombus morrisoni	Morrison bumble bee	SA	Insect	From the Sierra-Cascade ranges eastward across the intermountain west. Food plant genera include *Cirsium, Cleome, Helianthus, Lupinus, Chrysothamnus,* and *Melilotus*.	CNDDB	**Low Potential.** While *Lupinus* spp. within the Project Area may provide a food source for this species, there is only one CNDDB record (1999) within a 10-mile radius of the site.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Danaus plexippus	Monarch Butterfly	FC	Insect	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Closed-cone coniferous forests.	IPaC	**Does Not Occur.** Project Area does not provide suitable wintering habitat or provide foraging habitat, as no milkweeds (*Asclepias* spp.) were observed on site. Furthermore, the nearest known CNDDB overwintering sites are located approximately 67 miles southwest of Project Area.
Euchloe hyantis andrewsi	Andrew's marble butterfly	SA	Insect	Lower montane coniferous forest. Inhabits yellow pine forest near Lake Arrowhead and Big Bear Lake, San Bernardino Mtns, San Bernardino Co, 5000-6000 ft. Host plants are *Streptanthus bernardinus* and *Arabis holboellii* var *pinetorum*; larval foodplant is *Descurainia richardsonii*.	CNDDB	**Low Potential.** While the Project Area is within the geographic range for this species, the absence of suitable larval foodplants on site may limit its potential to occur. Only two CNDDB records (1935, 1970) occur within a 10-mile radius of the Project Area, and both records are over 50 years old.
Euphydryas editha quino	Quino checkerspot butterfly	SA, FE	Insect	Chaparral and coastal scrub. Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties. Hills and mesas near the coast. Need high densities of food plants *Plantago erecta*, *P.*	CNDDB	**Does Not Occur.** Suitable habitat for this species (chaparral, coastal scrub habitats, high densities of food plants) does not occur within the Project Area.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				insularis, and *Orthocarpus purpurescens*.		
Hydroporus simplex	Simple hydroporus diving beetle	SA	Insect	Aquatic, Sacramento/San Joaquin flowing waters. Known from aquatic habitats in Tuolumne and San Bernardino counties.	CNDDB	**Does Not Occur.** No water or aquatic habitat available on site; therefore, this species does not occur within the Project Area.
Paranomada californica	California cuckoo bee	SA	Insect	Nest parasite of other solitary, ground-nesting bees. Do not excavate their own nests or collect pollen for their larvae. Instead, the females enter the nests of pollen-collecting species and lay their eggs in the open, unfinished cells while the host females are absent.	CNDDB	**Low Potential.** There are only two known occurrences of this species, one in Yucca Valley (1971) and the other in Pioneertown (2006). However, given that this organism relies on solitary, ground-nesting bees, which could inhabit the Project Area, there is a low probability that this species could occur on site.
Psychomastax deserticola	Desert monkey grasshopper	SA	Insect	Chaparral. Occurs in very arid environments in the vicinity of the San Bernardino Mtns. Known to occur on chamise (*Adenostoma fasciculatum*).	CNDDB	**Does Not Occur.** Suitable habitat (chaparral, chamise) for this species does not occur on site. Only two CNDDB records (1919) occur within a 10-mile radius of the Project Area; however, both records are over 100 years old.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Fishes						
Gasterosteus aculeatus williamsoni	Unarmored threespine stickleback	SE, FE, FP	Fish	Aquatic, south coast flowing waters. Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams. Cool (<24 C), clear water with abundant vegetation.	CNDDB, IPaC	**Does Not Occur.** Suitable habitat (aquatic, flowing waters, weedy pools, backwaters, cool and clear water) for this species does not occur within the Project Area.
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	FE, SC, FP	Fish	Aquatic, south coast flowing waters. Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	CNDDB	**Does Not Occur.** Suitable habitat (aquatic, flowing waters, weedy pools, backwaters, cool and clear water) for this species does not occur within the Project Area.
Siphateles bicolor mohavensis	Mohave tui chub	FE, SE, FP	Fish	Aquatic, artificial flowing waters, artificial standing waters. Endemic to the Mojave River basin, adapted to alkaline, mineralized waters. Needs deep pools, ponds, or slough-like areas. Needs vegetation for spawning.	CNDDB	**Does Not Occur.** Suitable habitat (aquatic, artificial flowing waters, artificial standing waters) for this species does not occur within the Project Area.
Amphibians						
Ensatina eschscholtzii klauberi	Large-blotched salamander	WL	Amphibian	Found in conifer and woodland associations. Found in leaf litter, decaying logs and shrubs in heavily forested areas. Woodland overstory habitat includes canyon	CNDDB	**Low Potential.** Pinyon-juniper woodland may provide suitable habitat for this species; however, the absence of abundant

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				live oak, coulter pine, yellow pine, and incense cedar; oak, toyon, and buckwheat are also common.		leaf litter, a dense overstory, and preferred tree species suggests this species potential to occur within Project Area is low.
Rana muscosa	Southern mountain yellow-legged frog	SE, FE	Amphibian	Disjunct populations known from southern Sierras (northern DPS) and San Gabriel, San Bernardino, and San Jacinto Mtns (southern DPS). Found at 1,000 to 12,000 ft in lakes and creeks that stem from springs and snowmelt. May overwinter under frozen lakes. Often encountered within a few feet of water. Tadpoles may require 2 - 4 yrs to complete their aquatic development.	CNDDB	**Low Potential.** Hydric soils in the northwest corner of the Project Area may provide suitable habitat for this species, as it abuts an off-site NWI feature. Additionally, six CNDDB records (1908 to 2024) occur within a 10-mile radius of the site. However, this species is typically found within a couple meters of water, and the nearest aquatic feature is approximately 350 feet west of the northwestern boundary.
Reptiles						
Anniella stebbinsi	Southern California legless lizard	SSC	Reptile	Broadleaved upland forest, chaparral, coastal dunes, coastal scrub. Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats;	CNDDB	**Low Potential.** Hydric soils in the sparsely vegetated section of the meadow and seep area within the Project Area may provide suitable habitat for this species. However, only one CNDDB record (1961) occurs within a 10-mile

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				generally in moist, loose soil. They prefer soils with a high moisture content.		radius of the site, and only one specimen was documented.
Aspidoscelis tigris stejnegeri	Coastal whiptail	SSC	Reptile	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	CNDDB	**Low Potential.** Suitable habitat (desert and semi-arid areas with sparse vegetation) may be lacking within Project Area. There are no CNDDB records (2024) within a 10-mile radius of the site.
Charina umbratica	Southern rubber boa	SA, ST	Reptile	Meadow & seep, riparian forest, riparian woodland, upper montane coniferous forest, wetland. Found in a variety of montane forest habitats. Previously considered morphologically intermediate, recent (2022) genomic analysis clarifies individuals from Mt Pinos, Tehachapi Mts, and southern Sierra Nevada are southern rubber boa. Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under surface litter.	CNDDB	**High Potential.** Hydric soils in the northwest corner of the Project Area may provide suitable habitat for this species, as it abuts an off-site NWI stream and wetland. Furthermore, there are 29 CNDDB records within a 10-mile radius of the site.
Crotalus ruber	Red-diamond rattlesnake	SSC	Reptile	Chaparral, Mojavean desert scrub, Sonoran desert scrub. Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky	CNDDB	**Low Potential.** Suitable habitat (eastern slopes of mountains) for this species is marginal within the Project Area. There are no CNDDB records

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.		within a 10-mile radius of the site, suggesting its likelihood to occur is low.
Gopherus agassizii	Desert tortoise	FT, ST	Reptile	Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub. Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	CNDDB, IPaC	**Does Not Occur.** Suitable habitat (Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub, creosote bush) for this species does not occur within Project Area. Although two CNDDB records (1986) occur within a 10-mile radius of the site, both records occur at lower elevations in the Mojave Desert.
Phrynosoma blainvillii	Coast horned lizard	SSC	Reptile	Chaparral, cismontane woodland, coastal bluff scrub, coastal scrub, desert wash, pinon & juniper woodlands, riparian scrub, riparian woodland, valley & foothill grassland. Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	CNDDB	**Moderate Potential.** Pinyon-juniper woodland within the Project Area may provide some suitable habitat for this species. Four CNDDB records (1907 to 2004) occur within a 10-mile radius of site. The nearest CNDDB record (2004) occurred 3.6 miles north of the site.
Thamnophis hammondii	Two-striped gartersnake	SSC	Reptile	Marsh & swamp, riparian scrub, riparian woodland, wetland. Coastal California from vicinity of	CNDDB	**Low Potential.** Suitable habitat (riparian areas and wetlands) for this

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.		species do not occur on site. However, the proximity to a stream to the west of the northwest corner of the Project Area suggests there is a low potential for this species to occur on site. Only one CNDDB record (2001) occur within a 10-mile radius of the site.
Uma scoparia	Mojave fringe-toed lizard	SSC	Reptile	Desert dunes, desert wash, Mojavean desert scrub. Fine, loose, wind-blown sand in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert scrub. Shrubs or annual plants may be necessary for arthropods found in the diet.	CNDDB	**Does Not Occur.** Suitable habitat (desert dunes, desert wash, Mojavean desert scrub) for this species does not occur within the Project Area. There are no CNDDB records within a 10-mile radius of the site.
Birds						
Accipiter cooperii	Cooper's hawk	WL	Bird	Cismontane woodland, riparian forest, riparian woodland, upper montane coniferous forest. Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	CNDDB	**Low Potential - Foraging.** Pinyon-juniper woodland within the Project Area could provide suitable foraging habitat for this species; however, the absence of riparian area suggests the likelihood of occurring is low. There are no CNDDB records within a 10-mile radius of the site.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Accipiter striatus	Sharp-shinned hawk	WL	Bird	Cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland. Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas. North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	CNDDB	**Does Not Occur.** Suitable habitat (riparian areas with north-facing slopes within 275 ft of water) for this species is not present within the Project Area.
Aquila chrysaetos	Golden eagle	FP, WL	Bird	Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland, Great Basin scrub, lower montane coniferous forest, pinon & juniper woodlands, upper montane coniferous forest, valley & foothill grassland. Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	CNDDB, IPaC	**Moderate Potential – Foraging.** Pinyon-juniper woodlands within the Project Area may provide suitable foraging habitat for this species. Four CNDDB records (from 1992 to 2010) occur within a 10-mile radius of the site.
Asio otus	Long-eared owl	SSC	Bird	Cismontane woodland, Great Basin scrub, riparian forest, riparian woodland, upper montane coniferous forest. Riparian bottomlands with tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	CNDDB	**Does Not Occur.** Suitable habitat (cismontane woodlands, Great Basin scrub, riparian woodlands) for this species is not present within the Project Area.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Athene cunicularia	Burrowing owl	SSC	Bird	Coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, valley & foothill grassland. Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	CNDDB	**Does Not Occur.** Suitable habitat (coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, valley & foothill grassland) for this species is not present within Project Area.
Chaetura vauxi	Vaux's swift	SSC	Bird	Lower montane coniferous forest, North coast coniferous forest, old-growth redwood forests. Redwoods, Douglas-fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	CNDDB	**Low Potential - Foraging.** Pinyon-juniper woodland within Project Area may provide suitable foraging habitat for this species. One unprocessed CNDDB record (2024) occurs within Big Bear Lake USGS 7.5-minute quadrangle.
Childonias niger surinamensis	Black tern	SSC	Bird	Freshwater marsh, Great Basin standing waters, wetland. Freshwater lakes, ponds, marshes and flooded ag fields. At coastal lagoons and estuaries during migration. Breeding range reduced. Breeds primarily in Modoc Plateau region, with some breeding in Sacramento and San Joaquin valleys.	CNDDB, IPaC	**Does Not Occur.** Suitable habitat (freshwater marsh, Great Basin standing waters, wetlands) for this species is not present within Project Area.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Circus hudsonius	Northern harrier	SSC	Bird	Annual grasslands, lodgepole pine, and alpine meadow habitats. Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Mostly found in flat, or hummocky, open areas of tall, dense grasses, moist or dry shrubs, and edges for nesting, cover, and feeding. Mostly nests in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water.	CNDDB	**Low Potential - Nesting.** Sagebrush flats within Project Area may provide suitable habitat for this species. There are no CNDDB records within a 10-mile radius of the site.
Contopus cooperi	Olive-sided flycatcher	SSC	Bird	Lower montane coniferous forest, redwood, upper montane coniferous forest. Nesting habitats are mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir and lodgepole pine. Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.	CNDDB	**Low Potential – Foraging.** Pinyon-juniper woodlands adjacent to open terrain within the Project Area may provide suitable foraging habitat. One unprocessed CNDDB record (2024) occurs within Big Bear Lake USGS 7.5-minute quadrangle.
Cypseloides niger	Black swift	SSC	Bird	Coastal belt of Santa Cruz and Monterey counties; central and southern Sierra Nevada; San Bernardino and San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep	CNDDB	**Does Not Occur.** Suitable habitat (cliffs adjacent to waterfalls, canyons) not present within the Project Area. There are no CNDDB

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				canyons and sea-bluffs above the surf; forages widely.		records within a 10-mile radius of the site.
Epidonax traillii	Willow flycatcher	SE	Bird	Meadow & seep, riparian scrub, riparian woodland, wetland. Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000-8000 ft elevation. Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.	CNDDB	**Does Not Occur.** Suitable habitat (riparian woodlands with populations of willow) is not present within Project Area.
Epidonax traillii extimus	Southwestern willow flycatcher	FE, SE	Bird	Riparian woodland, riparian woodlands in Southern California.	CNDDB, IPaC	**Does Not Occur.** Suitable habitat (riparian woodlands with populations of willow) is not present within Project Area.
Eremophila alpestris actia	California horned lark	WL	Bird	Marine intertidal & splash zone communities, meadow & seep. Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	CNDDB	**Low Potential - Foraging.** Meadow and seep within Project Area may provide suitable foraging habitat for this species. One unprocessed CNDDB record (2024) occurs within the Big Bear Lake USGS 7.5-minute quadrangle.
Falco mexicanus	Prairie falcon	WL	Bird	Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, valley & foothill grassland. Inhabits dry,	CNDDB	**Low Potential - Foraging.** Although this species typically inhabits lower elevation

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.		grasslands and deserts, open terrain within the Project Area may provide suitable habitat. Two CNDDB nesting records (1977, 1978) occur within 10-miles of the Project Area.
Haliaeetus leucocephalus	Bald Eagle	FD, SE, FP	Bird	Lower montane coniferous forest, old growth. Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	CNDDB, IPaC	**Low Potential – Nesting, Foraging, Wintering**. No eagle nests were observed during biological suveys. One CNDDB nesting and wintering record (2013) occurs on the south-facing slope of the pinyon-juniper woodland hillside, approximately 0.5 miles north of site and adjacent to Baldwin Lake. Large conifers (Jeffrey pine) within Project Area may provide suitable nesting habitat for this species; however, the site is not adjacent to a persistent water body. Therefore, the project is unlikely to support nesting habitat (tall features near persistent water bodies with prey/fish) or foraging

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						habitat (persistent water bodies with prey/fish).
Icteria virens	Yellow-breasted chat	SSC	Bird	Riparian forest, riparian scrub, riparian woodland. Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	CNDDB	**Does Not Occur.** Suitable habitat (riparian forests, scrub, and woodlands) for this species are not present within the Project Area.
Lanius ludovicianus	Loggerhead shrike	SSC	Bird	Broadleaved upland forest, desert wash, Joshua tree woodland, Mojavean desert scrub, pinyon & juniper woodlands, riparian woodland, Sonoran desert scrub. Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	CNDDB	**Low Potential - Foraging.** Pinyon-juniper woodlands within the Project Area may provide suitable foraging habitat for this species. However, most mapped CNDDB records occur at lower elevations the Project Area, so it is unlikely this species will occur on site.
Leiothlypis virginiae	Virginia's warbler	WL	Bird	Chaparral, riparian scrub, east slope of Southern Sierra Nevada to San Bernardino Mountains. In arid, shrubby, mixed-conifer, pinyon-juniper, montane-chaparral. 7000-9000 ft. Nests on arid slopes with stands of tall shrubs/scattered trees; also, riparian thickets of willow/wild rose along streams.	CNDDB	**Low Potential – Nesting, Foraging.** Pinyon-juniper woodlands within Project Area may provide suitable habitat, although the site is slightly outside of the elevation range for this species. One unprocessed CNDDB record occurs

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						within the Moonridge USGS 7.5-minute quadrangle.
Pandion haliaetus	Osprey	WL	Bird	Riparian forest, ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	CNDDB	**Low Potential - Nesting.** While the Project Area is located approximately 5 miles east of Big Bear Lake, more optimal nesting habitat occurs within a closer proximity to Big Bear Lake. One unprocessed CNDDB record (2024) occurs within the Big Bear Lake USGS 7.5-minute quadrangle.
Pelecanus erythrorhynchos	American white pelican	SSC	Bird	Colonial nester on large interior lakes. Nests on large lakes, providing safe roosting and breeding places in the form of well-sequestered islets.	CNDDB	**Does Not Occur.** Suitable wintering habitat (large interior lakes, well-sequestered islets) for this species does not occur within the Project Area.
Piranga flava	Hepatic tanager	WL	Bird	Upper montane coniferous forest, white fir-pinyon forest on desert peaks, 5300-8100 ft elevation. Understory of xerophytic shrubs.	CNDDB	**Low Potential - Foraging.** Pinyon-juniper woodlands within the Project Area may provide suitable foraging habitat for this species within the Project Area. While there is one unprocessed CNDDB record (2024)

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						within the Project Area's USGS 7.5-minute quadrangle (Big Bear City), the nearest mapped CNDDB record is approximately 100 miles east of the site.
Piranga rubra	Summer tanager	SSC	Bird	Riparian forest. Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts. Requires cottonwood-willow riparian for nesting and foraging; prefers older, dense stands along streams.	CNDDB	**Does Not Occur.** Suitable habitat (riparian forest, cottonwood-willow associations, deserts) for this species is not present within Project Area. While two CNDDB records (1987, 1989) occurred within a 10-mile radius of the Project Area, both records are over 35 years old and occurred in desert habitat.
Plegadis chihi	White-faced ibis	WL	Bird	Marsh & swamp, wetland, shallow freshwater marsh. Dense tule thickets for nesting, interspersed with areas of shallow water for foraging.	CNDDB	**Does Not Occur.** Although one unprocessed CNDDB record (2024) occurs within the Project Area's USGS 7.5-minute quadrangle (Big Bear City), suitable habitat (marsh, swamp, wetland, shallow freshwater marsh, dense tule thickets) is absent for this species on site.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Polioptila melanura	Black-tailed gnatcatcher	WL	Bird	Mojavean desert scrub, Sonoran desert scrub. Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter. Nests in desert washes containing mesquite, palo verde, ironwood, acacia; absent from areas where salt cedar introduced.	CNDDB	**Does Not Occur.** Suitable habitat (desert scrub and desert washes) for this species does not occur within the Project Area. One unprocessed CNDDB (2024) record occurs within the Old Woman Springs USGS 7.5-minute quadrangle, which is in the Mojave Desert Region.
Psiloscops flammeolus	Flammulated owl	SA	Bird	Lower montane coniferous forest, subalpine coniferous forest. Need montane forests with some understory brush for breeding. In California, the breeding range is closely associated with the presence of ponderosa pine and Jeffery pine.	CNDDB	**Low Potential - Breeding.** Jeffrey pines within the Project Area may provide suitable breeding habitat for this species. One unprocessed CNDDB record (2024) occurs within the USGS Big Bear Lake 7.5-minute quadrangle.
Selasphorus rufus	Rufous hummingbird	SA	Bird	North coast coniferous forest, oldgrowth. Breeds in Transition life zone of northwest coastal area from Oregon border to southern Sonoma County. Nests in berry tangles, shrubs, and conifers. Favors habitats rich in nectar-producing flowers.	CNDDB	**Low Potential – Wintering.** While the Project Area is far from the breeding zone for this species, conifers on site may provide suitable habitat for this species. One unprocessed CNDDB record (2024) occurs within the USGS Big Bear Lake 7.5-minute quadrangle.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Setophaga petechia	Yellow warbler	SSC	Bird	Riparian forest, riparian scrub, riparian woodland. Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	CNDDB	**Does Not Occur.** Riparian habitat is not present within the Project Area. There are no CNDDB records within a 10-mile radius of the site.
Spinus lawrencei	Lawrence's goldwinch	SA	Bird	Broadleaved upland forest, chaparral, pinyon & juniper woodlands, riparian woodland. Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	CNDDB	**Moderate Potential – Nesting, Foraging.** While this species is closely associated with oaks, which are absent within the Project Area, pinyon-juniper woodlands may provide suitable nesting and foraging habitat. One unprocessed CNDDB record (2024) occurs within the Project Areas's USGS 7.5-minute quadrangle (Big Bear City).
Strix occidentalis occidentalis	California spotted owl	SSC, FC	Bird	Broadleaved upland forest, lower montane coniferous forest, upper montane coniferous forest, mixed conifer forest, often with an understory of black oaks and other deciduous hardwoods. Canopy closure >40%. Most often found in deep-shaded canyons, on	CNDDB, IPaC	**Low Potential – Nesting, Foraging.** While numerous CNDDB occurrences have been observed within a 10-mile radius of the Project Area, the lack of a dense canopy cover and south-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				north-facing slopes, and within 300 meters of water.		facing slope on site suggest the probability of this species occurring on site is low.
Toxostoma lecontei	Le Conte's thrasher	SSC	Bird	Desert wash, Mojavean desert scrub, Sonoran desert scrub, desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	CNDDB	**Does Not Occur.** Suitable habitat (desert wash, Mojavean desert scrub, Sonoran desert scrub) for this species is absent within the Project Area. There are no CNDDB records within a 10-mile radius of the Project Area.
Xanthocephalus xanthocephalus	Yellow-headed blackbird	SSC	Bird	Marsh & swamp, wetlands. Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	CNDDB	**Low Potential – Foraging.** Suitable nesting habitat (wetlands with deep water, dense vegetation and aquatic macroinvertebrates) for this species is absent within Project Area; however, foraging can occur in uplands. Two unprocessed CNDDB records (2024) list occurrences of this species within Big Bear City and Big Bear Lake USGS 7.5-minute quadrangles.
Mammals						

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Callospermophilus lateralis bernardinus	San Bernardino golden-mantled ground squirrel	SA	Mammals	Mixed conifer, ponderosa pine, Jeffrey pine, lodgepole pine, limber pine, pinyon-juniper, montane riparian, aspen, and alpine meadow. Prefer open canopy without dense understory, with logs, stumps, talus, and other rocks for cover. Digs burrows, or may use pocket gopher burrows.	CNDDB	**Moderate Potential.** Pinyon-juniper woodlands and open areas on site may provide suitable habitat. Two of five unprocessed CNDDB records (2024) list occurrences of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City).
Chaetodipus fallax pallidus	Pallid San Diego pocket mouse	SA	Mammals	Desert wash, pinyon & juniper woodlands, Sonoran desert scrub. Desert border areas of San Diego, Riverside, San Bernardino, and Los Angeles counties in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	CNDDB	**Low Potential.** Pinyon-juniper woodlands on site may provide suitable habitat for this species. One CNDDB record for this species (2002) occurs approximately 5.0 miles north of the Project Area.
Corynorhinus townsendii	Townsend's big-eared bat	SSC	Mammals	Broadleaved upland forest, chaparral, chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, meadow & seep, Mojavean desert scrub, riparian forest, riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, upper montane coniferous forest, valley & foothill grassland. Throughout California, in a wide variety of	CNDDB	**Moderate Potential.** Four of five CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.		roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Eumops perotis californicus	Western mastiff bat	SSC	Mammals	Chaparral, cismontane woodland, coastal scrub, valley & foothill grassland. Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	CNDDB	**Low Potential.** Suitable habitat for this species (chaparral, cismontane woodland, coastal scrub, valley & foothill grassland) is not present within Project Area. No CNDDB records occurred within a 10-mile radius of the site.
Glaucomys oregonensis californicus	San Bernardino flying squirrel	SSC	Mammals	Broadleaved upland forest, lower montane coniferous forest. Known from black oak or white fir dominated woodlands between 5200 - 8500 ft in the San Bernardino and San Jacinto ranges. May be extirpated from San Jacinto range. Needs cavities in trees/snags for nests and cover. Needs nearby water.	CNDDB	**Low Potential.** Suitable habitat for this species (broadleaved upland forest, lower montane coniferous forest, black oak or white fir woodlands) is not present within Project Area. The nearest CNDDB record (1934) is approximately 6.1 miles southwest of

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						the site; however, the age of the occurrence suggests the probability to occur on site is low.
Lasionycteris noctivagans	Silver-haired bat	SA	Mammals	Lower montane coniferous forest, old growth, riparian forest. Primarily a coastal and montane forest dweller, feeding over streams, ponds and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	CNDDB	**Low Potential.** Suitable habitat for this species (lower montane coniferous forest, old growth, riparian forest) is not present within Project Area. Furthermore, the nearest CNDDB record is approximately 15.7 miles northeast in the Mojave Desert Region.
Myotis ciliolabrum	Western small-footed myotis	SA	Mammals	Wide range of habitats mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines, and crevices. Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	CNDDB	**Moderate Potential.** Two of three CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Myotis evotis	Long-eared myotis	SA	Mammals	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	CNDDB	**Moderate Potential.** One CNDDB record (1998) approximately 8.2 miles east of the Project Area identified a maternity roost for this species in an abandoned mine surrounded by pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Myotis thysanodes	Fringed myotis	SA	Mammals	In a wide variety of habitats, optimal habitats are pinyon-	CNDDB	**Moderate Potential.** Three of four CNDDB

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.		records (all from 1998) within a 10-mile radius of the site documented occurrences in pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Myotis volans	Long-legged myotis	SA	Mammals	Upper montane coniferous forest. Most common in woodland and forest habitats above 4000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	CNDDB	**Moderate Potential.** Two of three CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Myotis yumanensis	Yuma myotis	SA	Mammals	Lower montane coniferous forest, riparian forest, riparian woodland, upper montane coniferous forest. Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	CNDDB	**Low Potential.** The absence of suitable habitat (lower montane coniferous forest, riparian forests and woodlands, and upper montane coniferous forests) and water does not provide optimal habitat requirements for this species. However, one CNDDB record (1998) occurred within a 10-mile radius of the Project Area, where a single female of this species was captured and released by mist net.
Neotamias speciosus speciosus	Lodgepole chipmunk	SA	Mammals	Chaparral, upper montane coniferous forest. Summits of isolated Piute, San Bernardino,	CNDDB	**Does not Occur.** Suitable habitat is not present within the Project

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				and San Jacinto mountains. Usually found in open-canopy forests. Habitat is usually lodgepole pine forests in the San Bernardino Mts and chinquapin slopes in the San Jacinto Mts.		Area. Although a CNDDB record (1991) overlaps the Project Area, it is described as a "non-specific area" and represents a single capture of the species in 1926 somewhere in the vicinity of Baldwin Lake, likely where suitable habitat is present.
Ovis canadensis nelsoni	Desert bighorn sheep	FP	Mammals	Alpine, alpine dwarf scrub, chaparral, chenopod scrub, Great Basin scrub, Mojavean desert scrub, montane dwarf scrub, pinyon & juniper woodlands, riparian woodland, Sonoran desert scrub. Widely distributed from the White Mtns in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	CNDDB	**Low Potential.** This species prefers steeper, rocky terrains typically found in more rugged mountainous areas, which may not be present on site. The nearest CNDDB occurrence (1986) is 22 miles southeast of the Project Area, straddling the boundary of the Jepson geographic Desert Mountains Subregion and Sonoran Desert Region. Given the lack of occurrences within Bear Valley, it is unlikely this species will occur on site.
Taxidea taxus	American badger	SSC	Mammals	Alkali marsh, alkali playa, alpine, alpine dwarf scrub, bog & fen, brackish marsh, broadleaved upland forest, chaparral, chenopod	CNDDB	**Low Potential.** Soils within Project Area are suitable for digging burrows. Open areas

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, desert dunes, desert wash, freshwater marsh, Great Basin grassland, Great Basin scrub, interior dunes, Ione formation, Joshua tree woodland, limestone lower montane coniferous forest, marsh & swamp, meadow & seep, Mojavean desert scrub, montane dwarf scrub, North coast coniferous forest, old growth, pebble (pavement) plain, redwood, riparian forest, riparian scrub, riparian woodland, salt marsh, Sonoran desert scrub, Sonoran thorn woodland, ultramafic, upper montane coniferous forest, upper Sonoran scrub, valley & foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.		within the Project Area may provide suitable foraging habitat. A single CNDDB occurrence (2004) within 10 miles is noted as "Presumed Extant". However, human development and grazing activities in the open meadow may limit this species' occurrence.
Xerospermophilus mohavensis	Mohave ground squirrel	ST	Mammals	Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, open desert scrub, alkali scrub and Joshua tree woodland. Also feeds in annual grasslands.	CNDDB	**Does Not Occur.** This species is restricted to lower elevations within the Mojave Desert; therefore, the Project

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Restricted to Mojave Desert. Has been found from 1,800 - 5,000 ft in elevation. Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows.		Area is outside of its habitat range.

[a] Habitat descriptions source: California Department of Fish and Wildlife, Biogegraphic Data Branch, 2023 & Rare Plant Inventory, California Native Plant Society, 2023

[b] Special-status Definitions (CDFW 2023c, CDFW 2023d):

CRPR = California Rare Plant Rank
- 1B = Plants rare, threatened, or endangered in California and elsewhere
- 2B = Plants rare, threatened, or endangered in California but more common elsewhere
- 3 = Review List: Plants about which more information is needed
- 4 = Watch List: Plants of limited distribution
  - 0.1 = Seriously threatened in California
  - 0.2 = Moderately threatened in California
  - 0.3 = Not very threatened in California

SA = California Department of Fish and Wildlife - Special Animal
WL = California Department of Fish and Wildlife – Watch List
FP = California Department of Fish and Wildlife - Fully Protected
SSC = California Department of Fish and Wildlife - Species of Special Concern
FE = Federal Endangered Species Act - Endangered
FT = Federal Endangered Species Act - Threatened
FD = Federal Endangered Species Act - Delisted
FC = Federal Endangered Species Act - Candidate
ST = California Endangered Species Act - Threatened
SE = California Endangered Species Act - Endangered
SCE = California Endangered Species Act - Candidate Endangered
FTP = Federal Endangered Species Act - Proposed Threatened

[c] Record Source Definitions:

CNDDB = California Natural Diversity Database (California Department of Fish and Wildlife)
IPaC = Information for Planning and Consultation (U.S. Fish and Wildlife Service)
RPI = Rare Plant Inventory (California Native Plant Society)

[d] Potential to Occur Definitions:

Present: Appropriate species-specific survey methodology and protocols were followed by qualified biologist(s) during an appropriate time of year and produced unequivocal positive results for species occurrence.

High Potential: Project area is within the range of the species and suitable habitat is present, and/or there is reasonably high certainty to assume a high potential to occur based on existing data. Bird species are further categorized as breeding, foraging only, and/or transients (migratory, overwintering etc.).

Moderate Potential: Project area is within the range of the species and moderately suitable habitat is present, and/or there is reasonably high certainty to assume a moderate potential to occur based on existing data. Bird species are further categorized as breeding, foraging only, and/or transients (migratory, overwintering etc.).

Low Potential: Project area is within the range of the species, but habitat is marginal, nearby records are historic/unreliable, or there is reasonably high certainty to assume a low potential to occur based on existing data. Bird species are further categorized as breeding, foraging only, and/or transients (migratory, overwintering etc.).

Does not Occur: Project area outside the range of the species, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume species does not occur based on existing data and range distribution.

Absent: Appropriate species-specific survey methodology and protocols were followed by qualified biologist(s) during an appropriate time of year and produced unequivocal negative results for species occurrence.

APPENDIX E CULTURAL RESOURCES ASSESSMENT

Cultural Resources Assessment

Bear Valley Solar Energy Project

PREPARED FOR

EDF Renewables Distribution-Scale Power

DATE
18 October 2024

REFERENCE
0739207



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.	
DOCUMENT TITLE	Cultural Resources Assessment
DOCUMENT SUBTITLE	Bear Valley Solar Energy Project
PROJECT NUMBER	0739207
Date	18 October 2024
Version	01
Author	Jeffrey A. Rosa Figueroa, Yahaira Gonzalez Segovia, Maria Wiseman
Client name	EDF Renewables Distribution-Scale Power

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Version 1	000	Jeffrey A. Rosa Figueroa, Yahaira Gonzalez Segovia, Maria Wiseman	Maria Wiseman, Mat Carson	Ian Todd	10.18.2024	
Version 1	001	Jeffrey A. Rosa Figueroa, Yahaira Gonzalez Segovia, Maria Wiseman	Maria Wiseman, Mat Carson	Ian Todd	11.6.2024	
Version 1	002	Jeffrey A. Rosa Figueroa, Yahaira Gonzalez Segovia, Maria Wiseman	Maria Wiseman, Mat Carson	Ian Todd	1.27.2025	Added SLF results

SIGNATURE PAGE

Biological Resources Assessment

Bear Valley Solar Energy Project

0739207

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ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
APN	Assessor's Parcel Number
ARPA	Archaeological Resources Protection Act
AT&SF	Atchison, Topeka and Santa Fe Railroad
BVES	Bear Valley Electric Service, Inc.
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
CPHI	California Points of Historical Interest
CRHR	California Register of Historical Resources
EDFR-DSP	EDF Renewables Distribution-Scale Power
ERM	Environmental Resources Management, Inc.
ESA	Environmental Site Assessment
MLD	Most Likely Descendant
MW	Megawatt
NAHC	California Native American Heritage Commission
NAGPRA	Native American Graves Protection and Repatriation Act
NRHP	National Register of Historic Places
PRC	California Public Resources Code
Project	Bear Valley Solar Project
Project Area	29.53 acres of privately owned land at 2151 Erwin Ranch Road
PV	Photovoltaic

RCYBP	Radiocarbon Years Before Present
SCCIC	South Central Coastal Information Center
USFS	United States Forest Service
USGS	United States Geological Survey

1. INTRODUCTION

On behalf of EDF Renewables Distribution-Scale Power (EDFR-DSP), Environmental Resources Management, Inc. (ERM) conducted a cultural resources assessment of the proposed Bear Valley Solar Project (Project), which includes a new, 5-megawatt (MW) alternating current (AC) solar photovoltaic (PV) facility located on 29.53 acres of privately owned land at 2151 Erwin Ranch Road (Project Area), near the City of Big Bear Lake in unincorporated San Bernardino County, California. The proposed Project will be designed, permitted, and developed by EDFR-DSP on behalf of Bear Valley Electric Service, Inc. (BVES; Applicant). The purpose of this assessment was to evaluate the potential for impacts to significant cultural resources and to propose recommendations to reduce potential significant impacts to less-than-significant levels, pursuant to the California Environmental Quality Act (CEQA). Moreover, this assessment was required to comply with Section 5024.1 of the California Public Resources Code (PRC), which requires identification of archaeological or historical resources in the Project Area. To complete this assessment, ERM requested and reviewed records retained by the South Central Coastal Information Center (SCCIC) at the University of California, Fullerton of the California Historical Resources Information System (CHRIS) within a 0.25-mile search radius around the Project Area, requested a Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC), reviewed relevant literature and historic aerial maps, and conducted an intensive pedestrian survey of the Project Area. This report summarizes the results of these assessments.

1.1 PROJECT DESCRIPTION

BVES is proposing the Project, which is a new, approximately 5-MW AC solar PV facility. The Project would generally develop the flat portions of the property. The current use of the Project Area is undeveloped and unoccupied. Historically, however, the parcel was part of local mining activities, indicated by abandoned mining equipment, tailings, a possible mineshaft, foundations, a wall, roads, and a mine adit (i.e., horizontal passage leading into a mine for access or drainage) at the northeastern section of the property.

1.2 LOCATION

The Project is situated within a 29.53-acre parcel, referred to as Assessor's Parcel Number (APN) 031440129, located at 2151 Erwin Ranch Road, near the City of Big Bear Lake in unincorporated San Bernardino County, California. The Project is approximately 2.5 miles to the southeast of Big Bear City, California, approximately 4 miles to the southeast of Big Bear Lake, approximately 1.5 miles to the south of Baldwin Lake, and approximately 0.6 miles northwest of Erwin Lake (Appendix A, Figure 1, *Project Vicinity*; Appendix A, Figure 2, *Project Overview*). Local access is provided by Erwin Ranch Road and Lakewood Drive, and regional access is provided by State Route 38. The Project is in the United States Geological Survey (USGS) 7.5-minute quadrangle for Big Bear City, California, within Section 17 of Township 2 North, Range 2 East (Appendix A, Figure 3, *Project Area Topography*). The San Bernardino National Forest borders the Project Area on the north but does not extend into the bounds of the Project Area. Additionally, the Project Area does not contain residential properties but is visible from Erwin Ranch Road, Lakewood Drive, and the neighboring rural residences on the east, west, and south.

2. REGULATORY SETTING

Cultural resources include prehistoric and historic archaeological sites, districts, and objects; standing historic structures, buildings, districts, and objects; and locations of important historic events or of traditional/cultural importance to various groups. For projects on private lands without federal funding within California, cultural resources are protected under state and local regulations, as described below.

2.1 STATE

2.1.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 15064.5 of the CEQA requires consideration of potential impacts to cultural resources. A cultural resource would be considered significant if it is:

1. A resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (CRHR) (PRC §5024.1; Title 14 CCR, §4850 et seq.).
2. A resource included in the local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (PRC Section 5024.1, Title 14 CCR, Section 4852), including the following:
    - **Criterion 1:** Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    - **Criterion 2:** Is associated with the lives of persons important in our past;
    - **Criterion 3:** Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
    - **Criterion 4:** Has yielded, or may be likely to yield, information important in prehistory or history.
4. The fact that a resource is not listed in the California Register, determined not to be eligible for listing in the California Register, not included in a local register of historical resources (pursuant to Section 5020.1[k] of the PRC), and not identified in an historical resources survey (meeting the criteria in Section 5024.1[g] of the PRC) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(i) or 5024.1.

In accordance with CEQA, any cultural resources must be assessed for project-related actions that could directly or indirectly impact them. Under this scenario, impacts to cultural resources not deemed important according to the above criteria would be considered less than significant.

2.1.2 CALIFORNIA REGISTER OF HISTORICAL RESOURCES

As provided in PRC Section 5020.4, the California Legislature established the CRHR in 1992. The CRHR is used as a guide by state and local agencies, private groups, and citizens to identify the state historical resources and to include which properties are to be protected, to the extent prudent and feasible, from substantial adverse change. The CRHR, as instituted by the PRC, automatically includes all California properties already listed in the National Register of Historic Places (NRHP). It also includes those formally determined to be eligible for listing in the NRHP (Categories 1 and 2 in the State Inventory of Historical Resources), as well as specific listings of the State Historical Landmarks and in the State Inventory of Historical Resources, along with specific listings of State Historical Landmarks and State Points of Historical Interest. The CRHR may also include other types of historical resources that meet the criteria for eligibility, including the following:

- Individual historic resources
- Resources that contribute to a historic district
- Resources identified as significant in historic resource surveys

Resources with a significance rating of Categories 3 through 5 in the State Inventory (Categories 3 and 4 refer to potential eligibility for the NRHP; Category 5 indicates a property with local significance). The CRHR follows the NRHP in using the 50-year threshold. A resource is usually considered for its historical significance after it reaches the age of 50 years. This threshold is not absolute but was selected as a reasonable span of time after which a professional evaluation of historical value and importance can be made. The cultural investigation of the Project Area was conducted pursuant to CEQA, PRC Chapter 2.6, Sections 21083.2 and 21084.1, and CCR Title 14, Chapter 3, Article 5, Section 15064.5.

2.1.3 HUMAN REMAINS ON NON-FEDERAL LANDS

The discovery of human remains is always a potential during ground disturbing activities. Federal and state laws require immediate reporting when human remains are discovered. California state law (California Health and Safety Code Section 7050.5) and federal law and regulations (Archaeological Resources Protection Act [ARPA], 54 USC 300101 and 43 CFR 7; Native American Graves Protection and Repatriation Act [NAGPRA], 25 USC 3001 and 43 CFR 10; and Public Lands, Interior, 43 CFR 8365.1-7) identify defined protocols for the treatment of human remains regardless of whether the remains are modern or archaeological. All discovered human remains will be treated with respect and dignity. If human remains are encountered during construction, all work within 200 feet (61 meters) of the discovery shall cease immediately. The area shall be secured, and county coroner shall be notified immediately.

If the remains are located on state, local, or private property, a protocol defined by California state law (California Health & Safety Code 7050.5 and PRC 5097.98) is required to determine if the uncovered remains are modern or archaeological. If the coroner determines that the human

remains are of Native American descent, the coroner shall notify the California Native American Heritage Commission (NAHC), who shall then identify the most likely descendant (MLD). The MLD will be consulted to determine the best course of action for treatment and/or repatriation of the human remains, be granted access to examine the remains, and have 48 hours to provide recommendations. If the MLD does not make a recommendation within 48 hours of being given access to the human remains, the land manager can rebury the human remains in a location that will not be subject to future ground disturbing activities.

2.2 LOCAL REGULATIONS

2.2.1 COUNTY OF SAN BERNARDINO

The Cultural Resources Element of the San Bernardino Countywide Plan emphasizes the importance of preserving and conserving cultural resources. These resources include archaeological sites, sacred landscapes, historic buildings, and culturally important plants and animals, which collectively contribute to the County's diverse heritage and community identity. The plan highlights the need for culturally appropriate preservation methods while accommodating growth and development in unincorporated areas (Cultural Resources – San Bernardino County 2024).

The purpose of the Cultural Resources Element is to set guidelines for notification, coordination, and partnerships aimed at preserving and conserving cultural resources, to provide strategies for avoiding or minimizing impact to resources from new developments, and to provide guidance to enhance public awareness and educational initiatives regarding cultural resources. The key principles of the Cultural Resources Element include the belief that current generations are stewards of the county's cultural history, the enhancement of understanding through preservation of cultural resources, and cultural resources generating economic benefits to the local community (Cultural Resources – San Bernardino County 2024).

The following goals, policies, and programs related to cultural resources are specified in the Cultural Resources Element:

GOAL CR-1 TRIBAL CULTURAL RESOURCES:

Tribal cultural resources that are preserved and celebrated out of respect for Native American beliefs and traditions

Policy CR-1.1 Tribal notification and coordination

We notify and coordinate with tribal representatives in accordance with state and federal laws to strengthen our working relationship with area tribes, avoid inadvertent discoveries of Native American archaeological sites and burials, assist with the treatment and disposition of inadvertent discoveries, and explore options of avoidance of cultural resources early in the planning process.

Policy CR-1.2 Tribal planning

We will collaborate with local tribes on countywide planning efforts and, as permitted or required, planning efforts initiated by local tribes.

Policy CR-1.3 Mitigation and avoidance

We consult with local tribes to establish appropriate project-specific mitigation measures and resource-specific treatment of potential cultural resources. We require project applicants to design projects to avoid known tribal cultural resources, whenever possible. If avoidance is not possible, we require appropriate mitigation to minimize project impacts on tribal cultural resources.

Policy CR-1.4 Resource monitoring

We encourage active participation by local tribes as monitors in surveys, testing, excavation, and grading phases of development projects with potential impacts on tribal resources.

GOAL CR-2 HISTORIC AND PALEONTOLOGICAL RESOURCES

Historic resources (buildings, structures, or archaeological resources) and paleontological resources that are protected and preserved for their cultural importance to local communities as well as their research and educational potential.

Policy CR-2.1 National and state historic resources

We encourage the preservation of archaeological sites and structures of state or national significance in accordance with the Secretary of Interior's standards.

Policy CR-2.2 Local historic resources

We encourage property owners to maintain the historic integrity of resources on their property by (listed in order of preference): preservation, adaptive reuse, or memorialization.

Policy CR-2.3 Paleontological and archaeological resources

We strive to protect paleontological and archaeological resources from loss or destruction by requiring that new developments include appropriate mitigation to preserve the quality and integrity of these resources. We require new development to avoid paleontological and archeological resources whenever possible. If avoidance is not possible, we require the salvage and preservation of paleontological and archeological resources.

Policy CR-2.4 Partnerships

We encourage partnerships to champion and financially support the preservation and restoration of historic sites, structures, and districts.

Policy CR-2.5 Public awareness and education

We increase public awareness and conduct education efforts about the unique historic, natural, tribal, and cultural resources in San Bernardino County through the County Museum and in collaboration with other entities. (Cultural Resources – San Bernardino County 2024)

3. ENVIRONMENTAL SETTING

3.1 THE NATURAL SETTING

The Project Area is in the San Bernardino Mountains, one of several mountain ranges trending east/west from the Pacific Ocean into the interior deserts that make up the Transverse Ranges. These mountains contain the highest peaks in Southern California, including Mount San Gorgonio at 11,502 feet elevation, and provide a clear line of demarcation between the high deserts to the north and the coastal and inland valleys to the south.

The San Andreas fault runs along the southern side of the San Bernardino Mountains forming steep sided slopes and rugged canyons. The elevation at the base of the mountains at the southern extent is generally below 1600 feet while the average elevation along the northern slopes are 4000 feet. The northern slopes are not as steep and rugged as the southern slopes. The San Bernardino Mountains are made up of primarily granitic from the Southern California batholith; however, igneous and metamorphic rock including schists and gneiss occur. These formations date to the Precambrian and Mesozoic periods. These rock types offer some use for aboriginal manufacturing of ground stone tools, for example stone bowls, pestles, manos and metates. No obsidian or volcanic glass is present within the mountains. The nearest sources of obsidian are over 145 miles north at the Coso sources and 100 miles southeast at the Obsidian Butte source. Instead, other crypto crystalline silicates including chert, chalcedony and jasper, quartz and metavolcanic rock were used to manufacture flaked stone tools. Some of these rock types occur locally; however, many sources are known and were used that occur on the desert floor to the north. (Norris and Webb 1990)

The climate of the region is classified as Mediterranean or "summer-dry subtropical" and is characterized by long, hot, dry summers and mild relatively wet winters. The climate in the San Bernardino Mountains is typically war and dry form spring through early fall and cool to cold and moist between November and March. The higher elevations receive approximately 40 inches of precipitation annually, both in the form of rain and snow (Bailey 1966). Approximately 85 percent of the annual precipitation falls between October and March. Precipitation of this area is less than that of the San Gabriel Mountains further west in the Transverse Ranges due to the rain shadow effect.

3.2 VEGETATION

ERM conducted a desktop-level biological review and field survey of the Project Area to document the vegetation and habitat within the Project Area (see ERM [2024a] for more information). The following information is a summary of the vegetation and habitat information collected during the biological study.

Habitat within the Project Area consists of mixed *Pinus monophylla* – (*Juniperus osteosperma*) Woodland Alliance (singleleaf pinyon – Utah juniper woodlands) and *Artemisia tridentata* Shrubland Alliance (big sagebrush) habitats, with a relatively open tree canopy and sparse to moderately dense understory. Within the Project Area, single leaf pinyon – Utah juniper woodlands habitat is dominated by single leaf pinyon pine (*Pinus monophylla*), Sierra juniper (*Juniperus grandis*) and Jeffrey pine (*Pinus jeffreyi*). Other trees/large shrub species conspicuous within the

Project Area include pale leaved serviceberry (*Amelanchier utahensis*), curl leaved mountain mahogany (*Cercocarpus ledifolius* var. *intermontanus*) and California fremontia (*Fremontodendron californicum*). The shrub layer on site is dominated by big sagebrush (*Artemisia tridentata*) and rubber rabbitbrush (*Ericameria nauseosa*). Other shrub species common within Project Area include mountain whitethorn (*Ceanothus cordulatus*), hairy yerba santa (*Eriodictyon trichocalyx*), Wright's buckwheat (*Eriogonum wrightii* var. *subscaposum*) and beavertail cactus (*Opuntia basilaris*).

4. CULTURAL SETTING OF THE BIG BEAR AREA

4.1 CULTURAL SETTING

The culture history of the Project Area is discussed below to provide an archaeological, ethnographic, and historic context for the archaeological investigations in this Project. This cultural setting takes on a broad approach to provide a comprehensive background of the area as it was and continues to be a travelling hub between the deserts and the coast.

To the west of Project Area is a major prehistoric trade route known as the Mojave Trail, which linked the cultures of the Colorado River and Mojave Desert regions with those of the Pacific Coast. This trail extended west from the modern town of Needles on the Colorado River to the Mojave River, near modern-day Barstow. From there, the trail went south along the river through the Victorville/Hesperia area, across the San Bernardino Mountains through Sawpit Canyon near Cajon Pass, until it reached the San Bernardino Valley, where it turned west and crossed into Gabrielino and Chumash territory. Another trade route, known as the Coco-Maricopa Trail, started farther south along the Colorado River, near Blythe, and went west through the Coachella Valley to the San Bernardino Valley via the San Gorgonio Pass (Davis 1961; Heizer 1978). Given this association, it is appropriate to consider chronologies from both the desert and coastal areas to understand how prehistoric cultural development unfolded in the San Bernardino Mountains. The interactions between the changing environmental conditions on each side of the mountains and the cultural adaptations made by precontact populations in coastal and desert regions are yet imperfectly understood.

The following brief overview of the prehistory of the region is summarized from Altschul et al. (1984), Moratto (1984), Sutton et al. (2007), Warren (1984), and Warren and Crabtree (1986). The use of the complete chronology for the California desert regions is used in this section since the chronology of the San Bernadino Mountains is still not well understood.

4.2 PRECONTACT SETTING

4.2.1 LATE PLEISTOCENE (12,000-10,000 B.C.)

The late Pleistocene was a time of generally cooler temperatures and greater precipitation than today. In addition, Rancholabrean fauna (e.g., mammoths) are known to have been present during that time. Although the specific timing of the initial occupation of the northeastern Mojave Desert is not known, it is known that there were people present in the region by the late Pleistocene. The earliest well-documented occupation of North America is the Paleoindian Clovis complex, but there is increasing evidence that people may have been in North America prior to

that time. The earliest accepted cultural complex dating to the Pleistocene in the Mojave Desert is the Clovis complex (ca. 12,000–10,000 B.P.). The characteristic artifact of the Clovis complex is the fluted projectile point of the same name. Clovis (or Clovis-like) points are often found as isolates (Basgall 1993; Basgall and Hall 1991, 1994; Borden 1971; Brott 1966; Davis 1969; Davis and Shutler 1969; Glennan 1971; Haynes 1996; Rogers 1939; Rondeau and Taylor 2007; Sutton and Wilke 1984; Warren and Phagan 1988; Yohe et al. 2013), but several "concentrations" have been found in the drainage basins of Pleistocene lakes in the Mojave Desert, including China Lake (Basgall 1993, 2007a, 2007b; Davis and Panlaqui 1978; Dillon 2002; Rosenthal et al. 2001; Warren and Phagan 1988) and Lake Thompson (Rosamond, Rogers, and Koehn playas; Basgall and Overly 2004). However, fluted points are relatively rare in the San Bernardino Mountains, as well as in coastal areas.

4.2.2 EARLY HOLOCENE (8000-5000 B.C.)

The first well-documented early Holocene archaeological pattern in the Mojave Desert is the Lake Mojave complex, dating between about 10,000 and 8000 B.P. (e.g., Amsden 1937; Campbell et al. 1937). The marker artifacts of this complex are stemmed Lake Mojave and Silver Lake points, abundant bifaces, steep edged unifaces, and crescents. Materials of this complex have been reported at Lake Mojave, Fort Irwin (Basgall 1993; Bergin et al. 2013; Hall 1993; Jenkins 1987; Warren 1991), Twentynine Palms (Basgall and Giambastiani 2000), Rosamond Lake (Basgall and Overly 2004), and China Lake (Basgall 2003, 2007a; Gilreath and Hildebrandt 1997; Rosenthal et al. 2001). Most of the radiocarbon dates on Lake Mojave complex materials have come from Fort Irwin and range between 10,085 and 7910 radiocarbon years before present (RCYBP) (Basgall and Hall 1994; Hall 1993; Jenkins 1985). Flaked stone artifacts in Lake Mojave assemblages show evidence of long-term curation and transport. Nonlocal tool stone and marine shell beads are relatively common components of such sites, suggesting long-distance direct access and/or trade. A small number of lightly used ground stone implements associated with this time period also have been found. Overall, the Lake Mojave settlement pattern "appears to reflect a forager-like strategy organized around relatively small social units" (Sutton et al. 2007:237). On the coastal side of the mountains, this early hunting period has been variously identified as Early Man (Wallace 1955), San Dieguito (Warren 1968), or simply the early Holocene (Grenda 1997). Evidence of early occupation has been found along the San Diego coast, on the shore of Lake Elsinore (Grenda 1997), and near the town of Hemet at the recently completed reservoir now known as Diamond Valley Lake (Horne 2000). At present, though, no sites with affinities to these early cultures are known in the immediate vicinity of the Project Area, possibly because of geological factors including continual erosion and significant alluvial deposition.

4.2.3 MIDDLE HOLOCENE (5000-2000 B.C.)

By 5000 B.C., a warming trend that began during the Lake Mojave period became more pronounced and led to the desiccation of numerous Pleistocene lakes in the Mojave Desert. Local populations, previously dependent on rivers and lakes, became more diversified in response to an increasingly arid environment. Some researchers have argued that conditions became so arid that the desert was simply abandoned between 5000 and 2000 B.C. (Donnan 1964; Wallace 1962). Others have suggested that populations in the desert persisted and adapted by becoming small and highly mobile, perhaps concentrating near available water sources and adjusting their

territories in response to long wet and dry cycles (Campbell and Campbell 1935; Schroth 1994). Small, sparse occupations dated to this time are assigned to the Pinto period and are identified by a characteristic point type of the same name (Warren 1984; Warren and Crabtree 1986:187).

As with the early Holocene, terminology regarding this post–5000 B.C. period is greatly variable. The time period has been called the Millingstone horizon (Wallace 1955), the Encinitas tradition (Warren 1968), and the Middle Holocene or middle Archaic (Grenda 1997; Grenda et al. 1998; Horne 2000). Local variants include the southern coastal La Jolla complex and the more inland Pauma complex (True 1980), as well as the Sayles complex in the Cajon Pass region (Basgall and True 1985; Kowta 1969).

Kowta (1969) suggested that the Sayles complex represents a long-term connection between coastal and desert areas. He argued that prior to 5000 B.C., the San Dieguito culture extended beyond the Transverse Ranges, from the San Diego coast northward into the Mojave Desert (Kowta 1969:35–36). He equated the early part of the Middle Holocene with the Altithermal climatic phase, characterized by the warmer and drier conditions that led to the desiccation of inland lakes and a reduction in resource availability in the Mojave Desert and Great Basin. Kowta found evidence of a concomitant reduction of occupation in California's desert regions and a possible hiatus between the San Dieguito culture and the succeeding Pinto Basin complex. At the same time, the Southern California coast witnessed an expansion of occupation and the inception of the Millingstone horizon. The apparent depopulation of the desert, coupled with a marked increase in population along the coast, led Kowta (1969) to argue that the various Millingstone complexes represent a coastward movement of inland people, who found the arid interior increasingly unfavourable for human occupation.

4.2.4 LATE HOLOCENE (2000 B.C. – A.D. 1200)

The Late Holocene is subdivided into the Gypsum and Saratoga Springs complexes. Gypsum Complex (2000 B.C.–A.D. 500) After 2000 B.C., people returned in significant numbers to the Mojave Desert. This period of occupation, termed the Gypsum complex (ca. 2000 B.C.–A.D. 500), was characterized by more-diversified subsistence techniques that might have been derived from earlier desert adaptations from the Pinto period or, alternatively, might have been imported from outside the desert. Hunting continued to be an important activity, but the primary technology shifted from dart and atlatl to bow and arrow. The early part of the period is associated with Elko- and Gypsum-type dart points, but these were gradually replaced by smaller, Rose Spring–series projectile points (typical of bow-and-arrow technology) at the end of the period (Yohe 1992). Milling stones are also more frequent at Gypsum complex sites than at older sites, indicating increased reliance on plant products in the desert. Beyond subsistence, ritual activities seem to have become more important, along with an increase in trade contact with other culture groups from the California coast and the Southwest. For example, split-twig figurines, a cultural innovation of southwestern cultures, appeared at Newberry Cave during the Gypsum complex. The figurines were associated with elaborate pictographs, suggesting an increase in ritual activity at this time (Davis and Smith 1981). Sites dated to the Gypsum complex are well represented in the mountains and in adjoining areas toward the coast. The Siphon site in Summit Valley has been dated to about 1550 B.C. and was characterized by Sutton et al. (1993) as a middle to late Millingstone-horizon base camp. Other sites that were occupied at this time included those at

Yucaipa (Grenda 1998) and at Prado Basin (Grenda 1995). Throughout the region, a "fairly heavy, semisedentary population" was established (Wallace 1958:12; see also Rogers 1939:61). Five sites recorded by Lerch et al. (2002) as part of investigations related to the Willow Fire contained large dart points, suggesting a Gypsum complex occupation. In general, the Gypsum complex was a time of intensified settlement and exploitation of the desert valley floor and surrounding mountains.

4.2.5 SARATOGA SPRINGS COMPLEX (A.D. 500-1200)

The period from A.D. 500 to 1200 in the desert is known as the Saratoga Springs complex and is in most respects a continuation of the previous Gypsum complex. During the Saratoga Springs complex, subtle regional variations in artifact and site types became more pronounced. These regional variations might have been results of intensified contact with neighboring groups along the coast, in the mountains, and in the Southwest. Evidence from the Oro Grande site on the Mojave River indicates trade with coastal groups during this period and a more structured settlement hierarchy centered on large village sites (Rector et al.1983). The primary projectile-point types of the southern Mojave Desert, the San Bernardino Mountains, and coastal regions are Cottonwood and, by the end of the complex, Desert Side-notched points. The Rose Spring types common to the northern Mojave Desert are rare. Ceramics were probably introduced into the region at this time, but the evidence is scarce. Lower Colorado Buff and Tizon Brown Ware ceramics are often associated with Cottonwood and Desert Side-notched points, and they likely date to the very end of the Saratoga Springs complex and into protohistoric times. Unlike some communities farther to the north who were using Anasazi-inspired pottery as early as A.D. 500 (Warren 1984:421–422), the southern desert and mountain groups seem to have concentrated on contacts with coastal communities. Marine shell beads are increasingly common at Saratoga Springs complex sites, suggesting trade with the Southern California coast, probably along the Mojave River valley route later known as the Mojave Trail (Warren 1984).

4.2.6 LATE PREHISTORIC PERIOD (A.D. 1200-CONTACT)

From A.D. 1200 to the time of European contact, the regional cultural developments that began during the Saratoga Springs complex continued. Sites along the Mojave River display an increasingly elaborate artifact assemblage influenced by cultures from both the Southwest and the California coast. Numerous sites dating to this most recent period of prehistory are located along the Mojave River (Altschul et al. 1989; Schneider 1988; Smith 1963), in the San Bernardino Mountains (Simpson et al. 1972; White and Reeder 1970), and in the inland valleys (Grenda 1998).

In the mountains and the lower desert region, Takic language speakers seem to have become firmly established at this time, and the occupation of the San Bernardino Mountains seems to have increased. In contrast to the five Gypsum complex sites identified by Lerch et al. (2002) as part of their survey for the Willow Fire, nine sites contained either Cottonwood or Desert Side-notched projectile points. Influences from Yuman speakers (Patayan) from the Colorado River and the deserts of western Arizona and Southern California also increased throughout the protohistoric period, as indicated by the presence of Lower Colorado Buff and Tizon Brown Ware ceramics. Lowland Patayan groups produced Lower Colorado Buff Ware from buff-firing secondary clays

(Beck and Neff 2006; Hildebrand et al. 2002). By contrast, the Upland Patayan who had access to granitic residual clays, were the makers of Tizon Brown Ware (Waters 1982:275). For example, work at the Pan Hot Springs site found both Tizon Brown Ware and Lower Colorado Buff Ware ceramics (Lerch and Ciolek-Torrello 2007) associated with Cottonwood-series projectile points. These ceramics, along with the continued use of coastal artifacts such as shell beads, suggest fairly long-distance trade contacts, although the Tizon Brown Ware may have been locally made, as the necessary raw materials for this ware are widely available in the San Bernardino Mountains. Most archaeologists agree that trade along the Mojave Trail was steady throughout this period, accounting for the varied coastal, desert, and Colorado River influences in the San Bernardino Mountains area (Warren 1984).

4.3 ETHNOGRAPHIC SETTING

The proposed Project Area lies within the traditional areas of the Serrano groups. The Serrano language belongs to the Takic subfamily of the larger Uto-Aztecan language family (Morroto 1984:534). Today this family includes languages from the Great Basin to central Mexico. The Serrano language is similar to neighboring tribes of the Cahuilla to the southeast, the Luiseño to the southwest and Tongva (Gabrielino) to the west.

Home to the Serrano, Vanyume, Kitanemuk, Kawaiisu, Tataviam, and Chemehuevi, the political geography of the Transverse Ranges and the Mojave Desert area is complex (Earle 1997; Johnson and Earle 1990; Kroeber 1925). Garcés' diary indicates that these groups were Vanyume (Beñemé), a term he applied to all the Serrano groups (Bean and Smith 1978; Coues 1900:243). Later interpretations place the Kitanemuk in the northwestern Antelope Valley, the Tataviam in the southwestern Antelope Valley, the Serrano in the San Bernardino Mountains and the desert east and northeast of the foothills, and the Vanyume along the Mojave River and west of the river in the western Mojave Desert (Blackburn and Bean 1978:564-569). The Vanyume are now generally considered a "desert division" of the Serrano, as both groups spoke the same language, intermarried, and attended each other's fiestas (Earle 1997:12). Mission register data indicate that communities in the western Antelope Valley may have had mixed populations of Serrano and Tataviam speakers (Earle 1997:16, 21), whereas ethnographic evidence suggests that these rancherias were Kitanemuk or Tataviam (Blackburn and Bean 1978:564; Earle 1997:16; King and Blackburn 1978:535-536).

The San Bernardino Mountains are the home of the Serrano people. The name Serrano derives from the Spanish word "mountain or highlander." This name was applied by Spanish, the first Europeans to make contact with the Serrano as early as the 1770s, to those living in the mountains now called the San Bernardinos. Prior to historic contact, the Serrano were primarily hunters and gatherers of wild plant foods and lived in permanent villages with satellite camps spread throughout their territory (Kroeber 1925). Serrano villages were placed throughout the low land valley areas stretching across what are now the present-day communities of Yucaipa, Redlands, San Bernardino, Lytle Creek, the north slopes of the San Gabriel Mountains toward Phelan and Wrightwood and San Bernardino Mountains and extending north and eastward toward Victorville, Barstow and Twenty-nine Palms (Kroeber 1925, Bean and Smith 1978). Winter villages (permanent settlements) appear to have been located along permanent water courses, at springs, and near the outlets of permanent stream courses (Robinson 1987; Sutton 1988:73-76).

The higher elevations of the San Bernardino Mountains like the Big Bear area were occupied only on a seasonal basis. Winter conditions, particularly above 5,000 feet in elevation, could be challenging with freezing temperatures and deep snow. Whereas temperatures at the lower elevations at the mountain bases were considerably higher. In protohistoric and likely late prehistoric times permanent settlements tended to be located at lower elevations particularly at the mouths of well-watered canyons along the base of the San Bernardino Mountains. Permanent settlements were occupied both during the winter and other parts of the year, and expeditions were sent out from these permanent villages during non-winter months.

Ethnographic literature indicates that the gathering of plant foods provided the Serrano with the bulk of their food resources. Food resources included acorns, yucca, pinyon nuts, greens, wild fruit and bulbs, mesquite pods, deer, small terrestrial mammals, birds, and fish. Like their other neighbors in a similar environment, plants are likely to have made up over 65 percent of the dietary food intake of the Serrano. The lower slopes and uplands of the San Bernardino Mountains provided an enormous potential for food resources. The greatest variety and quantity of plants are available on the upland slopes where yucca, manzanita, pinyon and black oak among others occur. Seasonal movement beginning in the lowest elevation of the foothills close to winter villages would provide the earliest plants for food consumption given the milder winter temperatures.

As the season progresses depleting resources closer to the winter villages and the onset of higher temperatures, movement to other up-slope resource patches of the same species would become necessary. This would extend the gathering season for several important plant species where they are available in a wide variation in elevation. One example is yucca, *Yucca whipplei*, whose common names include Spanish Bayonet, chaparral yucca or Our Lord’s Candle, occurs extensively along the northern slopes of the San Gabriel and San Bernardino mountains at approximately 3,800-foot level and continuing up to about 6,000 feet above sea level and from below 2,000 feet to 7,000 feet above sea level on the southern slopes. Yucca could become available for harvesting at its lowest range in elevation as early as late February or March. The species is still available for harvest in late June at the higher elevations within its range. This provides a potential extended period of five months to gather yucca between its lowest and highest elevation in contrast to only several weeks availability within any one elevation zone. Where the distribution of economically important plants persists in a wide geographic region and range in elevation, their available season is lengthened considerably. Yucca hearts were roasted and provided a staple food source among the Serrano and neighboring tribes. Roasting pits or earthen ovens have been found and dated to over three thousand years (Milburn 1997, 1998). Also, blossoms may have been picked and eaten or stored for later consumption by the Serrano, as among the neighboring Cahuilla.

Hunting was probably most important during times when plant foods were scarce, such as winter. Many of these food resources were widely dispersed, therefore, a large number of food collecting and processing stations were used throughout the course of the year both on the desert and valley floors and the higher elevations of the San Bernardino Mountains. In areas where water and resources were more plentiful extended camping might be expected. These locations across the landscape represent daily subsistence activities by individuals or small family groups based at a nearby village or seasonal camp. Serrano settlement and political organization, the patrilineage, linked the nuclear family with the exogamous village-based clan and clan territory (Gifford 1918;

Strong 1929). Several patrilineages (i.e., patrilineally related males and their families, perhaps 50-100 people) shared a permanent village site which functioned as a year-round base camp from which visits were made to satellite villages and seasonal temporary camps in other environmental and vegetation zones. Visits to other localities could be short or even winter-long occupations (Earle 1997:10).

Lineages that occupied permanent satellite villages, especially winter settlements, often attempted to "fission" themselves into independent territorial clans (Earle 1997:10). A village consisted of houses belonging to related and unrelated families scattered in an area where dependable water was available year-round. Members of the village represented several clans which were divided between the two moieties: Wildcat and Coyote. For example, Baldwin Lake area and former Bear Valley, before the lake was built, was the home of the Yuhavetum, "People of the pines." Here also, the Serrano invited their neighbours the Cahuilla from the San Gorgonio Pass area to join them during piñon nut harvesting in the late summer and early fall. Occupation of villages or camp areas either year-round or seasonal were likely to change over time due to social and environmental factors. Plants were not always available every year at the same location.

For example, black oak acorns (*Quercus kelloggii*) take two years to form. There may only be one good crop from a given grove once in five years given environmental conditions. Villages were linked by ceremonial, social and economic ties, and exchange of food and goods was common. Limited archaeological studies in the San Bernardino Mountains have identified obsidian, a volcanic glass used to make projectile points and knives, that was traded in to this area from several sources located hundreds of miles away. Pacific seashells have been made into ornaments, such as Olivella beads, and abalone shell pendants, by coastal tribes and traded inland have been recovered. Serrano basketry, often exquisitely made with intricate patterns and designs, were used as trade items for products not locally available. These manufactured goods from great distances reflects the great extent of trade activity between the Serrano, their neighbours, and their neighbours' neighbours and social contact that was in place for thousands of years before the arrival of Europeans.

By the time of initial Spanish contact in the late 18th century (the advent of the historic period in this region), the Serrano had developed a highly complex social organization based on clans and territories (Strong 1929). The Serrano were organized into localized, patrilinear, nontotemic clans grouped into two moieties of either Wildcat or Coyote (Gifford 1918:217; Strong 1929). Serrano women retained their lineage names but were incorporated into their husbands' clans, assuming the same ceremonial ties as their husband, primarily on account of patrilocality customs. Married women who lived close enough to their father's village could take part in ceremonies with that village. Clans were linked to each other in ceremonial alliances that crossed moieties, as a clan of the opposite moiety possessed the sacred bundle that ceremonial life centered around. Much of the Serrano territory remained relatively free of White intrusion until about 1819 when the Spanish built an asistencia near what is now Redlands.

During the late 18th and early 19th centuries the coastal Indians, and to a lesser extent the Serrano, fell under the influence of the Spanish mission system. At the missions, agricultural techniques and animal husbandry were introduced to the native peoples of Southern California.

Mission life proved destructive to the aboriginal lifestyle. Forced relocations (to the missions), introduction of new diseases (i.e., smallpox, and measles) to which the indigenous peoples have no immunity, and intermarriage, all acted to hasten the demise of the old subsistence patterns and drastically lowered the population levels of Southern California Native groups. In particular, from 1819 to 1834 and again in the 1860s these disruptions to Native life began the demise of the Serrano people. During the 20th century, many Southern California Native Americans worked on the railroads, on ranches, and as wage-earners in the cities. Some settlements, traditional gathering areas, and sacred areas were recorded by ethnographers who collected information from elders about their surviving culture after the turn of the century (Harrington 1986; Bean et al. 1981). Known Serrano place names for valleys, peaks, and villages making up their cultural landscape are very limited in comparison to what has been lost. Many Serrano decedents are enrolled at the San Manuel or Morongo Indian reservations today. Gaming at both reservations has brought economic independence and allowed the Serrano people to move forward into the 21st Century while hanging on to their cultural identity of the past.

4.4 HISTORIC SETTING

The historical background presented in this section follows the chronological order in which each group came into the San Bernardino Mountains. This historical review focuses on the Big Bear area as it has received much more treatment from previous studies in the area.

4.4.1 SPANISH MISSION PERIOD (1771-1834)

Recorded history in this part of Southern California began in the late eighteenth century with the expedition of Gaspar de Portolá up the coast in 1769. The first mission in the region, Mission San Gabriel, was established in 1771 (Engelhardt 1927). The earliest recorded passage of a European through the mountain area occurred in 1772, when Spanish soldier Pedro Fages crossed the San Bernardino Valley from south to north and exited via Cajon Pass in pursuit of deserters from the presidio at San Diego (Bolton 1931). The expeditions of Juan Bautista de Anza in 1774 and 1776 skirted the southern portion of the region (Bolton 1930). In 1776, Father Francisco Garcés, led by Mojave guides, traversed the desert from the Colorado River to the coast (Garcés 1900:246, 1967:38). The route that Garcés followed became known as the Mojave Trail. Mojave groups regularly travelled along the trail between river and coast during the historical period and apparently in prehistoric times as well. On March 22, 1776, after spending the night in Summit Valley at the Serrano village of Guapiabit, Father Garcés recorded in his diary the following passage:

> After three leagues I crossed the [San Bernardino] mountain range south-southwest. The trees mentioned yesterday reach to its top, whence the Ocean is in view, the Santa Ana River [sic], and the San José Valley. On the downslope of the range there are few trees. At its foot I found a rancheria where they received me very gladly. I continued west-southwest and west and having gone three leagues along the slope of the range, I stopped in the Arroyo de los Alisos [Garcés 1967:38].

Garcés saw the Pacific Ocean from his crossing point, which today is known as Monument Peak, and that he also viewed the Santa Ana River in the valley below and the San Jacinto Valley (which

he knew as San José) to the southeast. The most detailed account of the route the trail took over the mountains is that of historian George Beattie:

> From Soda Lake the [Mojave] trail kept close to the Mohave River [sic] and, as it approached the mountains, followed the West Fork of the river for several miles beyond what we now call Las Flores Ranch. When finally, it left West Fork, the trail entered Sawpit Canyon and led up to the crest of the range, eight miles southeast of the Spanish crossing [Cajon Pass]. Thence it descended the south slope of the range on the ridge west of Devil Canyon, turned west into Cable Canyon a short distance above its mouth, and emerging crossed the lower end of Cajon Pass just south of Devore station. It then passed through Sycamore Grove at Glen Helen Ranch, crossed Lytle Creek and led through Cucamonga and on to the sea [Beattie n.d.:2–3].

Spanish explorations in the inland areas led to the establishment of a number of cattle ranches, one of which was called the San Bernardino Rancho, named for Bernardine of Siena, the Catholic saint on whose feast day the rancho was first consecrated. This event reportedly took place at a village of the Guachama (Wa'achem) on May 20, 1810, the culmination of an arduous journey undertaken by the aging Franciscan, Father Dumetz (Caballería 1902:38; but see also Harley 1988). Other mission ranchos established in the area included Agua Caliente, extending from the Santa Ana River northward to the base of the mountains, and Yucaipa Rancho, in the valley of the same name.

By 1819, the San Bernardino Rancho headquarters at the Guachama village had an adobe storehouse and a residence for the mayordomo (ranch manager). The following year saw the completion of an irrigation ditch, known as a zanja, that diverted water from Mill Creek to irrigate the first agricultural fields in the area. When the zanja was completed, an invitation was sent to the Indian rancherías (dispersed villages) in the surrounding region to come watch the Guachama plant their crops. Reportedly, a thousand responded and were receiving practical instruction in agriculture within a month (Beattie and Beattie 1939:13). Eventually, the Mission San Gabriel authorities, ostensibly at the request of the local native population, decided to build a mission asistencia (outpost) at the San Bernardino Rancho. Construction on the new asistencia began shortly after 1827, perhaps around 1830, at a location approximately 1 mile east of the original rancho headquarters at the Guachama village (Beattie and Beattie 1939:26). Today, the San Bernardino Asistencia facility is located at the corner of Barton Road and Nevada Street at the western edge of the town of Redlands and is operated as a satellite of the San Bernardino County Museum. The main building and several supporting structures were extensively reconstructed between 1926 and 1934 using state and federal relief funds as well as private donations (Hinckley 1965). It was during the original construction of the asistencia that the earliest known timber extraction occurred in the San Bernardino Mountains. The wooden beams used to support the roof were made of bigcone Douglas fir (*Pseudotsuga macrocarpa*) obtained from the lower stretches of Mill Creek Canyon (Beattie and Beattie 1939:27; Johanneck 1975:25).

The timber was probably cut into beams at a mill located at Forest Home, the remnants of which were still visible in the late 1800s (Crafts 1902:16). Fifty years after Father Garcés made his passage over the mountains on the Mojave Trail, American trapper and fur trader Jedediah Smith used the same route. In the autumn of 1826, on his first expedition into Southern California,

Smith and his party of 15 men, also guided by Mohaves, used the ancient travel route. On his return in January 1827, he stopped at the storehouse of the San Bernardino Rancho to obtain supplies and to break a herd of some 65 wild horses he had procured in Los Angeles. He then drove the herd back to the Great Salt Lake, in Utah, apparently taking the longer but gentler grade through Cajon Pass over what later became known as the Spanish Trail. Smith made a second trip into the San Bernardino Valley later in 1827, arriving via Cajon Pass and leaving over the Mojave Trail (Beattie and Beattie 1939:21–24; Brooks 1977). Details regarding the closing years of the mission period are lacking, although it is known that a rising discontent among the scattered groups of non-mission Indians all the way to the Colorado River precipitated a series of attacks on mission facilities late in 1834. The attacks on the missions could not have come at a better time for the Mexican government. Newly independent from Spain, Mexico enacted a decree of secularization in 1833, taking mission properties out of the hands of the Catholic Church and the Spanish Crown. In 1834, the decree was enforced in California, and the missions became the property of the civil authorities.

The result of secularization and native uprisings in the area was the abandonment of the asistencia at San Bernardino and the effective end of missionary activity in the San Bernardino Valley (Beattie and Beattie 1939:33). Mexican Rancho Period (1834–1850). Following the departure of the Franciscans, a period of legal and forcible maneuvering ensued during which influential individuals attempted to gain control of the various ranchos. In the case of the San Bernardino Rancho, the sons of Antonio María Lugo were ultimately successful. On June 21, 1842, the brothers José del Carmen, José Maria, and Vicente Lugo, with their cousin Diego Sepulveda, were granted the San Bernardino Rancho for the purpose of stock raising but with the added obligation that they establish a colony there (Cowan 1977). Most of the ranchos in the San Bernardino Valley continued to be devoted to stock raising, with an emphasis on cattle. As stock raisers first and foremost, the rancheros generally stayed on the flatlands to tend their cattle and horses. Aside from short forays to prospect, hunt, or harvest timber, they watched the mountains with a wary eye. Hostile natives and others intent on stealing the rancheros' stock were known to shelter in remote mountain hideouts.

The large valley herds were vulnerable to bands of marauding desert native and non-native outlaws. One particularly bold horse thief was Walkara, a Paiute also known as Wak and Walker. On one of his raids, he joined forces with the American outlaws James Beckwourth and Thomas L. "Pegleg" Smith. In the spring of 1840, they spent several months rounding up horses, and on the night of May 19, they drove some 5,000 head north through Devil Canyon and Cajon Pass. Walkara made yet another raid in October 1845 on the Chino Rancho, this time driving the stolen herds up the Mojave Trail to Devil Canyon and onto the Spanish Trail. Over the crest of the mountains, a favorite hiding place was a secluded canyon now aptly known as Horsethief Canyon (Bailey 1954; LaFuze 1971: I:13). As one means of counteracting the constant threat of raiding, a land grant at the mouth of Cajon Pass near Devore was made in 1843 to Michael White. White was an Englishman naturalized as a citizen of Mexico who was also known as Miguel Blanco. His land grant was called the Muscubiabe Grant, named after the local Indian village, Amutskupiabit (see Ethnography section above).

Although the purpose of White's land grant was to create a sort of advance guard against the cattle raiders, he himself could not withstand the thieves, and all of his stock was stolen in short

order (Beattie and Beattie 1939:59, 90–95). With the failure of Michael White's venture, the Lugo brothers hired a band of mountain Cahuilla and induced them to move to the San Bernardino Valley to act as guards and cattle herders (vaqueros). This move of Cahuilla into the San Bernardino Valley territory formerly occupied by the Serrano Wa'achem has led a number of historians to conclude mistakenly that the area was originally Cahuilla territory (Strong 1929:150). Despite these countermeasures, the raids continued to escalate.

In 1845, determined to stop the losses to local ranches, Governor Pio Pico commissioned Benjamin Wilson to lead a punitive expedition against a band of Indians on the Mojave River. A native of Tennessee, Wilson had married a local woman, Ramona Yorba, and bought the Rancho Jurupa. By this time, Wilson, known locally as Don Benito, was serving as the alcalde of the Jurupa district and was fully integrated into the Mexican community. Sending most of his group of volunteers by way of Cajon Pass, Wilson led a small group of 22 men into the eastern San Bernardinos to explore and look for a shortcut to the desert. What they found, in addition to a small Indian village, was a lush meadowland with an abundance of bear in the vicinity of what is now known as Baldwin Lake. On the return trip, the men captured and killed a number of grizzly bears, prompting Wilson to name the basin Bear Valley (Robinson 1989:12). Wilson led three expeditions over the mountains to attack the Colorado River Indians. He was successful in recovering some 2,000 stolen animals, and although the ring leaders were not captured, the raids diminished. Mohave and Ute warriors continued to harass the ranches on a small scale until the charismatic leader Walkara died in 1855 (Schuiling 1984:39–40).

As the ranchos expanded and the raids diminished, the need for lumber for buildings and fencing prompted a new perspective on the mountains. Formerly the despised hideout of thieves, the heavily forested mountains began to look more attractive. The earliest recorded request to cut timber in the San Bernardino Mountains was granted on December 18, 1839, to Juan Bandini by Governor Alvarado. Bandini, the original owner of the Jurupa Rancho, was given an exclusive 20-year cutting privilege to land at the head of Devil Canyon and down into Sawpit Canyon on the northern slope of the range, along the old Mojave Trail. Bandini's crews began cutting on the mountain crest in 1841, using a large hole, or sawpit, in the ground to cut the logs into smaller sections for transportation down the mountain. This early operation provided the name for Sawpit Canyon. After Bandini moved to San Diego in 1843, Bernardo Yorba continued logging on this grant until 1848 (Robinson 1989:10–11). The end of the Mexican Rancho period in Southern California came with the war between the United States and Mexico, which resulted in all of Alta California becoming American territory. Although significant battles were fought nearby at Chino and at Aguanga in 1846, the war did not have any direct impact on the study area. The surrender of the Mexican California forces to the Americans in 1847 at Cahuenga ended local involvement in the war (Beattie and Beattie 1939:70).

4.4.2 MORMON PERIOD (1850-1857)

Settlement of the San Bernardino Valley progressed slowly under the management of the early Mexican rancheros, but that slow pace changed with the arrival of Mormon colonists. The Mexican-American War brought an end to the old order and opened California's borders to adventurers, traders, settlers, and squatters. A wave of westward expansion swept across the country and into Southern California. By this time, José del Carmen Lugo, owner of the San Bernardino Rancho,

was in a financial bind. He had a number of personal loans outstanding, had lost much of his livestock to theft, and was experiencing problems recruiting colonists to the valley as required by the terms of his land grant. Pressed on all sides, Lugo quickly struck a deal when the opportunity arose to sell the San Bernardino Rancho to Mormon colonists from Utah.

By 1851, an emigrant train with 150 wagons was on its way from Salt Lake City to the San Bernardino Valley (Beattie and Beattie 1939:170–179, 217). When the Mormon colonists first arrived in the San Bernardino Valley, they camped at Sycamore Grove, which today is the site of the Glen Helen Regional Park. A second group of colonists camped just to the west in Sycamore Flat, the probable location of the earlier Serrano village of Wahina't. The colonists camped in the area for several months before establishing the town of San Bernardino (Beattie and Beattie 1939:176–184). They were aided in the platting of the new town by the arrival of government surveyors in the early 1850s. The government surveyor Henry Washington established the initial point of the San Bernardino Base Line and Meridian on the top of Mount San Bernardino in 1852 (Beattie and Beattie 1939:205). With this point set, surveys of the surrounding region proceeded throughout the next several decades, recording in detail much of the locational data needed to interpret early historical accounts. Surveys of that period often mapped Indian huts, villages, and trails, as well as early American homesteads.

Mormon use of the mountains was mostly related to timber extraction (LaFuze 1971: I:22). A mill known as the Vignes Mill was built in Mill Creek Canyon in the 1850s to replace an earlier one destroyed by floods. Valley resident Daniel Sexton took over Vignes Mill in 1852 and, using Indian laborers, provided custom-cut lumber for sale to the new colony (LaFuze 1971: I:33). The Mormons built a second mill upstream from the Vignes Mill in 1853 and later constructed a third, portable one, known as the Crisman Mill. David and Wellington Seeley also built a water-powered sawmill in the mountains during the late summer of 1853. It was placed along a stream draining toward the desert, several miles down the canyon from the crest of the mountains. The Seeleys shipped their first load of lumber on April 24, 1854 (LaFuze 1971: I:36,40). By late 1854, six Mormon sawmills were operating on the mountaintop (Robinson 1989:21).

Mormons also participated in some of the earliest grazing of livestock in the mountains in association with their logging efforts. Families working at the mills brought their animals with them when they moved to the summer logging camps in the mountains. Oxen were used to haul the timber down to the valley, horses and mules aided the transportation efforts, and pigs were brought up for meat, lard, and hides. Animals transported to the logging areas at Seely and Huston Flats were in some cases left to pasture when the families returned to the valley below (Carrico et al. 1982: B-4; Robinson 1989:81). Still, the number of animals grazing in the logging belt was probably modest during this period. Over time, troubles arose between the Mormons and non-Mormon squatters. Besides local squabbles over land rights, there were urgent issues facing the Mormon people back in Utah, prompting a general recall of Mormon colonists by the church elders in 1857. After hurriedly selling off their assets, often at a loss, most of the Mormon faithful returned to Salt Lake City by late 1857 (Beattie and Beattie 1939:278–298). The loss of so many industrious, well-organized settlers left a vacuum in the valley for a number of years.

4.4.3 POST-MORMON PERIOD, AMERICAN EXPANSIONISM (1857-1893)

4.4.3.1 LOGGING

Between 1865 and 1895, logging reached its peak in the western San Bernardino Mountains. From the initial seasonal, family-style operations, the mountain logging industry grew dramatically, supported increasingly by technical innovations. One pioneer of new technology was Jonathan James, who operated a sawmill near Huston Flat from the late 1850s. In 1865, James moved his operation to Little Bear Valley (now under Lake Arrowhead) and set up a steam-powered circular saw near the modern town of Blue Jay (Robinson 1989:30). Another steam-powered saw may have been brought to Mill Creek somewhat earlier, although accounts are unclear. That saw might have later moved to Waterman Canyon, before finally finding its way to a mill at Lytle Creek (Beattie and Beattie 1939:198–199; Johanneck 1975:36). Another pioneer was Francis Lebaron Talmadge, patriarch of the famous Talmadge family, who arrived in the San Bernardino Mountains in 1853 (Robinson 1989:86). He began hauling lumber for the James Sawmill near Huston Flat in 1861. The following year, he and several others built a large sawmill near Blue Jay. In 1867, he filed timber claims on 320 acres on the west side of Little Bear Valley, where he built his own mill (Robinson 1989:27). This mill was turned into a fort by local lumbermen and their families when a Paiute war party invaded the valley in January (Robinson 1989:16).

By the late 1870s, several steam-powered circular saws were busy at mountain sawmills slicing up the larger sugar pines that had been passed over by earlier loggers. Timber cutting and milling were profitable in these years, but also dangerous. Mill accidents, such as one that cost the life of lumberman William Steward La Praix in 1887, were not uncommon, and transporting the cut lumber by ox wagon down the steep switchback roads to the valley also was perilous. As with most moneymaking ventures of the day, though, injury and danger did little to slow the growth of logging in the mountains. Logging and milling in the San Bernardino Mountains continued at full capacity through the 1880s in response to the high demand for lumber to build homes, railroad ties, shoring for mineshafts, and wooden boxes for shipping citrus. The targeted trees were mainly ponderosa, Jeffrey, and sugar pine. In 1883, the San Bernardino Board of Trade estimated production at the mountain sawmills at 5 million board feet with a gross value of $100,000. In 1888, the estimate had risen to 6 million board feet of sawn lumber. The major families involved in the production were La Praix, Somers, Hudson, Taylor, Talmadge, and Tyler. These were the golden years of the timber industry, and developers felt that there was “no limit to our supply of good, fine timber” (Elliott 1965:94) as long as the market remained strong in the valley below.

Despite the unguarded optimism of the 1880s, by 1891 the timber industry in the San Bernardino Mountains faced a major challenge. That year, the Arrowhead Reservoir Company was incorporated and began buying up land in Little Bear and Grass Valleys, in advance of the construction of a dam. Milling in the area continued for a few years, as the dam project required vast amounts of lumber. By the end of the century, though, with the dam project nearing completion, all but a few of the loggers had moved out of the mountain valleys.

4.4.3.2 MINING

As profitable as timber production was, the venture never attracted large numbers of people to the mountains. The event that did accomplish this was the chance discovery of gold in Holcomb

Valley, followed a few years later by another strike in Lytle Creek. A gold rush ensued during the Civil War that brought thousands of hopefuls to the forest and indelibly changed the character of the San Bernardino Mountains. As a result of these discoveries, mining and prospecting became the dominant economic activity in the eastern portion of the mountains for many years (Carrico et al. 1982:4-61). Precisely when the first miners began work in the San Bernardino Mountains is unclear. Native Americans had been collecting stone materials to produce tools for centuries, but much of the mineral and metal wealth of the mountains remained untapped. The first miners to arrive were prospectors who generally worked alone or in pairs and often left no paper trail. There are reports that Mexican prospectors found minerals in the mountains (in the former Big Bear Ranger district) as early as 1800 and that Mexicans were among the first to mine gold in Holcomb Valley (Carrico et al. 1982:4-58–4-59) and the Rose Mine area (Robinson 1989:75). The first authenticated gold strikes, however, occurred in 1855 at Bear Lake (now known as Baldwin Lake) and in 1860 in Holcomb Valley. Miners at Bear Lake panned for streambed "placer" gold along Bear Creek (Robinson 1993:7). When a few miners came down the mountains and reported success, the newspapers were full of sensational accounts of gold in the mountains. The publicity drew numerous would-be prospectors to the mountain valleys. Their enthusiasm quickly died, however, as deposits failed to live up to expectations and the winter turned cold.

The real gold rush to the mountains would begin five years later, with the discovery of sizable deposits in Holcomb Valley and the Lytle Creek area (Robinson 1989). One of the hopeful prospectors was William Francis Holcomb, known as Billy, who arrived in Bear Valley in February 1860. Tracking a wounded grizzly later that May, Holcomb located a rich quartz lead that excited Bear Valley prospectors and sparked a rush to the newly named Holcomb Valley. At first, gold was recovered by panning by hand and sluicing in Holcomb and Van Dusen Creeks. By late summer of 1860, there were about 1,000 people at work, and a community called Belleville had sprung up in the upper Holcomb Valley, near its junction with Van Dusen Canyon. Belleville supported numerous saloons and dance halls, as well as several stores and a couple of blacksmith shops. The mountain mining boom promised prosperity, but not until transportation to the area could be improved. To reach Belleville and its associated camps, slow mule trains freighted supplies up steep canyon roads. The major pack trail route to the mining district wound up through Santa Ana Canyon (LaFuze 1971; Thrall 1950). Wagon teamsters trying to deliver heavy mining equipment needed a road up the desert side of the mountains to avoid the steep grades of the south side. The solution was to build a road that would connect to Cajon Pass.

On April 27, 1861, John Brown, Jr., of San Bernardino was granted an exclusive charter and franchise to build and operate a toll road up Cajon Pass. The first of its day, Brown's Road ran from Devore up Cajon Creek, past the Blue Cut (so named for the bluish rock, also known as Pelona Schist, that it exposed), and through Crowder Canyon to the summit, where it connected to a public road leading to Lane's Crossing on the Mojave River (Robinson 1989). The second leg of the road to the mines was built by Belleville blacksmith Jed Van Dusen with $2,000 raised by the miners in Holcomb Valley. In August 1860, Van Dusen and his crew began work on the road, grading northwestward from the mines through Coxey Meadow, past Horse Spring, down Arrastre Canyon, and on to the Mojave River, where the road turned northwest to join the toll road at Brown's Verde Ranch in Victor Valley (Beattie and Beattie 1939). The miners' road was completed in early July 1861 (Carrico et al. 1982; Robinson 1989). Later, the road Van Dusen built was called

the Coxey Road, and, after the gold rush faded, it was used primarily to move stock to the upland grazing meadows. A connecting road from Lone Valley built in 1864–1865 joined the Van Dusen or Coxey Road on Arrastre Flat about 10 miles east of Holcomb Valley and headed straight for the desert via Cushenberry Canyon to the modern-day Lucerne Valley (Carrico et al. 1982:4-60–4-61). These roads continue to be maintained by the United States Forest Service (USFS) and connect the desert valleys with the mountains and the coastal basins.

Improved transportation opened the floodgates to expansion, and miners streamed into the mountain mining districts, prospecting as they went. It was now possible to bring ore crushers and other heavy milling equipment up to Holcomb Valley. By late in 1861, hard-rock quartz ledge mining surpassed placering (hand panning) as the mining technique of choice. The population of Belleville swelled and almost surpassed that of San Bernardino, and the valley town nearly lost its place as the county seat. The future looked bright until the harsh winter of 1862, when 16 feet of snow filled Holcomb Valley. Greener, warmer climes beckoned, and the fast-buck opportunists drifted away, leaving the mountains virtually empty. Although the first flush of the boom was over, hard-rock and placer mining continued long after the 1860s. As one company of hopefuls quit the field in disappointment, a new group, fresh with funds and optimism, would take their place. The Greenlead Mine, located on the northern slope of Holcomb Valley about 3 miles west of Belleville, was first opened just after the hard winter of 1862. New recruits followed in 1866 and worked the green-tinted, copper-and-gold-bearing ore at the Greenlead Mine. All the miners were gone by 1871, when the ore played out. The following year, Englishman John Haley attempted to revive the Holcomb Valley claims by pouring some $200,000 into developing the Mammoth Vein. This effort was short lived as well, and the mine closed in the same year (Robinson 1989:59). The boom-and bust cycle, a product of speculation and wildly fluctuating gold prices, characterized mining in the San Bernardino Mountains throughout its history.

Despite the notoriety of Holcomb Valley's spectacular failures, the possibility of riches in gold continued to lure investors. Clearly, the gold was there; perhaps what was lacking was the correct recovery technique. Oblivious to the naturally low water levels of the San Bernardino Mountain streams and armed with unshakable faith in their superior technology, the Del Mar brothers of England arrived in Holcomb Valley in 1880. The brothers wagered that the latest hydraulic mining methods would solve the problem of low gold yields in the mountains. They sank vast sums into the venture, digging huge trenches and making a variety of attempts to increase the flow of Holcomb Creek until they were finally forced to abandon the project in 1895. The "most lavish mining enterprise in the history of Holcomb Valley" (Robinson 1989:61) ended in defeat, costing investors thousands of dollars. But even this debacle did not bring an end to the flow of investors and miners to Holcomb Valley.

By the turn of the century, Charles Metzgar and his partners had started another round of placer mining along Holcomb Creek. No major rush followed, but prospecting and placering on a small scale continued unabated for years. When the initial Holcomb Valley boom faded, prospectors scattered, making new discoveries as they went. Several prospects located in the early 1870s enjoyed some success. Active areas included Coxey Meadow, Tip Top Mountain, Lone Valley, and Upper Rattlesnake Creek. By far the largest of these discoveries centered on the appropriately named Gold Mountain, an 8,000-foot-high peak east of Holcomb Valley (Carrico et al. 1982:4-62). Charley Carter made the find there on November 21, 1873, while resting after hours of fruitless

prospecting. Dazzling testimonials were printed in the local papers following a display of his gold specimens in San Bernardino. Soon, Gold Mountain attracted many eager miners who covered the mountainsides with claim markers. Mining at Gold Mountain moved into high gear after Elias J. "Lucky" Baldwin pumped more than $250,000 into developing the mine. His crews built access roads, constructed water ditches, and built a 40- stamp mill to crush Gold Mountain ore. A 6-mile-long flume and ditch (P1314-11H) carried water from Van Dusen Canyon around the southern edge of Gold Mountain to the mill (Core 1993:29–30). A settlement called Bairdstown (later known as Doble) sprang into being near the mill and north of Baldwin Lake.

By 1875, Bairdstown, complete with restaurants, hotels, stores, livery stables, saloons, and blacksmith shops, boasted a population of more than 400. But by November of that same year, the mine shut down and activity ceased (Robinson 1989:67). Baldwin's great 40-stamp mill burned to the ground on August 14, 1878, after which the Gold Mountain mines remained inactive for the next 17 years (Robinson 1993:44–45). By the 1890s, mining had diminished in importance in the Bear Valley District (Carrico et al. 1982:4-67). Mining discoveries in the 1870s on the north side of the mountains and in the desert diverted many away from the failing prospects in Bear and Holcomb Valleys. Silver deposits were discovered in Morongo Valley in the 1860s and were actively worked beginning in 1873, leading to the formation of the Morongo Mining District in 1889. The Morongo King Mine was milling gold-bearing ore in 1894 but was shut down shortly thereafter. The nearby Rose Mine began producing in the same year and continued to do so for several years until it faded about 1906 (Robinson 1989:77). Mining on the desert floor became attractive in 1888–1889, when rich strikes of gold, asbestos, soapstone, and carbonate ore were made at Oro Grande and silver was found at Old Woman Springs (Alcorn 1996:25). These desert-side mining interests eventually overshadowed the meager gold-mining potential of the upper mountain valleys.

4.4.3.3 RANCHING

Most historians believe that cattle and sheep grazing on the north side of the San Bernardinos developed almost simultaneously with the better-known mining and lumbering activities. By the 1850s, large cattle ranches had been established along the Mojave River, where some served as way stations for freight and passenger traffic along the Mojave Road (built over the prehistoric Mojave Trail). In addition to the small army camp at Camp Cady, east of present-day Barstow, there were several stations at the better-watered sections along the Mojave River. Lane's Station and store (near the site of Oro Grande) was one of these, as was Fish Pond Station, near today's Nebo Marine Supply Center (Bard 1972:49). Cattle from these earliest ranches were wintered in the desert valleys, then driven into higher pastures in the summer. Some of these ranches continued well into the twentieth century.

By the early 1860s, two principal types of grazing were taking place in the mountains: one was a continuation of the small-scale pasturing associated with logging and prospecting; the second was the largescale, understory grazing of cattle and sheep, prompted by a severe swing in regional climate. In the first case, after 1860, herds appeared with greater frequency in association with sawmills, grazing in flats and meadows adjacent to private lands. John Garner ran an early butchering outfit east of Seeley Mill in the James Flat area (LaFuze 1971: I:79). Bear and Holcomb Valleys were also used for grazing in 1864, as was the naturally well-watered area

known as Coxey Meadow. The second type of grazing—large-scale pasturing in the mountains—began with a big push from the weather. Two years of heavy rain, in 1861 and 1862, were a major boon to the livestock industry. The valley pastures became lush, and the herds multiplied. Unfortunately, these halcyon days were followed by 3 years of crushing drought. To save their starving animals, cattlemen and shepherds drove their herds up the steep slopes of the San Bernardinos to whatever pasture they could find. Once the routes were established, seasonal grazing of large herds of sheep and cattle in the mountains became routine, a practice that continued with ever-larger numbers as grazing land in the lower San Bernardino Valley was appropriated for agriculture and settlement.

The first permanent cattle ranch in the San Bernardino Mountains was the Mojave Ranch, owned by H. E. Parrish, in Summit Valley, adjacent to the west fork of the Mojave River (Robinson 1989:82). Parrish was one of the original cattlemen who had driven their cattle to the mountains during the 1860s drought. After patenting his 160-acre homestead in 1863, he quickly sold out to Elijah K. Dunlap, who expanded Parrish's cattle operation. Dunlap's cattle wintered along the upper Mojave River and were then driven south into the mountains up Miller Canyon to Grass Valley and on to Huston Flat and Little Bear Valley for summer fattening. After Dunlap sold out in 1870, a succession of owners worked the property. By the turn of the century, the ranch was known as the Summit Valley Ranch. Later still, it became the Las Flores Ranch, famous as one of the largest and most active cattle ranches in the San Bernardino Mountains (Robinson 1989). The true heart of mountain cattle country, though, was the Bear and Holcomb Valley area. Beginning in 1866, when Gus Knight, Sr., first grazed 175 head of cattle, until the 1950s, cattle were grazed in these pastures every summer. One Bear Valley cattleman, James Smart, originally a miner, established one of the longest-lived ranches in the region, the IS Ranch. According to cowboy legend, the lower hook of the "J" on his branding iron broke, and James Smart was stuck with the "IS" brand and named his property to match.

The Talmadge family arrived in Bear Valley in 1892, when William Talmadge, son of Francis, bought the IS Ranch, along with its registered brand. The three Talmadge brothers—William, Frank, and John—eventually controlled 1,640 acres in the valley south and east of Big Bear Lake. After spending the summer around Moonridge and around Big Bear Lake, IS Ranch cattle were driven north down the Morongo Trail to the Lucerne Valley and later to Pipes Canyon. Other early Bear Valley cattlemen included John R. Metcalf, the son of another Little Bear Valley lumberman, John F. Metcalf. The younger Metcalf purchased grazing land along the south shore of the lake in 1887. Will Hitchcock pioneered cattle ranching in Holcomb Valley (Robinson 1989:87–88).

Although cattle were always the primary stock, they were not the only animals raised in the mountain pastures. Sheep grazing is mentioned as early as 1863, when sheep from the Rowland Ranch on the Mojave plains were driven from summer pastures along the coast to their home range in the desert via Cajon Pass (LaFuze 1971: I:153). Bear Valley also was a prime sheep-grazing area for many years, beginning in 1864 when the Chaves Brothers drove 800 sheep to the well-watered meadows of the valley. After discovering the grazing potential of Bear Valley in 1866, the distinguished Dr. Benjamin Barton, of Redlands, had his men drive 2,000–3,000 sheep there every year until 1879. Starting in the 1860s, San Bernardino Valley resident Myron Crafts also grazed sheep in the mountains in the summer, first at Mill Creek and the upper Santa Ana and later in Bear Valley (Robinson 1989:82–83). By 1865, the seasonal mountain pasturing of sheep

was common throughout Southern California, following traditions imported from pastoralist areas of Europe, particularly Spain. In addition to offering improved grazing, mountain pasturing increased the wool clip 11/2 pounds per head and resulted in more twinning among pregnant ewes (Beck and Haase 1974:73). Several miners realized early on that selling grazing leases could be a profitable, painless sideline for raising venture capital. Richard Garvey and J. S. Slauson, owners of the Gold Mountain Mine, leased the eastern portion of their 3,000 acres in Bear Valley for sheep grazing beginning in 1879 (Carrico et al. 1982: B-8). Some summers, there were as many as 25,000 sheep and 2,000 head of cattle on Slauson and Garvey's Bear Valley property (Robinson 1989:83).

By the turn of the century, grazing dominated other land uses in the mountains in terms of acreage, with the largest leases going to the Talmadge, Metcalf, Harmon, Martin, and Hitchcock operations (Carrico et al. 1982:4-69). Summer grazing was still a thriving business in Bear Valley and surrounding basins into the 1920s. Bear Valley ranch cattle were wintered in the desert valleys to the north and east or sent to market at Victorville. Cattle were driven along three major routes: (1) along the Cushenberry grade; (2) along the Deep Creek meadows through Fawnskin, Big Pine Flat, Little Pine Flat, and Coxey Meadow, then down Grapevine or Arrastre Canyon to the desert; or (3) through Pipes Canyon to Morongo Valley (LaFuze 1971: I:191).

Ultimately, increased herds led to overgrazing in some areas, as well as complaints about erosion and the fouling of streams and springs. Tension between shepherds and cattlemen in the mountains were raised in 1871, when a law preventing sheep grazing on private land was passed, increasing the demand for pasture on public lands. Skirmishing continued through the 1880s and 1890s, until the USFS sided with the cattlemen and prohibited all sheep grazing on federal reserve lands. Despite some trespassing at first, sheep grazing in the mountains essentially stopped by 1899. In fact, all grazing was initially forbidden by the USFS, but a lease system was soon established that permitted cattle grazing on portions of the reserve for a fee. Grazing opportunities were reduced in the late 1890s when Little Bear and Bear Valley meadows were converted to reservoirs, but cattle grazing continued on a limited scale through the 1960s. The last decades of the nineteenth century saw the rise of new mountain land uses beyond the traditional three of mining, lumbering, and grazing.

4.4.3.4 RECREATIONAL USE

Recreation began slowly but gained momentum in the late 1870s and early 1880s, became a prominent activity in the 1890s with the elimination of the toll roads (Carrico et al. 1982:4-46). Regional transportation received a boost in the 1870s with the completion of the Southern Pacific Railroad through San Timoteo Canyon. This was followed in 1885 by the arrival of the California Southern, later known as the Atchison, Topeka and Santa Fe Railroad (AT&SF). The AT&SF (Now Burlington Northern Santa Fe) connected San Diego to San Bernardino, Barstow, and beyond, and linked the region by rail to the rest of the country. As it entered the modern era, the San Bernardino Valley finally began to enjoy some prosperity with an increase in citrus and other agricultural production. Holiday mountain excursions became the rage, and the first tourist resort, Knight's Hotel, opened in Bear Valley in 1888 (Robinson 1989:180). Ultimately, recreation would overshadow all other mountain activities in economic and social importance.

4.4.4 FEDERAL STEWARDSHIP AND TURN OF THE CENTURY (1893-PRESENT)

At the end of the 1880s, the damage caused by years of uncontrolled enterprise in the mountains was obvious to many. Concerned citizens and public officials began to voice their apprehensions, pointing to a loss of watershed and a sharply dwindling timber supply. The cattle and lumber industries responded strongly in opposition to any change in governmental regulation (Johanneck 1975:76) and were able to hold off their critics for a few years. By 1891, though, accounts of the ecological problems in the mountains finally reached the attention of Congress, and on February 14, 1893, President Benjamin Harrison signed the act creating a 737,280-acre San Bernardino Reserve. This affected all of the former uses of the forest land, but the most-immediate impacts were felt in logging and grazing. Under federal stewardship, logging and cutting lumber on public land was restricted but not eliminated. Several large mills continued to operate, one of them at Hunsaker Flats, now known as Running Springs. This area saw some expansion in the logging business through the 1890s. By 1899, the Brookings Fredalba Sawmill was in full operation, cutting 3 million board feet in a single year and hauling it via the City Creek Toll Road to Highland. The mill remained operational, and even profitable, between 1901 and 1911. An estimate of available timber from 1904 stated that, of the more than 700,000 acres in the San Bernardino Reserve, some 249,000 were classed as timberland, and 90,000 acres were graded as first-class timberland. The available timber at that point was mostly yellow pine (Ingersoll 1904:188–189).

By far the greatest enemy of the sawmills was fire. The Brookings Company mill at Fred alba burned and was rebuilt four times between 1900 and 1909. After a fifth fire and rebuild, production decreased and then stopped completely in 1912. Facing repeated losses and the rising tide of opinion against clear-cutting, Brookings chose to relocate its logging operations to Oregon rather than fight the changes (Robinson 1989). Still, other enterprising sawmills continued to work within the new regulations. A building boom in Bear Valley following the completion of the Rim of the World Drive in 1915 supported a number of sawmills. By the 1920s, several mills, such as the large Strawser-Boehm Sawmill, were supplying lumber for development along the south shore of Big Bear Lake. The profusion of small mills in the Bear and Holcomb Valley area through the 1940s meant that local builders had a ready source at hand and never had to rely on expensive lumber from the Northwest. Eventually, as the best timber stands were depleted and areas were closed to logging by the newly established USFS, most loggers left the business or moved north (Carrico et al. 1982:4-40).

4.4.4.1 MINING

The history of gold mining in the Big Bear area dates back to the mid-19th century. The first significant gold discovery in the region was made by William F. Holcomb in 1860 in Holcomb Valley, just north of Big Bear Lake. This discovery sparked a gold rush, attracting prospectors and miners to the area in search of fortune (Mining, Big Bear History Site 2024). From 1860 to early 1900s, Holcomb Valley became one of the most productive gold mining regions in Southern California, with several mining towns such as Belleville and Union Town emerging almost overnight. However, at the turn of the twentieth century, large-scale mining operators had finally given up trying to water blast gold nuggets from the gravels of the San Bernardino Mountains. They had not given up the quest for gold, though. Armed with renewed optimism, generally

favorable gold prices, and willing investors, mining entrepreneurs reopened the old mines in areas already known for their mineral potential.

Mining properties north and east of Holcomb and Bear Valleys enjoyed a flurry of interest at the turn of the century. By the 1930s, alongside the larger mining ventures, a new kind of miner, nicknamed the "depression miner," arrived in the forest. Although depression miners barely made enough to sustain themselves, they professed to prefer the work to "the stagnant, defeating existence in the cities" that was their lot during the years of the Great Depression (Carrico et al. 1982:4-73). After World War II, prospecting became a bonafide recreational pursuit (Robinson 1989). More than 100 years after the first prospectors introduced the practice, vacationers took their places in the streams of the San Bernardinos to pan for gold, bringing mining full circle.

According to the historical USGS Lucerne Valley topographic map from 1946, adjacent to the northeastern portion the Project Area, is the location of the Gold Hill Mine, within the Baldwin Lake-Bear Valley Mining District (Historical Topo Map Explorer 1946, revision year 1978). This mine that is now closed was in operation between the late 1940s to the late 1960s and the activities included a combination of both surface and underground workings, with a maximum subsurface depth of approximately 54 feet. The ore body at Gold Hill Mine primarily consisted of quartzite, with gold and silver being the primary commodities extracted. There is only one known shaft on the site (The Diggings 2024). ERM (2024b) conducted a Phase I Environmental Site Assessment (ESA) of the Project, which corroborated these findings.

4.4.4.2 RANCHING

By the turn of the twentieth century, the USFS began assuming a stronger regulatory role with the cattle industry. The problems they faced were not insignificant. In 1898, another severe drought had pushed cattle into the Deep Creek and Bear Creek basins, resulting in intensive grazing and accelerated erosion. More than 50 years of clear-cutting throughout the forest had opened new areas to livestock, and by 1904, it was estimated that nearly 50 percent of the reserve could be classed as grazing land (Ingersoll 1904:188–189). The forest administration responded by organizing grazing districts composed of specific plots called "allotments." A fee schedule was established, and strict limits were set on the number of cattle permitted in an allotment during a season. Before these restoration efforts could really take effect, though, the restrictions were suspended at the beginning of World War I. At the request of the National Food Administration, unlimited grazing in the forest was permitted in support of the war effort. When the allotment system was reestablished, demand for beef was still very high, and for those ranchers still in the business, the early 1920s were very profitable times. Will Shay, who had entered mountain cattle ranching in 1906, took advantage of the boom times to develop his Shay Ranch. Shay purchased part of the lands owned by George Rathbun, partner and father-in-law of Will Talmadge.

In 1914, he and Charles Omar Barker, a prominent Banning businessman, purchased 3,500 acres from the Lucky Baldwin estate near Baldwin Lake. The Shay Ranch, made up of a cluster of ranch houses, barns, and cattle pens located south of Baldwin Lake, became the largest cattle operation in the mountains (Robinson 1989:86–87). During the summer, Shay Ranch cattle grazed on the lush grasses south of the usually dry lakebed and on the open lands where Big Bear City stands today. The days of Bear Valley as a vast cattle range ended with the Big Bear land boom between 1916 and 1919, when cattle were restricted to the east end of the valley. Then a drastic fall in

beef prices at the end of the 1920s put an end to the years of prosperity (Robinson 1989:86, 88, 93). Will Shay sold most of his ranch to the Talmadge brothers in 1923 and the remaining portion in 1928. Bucking the trend, the Talmadge brothers bought up the herds and remained in the cattle business until 1943, when Jim Stocker, a cattleman from Yucca Valley, bought out the interests of Frank and John Talmadge. Stocker continued in partnership with Will Talmadge until the latter died in 1945. In 1951, Tom Hamilton and Lawrence Hamilton bought Stocker's cattle ranch and incorporated it into their other mountain properties (Robinson 1989:88).

In the San Bernardino Mountains generally, high land values and restricted ranges began to squeeze the ranchers until only a few stalwart landholders remained. The Hamiltons saw their grazing lands in Bear Valley steadily decrease as Big Bear City encroached on lands where cattle once freely grazed. Two large grazing allotments are especially informative regarding the later history of cattle grazing in the region: the Deep Creek allotment and the Mojave allotment. In the early years of grazing leases, the headquarters for the Mojave allotment was at the Las Flores Ranch. Approximately 1,000 head of cattle grazed the Mojave allotment from 1912 to 1925. After 1941, roughly 100 head were grazed year-round on the Mojave allotment. This pattern continued until 1953, after which a more complicated, temporary permit process was enacted. Permit holders were allowed to graze 600–800 "animal unit months" during a spring summer- fall season, meaning that if a holder had 800 head, he would be allowed to graze them for only 1 month during the season. Eventually, grazing in the Mojave allotment became too expensive and cumbersome, and the area has not been used for grazing since 1962 (Carrico et al. 1982: B-6).

During the same period, 100–200 head were permitted in the Deep Creek allotment, but the actual numbers present were probably much higher. As many as 800 head grazed there from 1926 to 1948, after which it was determined that the range had deteriorated because of overgrazing and drought. Only 90 head of cattle were permitted the following year, and by 1950, the permit holders, Hitchcock and Martin, left the area, and their permit was transferred to the Hamilton Ranch. After a hiatus of nonuse to restore the range, the Hamilton Ranch grazed about 150 head of cattle on the Deep Creek range from 1952 to 1962. As the operation slowly became less and less economical, the Hamilton Ranch, along with other ranches, began to look for other grazing options (Carrico et al. 1982: B-9). One of the most important and unusual industries in Bear Valley was fox farming. R. T. Moore, a successful fox farmer from Maine, first heard about the valley in the 1920s (Core 2002:140–141; Robinson 1989:190). Although the valley was much farther south than the traditional fur-producing areas of the world, the climate was nearly ideal for this enterprise. The high altitude and dry air eliminated many pests and parasites, and the cool summer nights and cold winter months were favorable for raising these furbearing animals. Moore obtained 48 acres near the modern community of Big Bear Lake and started the Borestone Ranch. Unfortunately, all of his foxes were soon wiped out by canine distemper introduced by Alaskan huskies boarded at the ranch while being used in taking a motion picture. The Borestone Ranch was acquired by a major Canadian ranch called the All Star (Core 2002:141).

In 1928, the Canadian owners established Walter McAlister and his wife, Constance, at the refurbished old Borestone Ranch. McAlister managed what came to be known as the All-Star Fox Farm from 1928 to 1938, a period when the fox-fur business thrived despite the Depression, a time when most businesses struggled. The industry expanded and at least 24 separate fox farms were eventually established in the Bear Valley area. Most were on the south shore of Big Bear

Lake, although four farms were in the Gold Mountain area (Core 2002:142, 148). The All Star ranch alone produced over 1,000 pelts a year, although breedingstock, an activity more profitable than selling pelts, was the main objective.

The excellent quality of Bear Valley fox furs was recognized when a consignment of pelts brought the highest prices at the International Fur Exchange in London in 1936. In 1938, as the ownership of the All Star Ranch changed, McAlister decided to start his own ranch, purchased 12 acres of land, and developed his own breeding operation (Core 2002:146). World War II, however, brought a change in McAlister's life and he returned to his original occupation as an armorer restoring old rifles. After the war, the fox farming business began to decline and he branched out into the business of manufacturing gun stocks, often employing wood from screwbean mesquite trees collected from the desert. By 1953, McAlister's fox farming business was bankrupt, whereas his gun stock manufacturing business expanded (Core 2002:147). The other fox farms in the valley also closed down, victims of the increased cost of feed, the imposition of a luxury tax on furs, and changing fashions.

5. METHODS

5.1 LITERATURE REVIEW AND RECORDS SEARCH

A records search was conducted on August 27, 2024, by the staff from the SCCIC at the University of California, Fullerton of the CHRIS. The records search identified previously recorded cultural resources and cultural resources studies within the records search area, which is defined as 0.25-mile radius around the Project Area located on the Big Bear City 1994 and Moonridge, CA USGS 7.5-minute quadrangle maps. In addition, the records search included a review of the NRHP, the CRHR, the California Historical Landmarks list, the California Points of Historical Interest list (CPHI), as well as historical topographic and aerial maps, was completed.

5.2 NATIVE AMERICAN HERITAGE COMMISSION (NAHC) CONSULTATION

As part of this investigation, a Sacred Lands File (SLF) search of the Project Area and vicinity was requested from the NAHC. ERM submitted the request, which included a search for known Native American resources and for contact information to be provided for Native American groups or individuals with potential cultural affiliation with the Project Area, to the NAHC via email on November 22, 2024.

5.3 FIELD METHODS

Fieldwork methodology is based on the nature of expected resources and archaeological characteristics. The survey scope required ERM to locate all resources greater than 50 years in age within the 30-acre Project Area. In surveying for material remains, the survey also considered current land surface conditions, the landform context, existing geomorphic data, and the potential for buried sites within all proposed disturbance areas.

ERM archaeologist, Jeffrey A. Rosa Figueroa, conducted an intensive pedestrian survey of the Project Area on September 4, 2024. The ground surface was examined in 10-meter parallel transects due to dense vegetation and terrain. The archaeologist used ArcGIS Field Maps

application on an iPhone 14 Max Pro cell phone. A Juniper Systems Geode GNS3S Single Frequency GNSS Receiver was utilized for enhanced accuracy.

6. RESULTS

6.1 LITERATURE REVIEW AND RECORDS SEARCH RESULTS

The records search results determined that no previously recorded resources have been recorded in the Project Area. However, the results determined that seven archaeological sites are located within a 0.25-mile radius of the Project Area (Table 1). These sites, P-36-021843, P-36-021845, P-36-021846, P-36-021848, P-36-021849, and P-36-021850 are all associated with the Gold Hill Mine District, while one resource, P-36-022165 (precontact age) is not. The resources noted above overlook the Project Area on a on a rocky low-lying hill, which runs northwest – southeast just north of the Project Area. Moreover, the records search results revealed that ten cultural resource investigations have been conducted within a 0.25-mile radius (Table 2).

TABLE 1 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 0.25-MILE OF THE PROJECT AREA

Site Number	Site Description	CRHR/NRHP Eligibility
P-36-021843/ CA-SBR-13955H	Gold Hill Mine District. Foundations/structure pads, Privies/dumps/trash scatters, Mines/quarries/tailings, Machinery	Unknown
P-36-021845/ CA-SBR-13957H	Gold Hill Mine District.Privies/dumps/trash scatters, Mines/quarries/tailings	Unknown
P-36-021846/ CA-SBR-13958H	Gold Hill Mine District. Privies/dumps/trash scatters, Mines/quarries/tailings, Walls/fences	Unknown
P-36-021848/ CA-SBR-13960/H	Gold Hill Mine District. Privies/dumps/trash scatters, Mines/quarries/tailings, Standing structures	Unknown
P-36-021849/ CA-SBR-13961H	Gold Hill Mine District. Roads/trails/railroad grades	Unknown
P-36-021850/ CA-SBR-013962H	Gold Hill Mine District. Privies/dumps/trash scatters, Mines/quarries/tailings	Unknown
P-36-022165/ 536-397-ISO	Precontact isolate	Unknown

TABLE 2 PREVIOUSLY CONDUCTED CULTURAL RESOURCES STUDIES WITHIN 0.25-MILE OF THE PROJECT AREA

Report Number	Title	Year	Author
SB -00210	Archaeological Resources Impact	1974	San Bernardino County Museum Association

Report Number	Title	Year	Author
	Report: Kern Rock Mobile		
SB-00826	Environmental Impact Evaluation: Cultural Resources and Botanical Survey for Rare and Endangered Plants	1979	Simpson, Ruth D., Eugene Cardiff, and Jessie Kniffen
SB-00868	Cultural Resources Assessment of Assessor's Parcel Number 314 42 145, Big Bear Valley	1979	Hearn, Joseph.
SB-01123	Cultural Resources Assessment of Tentative Tract No. 8236, Sugarloaf Area, San Bernardino County	1981	Lerch, Michael K.
SB-01815	Cultural Resources Survey of AP 315-252-48 – Erwin Lake, 55 Acres Northwest of Erwin Lake, San Bernardino, California	1988	Swanson, Mark T.
SB-05382	Cultural Resources Survey of 341 Parcels Encompassing 396.6 Acres within the Urban Large Parcel BBC 202 Project Area for the Natural Resources Conservation Service.	2006	Mirro, Michael
SB-05384	Cultural Resources Survey of 209 Parcels Encompassing 513.3 Acres within the Urban Large Parcel BBC 210 Project Area for the Natural Resources Conservation Service	2007	Mirro, Michael
SB-06008	Cultural Resources Monitoring of State Route 38 in the San Bernardino Mountains for the Natural Resources Conservation Service	2007	Mirro, Michael
SB-06108	Cultural Resources Survey of 101.1 Acres on the Sugar Loaf Fuel Modification Project	2008	Mirro, Michael

Report Number	Title	Year	Author
	Area for the Natural Resources Conservation Service		
SB-07979	Final Report: An Archaeological Inventory for the Baldwin Healthy Forest Project, San Bernardino National Forest	2011	Denardo, Carole, Bruno Texier, Scott Campbell, Rachael Greenlee, Kristy Rotermund, Chris Ward, Britt Wilson, and Caprice "Kip" Harper

6.2 NAHC RESULTS

On December 13, 2024, ERM received a response from the NAHC. According to the NAHC, the results of the SLF search were positive and provided a consultation list of tribes culturally affiliated with the Project Area. The list included contact information to nine individuals, representing five tribal organizations. Consultation with these tribes is pending. The results of the SLF search is provided in Confidential Appendix D.

6.3 FIELD RESULTS

ERM's archaeologist surveyed the entire Project Area (Appendix A, Figure 4, *Survey Area*). One historic resource (ERM-Site-001) was identified within the northeastern section of the Project Area. This historic resource comprises of three associated activity areas (loci), Locus 1, Locus 2, and Locus 3, inclusive of seven historical features and two refuse concentrations (defined as a scatter of historic-age trash, refuse, debris, etc.). Photographs of the Project Area and ERM-Site-001 are included in Appendix B, and the California Department of Parks and Recreation (DPR) Primary Record for ERM-Site-001, which contains confidential maps of the recorded resources, is provided in Confidential Appendix C.

Locus 1 includes three historical features (Feat-1 through Feat-3) and one refuse concentration (Concentration 1). Feat-1 appears to be an abandoned mineshaft lined with plaster, measuring 5 by 5 feet, and with an unknown depth. Water was noted at a depth of approximately 10 feet. The opening of the abandoned mineshaft is covered with two robust wooden planks. Feat-2 consists of a metal pipe, about 5 inches in diameter, extending south from the abandoned mineshaft. Feat-3 is located immediately north of the abandoned mineshaft and consists of a foundation and wall segments. Concentration 1 includes a refuse concentration of wood and concrete debris.

Locus 2 includes two historical features (Feat-4 and Feat-5) and one refuse concentration (Concentration 2). Feat-4 consists of a ventilation shaft and remnants of an ore chute. Feat-5 is a metal pipe protruding out from the hillside. It must be noted that the equipment, such as ore chute, pipe, and milled lumber are located within a collapsed portion of the hillside, and only a small portion of these objects were observed during the survey. Concentration 2 consists of refuse containing wood and metal debris and is located approximately 130 feet north of Locus 1.

Locus 3 is located immediately north, uphill, and includes two historical features (Feat-6 and Feat-7). Feat-6 is a collapsed mine adit. The entrance to the mine features a wooden facade that has

partially collapsed. Feat-7 consists of mining equipment observed within the mine; however, it was difficult to recognize the type of equipment due to the collapsed adit. Additionally, a cable was noted extending out from the mine. Debris and tailing piles were noted immediately outside of the adit. Moreover, additional tailing piles were noted immediately north and northeast of the mine adit. The easternmost tailing piles, however, are located outside of the Project Area.

Two historical roads were observed southwest and northwest of the mine adit. The road southwest of the mine extends from the foot of the hill to the mine adit. This road is approximately 330 feet in length and 10 feet wide and cut into the face of the hillside. The road is in fair condition. The sides are lined with trees and undergrowth and little vegetation on the actual road. A small segment of the road, approximately 50 feet is graded, while the rest of the road is not. The road northwest of the mine adit spans approximately 480 feet in an east-west direction. The western segment of this road appears to have been washed out, given that it vanishes into the rocky hillside.

Although, the results of the records search performed at the SCCIC indicate that the historic-period resource components identified during ERM's field survey are located outside of the previously mapped boundaries for the Gold Hill Mine District, it is very likely that the remains are associated with the Gold Hill Mine District.

The overall condition of the site is poor to fair, and it has been subjected to severe disturbances related to the demolition of structures and removal of equipment after the mining activities ceased, as well as erosion and a partial collapse of the hillside below the mining shaft. Modern trash was also observed scattered throughout the area and mixed in with the historical refuse.

7. CONCLUSIONS

CEQA requires the evaluation and recordation of historical and archaeological resources, the consideration of potential impacts to cultural resources as outlined in the CEQA Guidelines Section 15064.5, and the reduction of potentially significant impacts to less-than-significant levels. Based on the results of this assessment, only one historical resource (ERM-Site-001) was recorded within the Project Area during the field survey and is likely associated with the Gold Hill Mine District. However, it is not currently listed by the State Historic Resources Commission in the CRHR nor listed on a local register of historic resources. For a property to be eligible for inclusion on the CRHR, and considered significant under CEQA, one or more of the following criteria must be met:

1. **Criterion 1:** Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. **Criterion 2:** Is associated with the lives of persons important in our past;
3. **Criterion 3:** Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. **Criterion 4:** Has yielded, or may be likely to yield, information important in prehistory or history.

ERM-Site-001 does not meet the criteria to be eligible for inclusion on the CRHR based on the following considerations:

1. **Evaluation under Criterion 1:** Cultural resources identified here include refuse concentrations and mining features. These cultural resources represent brief use areas and single-episode dump sites. They are not significantly associated with important events related to the development of the region and California. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 1.
2. **Evaluation under Criterion 2:** Cultural resources identified here are not associated with the lives of persons significant in our past. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 2.
3. **Evaluation under Criterion 3:** Cultural resources identified here do not embody the distinctive characteristics of a type, period, or method of construction, nor represent the work of a master, possessing high artistic values, or represent a significant and distinguishable entity whose components lack individual distinction. Additionally, ERM-Site-001 is located near historic mining districts and is not regarded as a unique occurrence. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 3.
4. **Evaluation under Criterion 4:** Cultural resources identified here do not yield nor are likelihood to yield information important to understanding the prehistory or history of the Project Area. These heavily disturbed resources exhibit the small-scale mining activities that commonly occurred at this location, and the single-episode refuse concentrations appear to be related to the demolition of the structures and on-going erosion activities. Thus, the site is not likely to yield information important in prehistory or history. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 4.

Thus, ERM determined that the cultural site (ERM-Site-001) is likely not eligible to be listed under the CRHR and is not a historically significant cultural resource under the CEQA. Additionally, the Project Area is unlikely to yield new, previously unidentified cultural resources based on the level of site disturbance and destruction of historic mining structures, absence of prehistoric resources, frequent flooding of the site, and grazing use of the Project Area. Therefore, the potential for significant impacts to important cultural resources due to development of the Project is low, and potential impacts to cultural resources would be less than significant.

8. RECOMMENDATIONS

As noted above, seven mining features and two refuse concentrations in three activity locations were identified during the preparation of this cultural resources assessment. These cultural resources represent one cultural site (ERM-Site-001) that is likely associated with the historic-era Gold Hill Mine District. Although historic in age, this site is not considered significant under CEQA and is not eligible for listing in the CRHR. San Bernardino County or other authorities having jurisdiction may recommend that the mining features be altered/decommissioned/closed prior to construction. However, if no such recommendations are made, due to the historic nature of the resource and association with nearby Gold Hill Mine District, ERM recommends implementing a five-foot-avoidance buffer and protection measures (e.g., fencing, setback, etc.) of the features (Feat-1 through Feat-7) recorded in this report from the solar arrays, access roads, and other Project features. The remaining area encompassed by each of the loci of ERM-Site-001, including the two refuse concentrations (Concentration 1 and 2), would not require avoidance.

In the event of unanticipated discovery of previously unknown cultural resources or materials during construction of development of the Project, work in the vicinity of the discovery should cease and the area should be cordoned off (e.g., 50-foot-buffer around the discovery) until the discovery can be evaluated by a qualified archaeologist, who meets state and local regulatory requirements.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the NAHC, which will determine and notify an MLD. The MLD may inspect the site of the discovery with the permission of the landowner, or his or her authorized representative. The MLD shall complete its inspection within 48 hours of its notification by the NAHC. The MLD may recommend scientific removal and analysis of human remains and items associated with Native American burials.

9. REFERENCES

Alcorn, Delbert Chavez

1996 Juniper Flats Archaeology, an Area of Critical Environmental Concern in the Western Mojave Desert. McGraw-Hill, New York.

Allen, Mark W., Amy Colin, and Diana A. DeGroot

2018 Moving on Up During the Early Holocene: Willow Creek Crossing in the San Bernardino Mountains. Abstract. In Preserving California's Cherished Heritage: Our Shared Responsibility, p. 52. Program of the Society for California Archaeology Annual Meeting, San Diego. Society for California Archaeology, Chico, California.

Almoney, Brittany E., Luke A. Burnor, Diana A. DeGroot, Purdeep K. Dhanoa, Marleen Hinojosa, Rafaella B. Lisboa, Mark W. Allen, and Steven R. James.

2018 Analyses of Lithics, Groundstone, and Milling Features at Rock Camp in the San Bernardino Mountains. Abstract. In Preserving California's Cherished Heritage: Our Share Responsibility, p. 53. Program of the Society for California Archaeology Annual Meeting, San Diego. Society for California Archaeology, Chico, California.

Altschul, Jeffrey H., William C. Johnson, and Matthew A. Sterner

1989 The Deep Creek Site (CA-SBR-176): A Late Prehistoric Base Camp in the Mojave River Forks Region, San Bernardino County, California. Technical Series 22. Statistical Research, Tucson.

Altschul, Jeffrey H., Martin R. Rose, and Michael K. Lerch

1984 Man and Settlement in the Upper Santa Ana River Drainage: A Cultural Resources Overview. Technical Series 1. Statistical Research, Tucson.

1985 Cultural Resources Investigations in the Mojave River Forks Reservoir, San Bernardino

County, California. Technical Series 2. Statistical Research, Tucson.

Altschul, Jeffrey H., and Steven D. Shelley
1987 Yamisevul: An Archaeological Treatment Plan and Testing Report for CA-RIV-269, Riverside County, California. Technical Series No. 9. Statistical Research, Tucson.

Amsden, Charles A.
1937 The Lake Mojave Artifacts. In The Archaeology of Pleistocene Lake Mohave: A Symposium, edited by Elizabeth W. Crozer Campbell, William H. Campbell, Ernst Antevs, Charles A. Amsden, Joseph A. Barbier, and Francis D. Bode, pp. 51–97. Papers No. 11. Southwest Museum, Los Angeles.

Bailey, Harry P.
1966 The Climate of Southern California. University of California Press, Berkeley.

Bailey, Paul
1954 Walkara, Hawk of the Mountains. Westernlore Press, Los Angeles.

Bard, Robert Charles
1972 Settlement Pattern of the Eastern Mojave Desert. Unpublished Ph.D. dissertation, Department of History, University of California, Los Angeles.

Basgall, Mark E.
1993 Early Holocene Prehistory of the North-Central Mojave Desert. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.

2003 Revisiting the Late-Pleistocene/Early Holocene Archaeology of Pleistocene Lake China and the CRBR Locality. Current Research in the Pleistocene 20:3–5.

2007a Prehistoric People in an Evolving Landscape: A Sample Survey of the China Lake Basin and its Implications for Paleoindian Land Use. On file, Naval Air Weapons Station, China Lake, California.

2007b Another Look at the Ancient Californians: Resurvey of the Emma Lou Davis Stake Areas and Reassessment of Collections, Naval Air Weapons Station China Lake, Kern County, California. On file, Naval Air Weapons Station, China Lake, California.

Basgall, Mark E., and Mark A. Giambastiani
2000 An Archeological Evaluation of 13 Locations in the Deadman Lake Basin, Marine Corps Air Ground Combat Center, Twentynine Palms, California. On file, Natural Resources and Environmental Affairs Division, Marine Corps Air Ground Combat Center, Twentynine Palms, California.

Basgall, Mark E., and M. C. Hall

1991 Relationships Between Fluted and Stemmed Points in the Mojave Desert. Current Research in the Pleistocene 8:61–64.1994 Archaeological Investigations at Goldstone (CA-SBR-2348): A Middle Holocene Occupation Complex in the North-central Mojave Desert, California. Submitted to the Department of the Army, National Training Center, Fort Irwin. On file, Environmental Division, Directorate of Public Works, Fort Irwin, California.

Basgall, Mark E., and S. A. Overly
2004 Prehistoric Archaeology of the Rosamond Lake Basin: Phase II Cultural Resource Evaluations at 41 Sites in Management Region 2, Edwards Air Force Base, California. Submitted to the U.S. Army Corps of Engineers, Sacramento District.

Basgall, Mark E., and D. L. True
1985 Archaeological Investigations in Crowder Canyon, 1973–1984: Excavations at Sites SBr-421B, SBr-421C, SBr-421D, and SBr-713. Far Western Anthropological Research Group, Davis, California. Submitted to the California Department of Transportation, District 8, San Bernardino.

Baumhoff, Martin A.
1978 Environmental Background. In California, edited by Robert F. Heizer, pp. 16–24. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Bean, Lowell J., and Charles R. Smith
1978 Serrano. In California, edited by Robert F. Heizer, pp. 570–574. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Bean, Lowell J., Silvia Brakke Vane, Michael Lerch, and Jackson Young
1981a Native American Places in the San Bernardino National Forest, San Bernardino and Riverside Counties, California. Cultural Systems Research, Menlo Park, California. Submitted to the U.S. Forest Service, South Zone Contracting Office, Arcadia, California.

1981b A Glossary of Serrano and other Native American Placenames and other Terms, from the Ethnographic Notes of John Peabody Harrington. In Native American Places in the San Bernardino National Forest, San Bernardino and Riverside Counties, California, by Lowell J. Bean, Silvia Brakke Vane, Michael Lerch, and Jackson Young, Appendix. Cultural Systems Research, Menlo Park, California. Submitted to the U.S. Forest Service, South Zone Contracting Office, Arcadia, California.

Beattie, George W.
n.d. Historic Crossing Points in the San Bernardino Mountains. Manuscript on file, Norman F. Feldheym Central Library, San Bernardino, California.

1923 San Bernardino Valley in the Spanish Period. Historical Society of Southern California Annual Publication 7(3):10–28.

Beattie, George W., and Helen P. Beattie
1939 Heritage of the Valley: San Bernardino's First Century. San Pasqual Press, Pasadena, California.

Beattie, Helen Pruitt
1953 Indians of the San Bernardino Valley and Vicinity. Historical Society of Southern California Quarterly 35(3):239–264.

Beck, Warren A., and Ynez D. Haase
1974 Historical Atlas of California. University of Oklahoma Press, Norman.

Beck, Margaret E., and Hector Neff
2006 Hohokam and Patayan Interaction in Southwestern Arizona: Evidence from Ceramic Compositional Analyses. Journal of Archaeological Science 34(2):289–300.

Benedict, Ruth F.
1924 A Brief Sketch of Serrano Culture. American Anthropologist 26(3):366–392.

Bettinger, R. L.
1976 The Development of Pinyon Exploitation in Central Eastern California. Journal of California Anthropology 3:88–95.1989 The Archaeology of Pinyon House Two Eagles, and Crater Middens: Three Residential Sites in Owens Valley, Eastern California. Anthropological Papers No. 67. American Museum of Natural History, New York.

Bolton, Herbert E.
1930 Anza's California Expeditions. 5 vols. University of California Press, Berkeley.

1931 In the South San Joaquin Ahead of Garcés. California Historical Society Quarterly 10(3):211 219.

Borden, Ferris W.
1971 The Use of Surface Erosion Observations to Determine Chronological Sequence of Artifacts from a Mojave Desert Site. Paper No. 7. Archaeological Survey Association of Southern California, Los Angeles.

Bortugno, E. J., and T. E. Spittler
1986 Geologic Map of the San Bernardino Quadrangle, scale 1:250,000. Regional Geologic Map Series, California Department of Mines and Geology, Sacramento.

Brock, Willie

1973 CA-SBR-422 site record. On file, San Bernardino National Forest Headquarters, San Bernardino, California.

Brooks, George R. (editor)
1977 The Southwest Expedition of Jedediah Smith: His Personal Account of the Journey to California, 1826–1827. Arthur H. Clark, Glendale, California.

Brott, Clark W.
1966 How Stones Became Tools and Weapons. In Ancient Hunters of the Far West, by Malcolm J. Rogers, pp. 139–193. Union-Tribune Publishing, San Diego.

Busby, Colin I.
1974 Pinyon Nut Gathering Equipment from the Vicinity of Gardnerville, Douglas County, Nevada. In Four Papers on Great Basin Archaeology, pp. 51–63. Contributions of the University of California Archaeological Research Facility No. 21. Department of Anthropology, University of California, Berkeley.

Caballería, Rev. Juan
1902 History of San Bernardino Valley from the Padres to the Pioneers, 1810–1851. Times-Index Press, San Bernardino, California.

Campbell, Elizabeth W. C.
1931 An Archaeological Survey of the Twenty-Nine Palms Region. Southwest Museum Papers 7:1–93. 1936 Archaeological Problems in the Southern California Deserts. American Antiquity 1:295–300.

Campbell, Elizabeth W. C., and William H. Campbell
1935 The Pinto Basin Site: An Ancient Aboriginal Camping Ground in the California Desert. Southwest Museum Papers 9:1–51.

Campbell, Elizabeth W. C., William H. Campbell, E. Antevs, C. E. Amsden, J. A. Barbieri, and F. D. Bode
1937 The Archaeology of Pleistocene Lake Mohave. Southwest Museum Papers 11.

Campbell, Lyle
1997 American Indian Languages: The Historical Linguistics of Native America. Oxford University Press, New York.

Carrico, Richard L., Allan Schilz, Frank Norris, and Richard Minnich
1982 Cultural Resource Overview, San Bernardino National Forest. 3 vols. WESTEC Services, San Diego. Submitted to the U.S. Forest Service, San Bernardino National Forest, San Bernardino, California.

Clarke, Anthony Orr

1979 Quaternary Evolution of the San Bernardino Valley. San Bernardino County Museum Association Quarterly 26:2–3. San Bernardino County Museum Association, Redlands, California.

Core, Tom
1993 Ghost Town School Marm: Bear Valley Mining Days. Bearly Remembered, vol. I. The Core Trust, Big Bear City, California.

2002 Big Bear: The First 100 Years. Bearly Remembered, vol. II. The Core Trust, Big Bear City, California.

Cowan, Robert G.
1977 Ranchos of California. Historical Society of Southern California, Los Angeles.

Crafts, E. P. R.
1902 Pioneer Days in San Bernardino Valley. Times-Index Press, San Bernardino, California. Cultural Resources – San Bernardino County

2024 https://countywideplan.sbcounty.gov/policy-plan/cultural-resources/, electronic document, accessed on October 16, 2024.

Davis, Emma Lou
1969 Early Man in the Mojave Desert. In Early Man in Western North America, edited by Cynthia Irwin-Williams, pp. 42–47. Contribution to Anthropology, vol. 1, no. 4. Eastern New Mexico University, Paleo-Indian Institute, Portales, New Mexico.

Davis, Emma Lou, and Carol Panlaqui
1978 Transient Homes of Migratory Foragers: The Sites. In The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country, edited by Emma Lou Davis, pp. 76–152. Science Series No. 29. Natural History Museum of Los Angeles County, Los Angeles.

Davis, Emma Lou, and Richard Shutler, Jr.
1969 Recent Discoveries of Fluted Points in California and Nevada. Miscellaneous Papers on Nevada Archaeology 14(7):154–171.

Davis, James T.
1961 Trade Routes and Economic Exchange among the Indians of California. Reports of the University of California Archaeological Survey No. 54. The University of California Archaeological Survey, Department of Anthropology, University of California, Berkeley

Davis, C. Alan, and Gerald A. Smith
1981 Newberry Cave. San Bernardino County Museum Association, Redlands, California.

Delacorte, M. G.

1990 The Prehistory of Deep Springs Valley, Eastern California: Adaptive Variation in the Western Great Basin. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.

Denardo, Carole, and Bruno Texier
2011a Final Report: An Archaeological Inventory for the Baldwin Healthy Forest Project. Garcia and Associates, San Anselmo, California. Submitted to San Bernardino National Forest, San Bernardino, California.

2011b Final Report: An Archaeological Inventory for the Santa Ana Watershed Healthy Forest Project, San Bernardino National Forest, California. Garcia and Associates, San Anselmo, California. Submitted to San Bernardino National Forest, San Bernardino, California.

Díaz-Andreu, Margarita
2005 The Archaeology of Identity: Approaches to Gender, Age, Status, Ethnicity, and Religion. Routledge, New York.

Dicks M., and U. K. Doan
2015 Emergency Post-fire Inspection Record for GANDA 539-116 "Coon Creek Jumpoff Site #1." On file, San Bernardino National Forest Headquarters, San Bernardino, California.

Dillon, Brian D.
2002 California PalaeoIndians: Lack of Evidence, or Evidence of a Lack? In Essays in California Archaeology: A Memorial to Franklin Fenenga, edited by William W. Wallace and Francis A. Riddell, pp. 110–128. Contributions of the University of California Archaeological Research Facility No. 60. Archaeological Research Facility, University of California, Berkeley.

Donnan, Christopher B.
1964 A Suggested Culture Sequence for the Providence Mountains (Eastern Mojave Desert). University of California Archaeological Survey Annual Report 1963–1964:1–26.

Drucker, Philip
1937 Culture Element Distributions: V: Southern California. Anthropological Records 1(1):1–52. University of California Press, Berkeley.

Dutcher, R. H.
1893 Pinon Gathering Among the Panamint Indians. American Anthropologist (o.s.) 6(4):377–380.

Eerkens, Jelmer W., Jerome King, and Eric Wohlgemuth
2004 The Prehistoric Development of Intensive Green Cone Piñon Processing in Eastern California. Journal of Field Archaeology 29(3–4):17–27.

Elliott, Wallace W.

1965 History of San Bernardino and San Diego Counties, California. Reprinted. Riverside Museum Press, Riverside, California. Originally published 1888, W. Wallace, San Francisco.

Engelhardt, Zephyrin
1927 San Gabriel Mission and the Beginnings of Los Angeles. Mission San Gabriel, San Gabriel, California.

Environmental Resources Management, Inc. (ERM)
2024a Draft Biological Resources Assessment: Bear Valley Solar Energy Project. Prepared in October 2024 on behalf of EDF Renewables Distribution-Scale Power.

2024b Draft Phase I Environmental Site Assessment (ESA): Bear Valley Solar Energy Project. Prepared in July 2024 on behalf of EDF Renewables Distribution-Scale Power.

Garcés, Fr. Francisco
1900 On the Trail of a Spanish Pioneer: The Diary and Itinerary of Francisco Garcés (Missionary Priest) in His Travels through Sonora, Arizona, and California, 1775–1776. 2 vols. Translated And edited by Elliott Coues. Francis P. Harper, New York.

1967 A Record of Travels in Arizona and California, 1775–1776. Translated by John Galvin. John Howell Books, Berkeley.

Gifford, Edward W.
1918 Clans and Moieties in Southern California. University of California Publications in American Archaeology and Ethnology 14(2):155–219.

Gilreath, Amy J., and William R. Hildebrandt
1997 Prehistoric Use of the Coso Volcanic Field. Contributions of the University of California Archaeological Research Facility No. 56. University of California, Berkeley.

Glennan, William S.
1971 Concave-Based Lanceolate Fluted Projectile Points from California. The Masterkey 45(1):27–32. Los Angeles.

Golla, Victor
2011 California Indian Languages. University of California Press, Berkeley.

1988 The Lost Ranchería in Cajon Pass. Journal of the Archaeological Survey Association of Southern California 12(2):56–61.

Grenda, Donn R
1997 Continuity and Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore. Technical Series 59. Statistical Research, Tucson.

1998 Between the Coast and the Desert: Archaeological Data Recovery at the Yukaipa't Site, CASBR-1000, Yucaipa, California. Technical Series 70. Statistical Research, Tucson.

Hall, M.C.
1993 Archaeology of Seven Prehistoric Sites in Tiefort Basin, Fort Irwin, San Bernardino, California. On file, Environmental Division, Directorate of Public Works, Fort Irwin, California.

Harley, R. Bruce
1988 Rev. Juan Caballería: Historian or Storyteller? Rethinking the 1810 Dumetz Expedition. San Bernardino County Museum Association Quarterly 35(2). Redlands, California.

Harrington, John P.
1986 Native American History, Language, and Culture of Southern California/Basin. The Papers of John Peabody Harrington in the Smithsonian Institution, 1907–1957, vol. 3, edited by Elaine L. Mills and Ann J. Brickfield. Microfilm ed. National Anthropological Archives, Smithsonian Institution, Washington, D.C., and Kraus International Publications, Millwood, New York.

Haynes, Gregory M.
1996 Evaluating Flake Assemblages and Stone Tool Distributions at a Large Western Stemmed Tradition Site near Yucca Mountain, Nevada. Journal of California and Great Basin Anthropology 18(1):104–130.

Heizer, Robert F.
1978 Trade and Trails. In California, edited by Robert F. Heizer, pp. 690–693. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C. Hicks, Frederic
1958 Archaeological Investigations in the Yucaipa Valley. San Bernardino County Museum Association Quarterly 5(2). Redlands, California
Hicks, Frederic
1958 Archaeological Investigations in the Yucaipa Valley. San Bernardino County Museum Association Quarterly 5(2). Redlands, California

Hildebrand, John A., G. Timothy Gross, Jerry Schaefer, and Hector Neff
2002 Patayan Ceramic Variability: Using Trace Elements and Petrographic Analysis to Study Brown and Buff Wares in Southern California. In Ceramic Production and Circulation in the Greater Southwest: Source Determinations by INAA and Complementary Mineralogical Investigations, edited by Donna M. Glowacki and Hector Neff, pp. 121–139. Monograph 44. The Cotsen Institute of Archaeology, University of California, Los Angeles.

Hildebrandt, William R., and Allika Ruby
2006 Prehistoric Pinyon Exploitation in the Southwestern Great Basin: A View From the Coso Range. Journal of California and Great Basin Archaeology 26(1):11–31.

Hinckley, Horace P.
1965 Restoration of the San Bernardino Asistencia. San Bernardino County Museum Association Quarterly 13(1):1–6. Redlands, California.

Historical Topo Map Explorer
1946 revision year 1978, U.S. Geological Survey, Lucerne Valley [map], 1:62500, Topographic Quadrangle Map, Lucerne Valley, CA, https://livingatlas.arcgis.com/topomapexplorer/index.html#maps=&loc=-116.80,34.25&LoD=18.23, electronic document, accessed on October 15, 2024.

Horne, Melinda C.
2000 Introduction. In Archaic and Late Prehistoric Occupation Sites, edited by Melinda C. Horne and Susan E. Rapp, pp. 1.1–1.7. Eastside Reservoir Project: Final Report of Archaeological Investigations, vol. II, Susan K. Goldberg, general editor. Applied EarthWorks, Hemet, California. Submitted to Metropolitan Water District of Southern California, Los Angeles.

Ingersoll, L.A.
1904 Ingersoll's Century Annals of San Bernardino County, 1769 to 1904. L. A. Ingersoll, Los Angeles.

James, Steven R., and Mark W. Allen
2018 Rock Camp in the San Bernardino Mountains: Joint Test Excavations By Cal State Fullerton and Cal Poly Pomona in Fall 2017. Abstract. In Preserving California's Cherished Heritage: Our Shared Responsibility, p. 117. Program of the Society for California Archaeology Annual Meeting, San Diego. Society for California Archaeology, Chico, California.

Jeffrey M., and A. Branigan
2015 Emergency Post-fire Inspection Record for FS-05-12-52-00280. On file, San Bernardino National Forest Headquarters, San Bernardino, California.

Jeffrey, M., and M. Dicks
2015a Emergency Post-fire Inspection Record for FS-05-12-52-00008. On file, San Bernardino National Forest Headquarters, San Bernardino, California.

2015b Emergency Post-fire Inspection Record for Lake-02. On file, San Bernardino National Forest Headquarters, San Bernardino, California.

2015c Emergency Post-fire Inspection Record for Lake-04. On file, San Bernardino National Forest Headquarters, San Bernardino, California.

Jenkins, Dennis L.
1985 Rogers Ridge (4-SBr-5250): A Fossil Spring Site of the Lake Mojave and Pinto Periods—Phase 2 Test Excavations and Site Evaluation. Fort Irwin Archaeological Project. Research

Report No. 18. Facsimile reprint. Coyote Press, Salinas, California. Submitted to the National Park Service Interagency Archaeological Services, San Francisco.

1987 Dating the Pinto Occupation at Rogers Ridge: A Fossil Spring Site in the Mojave Desert, California. Journal of California and Great Basin Anthropology 9(2):214–231.

Jensen, W. A., and M. K. Lerch
1982 FS-05-12-52-00107 site record. On file, San Bernardino National Forest Headquarters, San Bernardino, California.

Johanneck, Donald P.
1975 A History of Lumbering in the San Bernardino Mountains. San Bernardino County Museum Association Quarterly 22(3–4). Redlands, California.

Johnston, Francis J.
1980 Two Southern California Trade Trails. Journal of California and Great Basin Anthropology 2(1):88–96.

Jones, Siân
1997 The Archaeology of Ethnicity: Constructing Identities in the Past and Present. Routledge, New York.

Kowta, Makoto
1969 The Sayles Complex: A Late Milling Stone Assemblage from Cajon Pass and the Ecological Implications of Its Scraper Planes. Publications in Anthropology, vol. 6. University of California Press, Berkeley.

Kroeber, A. L.
1925 Handbook of the Indians of California. Bulletin No. 78, Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.

Laird, Carobeth
1975 Encounter With an Angry God: Recollections of My Life with John Peabody Harrington. Malki Museum Press, Banning, California Malki Museum Press, Banning, California.

1976 The Chemehuevis. Malki Museum Press, Banning, California.

LaFuze, Pauline B.
1971 Saga of the San Bernardinos. 2 vols. Hogar, Colton, California.

Lerch, Michael K.
1999 Ethnobotanical Resources in the Arrowhead East/West Study Area, San Bernardino National Forest, San Bernardino County, California. Statistical Research, Redlands, California.

Submitted to U.S. Forest Service, San Bernardino National Forest, San Bernardino, California.

2004 Plants and People: Pinyon Pine Nuts. Heritage Keepers 1(2):7. Dorothy Ramon Learning Center, Banning, California.

Martz, Patricia
1977 Archaeological Investigations at CA-SBr-1000, Yucaipa, California. Archaeological Research Unit, University of California, Riverside. Submitted to the Yucaipa Valley County Water District, Yucaipa, California.

McCarthy, Daniel
2009 Twenty, Two Hundred, Two Thousand Years Data Recovery Excavations at CA-SBR-4394, Big Bear Valley, San Bernardino National Forest, San Bernardino County, California.

Mining, Big Bear History Site
2024 https://www.bigbearhistorysite.com/mining/, electronic document, accessed October 15, 2024.

Minnich, Richard A.
1976 Vegetation of the San Bernardino Mountains. In Symposium Proceedings: Plant Communities of Southern California, edited by June Latting, pp. 99–124. Special Publication No. 2. California.

Native Plant Society, Berkeley.
1982 History of Fire and Fire Management. In Cultural Resource Overview, San Bernardino National Forest, by Richard L. Carrico, Frank Norris, Allan Schilz, and Richard Minnich, Volume III, Appendix A. WESTEC Services, San Diego. Submitted to the U.S. Department of Agriculture Forest Service, San Bernardino National Forest, San Bernardino, California.

1983 Fire Mosaics in Southern California and Northern Baja California. Science 219:1287–1294.

1988 The Biogeography of Fire in the San Bernardino Mountains of California: A Historical Study. Publications in Geography 28. University of California Press, Berkeley.

Moratto, Michael J.
1984 California Archaeology. Academic Press, Orlando, Florida.

Munz, Philip A.
1974 A Flora of Southern California. University of California Press, Berkeley.

Norris, R.M., and R.W. Webb
1990 Geology of California. 2nd Edition. John Wiley & Sons, Inc. New York, Chichester, Brisbane, Toronto, Singapore.

Northwest Economic Associates and Cultural Systems Research, Inc.
2004 The North. Ethnographic Overview of the San Bernardino National Forest, pt. A. Northwest Economic Associates, Vancouver, Washington, and Cultural Systems Research, Inc., Menlo Park, California. Submitted to U.S. Department of Agriculture, Angeles National Forest, Arcadia, California.

Office of Historic Preservation (OHP)
1989 Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. Preservation Planning Bulletin 4(a). Department of Parks and Recreation, Sacramento, California.

1991 Guidelines for Archaeological Research Designs. Preservation Planning Bulletin 5. Department of Parks and Recreation, Sacramento, California.

Ramon, Dorothy, and Eric Elliott
2000 Wayta' Yawa': Always Believe. Malki Museum Press, Banning, California.

Rector, Carol H., James D. Swenson, and Philip J. Wilke (editors)
1983 Archaeological Studies at Oro Grande, Mojave Desert, California. San Bernardino County Museum Association, Redlands, California.

Reynolds, Linda Anne
1996 In the Dwelling Place of a Great Spirit: The Prehistory of the Piñon-Juniper Woodland of the Inyo-White Mountain Range, Eastern California. Unpublished Ph.D. dissertation, Department of Anthropology, University of Nevada, Reno.

Robinson, John W.
1989 The San Bernardinos: The Mountain Country from Cajon Pass to Oak Glen: Two Centuries of Changing Use. Big Santa Anita Historical Society, Arcadia, California.

Robinson, John W., and Bruce D. Risher
1990 San Bernardino National Forest: A Century of Federal Stewardship. San Bernardino County Museum Association Quarterly 37(4). Redlands, California.

1993 Mines of the San Bernardinos. La Siesta Press, Glendale, California.

Rogers, Malcolm J.
1929 Report on an Archaeological Reconnaissance in the Mojave Sink Region. Papers No. 1. San Diego Museum of Man, San Diego.

1939 Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. Papers No. 3. San Diego Museum of Man, San Diego.

Rogers, Thomas H.
1975 San Bernardino Sheet, Geologic Map of California, Olaf P. Jenkins edition, scale 1:250,000, 2nd printing. California Division of Mines and Geology, Sacramento.

Rondeau, Michael F., and Thomas T. Taylor
2007 A Fragmentary Fluted Point from Silurian Valley, San Bernardino County, California. Pacific Coast Archaeological Society Quarterly 39(1):45–52.

Sapp, Bill, and Daniel McCarthy
2011 Survey Results of the Results of the 2010 Fie1dschool, Juniper Springs Area, San Bernardino County, California. Report prepared for the San Bernardino National Forest. On file, San Bernardino National Forest Headquarters, San Bernardino, California.

Schneider, Joan S.
2017 The Stacked Stone Site, CA-SDI-17666. In Archaeology of the Kumeyaay: Contributions to the Prehistory of Cuyamaca Rancho State Park, San Diego, California. Publications in Cultural Heritage No. 34. California Department of Parks and Recreation, Sacramento.

1988 Late Prehistoric Times in the Central Mojave Desert: Some Problems. Pacific Coast Archaeological Society Quarterly 24(1):30–44.

Schneider, Joan S., and Bonnie Bruce
2009 Feasibility of Using Protein Residue Analysis to Determine Materials Processed within Bedrock Milling Features. In Proceedings of the Society for California Archaeology, vol. 23, edited by Sharon A. Waechter and Don Laylander, pp. 1–13. Society for California Archaeology, Chico, California.

Schoenherr, Allan A.
1992 A Natural History of California. University of California Press, Berkeley.

Schroth, Adella
1994 The Pinto Point Controversy in the Western United States. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Riverside.

Schuiling, Walter C.
1984 San Bernardino County: Land of Contrasts. San Bernardino County Museum Association, Redlands, California.

Simmons, Michael P.
1975 Preliminary Report of Excavations and Survey at Silver Creek, San Bernardino County, California. San Bernardino County Museum Association Quarterly 23(1). Redlands, California.

Simpson, Ruth D.

1972 Handwritten letter report submitted to George Kenline of the San Bernardino National Forest regarding 1972 archaeological survey results. Filed with the CA-SBR-3704/H site record. On file, San Bernardino National Forest Headquarters, San Bernardino, California.

Simpson, Ruth D., Arda Haenszel, Robert E. Reynolds, and Doris H. Bowers
1972 Rock Camp: San Bernardino Mountain Archaeological Excavation. San Bernardino County Museum Association Quarterly 20(1). Redlands, California.

Siva, Ernest H.
2004 Voices of the Flute: Songs of Three Southern California Indian Nations. Ushkana Press, Banning, California.

Siva, Ernest H., and Michael K. Lerch
2005 Notes. In The Road to Maarrenga': Serrano Memories of a Long-ago Ceremony at Mission Creek, by Sarah Martin with Kenneth C. Hill, edited by Pat Murkland, pp. 9–27. Ushkana Press, Banning, California.

Association, Redlands, California.
1974 The Historical Diego Sepulveda Adobe of Yucaipa. San Bernardino County Museum Association Quarterly 21(3–4). Redlands, California.

Spiller, Steven T.
1979 San Manuel Indian Reservation: An Examination of its History. Unpublished Master's field Report, University of California, Riverside.

Steward, Julian H.
1933 Ethnography of the Owens Valley Paiute. University of California Publications in American Archaeology and Ethnology 33(3):233–350. University of California, Berkeley.

Stone, Kendall J.
1989 Foxsong: 100 Years of Cow Ranching in the San Bernardino Mts./Mojave Desert. Sagebrush Press, Morongo Valley, California.

Strong, William Duncan
1929 Aboriginal Society in Southern California. University of California Publications in American Archaeology and Ethnology 26.

Stratton, Susan
2014 Thinking outside "D" Box: Archaeological Sites and National Register Eligibility Criteria. Preservation Matters: Newsletter of the California Office of Historic Preservation 7(1):18–20.

Sutton, Mark Q.

2009 People and Language: Defining the Takic Expansion into Southern California. Pacific Coast Archaeological Society Quarterly 41(2–3):31–93.

Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen
2007 Advances in Understanding Mojave Desert Prehistory. In California Prehistory: Colonization, Culture, and Complexity, edited by Terry L. Jones and Kathryn A. Klar, pp. 229–245. AltaMira Press, Lanham, Maryland.

Sutton, Mark Q., Joan S. Schneider, and Robert M. Yohe, II
1993 The Siphon Site (CA-SBR-6580): A Millingstone Horizon Site in Summit Valley, California. San Bernardino County Museum Association Quarterly 40(3). Redlands, California.

Sutton, Mark Q., and Philip J. Wilke
1984 New Observations on a Clovis Point from the Central Mojave Desert, California. Journal of California and Great Basin Anthropology 6(1):113–115.

The Diggings
2024 https://thediggings.com/mines/11602, electronic document, accessed October 15, 2024.

Thrall, Will H.
1950 Lytle Creek Canyon from the Indian Days to 1900. The Historical Society of Southern California Quarterly 32(3):237–248.

True, D. L.
1980 The Pauma Complex in Northern San Diego County: 1978. Journal of New World Archaeology 3(4):1–39. URS Consultants (URS).

United States Geological Survey (USGS)
1978 Lucerne Valley Topographic Quadrangle Map, scale 1:62,500.

Walker, Clifford J.
1986 Back Door to California: The Story of the Mojave River Trail. Mojave River Valley Museum Association, Barstow, California.

Wallace, William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. Southwestern Journal of Anthropology 11:214–230.

1958 Archaeological Investigations in Death Valley National Monument, 1952–1957. In Current Views on Great Basin Archaeology, pp. 7–22. Reports of the University of California Archaeological Survey No. 42. Berkeley.

1962 Prehistoric Cultural Development in the Southern California Deserts. American Antiquity 28:172–180.

Walsh, Jane Maclaren
1976 John Peabody Harrington: The Man and His California Indian Fieldnotes. Anthropological Papers No. 6. Ballena Press, Ramona, California.

Warren, Claude N.
1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. In Archaic Prehistory in the Western United States, edited by C. Irwin-Williams, pp. 1–14. Contributions in Anthropology, vol.1, no. 3. Eastern New Mexico University, Portales.

1970 Time and Topography: Elizabeth W. C. Campbell's Approach to the Prehistory of the California Desert. The Masterkey 44(1):4–14.

1984 The Desert Region. In California Archaeology, by M. J. Moratto, pp. 339–430. Academic Press, Orlando, Florida.

1991 Archaeological Investigations at Nelson Wash, Fort Irwin, California. Fort Irwin Archaeological Project Research Report No. 23. 2 vols. On file, San Bernardino County Archaeological Information Center, San Bernardino County Museum, Redlands, California.

Warren, Claude N., and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In Great Basin, edited by Warren L. d'Azevedo, pp. 183–193. Handbook of North American Indians, vol. 11, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Warren, Claude N., and Carl Phagan
1988 Fluted Points in the Mojave Desert: Their Technology and Cultural Context. In Early Human Occupation in Far Western North America: The Clovis-Archaic Interface, edited by Judith A. Willig, C. Melvin Aikens, and John L. Fagan, pp. 121–130. Anthropological Papers No. 21. Nevada State Museum, Carson City.

Waters, Michael R.
1982 The Lowland Patayan Ceramic Tradition. In Hohokam and Patayan: Prehistory of Southwestern Arizona, edited by Randall H. McGuire and Michael B. Schiffer, pp. 275–297. Academic Press, New York.

White, Tim D., and Wes Reeder
1970 An Archaeological Survey of the Deep Creek Drainage, San Bernardino Mountains, California. Manuscript on file, California Historical Resources Information System, San Bernardino Archeological Information Center, San Bernardino County Museum, Redlands.

Yohe, Robert M., II
1992 A Reevaluation of Western Great Basin Cultural Chronology and Evidence for the Timing of the Introduction of the Bow and Arrow to Eastern California based on New Excavations at

the Rose Spring Site (CA-INY-372). Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Riverside.

Yohe, Robert M., II, Jill K. Gardner, Christopher A. Duran, and Beau R. DeBoer
2013 Lake China Revisited: An Assessment of the Recent Discovery of a Cluster of Clovis Points in Indian Wells Valley on the Naval Air Weapons Station, Southeastern California. Poster presented at the Paleoamerican Odyssey: A Conference Focused on First Americans Archaeology, Santa Fe, New Mexico.

Zalvidea, Fr. José María
1955 Diary of Fr. José María Zalvidea. Translated by George W. Beattie. In "A Preliminary Report of the Archaeological Survey of the Deep Creek Site in Santa Bernardino County, California," by Gerald A. Smith, pp. 50–52. San Bernardino County Museum Association Quarterly 2(2). Redlands, California.

APPENDIX A MAPS

FIGURE 1 PROJECT VICINITY

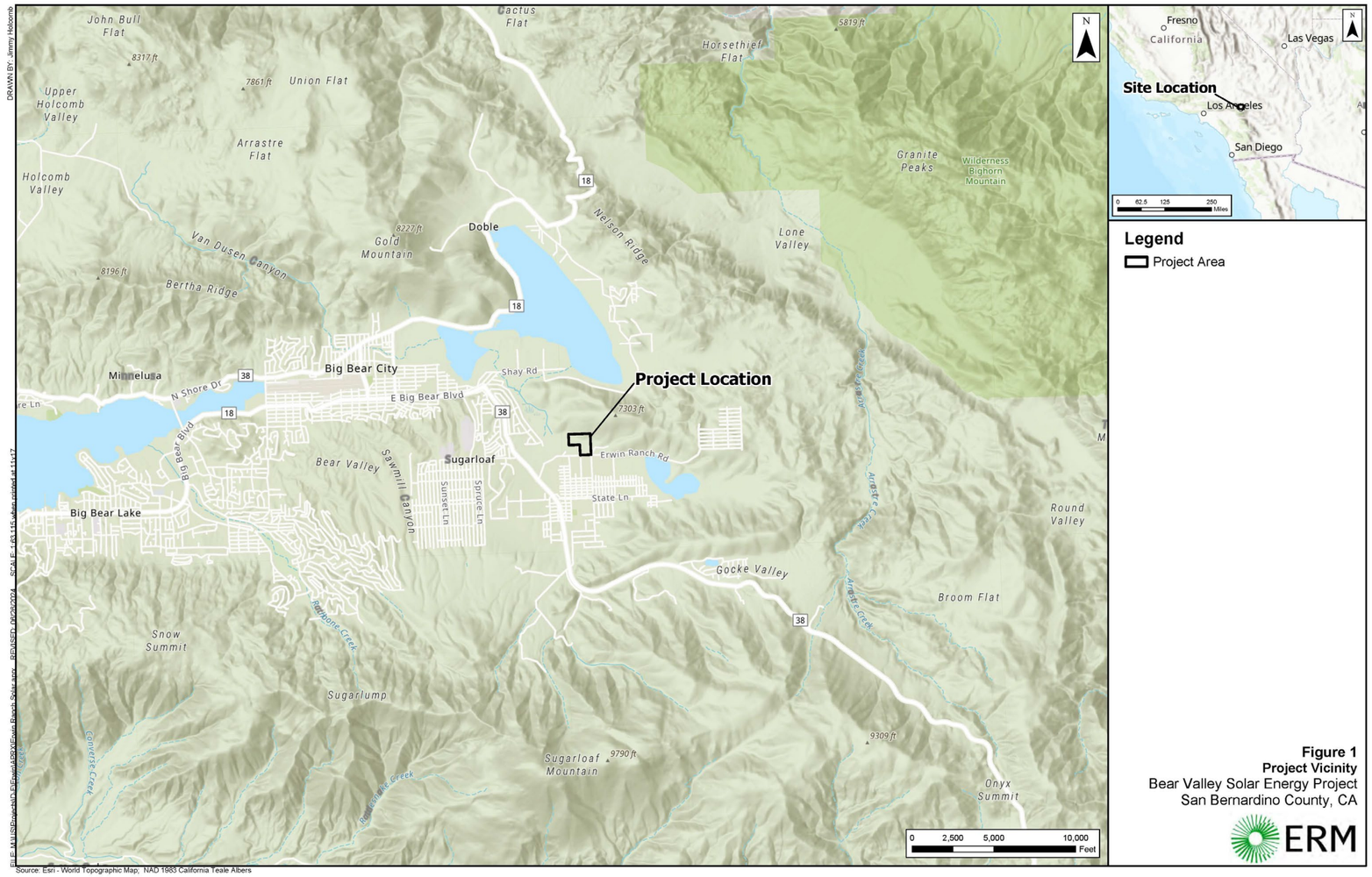


Figure 1
Project Vicinity
Bear Valley Solar Energy Project
San Bernardino County, CA

FIGURE 2 PROJECT OVERVIEW

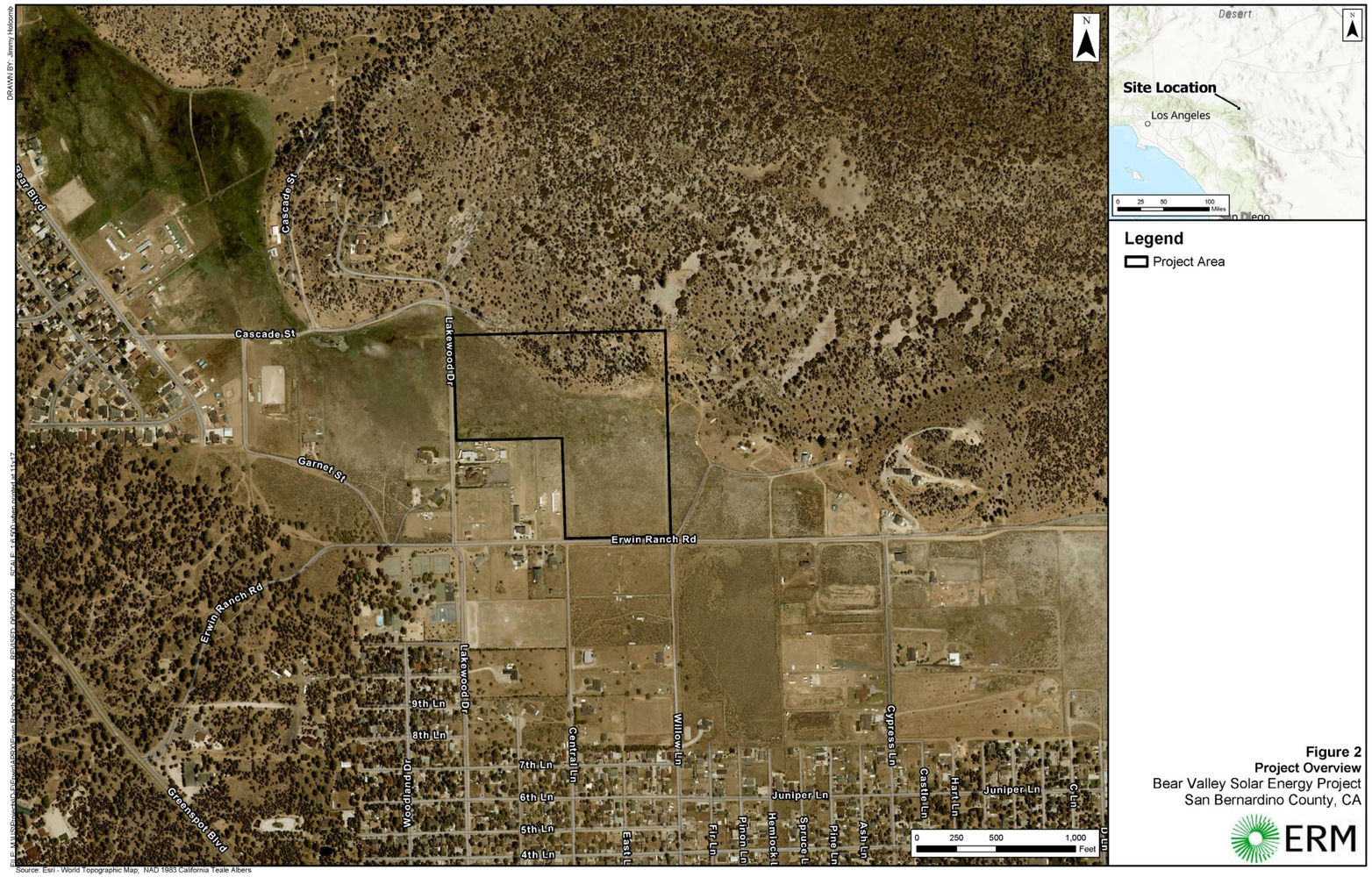
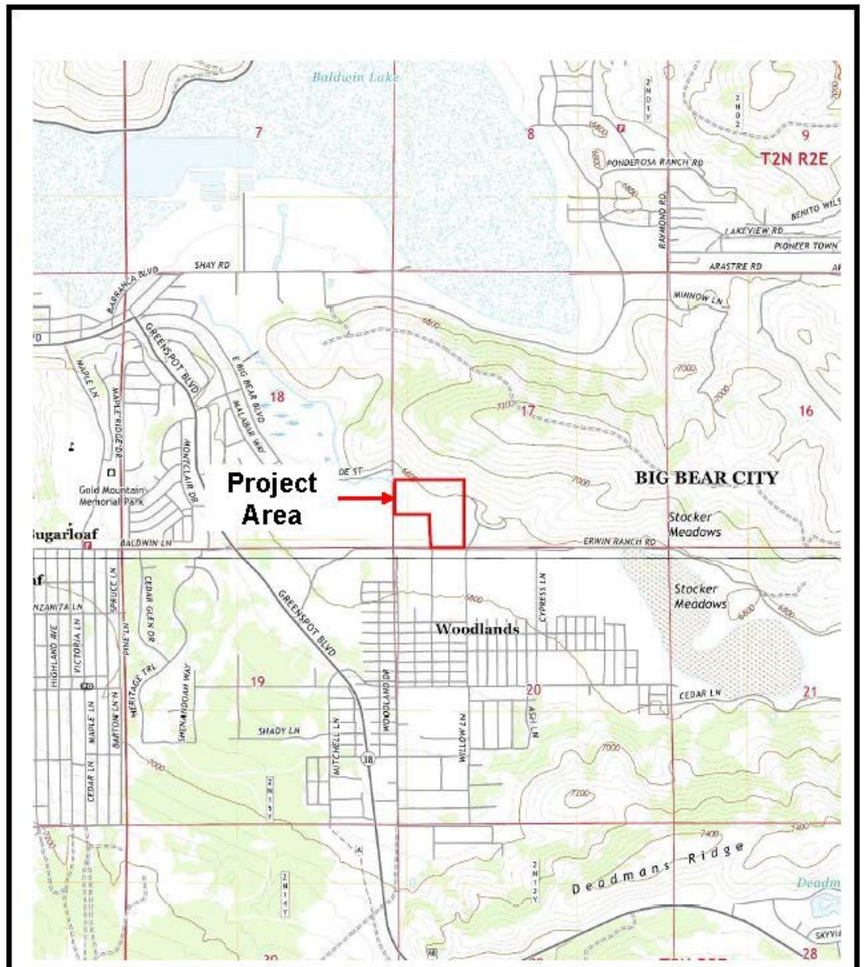


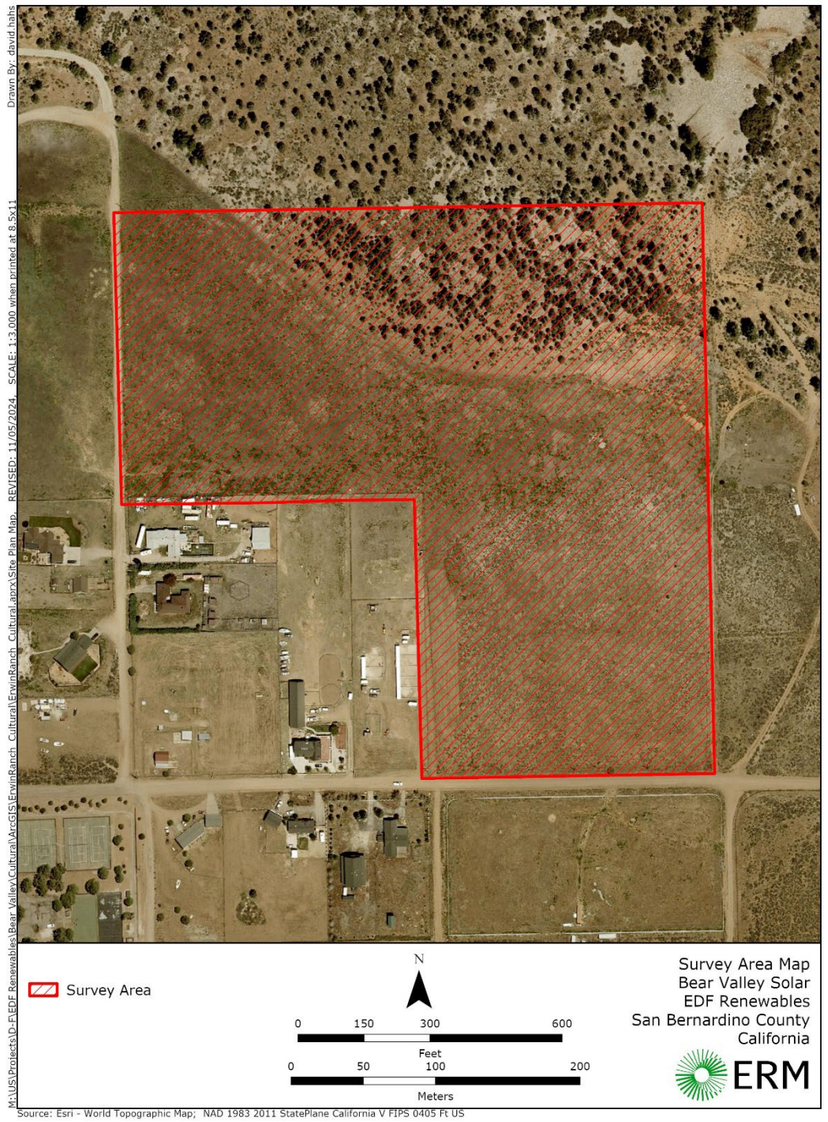
FIGURE 3 PROJECT AREA TOPOGRAPHY



SOURCE: Big Bear City, CA 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, 2021 SCALE: 1:25,000

ERM	**Project Area Topography** Bear Valley Solar Energy Project unincorporated San Bernardino County, California	Figure **3**

FIGURE 4 SURVEY AREA



APPENDIX B PHOTOGRAPHS



Photo 1. Project Area overview. View towards west.



Photo 2. Overview of Locus 1. View towards northwest.



Photo 3. Feat-3 consisting of wall and foundation. View towards northwest.



Photo 4. Overview of Locus 1. View towards southeast.



Photo 5. Concentration 1 with wood and concrete refuse. View towards southwest.



Photo 6. Feat-1 consisting of abandoned mineshaft. Detail view.



Photo 7. Overview of Locus 1. View towards north.



Photo 8. Feat-2 consisting of partially submerged metal pipe. View towards east.



Photo 9. Overview of Locus 1. View towards north.



Photo 10. Overview of Locus 2. View towards northwest.



Photo 11. Overview of Locus 2. View towards east.



Photo 12. Overview of Locus 2. View towards southwest.



Photo 13. Feat-4 consisting of ventilation shaft. View towards north.



Photo 14. Feat-4 consisting of ventilation shaft. Detail view.



Photo 15. Feat-4 consisting of ventilation shaft. View towards east.



Photo 16. Concentration 2 with wood and metal debris. View towards northwest.



Photo 17. Overview of Locus 2 and Feat-5 (metal pipe), and the collapsed hillside. View towards northwest.



Photo 18. Overview of Locus 2 and Feat-5 (metal pipe), and the collapsed hillside. View towards northwest.



Photo 19. Overview of Locus 2 and Feat-5 (metal pipe), and the collapsed hillside. View towards north.



Photo 20. Overview of access road leading from Locus 3. View towards southwest.



Photo 21. Overview of access road leading from Locus 3. View towards northeast.



Photo 22. Overview of access road leading from Locus 3. View towards northeast.



Photo 23. Overview of Locus 3. View towards southwest.



Photo 24. Overview of Locus 3 with Feat-6 (mine adit) and Feat-7 (remains of mining equipment). View towards northeast.



Photo 25. Overview of Locus 3 with Feat-6 (mine adit) and Feat-7 (remains of mining equipment). View towards north.



Photo 26. Overview of Locus 3 with Feat-6 (mine adit) and Feat-7 (remains of mining equipment). View towards northwest.



Photo 27. Overview of Locus 3 with Feat-6 (mine adit) and Feat-7 (remains of mining equipment). View towards southeast.



Photo 28. Overview of site extending into neighboring property (not recorded). View towards east.



Photo 29. Le-Hi barbed hose clamp, observed within Locus 3. Detail view.



Photo 30. Overview of access road leading from Locus 3. View towards west.

APPENDIX C CALIFORNIA DEPARTMENT OF PARKS AND RECREATION FORMS – **CONFIDENTIAL**

APPENDIX D SACRED LAND FILE SEARCH - **CONFIDENTIAL**

APPENDIX F PHASE I ENVIRONMENTAL SITE ASSESSMENT

Phase I Environmental Site Assessment

Bear Valley Solar Energy Project

PREPARED FOR
EDF Renewables Distribution-Scale Power

DATE
27 July 2024

VIABILITY DATE
19 January 2025

REFERENCE
0739207



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.

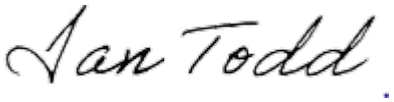
DOCUMENT TITLE	Phase I Environmental Site Assessment
DOCUMENT SUBTITLE	Bear Valley Solar Energy Project
PROJECT NUMBER	0739207
Date	27 July 2024
180-Day Viability Date	19 January 2025
Author	Marlene Mattola
Client name	EDF Renewables Distribution-Scale Power

SIGNATURE PAGE

Phase I Environmental Site Assessment

Bear Valley Solar Energy Project

0739207



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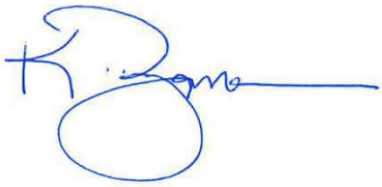

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The environmental professional declaration is provided in Section 8 of this report.

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EXECUTIVE SUMMARY

Environmental Resources Management, Inc. (ERM) conducted a Phase I Environmental Site Assessment (ESA) of the Bear Valley Solar Energy Project site located in Big Bear, unincorporated San Bernardino County, California ("Subject Property" or "Property"). The Phase I ESA was conducted in accordance with the scope and limitations of ASTM International (ASTM) Standard E1527-21, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (E1527-21). Exceptions to, or deletions from, E1527-21 are described in Section 1.3.4 of this report.

The Subject Property encompasses approximately 30 acres of undeveloped land generally accessed from Lakewood Drive to the west and Erwin Ranch Road to the south of the Property. The groundcover at the Subject Property consists of mostly tall grasses with a portion of the north-northeast corner consisting of sparce wooded land. ERM was unaccompanied during the Property visit. However, according to the landowners there are no structures or storage tanks onsite, and they were unaware of any prior occupants of the Subject Property.

According to the Environmental Data Resources, Inc. (EDR)® Radius Map™ Report (EDR report), Gold Hill Mine located approximately 200-feet west of the Subject Property is listed in the MINES Mineral Resources Data System (MRDS) database. The listing indicates that the adjacent property was historically utilized as a gold mine. No additional information was provided in the EDR report. However, after additional review of historical aerials and onsite observations, it appears that the Subject Property is at least partially associated with the former Gold Hill Mine operations.

At the time of ERM's Property visit, a partially backfilled excavation approximately 5 feet by 5 feet wide and 10 feet deep was observed on the northeastern portion of the Property. The excavation appears to be an abandoned mineshaft. The opening of the shaft is partially blocked with heavily weathered and degraded wooden planks. What appears to be a small tailing pile was observed adjacent to the mineshaft. A former ventilation shaft within a 10-foot by 10-foot concrete slab and production shaft with subgrade machinery were also observed approximately 250-300 feet northeast of the mineshaft. The ventilation shaft was capped, and the production shaft was backfilled with soil and covered with a metal grate.

According to "The Diggings" website, Gold Hill Mine is closed and there are no plans for reopening. During its active period, the mine was considered to have a relatively small production size. The operations at the Gold Hill Mine included both surface and underground workings. In addition, the mine reportedly extends to a maximum depth of approximately 54 feet below ground surface, and the ore body extends approximately 10 feet in thickness. The gold bearing host rock most prevalent in this area is quartzite.

A variety of environmental impacts are commonly associated with former mining activities. Each of the different types of mineral processing operations generates its own specific waste streams. Environmental concerns specifically associated with gold mining and processing are mineral dusts, tailings, acid mine drainage, and other mineral processing wastes. Contaminants of concern include, but are not limited to, heavy metals (e.g., mercury, lead, nickel, copper, cadmium, zinc, and arsenic).

Given the excavation and subgrade machinery may be related to mineral extraction on the Property, it is ERM's opinion that a Limited Phase II is conducted on the Subject Property to determine potential impacts; this may include surficial soil sampling in the surrounding area of the former Gold Hill Mine.

Historical maps indicate that the Subject Property was undeveloped land as early as 1902. By the late 1930s a small stream is indicated as traversing the Property from the northwest corner to the east. A review of aerial photographs from between the late 1940s to the late 1960s, show what appears to be ground disturbance onsite due to mining operations to the northeast. Circa 1969 to 1970, a wooden structure in connection to onsite mining activities is visible on the northeastern side of the Subject Property. By the early to mid-1970s, a majority of the wooden structure was removed, and a mineshaft is visible, bringing the Property to its present-day configuration.

ERM has concluded the following associated with the Subject Property:

Summary of Identified Issues
ASTM E1527-21 Findings
Recognized Environmental Conditions (RECs)[1]
• *Former Mining Operations On and Off Property:* The land adjacent to the east of the Subject Property is listed under Gold Hill Mine in the MINES Mineral Resources Data System (MRDS) database in the EDR report. The listing indicates that the adjacent property was historically utilized as a gold mine. No additional information was provided in the EDR report. However, after additional review of historical aerials and onsite observations, it appears as though the Subject Property was also associated with the former Gold Hill Mine operations. As a result, given the mining history associated with the region as a whole and the potential for the excavation and subgrade machinery to be related to mineral extraction, it is ERM's opinion that further assessment of the Subject Property is warranted.
Controlled Recognized Environmental Conditions (CRECs)[2]
• No CRECs were identified in connection with the Subject Property.
Historical Recognized Environmental Conditions (HRECs)[2]
• No HRECs were identified in connection with the Subject Property.
De Minimis Conditions
• Big Bear has historically had wild donkeys since the 1860s. During the Property visit, the Subject Property had approximately 20 wild donkeys onsite. Given the long duration of animal waste (manure), the potential exists that methane, nitrates, and ammonia are found in soil. However, based on the proposed land use (solar) particulates from animal waste are not considered a REC, but a de minimis condition.
Significant Data Gaps
• Historical operations at the Subject Property include mining activities (Gold Hill Mine) between the late 1940s to the late 1960s. The primary commodity being gold. According to the Environmental Protection Agency (EPA), per- and polyfluoroalkyl substances (PFAS) can be used as surfactants to enhance recovery of metals from copper and gold mines. They can also be used in the ore flotation

[1] Key ASTM definitions, including REC, CREC, and HREC, are provided in Section 9.

Summary of Identified Issues
process of aluminum, vanadium, and uranium. However, safety data sheets for cleaning detergents used on the Subject Property were not available. As such, ERM could not determine whether these chemicals associated with the mining operations contained PFAS and ERM cannot exclude the potential for PFAS to have impacted the Subject Property; therefore, the absence of information regarding the possible presence or use of such chemicals such as PFAS represents a significant data gap.
Other Noteworthy Conditions
• No noteworthy conditions were identified in connection with the Subject Property.
Non-ASTM E1527-21 Issues
Other Potential Issues
• According to historical aerials, between the late 1940s to the late 1960s, it appears there is ground disturbance due to mining operations to the northeast. Circa 1969 to 1970, a wooden structure in connection to onsite mining activities is visible on the northeastern side of the Subject Property. By the early to mid-1970s, most of the structure was removed. However, pipes in mine tunnels are often wrapped with asbestos containing insulation; therefore, asbestos-containing materials (ACMs) may be present at the Subject Property.

1. INTRODUCTION AND BACKGROUND

1.1 PURPOSE AND AUDITORS

On behalf of EDF Renewables Distribution-Scale Power (EDFR-DSP; "Client"), Environmental Resources Management, Inc. (ERM) completed a Phase I Environmental Site Assessment (ESA) of the Bear Valley Solar Energy Project located in Big Bear, unincorporated San Bernardino County, California ("Subject Property" or the "Property"). The environmental assessment was performed in anticipation of a financial transaction involving the Subject Property.

A visit to the Subject Property (the "Property visit") was performed on 1 July 2024 by ERM assessor, Marlene Mattola.

The "User" of this Phase I ESA report, as prescribed under ASTM International (ASTM) Standard E1527-21, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (E1527-21), is defined as EDFR-DSP.

1.2 SCOPE OF WORK

This environmental assessment was conducted in conformance with ERM's proposal dated 9 May 2024 and with the requirements of ASTM E1527-21. Exceptions to, or deletions from, E1527-21 are described in Section 1.3.4 of this report.

ERM's Phase I ESA sought to gather information regarding: (1) current and past property uses and occupancies; (2) current and past use of hazardous substances and petroleum products; (3) waste management and disposal activities that could have caused a release or threatened release of hazardous substances; (4) current and past corrective actions and response activities to address past and ongoing releases of hazardous substances at the Subject Property; and (5) properties adjoining or near the Subject Property that have environmental conditions that could have resulted in conditions indicative of releases or threatened releases of hazardous substances to the Subject Property.

The scope of this Phase I ESA included:

- A Property visit to evaluate current conditions and identify areas of potential concern at the Subject Property
- A review of the history of the Subject Property and its vicinity through interviews and a review of various historical sources
- Observation of adjoining properties and properties in the local area to evaluate the potential for adverse environmental impact to the Subject Property
- Interviews/Research of local city/county, tribal, state, and federal records, including contracting of Environmental Data Resources, Inc. (EDR) to identify regulatory listings for the Subject Property and regulatory-listed facilities in the vicinity of the Subject Property, as required in the regulatory records review section of ASTM E1527-21
- Interviews and/or requests for information from the User and Subject Property owner, as deemed appropriate by the Environmental Professional

1.3 LIMITING AND SPECIAL CONDITIONS

1.3.1 LIMITING CONDITIONS DURING THE SUBJECT PROPERTY VISIT

ERM was unable to visually inspect the entirety of the Subject Property due to half of the Property being covered in tall grasses or sparce wooded land. No other limiting conditions were encountered during the Property visit.

1.3.2 DATA GAPS

The following table summarizes the data gaps identified during the assessment.

TABLE 1-1 DATA GAP SUMMARY

Data Gap / Failure	Sources Consulted to Address Data Gap	Significance*
ERM cannot determine whether chemicals associated with onsite mining operations contained PFAS.	N/A	Significant

* "Significance" *provides a qualitative indication of the implication of the identified data gap relative to the Environmental Professional's ability to identify conditions indicative of releases or threatened releases to the Subject Property; the "significance" of the data gaps is rated from low to high.* "Non-significant" *indicates that additional information to fill the data gaps is not likely to negatively impact ERM's conclusions presented in this report.* "Significant" *indicates that it is ERM's opinion that additional diligence or investigation (such as additional data review or physical sampling of environmental media) is required to address the data gap.*

1.3.3 SIGNIFICANT ASSUMPTIONS

No significant assumptions have been made.

1.3.4 EXCEPTIONS TO OR DELETIONS FROM THE ASTM E1527-21 STANDARD

ERM has not identified any exceptions to, or deletions from, the ASTM E1527-21 Standard.

2. PHYSICAL SETTING

2.1 LOCATION

The Subject Property is located on the eastern side of Lakewood Drive and southern side of Erwin Ranch Road, in Big Bear, unincorporated San Bernardino County, California. The general location of the Subject Property and the physiographic features of the surrounding area are depicted on Figure 1, developed from the United States Geological Survey (USGS) 7.5-minute quadrangle for Big Bear City, California, dated 2021.

2.2 TOPOGRAPHY AND HYDROLOGY

The Subject Property is located at an elevation of approximately 6,800 feet above mean sea level, is relatively hilly, and slopes slightly to the southwest. Surface water at the Subject Property drains via infiltration into onsite soils.

The overall topography of the surrounding area slopes to the southwest. Surface water drains into nearby streams and channels, and discharges to Big Bear Lake located 3.5 miles northwest of the Subject Property.

According to flood zone and National Wetland Inventory (NWI) data presented in the EDR® Radius Map™ (EDR report) reviewed by ERM, the Subject Property does not lie within wetland delineated areas or the 100- or 500-year flood plains. Flood zone and NWI data were obtained by EDR from the Federal Emergency Management Agency (FEMA) and United States Fish and Wildlife Service, respectively.

2.3 GEOLOGY AND HYDROGEOLOGY

According to the EDR report, surface soils in the Subject Property vicinity are described as generally composed of Avawats and Olete soils. Avawats soils are generally described as Class A soils that are well drained with high infiltration rates. Olete soils are generally described as Class B soils that are moderately well drained with moderate infiltration rates. The Olete soil type is not hydric.

According to the EDR report, 26 state groundwater wells are present within a 1-mile radius of the Subject Property. No public water supply wells or federal groundwater wells are present within a 1-mile radius of the Subject Property.

The generalized results of gold mining and processing are mineral dusts, mill site residues, and mineral processing wastes containing arsenic, lead, manganese, and petroleum. Contaminants affect site soils and structures and may also affect drainage sediments and proximate locales due to windblown migration and/or surface water transport. The Property-specific, depth-to-groundwater data necessary to determine shallow groundwater flow direction for the Subject Property are not available, and as such, ERM cannot accurately determine groundwater flow direction at the Subject Property. However, based on surface topography, it is expected that groundwater generally flows to the west toward Baldwin Lake.

It is important to note that groundwater flow direction can be influenced locally and regionally by the presence of local wetland features, surface topography, recharge and discharge areas, horizontal and vertical inconsistencies in the types and location of subsurface soils, and proximity to water pumping wells.

3. SUBJECT PROPERTY DESCRIPTION, OPERATIONS, AND HISTORY

3.1 GENERAL SUBJECT PROPERTY DESCRIPTION

3.1.1 SUBJECT PROPERTY OWNERSHIP INFORMATION

According to the property record card obtained from the San Bernardino County Assessor, the Subject Property consists of a single parcel identified by PIN No. 031-44-0129, owned by Donald Kim Mc Rae and Sandra Beth Mc Rae. Donald Kim Mc Rae and Sandra Beth Mc Rae acquired the Subject Property from James O Erwin in 2000.

3.1.2 SUBJECT PROPERTY LAYOUT

The Subject Property encompasses approximately 30 acres of undeveloped land generally accessed from Lakewood Drive to the west and Erwin Ranch Road to the south of the Property. The groundcover at the Subject Property consists of mostly tall grasses with a portion of the north-northeast corner consisting of sparce wooded land. ERM was unaccompanied during the Property visit. However, according to the landowners there are no structures or storage tanks onsite and were unaware of any prior occupants.

However, during ERM's Property visit, a partially backfilled excavation approximately 5 feet by 5 feet wide and 10 feet deep was observed on the northeastern portion of the Property. The excavation appears to be an abandoned mineshaft. The opening of the shaft is covered with highly weathered and degraded wooden planks. What appeared to be a small tailing pile was observed adjacent to the mineshaft. A former ventilation shaft within a 10-foot by 10-foot concrete slab and production shaft with subgrade machinery were also observed approximately 250-300 feet northeast of the mineshaft. The ventilation shaft was capped, and the production shaft was backfilled with soil and covered with a metal grate.

The production shaft had a small portion of the remaining wooden structure that was still intact. Southwest of the production shaft was a pile of approximately 50, 10-foot-long logs, that were cut and shaped. The logs were similar in size and shape to the remaining structure.

EDFR-DSP plans for future development of the Big Bear Solar Energy Project, an approximate 5.7-megawatt solar photovoltaic project.

A Subject Property Layout Map is provided as Figure 2 and a Surrounding Area Map is provided as Figure 3. Photographs of the Subject Property are included as Appendix A.

3.2 OPERATIONS AT THE SUBJECT PROPERTY

3.2.1 CURRENT OPERATIONS

According to information from the Property representative and EDR report, no operations are currently being conducted at the Subject Property.

3.2.2 HISTORICAL OPERATIONS

According to information from the Property representative and EDR report, no operations have occurred at the Subject Property.

3.3 HISTORICAL PROPERTY SUMMARY

3.3.1 HISTORICAL SUMMARY

Historical maps indicate that the Subject Property was undeveloped land as early as 1902. By the late 1930s a stream is indicated as traversing the Property from the northwest corner to the east. A review of aerial photographs from between the late 1940s to the late 1960s, show what appears to be ground disturbance onsite due to mining operations to the northeast. Circa 1969 to 1970, a wooden structure in connection to onsite mining activities is visible on the northeastern side of the Subject Property. By the early to mid-1970s, a majority of the structure was removed, and a mineshaft is visible, bringing the Subject Property to its present-day configuration.

3.3.2 EVALUATION OF HISTORICAL INFORMATION SOURCES

ERM reviewed historical sources of information as outlined in Section 7 and presented in the tables below; information from these sources is summarized in Section 3.3.1 above. Copies of pertinent historical sources are also appended.

3.3.2.1 TOPOGRAPHIC MAPS

TABLE 3-1 TOPOGRAPHIC MAPS SUMMARY

Year(s)	Discussion
1902, 1947, 1949	The Subject Property appears as undeveloped land.
1954	Observations cannot be made; map is undepicted.
1970, 1971,	The Subject Property appears as undeveloped land.
1978	Observations cannot be made; map is undepicted.
1979	The Subject Property appears as undeveloped land.
1988	Observations cannot be made; map is undepicted.
1994, 1996, 2012, 2015, 2018, 2021	The Subject Property appears as undeveloped land.

3.3.2.2 HISTORICAL FIRE INSURANCE MAPS

Historical fire insurance maps were not available for the Subject Property.

3.3.2.3 AERIAL PHOTOGRAPHS

TABLE 3-2 HISTORICAL AERIAL PHOTOGRAPHS

Year(s)	Discussion
1938	The Subject Property is undeveloped land with sparce wooded land to the north-northeast. A stream is visible traversing the Property from the northwest corner to the east.
1949, 1969	It appears there is ground disturbance onsite due to mining operations to the northeast. Circa 1969, a wooden structure is visible on the northeastern side of the Subject Property.
1970, 1975	By the early to mid-1970s, the wooden structure was removed, and a mineshaft is visible, bringing the site to its present-day configuration.
1995, 2002, 2002, 2009, 2012, 2016, 2020	No changes are depicted on the Subject Property.
Present	Observations made at the time of ERM's Property visit are discussed throughout this report.

3.3.2.4 CITY DIRECTORY INFORMATION

The Subject Property was not listed in the available historical city directory information.

3.3.2.5 HISTORICAL AGENCY INFORMATION

TABLE 3-3 HISTORICAL AGENCY INFORMATION

Date	Source	Discussion
Historical Tax and Deed Records		
19 October 2000	Deed (San Bernardino County Assessor's Office)	Donald Kim Mc Rae and Sandra Beth Mc Rae purchased the Subject Property from James O Erwin.
Zoning Records		
Zoning records were not available for the Subject Property.		

No other relevant historical agency records were reviewed.

3.3.2.6 OTHER HISTORICAL SOURCES

According to "The Diggings" website, Gold Hill Mine is closed and there are no plans for its reopening. During its active period, the mine was considered to have a small production size. The operations at the Gold Hill Mine included both surface and underground workings. The maximum subsurface depth of the mine is around 54 feet, and the ore body extends approximately 10 feet in thickness. The gold bearing host rock prevalent in this area is quartzite.

No other relevant historical information was identified. Information provided by the Property representative is included in applicable sections of this report.

3.3.3 DISCUSSION OF PRIOR ASSESSMENTS, INVESTIGATIONS, AND EVENTS

ERM was not provided with any historical environmental assessments or investigation reports for the Subject Property.

3.4 ENVIRONMENTAL DATABASE RECORDS REVIEW

According to the EDR report, Gold Hill Mine located approximately 200-feet west of the Subject Property is listed in the MINES Mineral Resources Data System (MRDS) database. The listing indicates that the adjacent property was historically utilized as a gold mine. No additional information was provided within the EDR report. However, after additional review of historical aerials and onsite observations, it appears that the Subject Property is likely associated with the former Gold Hill Mine operations.

4. ENVIRONMENTAL OPERATIONS

4.1 HAZARDOUS MATERIAL USE AND STORAGE

No hazardous materials were observed being utilized or stored onsite. No drums, totes, or intermediate bulk containers were identified on the Subject Property.

4.1.1 DRUMS, TOTES, AND INTERMEDIATE BULK CONTAINERS (IBCS)

No drums, totes or IBCs were identified on the Subject Property.

4.1.2 UNDERGROUND STORAGE TANKS (USTS)

No historically registered USTs were identified by the EDR report, and ERM noted no visual indication of the potential presence of historical USTs during the Property visit. According to the landowners no USTs are currently located on the Subject Property.

4.1.3 ABOVEGROUND STORAGE TANKS (ASTS)

No historically registered ASTs were identified by the EDR report, and ERM noted no visual indication of the potential presence of historical ASTs during the Property visit. According to the landowners no ASTs are currently located on the Subject Property. No other ASTs were observed on the Subject Property at the time of the Property visit.

4.1.4 HAZARDOUS SUBSTANCE AND PETROLEUM PRODUCT CONTAINERS NOT IN CONNECTION WITH IDENTIFIED USES

ERM did not observe containers of hazardous substances or petroleum products, other than those described above and used in connection with identified former uses at the Subject Property.

4.1.5 UNIDENTIFIED SUBSTANCE CONTAINERS

ERM did not observe opened or damaged containers with unidentified contents suspected of being hazardous substances or petroleum products at the Subject Property.

4.1.6 STAINED SOIL

There was no evidence of stained soil at the Subject Property. However, ERM was unable to visually inspect the entirety of the Subject Property due to half of the Property being covered in tall grasses or sparce wooded land.

4.1.7 STRONG, PUNGENT, OR NOXIOUS ODORS

There was no evidence of strong, pungent, or noxious odors observed at the Subject Property.

4.2 WASTE MANAGEMENT

4.2.1 HAZARDOUS WASTE

No records of outstanding violations were identified during ERM's review of agency information and online databases.

4.2.2 NON-HAZARDOUS WASTE

ERM did not observe evidence of waste generated on the Subject Property.

4.2.3 SOLID WASTE DISPOSAL

ERM did not observe evidence of solid waste disposal on the Subject Property.

4.3 AIR EMISSIONS

4.3.1 AIR EMISSIONS SOURCES AND PERMITTING

There were no air emissions sources identified in connection with the Subject Property.

4.4 WASTEWATER

4.4.1 SEWAGE DISPOSAL SYSTEM

There are no current or historical sewage disposal systems identified in connection with the Subject Property.

4.4.2 SEPTIC SYSTEMS OR CESSPOOLS

There are no current or historical septic systems or cesspools identified in connection with the Subject Property.

4.4.3 DRAINS AND SUMPS

There are no current or historical drains or sumps identified in connection with the Subject Property.

4.4.4 PITS, PONDS, OR LAGOONS

There are no current or historical pits, ponds, or lagoons identified in connection with the Subject Property.

4.5 STORMWATER

Precipitation that falls on the Subject Property drains into soils and vegetation located onsite. ERM observed no staining, sheens, or other evidence of impact to stormwater pathways at the time of the Property visit.

4.6 SUBJECT PROPERTY FEATURES AND CONDITIONS

ERM did not identify any standing surface water, pools, or sumps containing liquids likely to be hazardous substances or petroleum products. However, a couple inches of ponded water was observed in the abandoned mineshaft located on the eastern portion of the Subject Property.

4.6.1 WATER SUPPLY AND WELLS

4.6.1.1 WATER SUPPLY

There are no current or historical water supply systems in connection with the Subject Property.

4.6.1.2 WELLS

ERM observed no dry wells, irrigation wells, injection wells, monitoring wells, abandoned wells, or other wells on the Subject Property.

4.6.2 HEATING AND COOLING

There are no heating or cooling systems in use at the Subject Property.

4.6.3 STRESSED VEGETATION

ERM observed no evidence of stressed vegetation at the Subject Property.

4.7 ASBESTOS-CONTAINING MATERIALS (ACMS)

Asbestos was banned in most friable building materials (spray-applied surfacing materials and thermal system insulation) in 1978, but the Occupational Safety and Health Administration (OSHA) deems thermal system insulation and surfacing materials as "presumed asbestos-containing materials" (PACMs) if they are present in buildings constructed no later than 1980 (Title 29 of the Code of Federal Regulations [CFR], Parts 1910.1001 and 1926.1101).

According to historical aerials, between the late 1940s to the late 1960s, it appears there is ground disturbance onsite due to mining operations to the northeast. Circa 1969 to 1970, a wooden structure in connection to onsite mining activities is visible on the northeastern side of the Subject Property. By the early to mid-1970s, the majority of the structure was removed. However, pipes in mine tunnels are commonly wrapped with asbestos-containing insulation; therefore, ACMs may be present at the Subject Property.

4.8 POLYCHLORINATED BIPHENYL (PCB) CONTAINING EQUIPMENT

ERM did not identify PCB-containing equipment at the Subject Property.

4.9 PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

PFAS are a group of emerging contaminants of which perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) are the two most widely regulated compounds. PFAS are known to be associated with use in a variety of commercial and industrial applications, with firefighting operations and medical and consumer products recognized as common sources. Other documented potential sources of PFAS include landfills, pulp and paper mill wastes, and wastewater treatment plant biosolid wastes/sludges. PFAS have been manufactured and used around the world since the 1940s. Although the United States has discontinued the manufacture of PFOA and PFOS, these compounds can be imported into the United States from international manufacturers.

Regulatory scrutiny associated with PFAS is a changing landscape, and this scrutiny is increasing. The United States Environmental Protection Agency (EPA) has not yet established regulatory cleanup standards for PFAS, although several states have begun promulgating their own standards.

Approximately 20 states have begun to compile information regarding known or potential sources of PFAS. Regulatory database providers have been aggressively pursuing this information for inclusion in their own PFAS databases, which have already begun to appear in database reports. The available database information varies widely by state. As such, it may be prudent to contact the respective environmental regulators to determine the nature of the database if there is uncertainty regarding the information provided or their significance relative to the conclusions of our report.

According to historical aerials and observations made during ERM's Property visit, historical operations at the Subject Property include mining activities (Gold Hill Mine) between the late 1940s to the late 1960s. The primary commodity being gold. According to the EPA, PFAS can be used as surfactants to enhance recovery of metals from copper and gold mines. They can also be used in the ore flotation process of aluminum, vanadium, and uranium. However, safety data sheets for cleaning detergents used on the Subject Property were not available. As such, ERM could not determine whether these chemicals associated with the mining operations contained PFAS and ERM cannot exclude the potential for PFAS to have impacted the Subject Property; therefore, PFAS represents a significant data gap.

5. ADJOINING AND SURROUNDING PROPERTIES

5.1 CURRENT USES OF ADJOINING AND SURROUNDING PROPERTIES

TABLE 5-1 ADJOINING AND SURROUNDING PROPERTIES DESCRIPTION

Direction	Current
North	The property that adjoins the Subject Property to the north is occupied by undeveloped wooded land, followed by Shay Road.
Southwest	The southwest adjoining property is occupied by single family homes, followed by Erwin Ranch Road.
Southeast	Immediately southeast of the Subject Property is Erwin Ranch Road, followed by undeveloped land.
East	Immediately east of the Subject Property is undeveloped land, followed by a single-family home.
West	Immediately west of the Subject Property is Lakewood Drive, followed by undeveloped land.

5.2 HISTORICAL USES OF ADJOINING AND SURROUNDING PROPERTIES

According to historical aerial photographs, the surrounding area was undeveloped/wooded land as early as 1902. By the late 1930s, a single residential property was constructed to the east of the Subject Property. Between the late 1940s to the late 1960s, it appears there is ground disturbance adjacent to the northeast of the Property; eight small structures and/or tailers were also visible adjacent to the east at this time. According to the EDR report, the adjacent property was historically utilized as a gold mine (Gold Hill Mine). No additional information was provided in the EDR report. By the early 1970s, the small structures adjacent to the east of the Property were removed and a single-family home was constructed. Between the mid-1970s and mid-1980s, residential property was constructed to the southwest of the Subject Property and continued to expand to the south by the early 2000s, bringing the surrounding area to its present-day configuration.

5.3 ADJOINING AND SURROUNDING PROPERTIES DATABASE LISTINGS

5.3.1 ADJOINING PROPERTIES DATABASE LISTINGS

The adjacent properties, as observed by ERM at the time of the Property visit, are summarized in the table below. No obvious environmental concerns associated with surrounding properties were observed during ERM's Property visit or review of historical sources.

Additional information regarding regulatory database entries associated with adjoining properties is presented in Table 5-2 below.

Based on ERM's review, the east adjoining property does represent an environmental concern for the Subject Property.

TABLE 5-2 ADJOINING PROPERTIES DISCUSSION

Direction	Regulatory Database Listing(s)	Discussion
North	No listings identified.	There were no environmental records identified for the north adjoining property, which does not represent a significant impact concern to the Subject Property.
South	No listings identified.	There were no environmental records identified for the south adjoining property, which does not represent a significant impact concern to the Subject Property.
East	MINES MRDS	The listing indicates that the adjacent property was historically utilized as a gold mine. No additional information was provided within the EDR report. Based on former mining operations, the east adjoining property does represent a significant impact concern to the Subject Property. Please refer to other sections throughout this report for additional information.
West	No listings identified.	There were no environmental records identified for the west adjoining property, which does not represent a significant impact concern to the Subject Property.

5.3.2 SURROUNDING PROPERTIES DATABASE LISTINGS

Based on their closed regulatory status, distance from the Subject Property, or topographic position relative to the Subject Property, none of the surrounding properties listed in the EDR report are expected to present a significant impact concern for the Subject Property.

5.4 ADJOINING AND SURROUNDING PROPERTIES AGENCY AND RECORDS REVIEW

The EDR report contains regulatory agency files and records, and sufficient information was available in the EDR report to determine if adjoining properties pose or have the potential to pose an impact concern to the Subject Property. As a result, an additional request for records, such as an in-person file review, was not deemed warranted at this time.

6. CONCLUSIONS

6.1 FINDINGS AND OPINIONS

ERM performed a Phase I ESA of the Big Bear Solar Energy Project site located in Big Bear, unincorporated San Bernardino County, California, the Subject Property in conformance with the scope and limitations of ASTM Standard E1527-21 (as defined in Section 1 of this report). Exceptions to, or deletions from, this practice are described in Section 1.3.4 of this report. This Phase I ESA revealed the following recognized environmental conditions, controlled recognized environmental conditions, and/or significant data gaps in connection with the Subject Property:

Summary of Identified Issues
Recognized Environmental Conditions (RECs)[2]
• *Former Mining Operations On and Off Property:* The land adjacent to the east of the Subject Property is listed under Gold Hill Mine in the MINES Mineral Resources Data System (MRDS) database in the EDR report. The listing indicates that the adjacent property was historically utilized as a gold mine. No additional information was provided in the EDR report. However, after additional review of historical aerials and onsite observations, it appears as though the Subject Property was also associated with the former Gold Hill Mine operations. As a result, given the mining history associated with the region as a whole and the potential for the excavation and subgrade machinery to be related to mineral extraction, it is ERM's opinion that further assessment of the Subject Property is warranted.
Controlled Recognized Environmental Conditions (CRECs)[2]
• No CRECs were identified in connection with the Subject Property.
Historical Recognized Environmental Conditions (HRECs)[2]
• No HRECs were identified in connection with the Subject Property.
De Minimis Conditions
• Big Bear has historically had wild donkeys since the 1860s. During the Property visit, the Subject Property had approximately 20 wild donkeys on site. Given the long duration of animal waste (manure), the potential exists that methane, nitrates, and ammonia are found in soil. However, based on the proposed land use (solar) particulates from animal waste are not considered a REC, but a de minimis condition.

[2] Key ASTM definitions, including REC, CREC, and HREC, are provided in Section 9.

Summary of Identified Issues
Significant Data Gaps
• Historical operations at the Subject Property include mining activities (Gold Hill Mine) between the late 1940s to the late 1960s. The primary commodity being gold. According to the Environmental Protection Agency (EPA), per- and polyfluoroalkyl substances (PFAS) can be used as surfactants to enhance recovery of metals from copper and gold mines. They can also be used in the ore flotation process of aluminum, vanadium, and uranium. However, safety data sheets for cleaning detergents used on the Subject Property were not available. As such, ERM could not determine whether these chemicals associated with the mining operations contained PFAS and ERM cannot exclude the potential for PFAS to have impacted the Subject Property; therefore, the absence of information regarding the possible presence or use of such chemicals such as PFAS represents a significant data gap.
Other Noteworthy Conditions
• No noteworthy conditions were identified in connection with the Subject Property.
Non-ASTM Issues
Other Potential Issues
• According to historical aerials, between the late 1940s to the late 1960s, it appears there is ground disturbance due to mining operations to the northeast. Circa 1969 to 1970, a wooden structure in connection to onsite mining activities is visible on the northeastern side of the Subject Property. By the early to mid-1970s, most of the structure was removed. However, pipes in mine tunnels are often wrapped with asbestos containing insulation; therefore, asbestos-containing materials (ACMs) may be present at the Subject Property.

6.2 OPINION ON ADDITIONAL ASSESSMENT

The Environmental Professional for this project is of the opinion that additional assessment is recommended in connection with the Subject Property.

Given the excavation and subgrade machinery may be related to mineral extraction on the Property, it is ERM's opinion that a Limited Phase II is conducted on the Subject Property to determine potential impacts; this may include surficial soil sampling in the surrounding area of the former Gold Hill Mine.

7. REFERENCES

TABLE 7-1 RESOURCE LIST

Agency/Company	Person Contacted	Phone	Regarding
San Bernardino County Assessor 222 West Hospitality Lane San Bernardino, California	Office representative	909-387-8307	Property information
San Bernardino County Recorder 222 West Hospitality Lane San Bernardino, California	Office representative	909-387-8306	Deed information
Mojave Desert Air Quality Management District 14306 Park Avenue Victorville, California	Freedom of Information Act (FOIA) request	760-245-1661	Air quality information
City of Hesperia Fire Department 17288 Olive Street Hesperia, California	FOIA request	760-243-8595	Tanks, spills, fires, incidents, inspections, hazardous materials
San Bernardino County Public Works 825 East Third Street San Bernardino, California	FOIA request	909-387-7910	Wastewater collection, treatment, and disposal information
San Bernardino Environmental Health 385 North Arrowhead Avenue San Bernardino, California	Online database records	800-442-2283	Wells, septic systems, tanks, incidents, inspections, violations
Regional Water Quality Control Board 320 West 4th Street, Los Angeles, California	FOIA request and GeoTracker database	213-576-6600 https://geotracker.waterboards.ca.gov/	Water supply and quality information
Department of Toxic Substances Control 5796 Corporate Avenue, Cypress, California	FOIA request and EnviroStor database	714-484-5300	Spills, cleanups, tanks, inspections
EDR 6 Armstrong Road, 4th Floor Shelton, CT 06484	Not applicable	800-241-6476	EDR report, topographic maps, aerial photographs, city directories, fire insurance maps

Agency/Company	Person Contacted	Phone	Regarding
Internet resources	Not applicable	Not applicable	Subject Property database searches (www.rtk.net/, http://www.epa.gov/echo/, www.osha.gov).

TABLE 7-2 SUMMARY OF HISTORICAL SOURCES REVIEWED

Agency/Source of Information	Data Provided	Years Reviewed (if applicable)	
		Subject Property	Surrounding Property
Current Subject Property owner	Not applicable	Not applicable	Not applicable
Interview(s) with past owners/occupants	Not applicable	Not applicable	Not applicable
Interview(s) with owner/occupants of neighboring and nearby properties	Not applicable	Not applicable	Not applicable
USGS Topographic Maps	Topographic maps	1902, 1947, 1949, 1954, 1970, 1971, 1978, 1988, 1994, 1996, 2012, 2015, 2018, 2021	1902, 1947, 1949, 1954, 1970, 1971, 1978, 1988, 1994, 1996, 2012, 2015, 2018, 2021
EDR	Sanborn fire insurance maps	Not applicable	Not applicable
EDR	City directories	Not applicable	Not applicable
EDR and internet resources (Google Earth Pro and NetR www.historicaerials.com)	Aerial photographs	1938, 1949, 1969, 1995, 2002, 2002, 2009, 2012, 2016, 2020	1938, 1949, 1969, 1995, 2002, 2002, 2009, 2012, 2016, 2020
EDR	Environmental lien search	Not applicable	Not applicable

8. ENVIRONMENTAL PROFESSIONAL CERTIFICATION

This Phase I ESA was conducted by Marlene Mattola of ERM. Kristal Nadimyan, Ian Todd and Kevin Bryan reviewed the contents of this report. The professional qualifications for Ian Todd, Marlene Mattola, Kristal Nadimyan and Kevin Byran are appended to this report. Kevin Bryan meets the definition of an Environmental Professional as defined in 40 CFR 312.10 and has prepared the following declaration. Signatures of the Environmental Professionals are included at the beginning of this report.

- I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312.10.
- I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

The designated Environmental Professional for this project is: Consulting Director, Kevin Bryan

ERM
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Suite 300
Irvine, CA 92614

9. LIMITATIONS AND OTHER CONSIDERATIONS

9.1 GENERAL LIMITATIONS

A number of exclusions and limitations are associated with this assessment. These are briefly outlined below:

- This report has been prepared by ERM exclusively for Client and any of its affiliates associated with the contemplated transaction and may not be relied upon by any other recipient, person, or entity (together, henceforth, "Other Recipient") without ERM's express, written permission. ERM makes no warranties or representations to any Other Recipient, has no obligation to advise any Other Recipient regarding changes to this report or changes in applicable laws and regulations subsequent to the date of this report, and NOTWITHSTANDING DELIVERY OF THIS REPORT BY ERM OR CLIENT to such Other Recipient party(ies) is provided for informational purposes only, without the right to rely. In receiving this report, any Other Recipient agrees that (a) it will make no claim against ERM that relates in any way to this report, or the Other Recipient's access to this report, and (b) to the fullest extent permitted by applicable law, Other Recipient hereby releases ERM from, and will defend and hold harmless ERM from and against, any claim, action, suit, damage, loss, award, liability, expense, cost, or fees including attorneys' fees arising from or relating to any use or disclosure of the report or any portion thereof by Other Recipient or any third party to whom Other Recipient discloses the Report. Notwithstanding the foregoing, if requested, ERM will issue reliance letters allowing lenders or other interested parties to rely on the contents of this report, in accordance with ERM's terms and conditions, for financing or other purposes.
- ERM is a sustainability consulting firm, and as such we make no representations regarding questions of legal or accounting interpretation. Consultation with an attorney and/or certified accountant should be made with respect to any legal or accounting matters, or items that require such interpretation, under any law, regulation, or contract.
- The conclusions presented in this report represent ERM's professional judgment based on the information made available to us during the course of this assessment and are true and correct to the best of ERM's knowledge as of the date of this report.
- ERM did not independently verify all the information provided by Client, information on publicly available databases, or information obtained from applicable regulatory agencies. Therefore, our findings are accurate and complete only to the extent that information provided to ERM was itself accurate and complete.
- No sampling or testing of soils, waters, or other materials was included in the assessment. However, reference has been made to previous testing and sampling, as appropriate.
- Unless otherwise stated, the compliance review did not consider annual costs associated with maintaining compliance in the normal course of business, such as costs associated with ongoing operation of existing pollution control equipment, permit renewals, and required record keeping and agency submittals.

- Unless specifically stated, our evaluation of potentially significant issues excluded costs associated with third-party actions in the event that contamination causes harm to property, the environment, or human health.
- Unless specifically stated, our evaluation of potentially significant issues did not take into account mitigating factors such as legal indemnities, insurance coverage, or third-party responsibility. In addition, ERM's evaluation of potentially significant issues did not include fines, penalties, or expenses associated with legal claims.
- Our assessment did not consider potential business interruption costs caused by sustainability issues at the Subject Property or in association with any Client operations.
- Unless otherwise stated, our assessment did not consider closure scenarios for the Subject Property. We have assumed that the Subject Property will continue to be used for its current purposes and that no major construction, renovation, or addition projects will be conducted.
- Unless otherwise stated, review of state-specific requirements related to property transfer (or ownership changes) was not included in ERM's assessment.
- Our evaluation of environmental impact issues is based on ERM's professional experience of the likely scale of investigation and remediation efforts. ERM has taken into account the environmental settings of the Subject Property, known/potential soil and groundwater issues, the vulnerability/sensitivity of known receptors, and the presence or otherwise of current regulatory triggers for investigation and/or remediation of soil and/or groundwater.

9.2 ASTM LIMITATIONS

The innocent landowner, contiguous owner, and prospective purchaser defenses to liability under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) require that a person acquiring property conduct an all appropriate inquiry with respect to the Subject Property. ERM has conducted this environmental assessment in accordance with the standards for conducting an appropriate inquiry set forth at 40 CFR 312. Those standards require the application of scientific principles and professional judgment to certain facts with resultant subjective interpretations and exercise of discretion. Professional judgments expressed herein are based on the facts currently available within the limits of the existing data, and data gaps identified herein, scope of work, budget, and schedule. Those standards also require that the User undertake certain additional inquiries. In addition, the liability defenses under CERCLA require, among several other things, that the User after the acquisition stop any continuing releases, prevent any future threatened releases and prevent or limit human, environmental or natural resource exposure to any hazardous substance released at the Subject Property. Therefore, ERM makes no warranties, express or implied, including, without limitation, warranties as to merchantability or fitness for a particular purpose, including any warranty that this Phase I assessment will in fact qualify User for the innocent landowner, contiguous property owner, or prospective purchaser defense to liability under CERCLA. ERM's assessment is limited strictly to identifying recognized environmental conditions associated with the Subject Property. Results of this assessment are based upon the visual inspection of readily accessible areas of the Subject Property conducted by ERM personnel, information from interviews with knowledgeable persons regarding the Subject Property, information reviewed regarding historical uses, information provided by contacted

regulatory agencies, and review of publicly available and practically reviewable information identifying current and historical uses of the property and surrounding properties. All conclusions and recommendations regarding the Subject Property represent the professional opinions of the ERM personnel involved with the project, and the results of this report should not be considered a legal interpretation of existing environmental regulations. ERM assumes no responsibility or liability for errors in the public data utilized, statements from sources outside of ERM, or developments resulting from situations outside the scope of this project. We make no warranties, express or implied, including, without limitation, warranties as to merchantability or fitness for a particular purpose.

9.3 REPORT VIABILITY

The components of this report are valid for 180 days following their date of occurrence. The 180-day date is calculated from the earliest of the dates below.

TABLE 9-1 REPORT VIABILITY

Component	Date	End of 180-Day Window
Interviews with owner(s), operator(s), and occupant(s)	N/A	N/A
Review of federal, tribal, state, and local government records	02 July 2024	29 December 2024
Visual inspection of Subject Property and adjoining properties	01 July 2024	28 December 2024
Declaration by the Environmental Professional responsible for the assessment	10 July 2024	06 January 2025

9.4 OTHER CONSIDERATIONS

9.4.1 ENVIRONMENTAL DATABASE SEARCH

ERM contracted EDR to conduct a database search for agency records. The appended database report defines and summarizes the ASTM databases reviewed in the EDR report and notes if any listed facilities (including the Subject Property) were identified in the specified radius. The locations of the listed facilities identified in the EDR report were evaluated to determine which listed facilities were located within the ASTM specified search distance from the Subject Property boundary. Only those listed facilities worthy of further discussion are discussed within the applicable sections of this report and data on additional listed facilities are included in the appended EDR database report.

It should be noted that the computerized geocoding technology used in the database search is based on available census data and is only accurate to ±300 feet. The EDR report provides a list of unmapped facilities for which inadequate location information was provided. ERM has reviewed the list of "unmapped" listed facilities to determine if these listed facilities are within the study

radius. If the "unmapped" listed facilities appeared likely to be within the search radius for a specific database, they are discussed in the applicable sections of this report.

Listed facilities identified within the study radii were evaluated to determine if they are likely to have adversely impacted the Subject Property. The criteria used to evaluate the potential for adverse impact to the Subject Property include:

- Distance from the Subject Property;
- Expected depth and direction of groundwater and surface water flow;
- Geology and physical ground conditions;
- Expected stormwater flow direction;
- The presence/absence of documented contaminant releases at the identified sites that have not been remedied to the satisfaction of regulators; and
- The current regulatory status of the listing.

The identification of a listed facility as potentially upgradient or downgradient is based on the expected direction of groundwater flow referenced in Section 2.3.

9.4.2 USER-PROVIDED INFORMATION

ERM contacted the User with respect to the following information:

- An evaluation of the presence of Environmental Cleanup Liens for the Subject Property.
- Activity and Use Limitations (AULs) such as engineering controls (e.g., slurry walls, caps) and land use restrictions or institutional controls (e.g., deed restrictions, covenants) that may be in place for the Subject Property.
- Specialized Knowledge that includes personal knowledge or experience related to the Subject Property or nearby properties based on professional experience or knowledge of the Subject Property.
- Fair Market Value to evaluate whether a purchase price is significantly below Fair Market Value.
- Obvious Indicators that involve past or present spills, stains, releases, cleanups on or near the Subject Property.
- Common Knowledge about specific chemicals, possible contamination, or past use of the Subject Property and surrounding area.

Relevant information provided by the User is summarized under the appropriate headings of this report and in the following table.

TABLE 9-2 USER-PROVIDED INFORMATION

User Request	Response
Environmental Cleanup Liens	The User is not aware of environmental liens currently recorded against the Subject Property. The User did not request that ERM perform an independent evaluation of environmental liens for the Subject Property.

User Request	Response
AULs and Land Use Restrictions or Institutional Controls	The User is not aware of AULs and/or land use restrictions currently recorded against the Subject Property.
Specialized Knowledge	The User has no specialized knowledge of the Subject Property other than what was provided to ERM as discussed under the relevant sections. ERM is not aware of additional specialized knowledge for the Subject Property.
Fair Market Value	The User is not aware of a devaluation of the purchase price or fair market value of the Subject Property in association with environmental conditions at, on, or under the Subject Property.
Obvious Indicators that involve past or present spills, stains, releases, or cleanups	The User was not aware of any obvious indicators that involve past or present spills, stains, releases, or cleanups.
Common Knowledge about specific chemicals, possible contamination, or past use	Not provided to ERM by the User.

9.5 KEY ASTM DEFINITIONS

ASTM E1527-21 prescribes the following definitions:

Recognized environmental condition (REC): "the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment...."

Controlled REC (CREC): "…recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations)…."

Historical REC: "…a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). A historical recognized environmental condition is not a recognized environmental condition...."

De minimis condition: "…a condition related to a release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition

determined to be a de minimis condition is not a recognized environmental condition nor a controlled recognized environmental condition....”

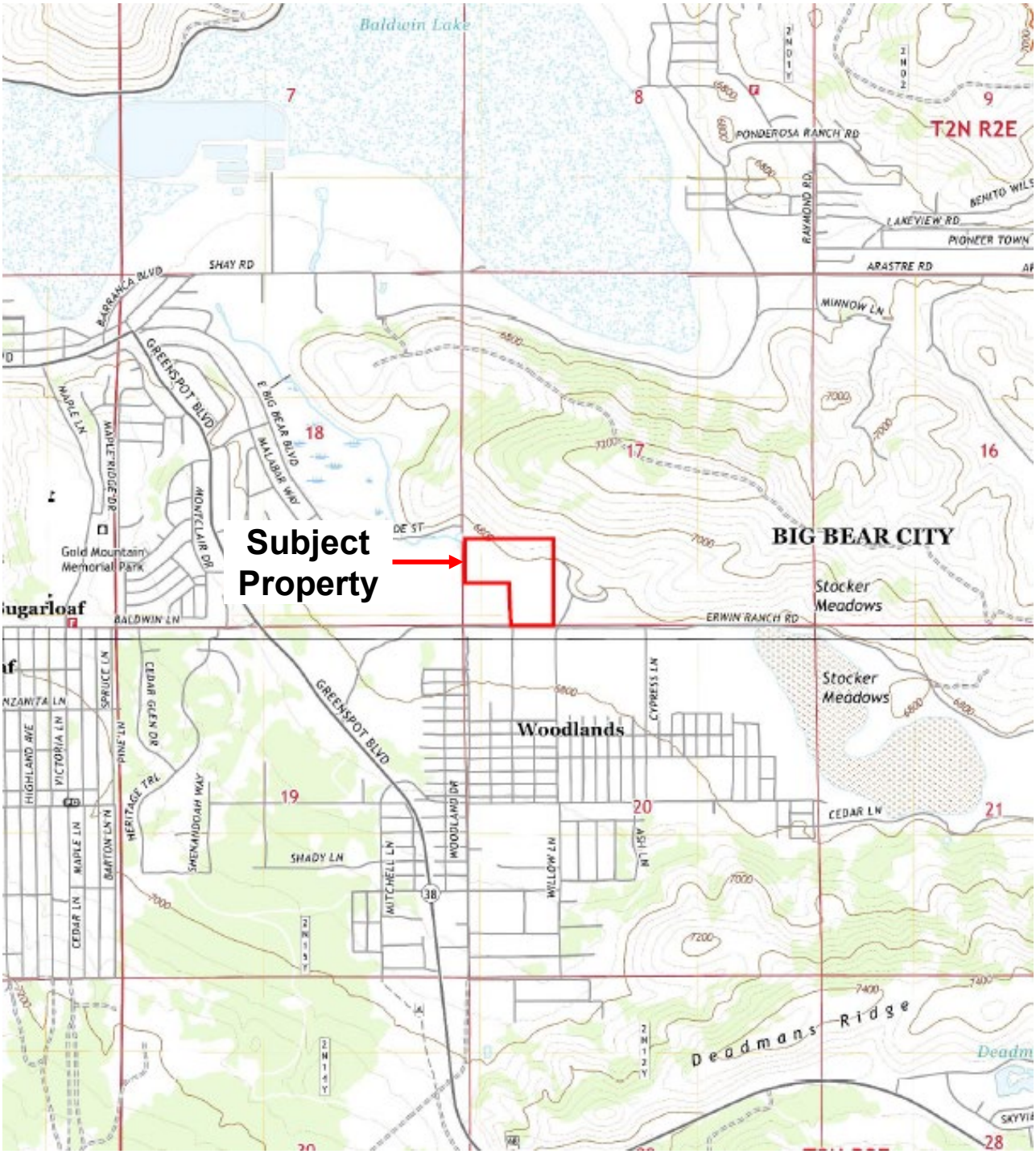
Data gap: “…a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to, site reconnaissance (for example, an inability to conduct the Property visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.)….”

Significant Data Gap: “…a data gap that affects the ability of the environmental professional to identify a recognized environmental condition….”

Data failure: “…a failure to achieve the historical research objectives…even after reviewing the standard historical sources…that are reasonably ascertainable and likely to be useful....”

User: “…the party seeking to use Practice E1527 to complete an Environmental Site Assessment of the subject property. User may include, without limitation, a potential purchaser of subject property, a potential tenant of subject property, an owner of the subject property, a lender, or a property manager. A User seeking to qualify for an LLP to CERCLA liability, or a User that is an EPA Brownfield Assessment and Characterization grantee, has specific responsibilities for completing a successful application of this practice....”

FIGURES

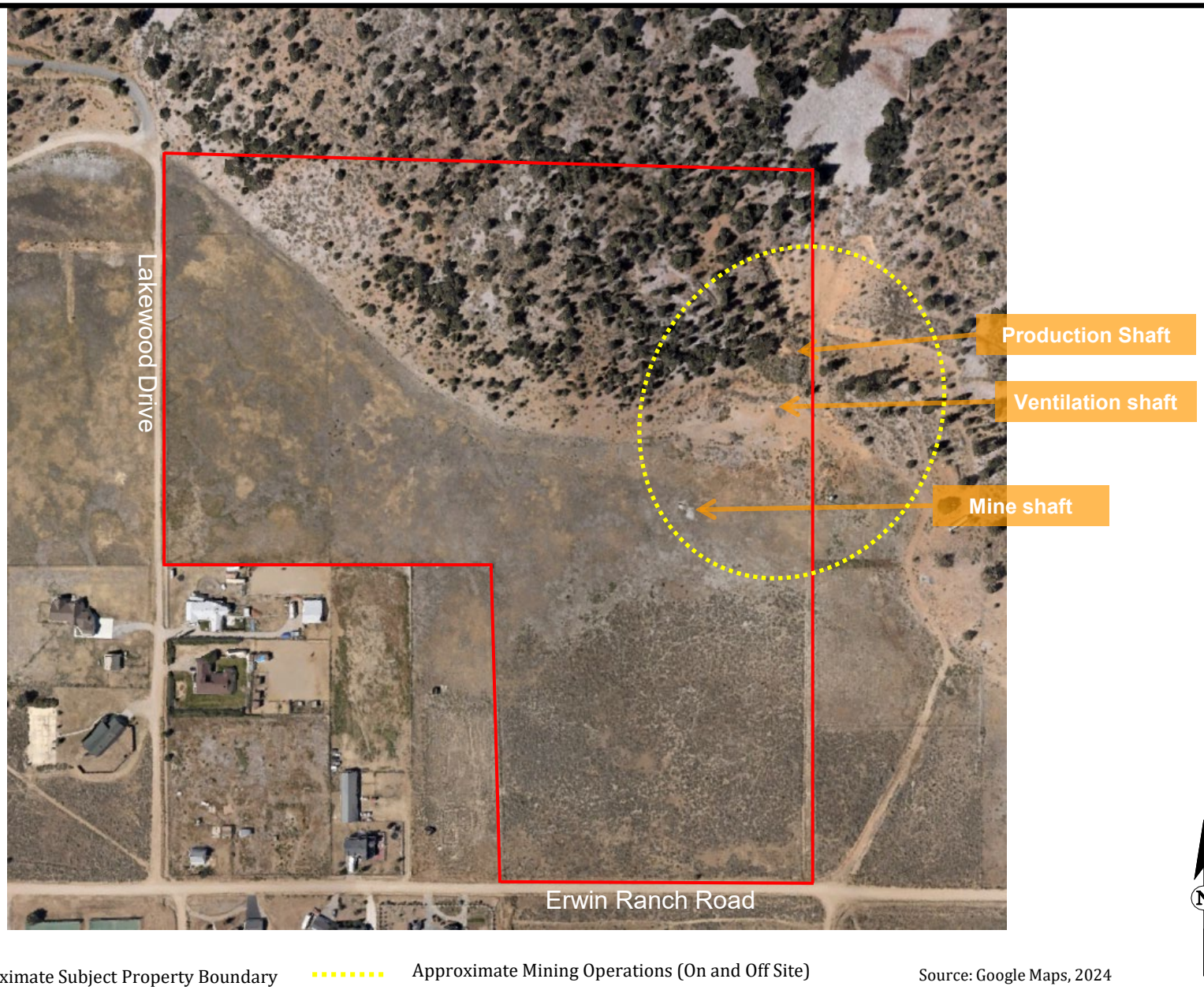


SOURCE: Big Bear City, CA 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, 2021 SCALE: 1:25,000

ERM

SUBJECT PROPERTY LOCATION MAP
Bear Valley Solar Energy
Big Bear, unincorporated San Bernardino County, California

Figure
1



Approximate Subject Property Boundary

Approximate Mining Operations (On and Off Site)

Source: Google Maps, 2024

ERM

SUBJECT PROPERTY LAYOUT MAP
Bear Valley Solar Energy
Big Bear, unincorporated San Bernardino County, California

Figure
2



Approximate Subject Property Boundary

Source: Google Earth Pro, 2024

ERM

SURROUNDING AREA MAP
Bear Valley Solar Energy
Big Bear, unincorporated San Bernardino County, California

Figure
3



Approximate Site Boundary

Source: Google Maps, 2023

N

ERM

Site Map of Former Gold Hill Mine
Bear Valley Solar Energy
Big Bear, unincorporated San Bernardino County, California

Figure **4**

APPENDIX A SUBJECT PROPERTY PHOTOGRAPHS



Photograph: 1	Undeveloped land located on south side of the Subject Property, facing west.



Photograph: 2	Undeveloped land located on south side of the Subject Property, facing northwest.



Photograph: 3	Abandoned mine shaft located on the northeast side of the Subject Property.



Photograph: 4	A pile of approximately 50, 10-foot-long logs, that have been cut and shaped located on the east side of the Subject Property.



Photograph: 5	Production shaft that has been backfilled with soil and covered with a metal grate located on the northeast side of the Subject Property.



Photograph: 6	Interior of production shaft.



Photograph: 7	Interior of production shaft.



Photograph: 8	View from the top of the production shaft, facing south.



Photograph: 9	Ventilation shaft located directly below the production shaft to the south.



Photograph: 10	Undeveloped land located on the east side of the Subject Property, facing north.

APPENDIX B HISTORICAL SOURCES

Erwin Ranch Solar Project
Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314

Inquiry Number: 7681395.5
June 17, 2024

The EDR-City Directory Image Report

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available business directory data at approximately five year intervals.

RECORD SOURCES

The EDR City Directory Report accesses a variety of business directory sources, including Haines, InfoUSA, Polk, Cole, Bresser, and Stewart. Listings marked as EDR Digital Archive access Cole and InfoUSA records. The various directory sources enhance and complement each other to provide a more thorough and accurate report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2020	☑	☑	EDR Digital Archive
2017	☑	☑	Cole Information
2014	☑	☑	Cole Information
2010	☑	☑	Cole Information
2005	☑	☑	Cole Information
2000	☐	☐	Cole Information
1995	☐	☐	Cole Information
1992	☑	☐	Cole Information
1986	☐	☐	Haines Criss-Cross Directory
1980	☐	☑	Haines Criss-Cross Directory
1976	☐	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314

Year	*CD Image*	*Source*	
LAKEWOOD DR			
2020	pg A2	EDR Digital Archive	
2017	pg A4	Cole Information	
2014	pg A6	Cole Information	
2010	pg A8	Cole Information	
2005	pg A10	Cole Information	
2000	-	Cole Information	Street not listed in Source
1995	-	Cole Information	Street not listed in Source
1992	pg A11	Cole Information	
1986	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1976	-	Haines Criss-Cross Directory	Street not listed in Source
1971	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
ERWIN RANCH RD			
2020	pg. A1	EDR Digital Archive	
2017	pg. A3	Cole Information	
2014	pg. A5	Cole Information	
2010	pg. A7	Cole Information	
2005	pg. A9	Cole Information	
2000	-	Cole Information	Street not listed in Source
1995	-	Cole Information	Street not listed in Source
1992	-	Cole Information	Street not listed in Source
1986	-	Haines Criss-Cross Directory	Street not listed in Source
1980	pg. A12	Haines Criss-Cross Directory	
1976	-	Haines Criss-Cross Directory	Street not listed in Source
1971	-	Haines Criss-Cross Directory	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

ERWIN RANCH RD 2020

2030	ALYSSA SERNA
2124	JOHNATHAN HAWKINS
	WENDEE HAWKINS
	WILLIAM HAWKINS
2125	CHRISTINA SAN NICOLAS
	RANDAL YOUNG
	YOUNG RD
2298	TR PARTIDA

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

LAKEWOOD DR 2020

501 JOHN LANDTSHEER
550 CAROL MARTIN
581 DAVID COURTICE

Target Street	Cross Street	Source
-	✓	Cole Information

ERWIN RANCH RD 2017

2124 HAWKINS, MATTHEW W
2300 FERGUSON, RONALD P

Target Street	Cross Street	Source
✓	-	Cole Information

LAKEWOOD DR 2017

866 SANCHEZ, REYNALDO G

Target Street	Cross Street	Source
-	✓	Cole Information

ERWIN RANCH RD 2014

2030	FRANTZ, WILLIAM E
2050	BIG BEAR SPORTS RANCH
	GLOVER, JEFF
2124	HAWKINS, MATTHEW W
2300	FERGUSON, RONALD P

Target Street	Cross Street	Source
✓	-	Cole Information

LAKEWOOD DR 2014

301	GOODALE, GARY
357	SELDES, JEFFREY
448	MOORE, LARRY L
550	MARTIN, CAROL

Target Street	Cross Street	Source
-	✓	Cole Information

ERWIN RANCH RD 2010

2030	FRANTZ, WILLIAM E
2124	HAWKINS, MATTHEW W
2125	YOUNG, RANDAL D
2300	FERGUSON, RONALD P

Target Street	Cross Street	Source
✓	-	Cole Information

LAKEWOOD DR 2010

301	GOODALE, GARY
370	GORDON, TRISH
448	MOORE, JAMIE
474	GRIFFITH, STEPHANIE

Target Street	Cross Street	Source
-	✓	Cole Information

ERWIN RANCH RD 2005

2080 FRANTZ, JERRY

Target Street	Cross Street	Source
✓	-	Cole Information

LAKEWOOD DR 2005

312	CALDWELL, ELEN
345	JOHNSON, DELWIN R
370	GORDON, TRISH
381	CARTER, SANDRA

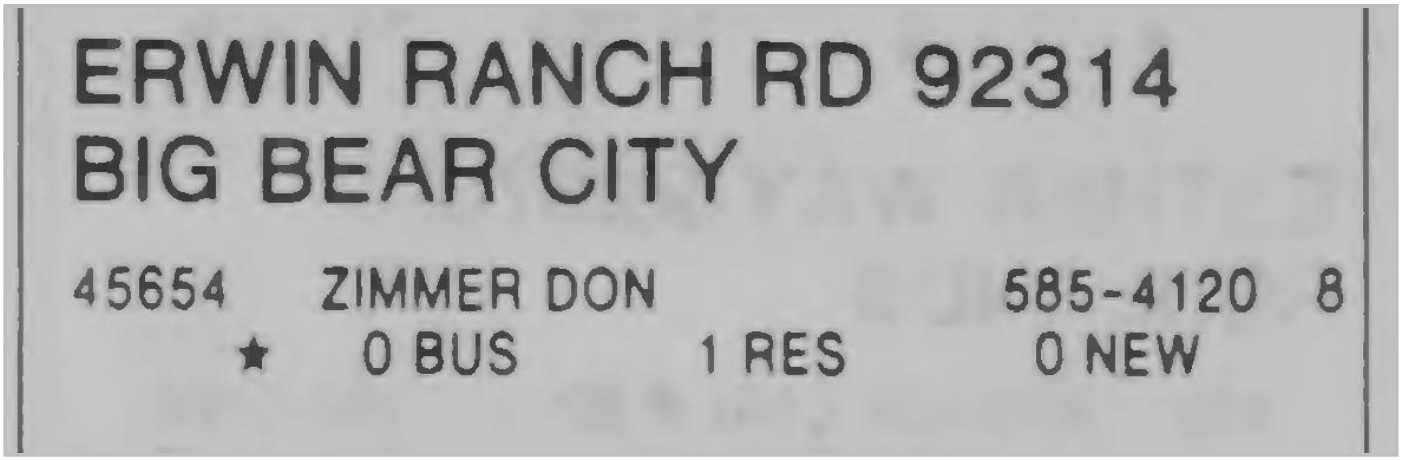
Target Street	Cross Street	Source
✓	-	Cole Information

LAKEWOOD DR 1992

581 CUTULI, ROB

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

ERWIN RANCH RD 1980



Erwin Ranch Solar Project

Lakewood Drive and Erwin Ranch Road

Big Bear City, CA 92314

Inquiry Number: 7681395.8

June 14, 2024

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

06/14/24

Site Name:	Client Name:
Erwin Ranch Solar Project	ERM - West, Inc.
Lakewood Drive and Erwin Rar	1277 Treat Blvd
Big Bear City, CA 92314	Walnut Creek, CA 94597
EDR Inquiry # 7681395.8	Contact: Marlene Mattola

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2020	1"=500'	Flight Year: 2020	USDA/NAIP
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2002	1"=500'	Acquisition Date: May 29, 2002	USGS/DOQQ
1995	1"=500'	Acquisition Date: January 01, 1995	USGS/DOQQ
1975	1"=500'	Flight Date: August 01, 1975	USGS
1970	1"=500'	Flight Date: April 26, 1970	USGS
1969	1"=500'	Flight Date: July 10, 1969	USGS
1949	1"=500'	Flight Date: June 02, 1949	USDA
1938	1"=500'	Flight Date: July 28, 1938	USDA

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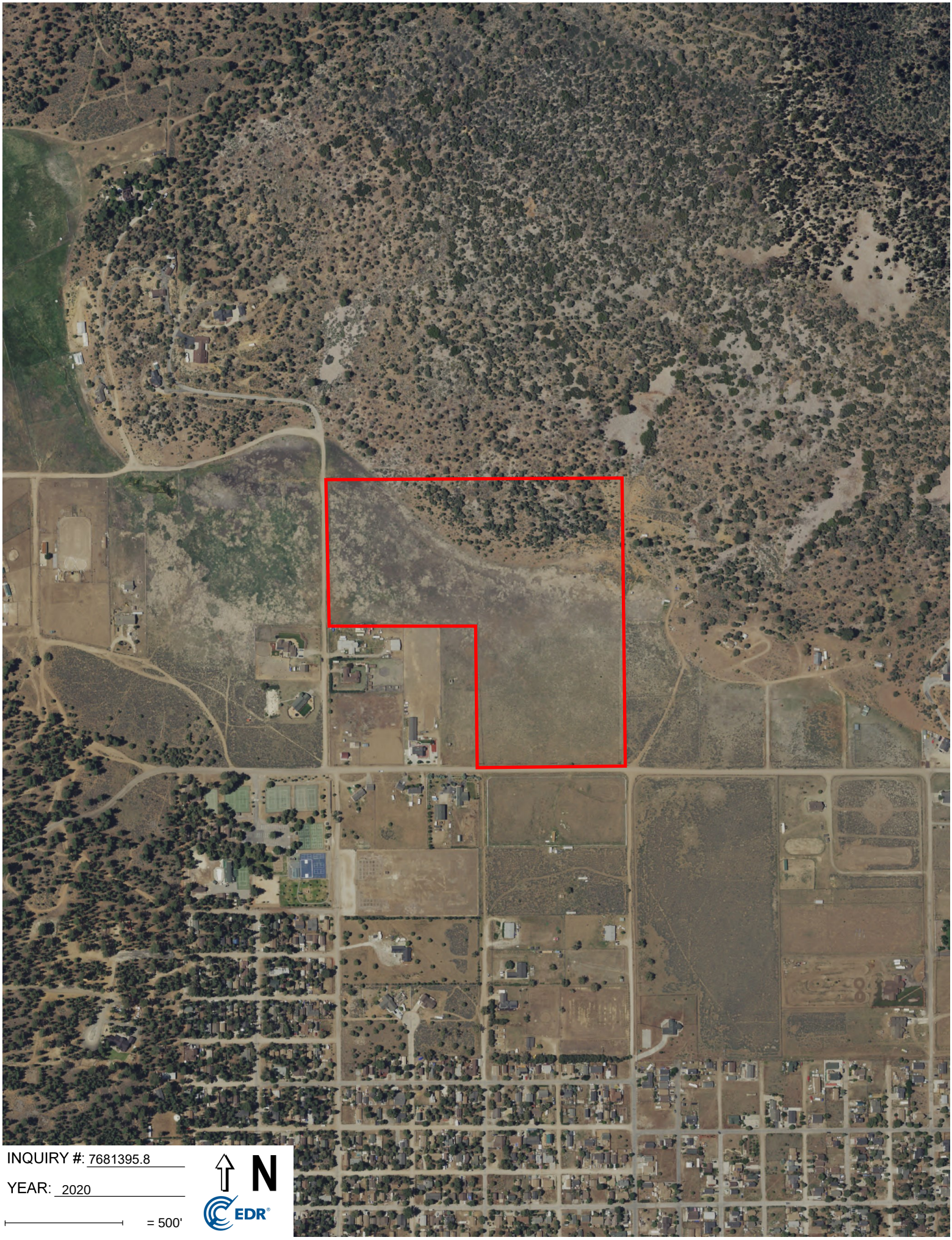
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YEAR: 2020
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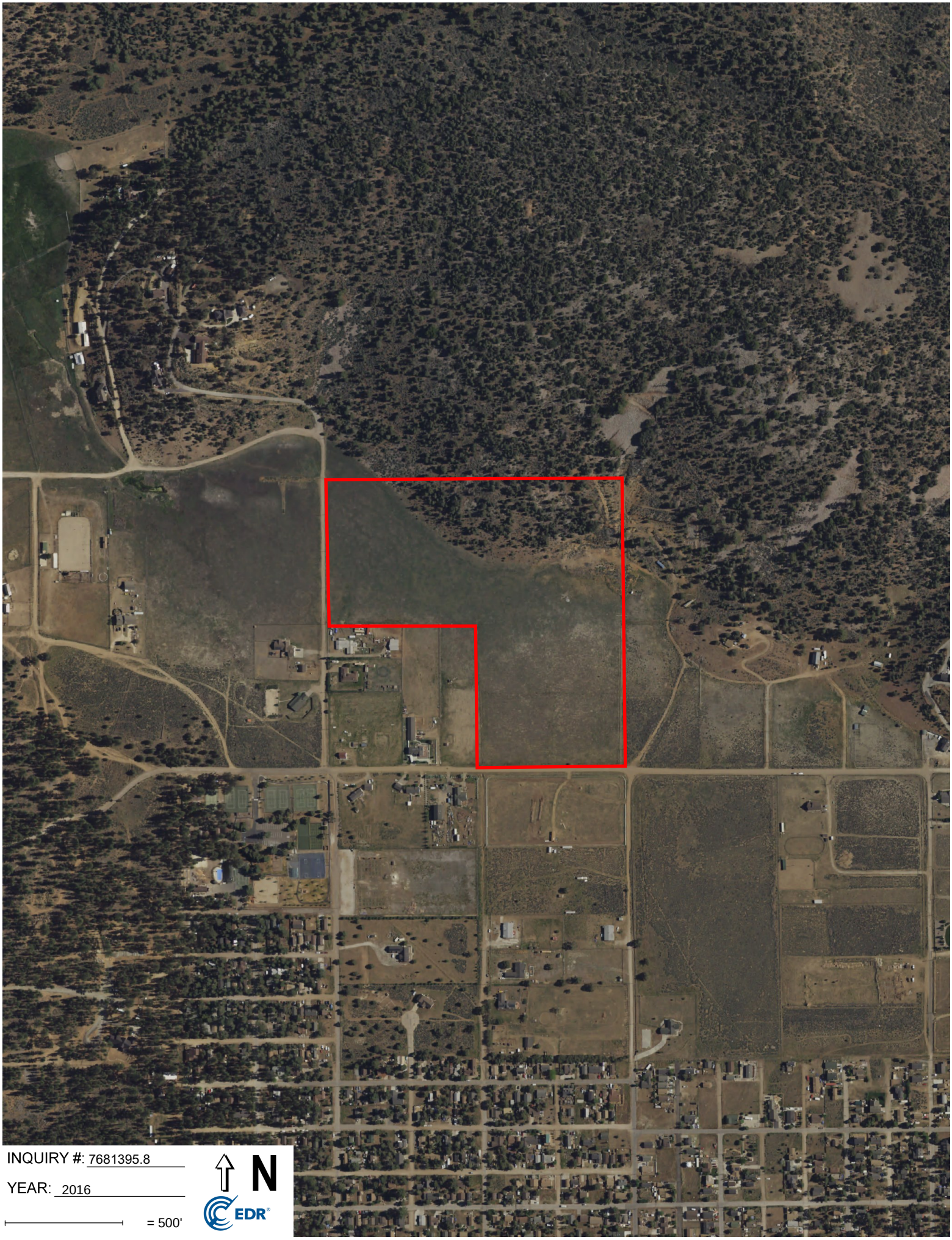
EDR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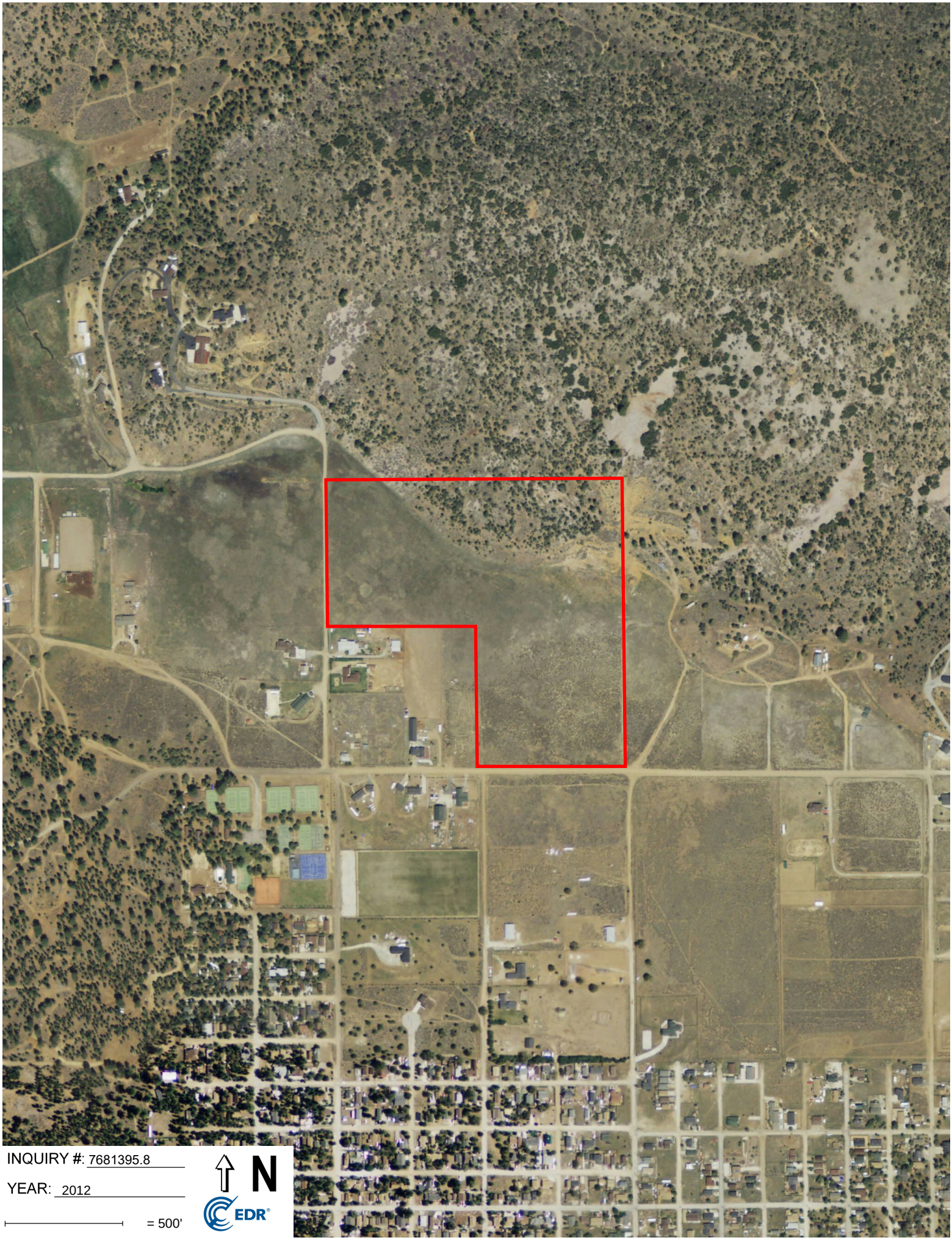
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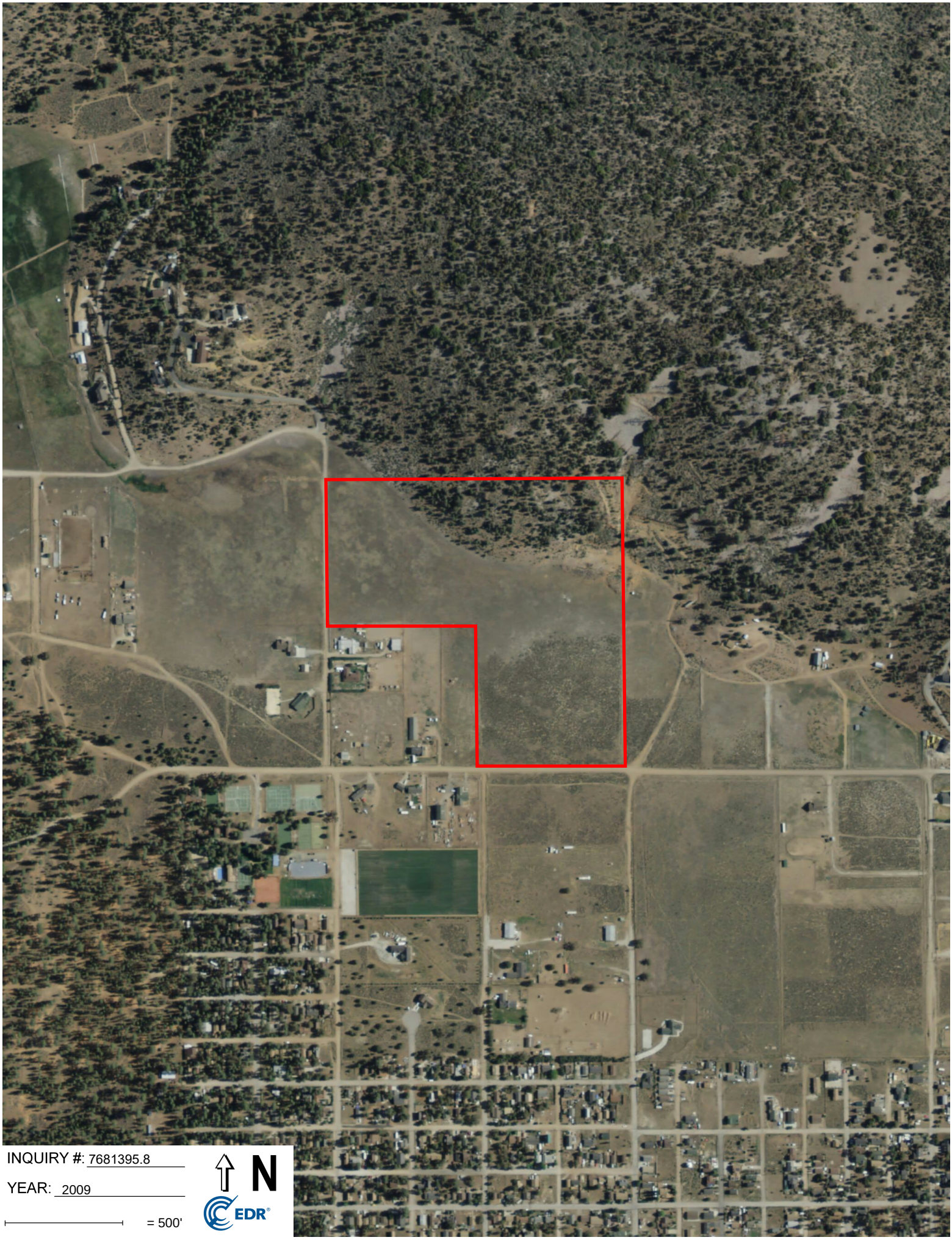
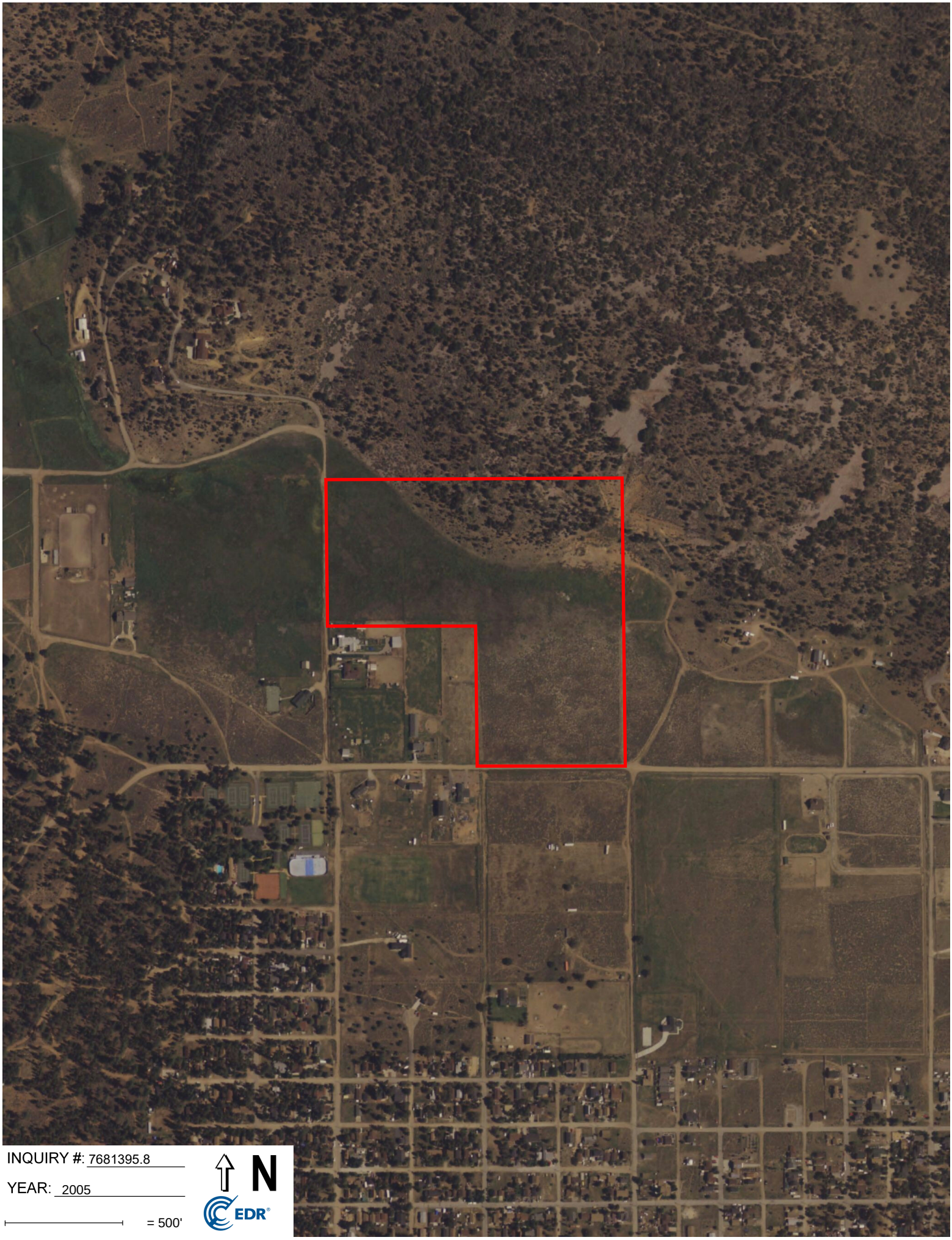

INQUIRY #: 7681395.8
YEAR: 2009
= 500'
N
EDR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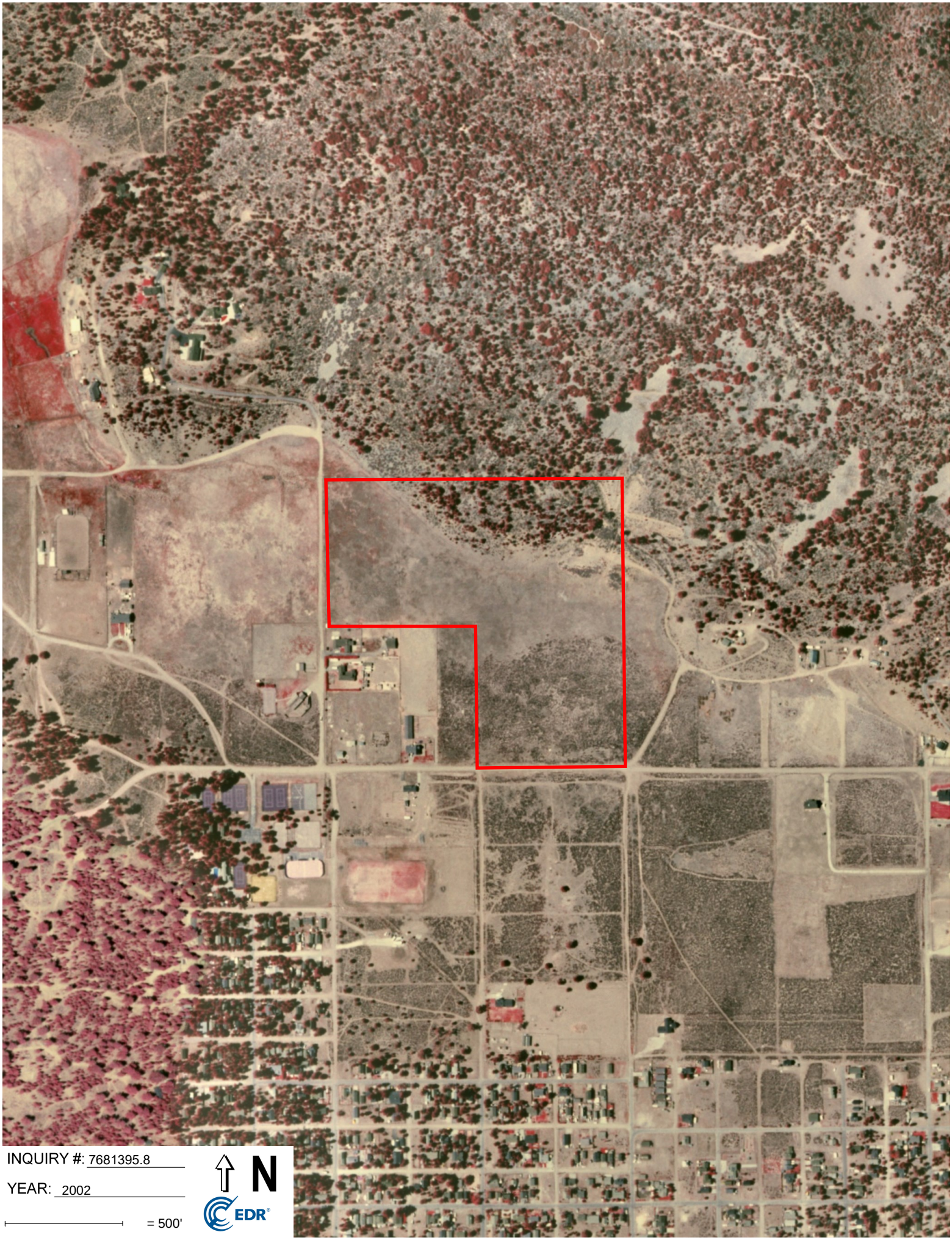
EDR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YEAR: 2002
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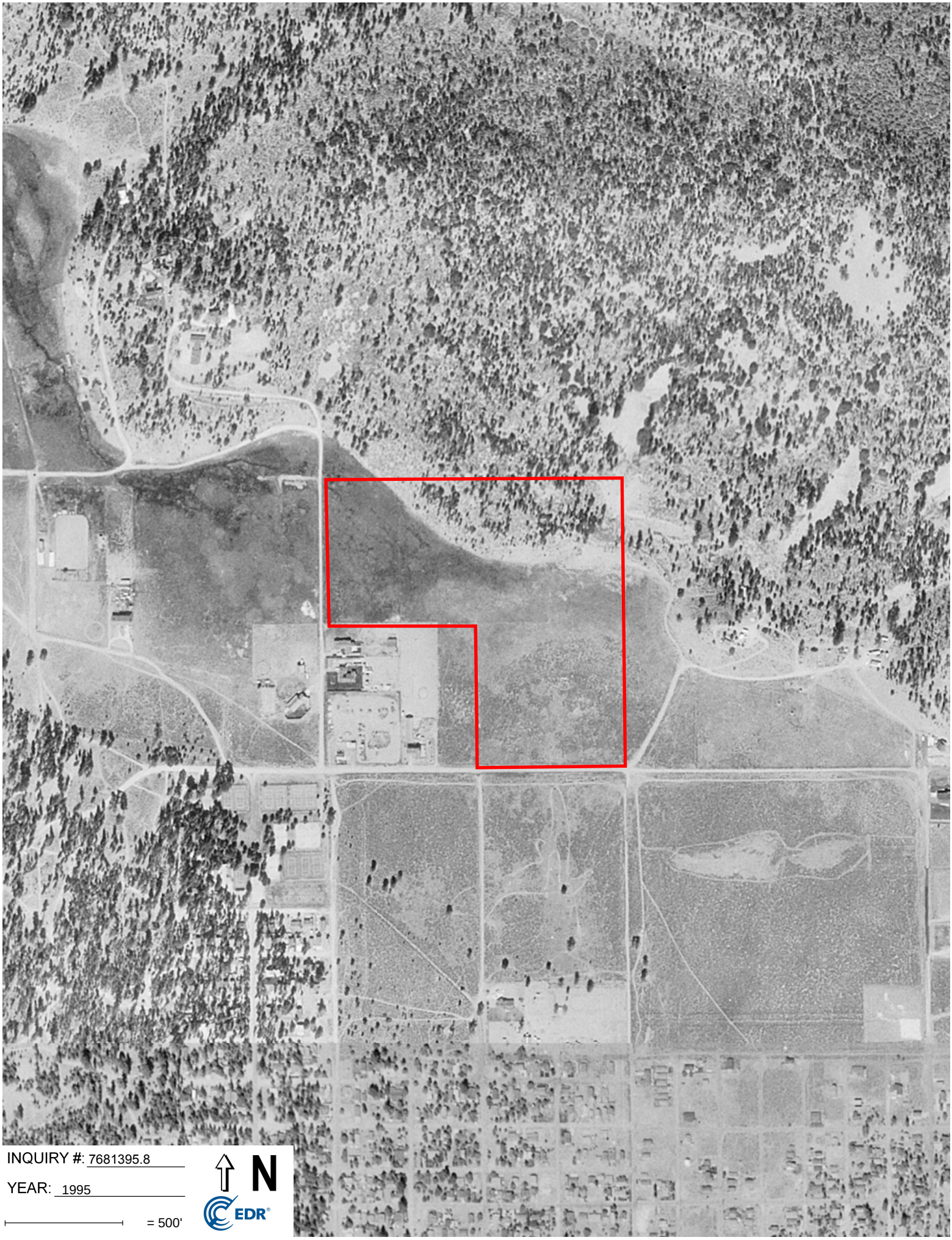
EDR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YEAR: 1995
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EDR


INQUIRY #: 7681395.8
YEAR: 1975
= 500'
N
EDR



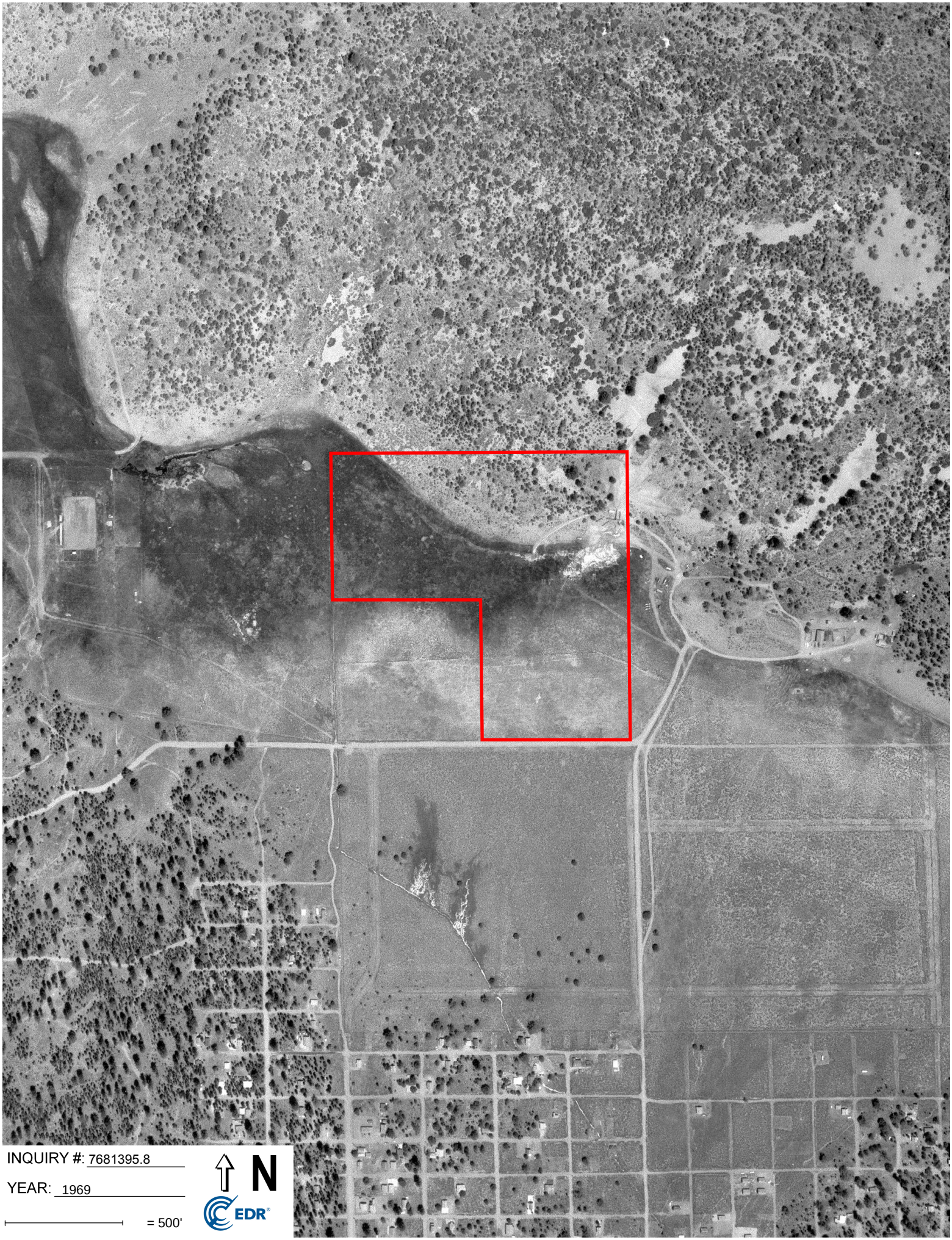
INQUIRY #: 7681395.8

YEAR: 1970

= 500'

N

EDR


INQUIRY #: 7681395.8
YEAR: 1969
= 500'
N
EDR


INQUIRY #: 7681395.8
YEAR: 1949
= 500'
N
EDR


INQUIRY #: 7681395.8
YEAR: 1938
= 500'
N
EDR

Erwin Ranch Solar Project

Lakewood Drive and Erwin Ranch Road

Big Bear City, CA 92314

Inquiry Number: 7681395.3

June 13, 2024

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

06/13/24

Site Name:

Erwin Ranch Solar Project
Lakewood Drive and Erwin Rar
Big Bear City, CA 92314
EDR Inquiry # 7681395.3

Client Name:

ERM - West, Inc.
1277 Treat Blvd
Walnut Creek, CA 94597
Contact: Marlene Mattola

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Certified Sanborn Results:

Certification # AE4E-4D98-8E3C

PO # 0739207

Project Erwin Ranch Solar Project

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: AE4E-4D98-8E3C

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Erwin Ranch Solar Project

Lakewood Drive and Erwin Ranch Road

Big Bear City, CA 92314

Inquiry Number: 7681395.4

June 13, 2024

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

06/13/24

Site Name:	Client Name:
Erwin Ranch Solar Project	ERM - West, Inc.
Lakewood Drive and Erwin Rar	1277 Treat Blvd
Big Bear City, CA 92314	Walnut Creek, CA 94597
EDR Inquiry # 7681395.4	Contact: Marlene Mattola

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by ERM - West, Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	0739207	**Latitude:**	34.252618 34° 15' 9" North
Project:	Erwin Ranch Solar Project	**Longitude:**	-116.802682 -116° 48' 10" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	518167.79
		UTM Y Meters:	3790183.95
		Elevation:	6776.03' above sea level

Maps Provided:

2021	1978
2018	1970, 1971
2015	1954
2012	1949
1996	1947
1994	1902
1988	
1979	

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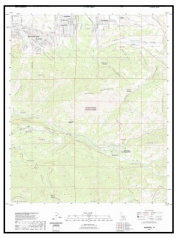
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2021 Source Sheets



Big Bear City
2021
7.5-minute, 24000

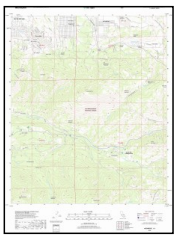


Moonridge
2021
7.5-minute, 24000

2018 Source Sheets



Big Bear City
2018
7.5-minute, 24000



Moonridge
2018
7.5-minute, 24000

2015 Source Sheets



Big Bear City
2015
7.5-minute, 24000



Moonridge
2015
7.5-minute, 24000

2012 Source Sheets



Big Bear City
2012
7.5-minute, 24000

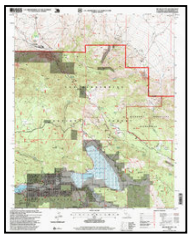


Moonridge
2012
7.5-minute, 24000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1996 Source Sheets



Big Bear City
1996
7.5-minute, 24000
Aerial Photo Revised 1994



Moonridge
1996
7.5-minute, 24000
Aerial Photo Revised 1994

1994 Source Sheets



Moonridge
1994
7.5-minute, 24000
Aerial Photo Revised 1983



Big Bear City
1994
7.5-minute, 24000
Aerial Photo Revised 1978

1988 Source Sheets



Moonridge
1988
7.5-minute, 24000
Aerial Photo Revised 1983

1979 Source Sheets



Big Bear City
1979
7.5-minute, 24000
Aerial Photo Revised 1978

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1978 Source Sheets



Moonridge
1978
7.5-minute, 24000
Aerial Photo Revised 1969

1970, 1971 Source Sheets



Moonridge
1970
7.5-minute, 24000
Aerial Photo Revised 1969



Big Bear City
1971
7.5-minute, 24000
Aerial Photo Revised 1969

1954 Source Sheets



San Gorgonio Mountain
1954
15-minute, 62500
Aerial Photo Revised 1952

1949 Source Sheets



Lucerne Valley
1949
15-minute, 62500
Aerial Photo Revised 1945

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1947 Source Sheets



Lucerne Valley
1947
15-minute, 62500
Aerial Photo Revised 1945

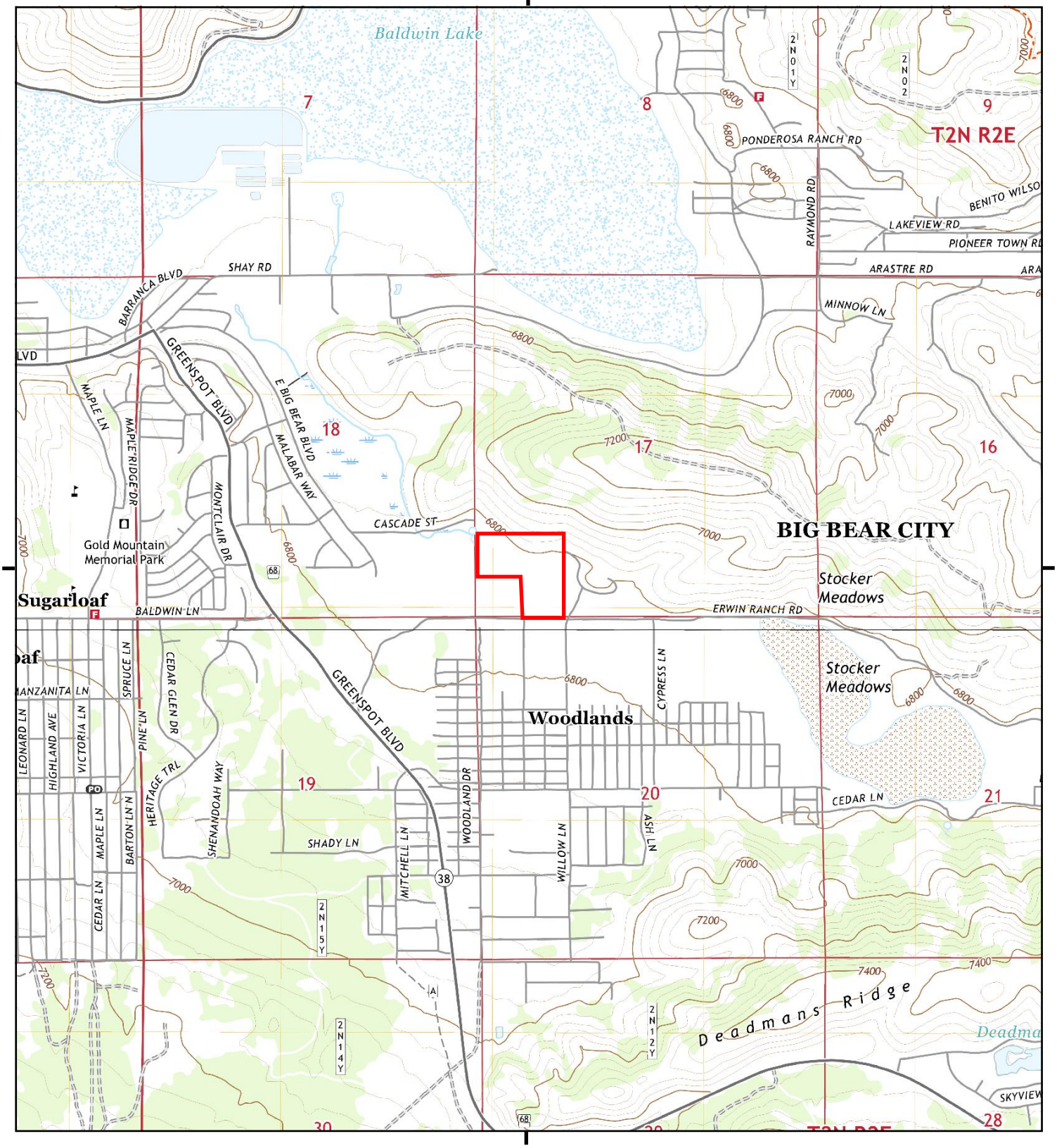
1902 Source Sheets



San Gorgonio
1902
30-minute, 125000

Historical Topo Map

2021



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

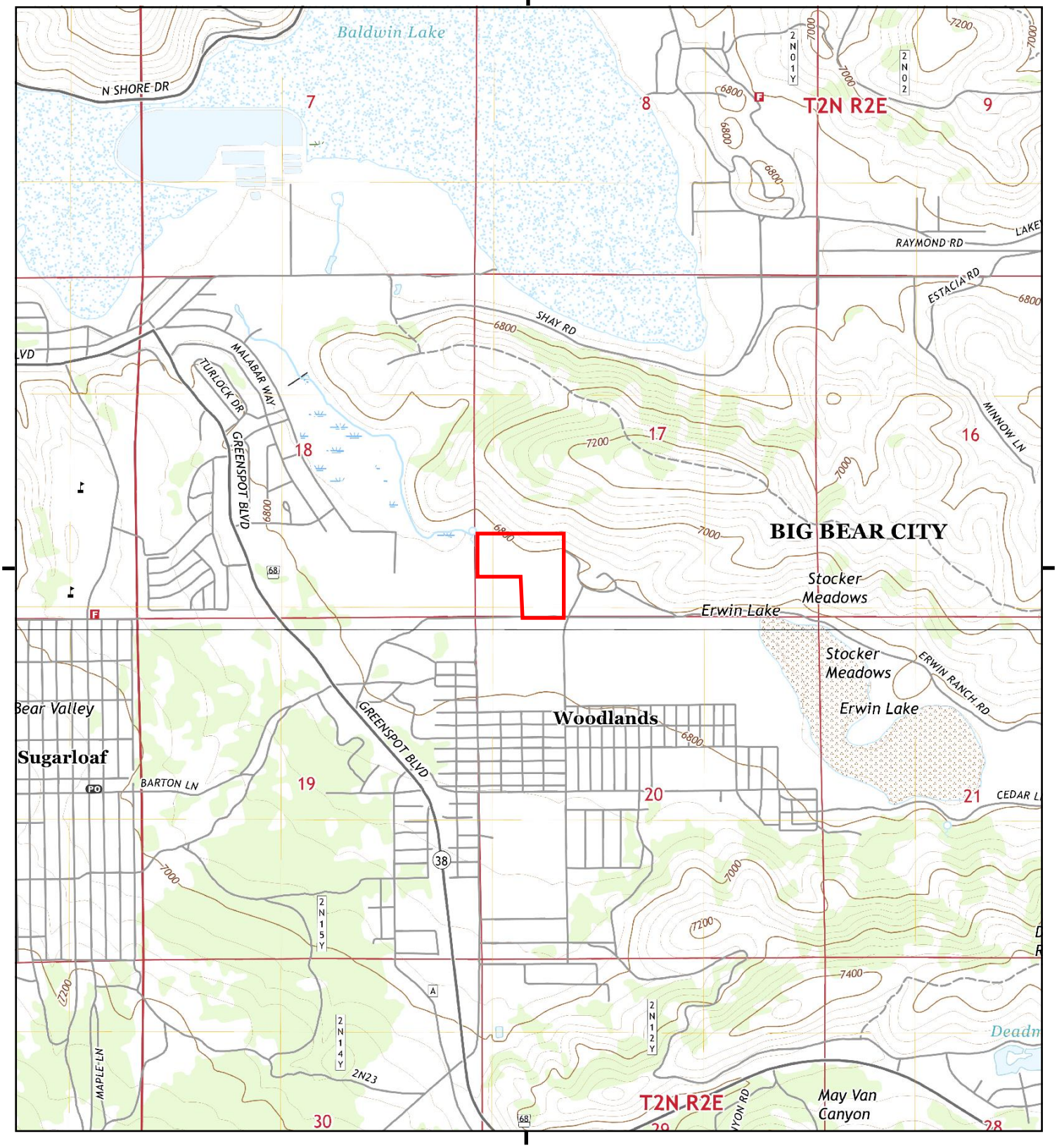
TP, Big Bear City, 2021, 7.5-minute
S, Moonridge, 2021, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N

Historical Topo Map

2018



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

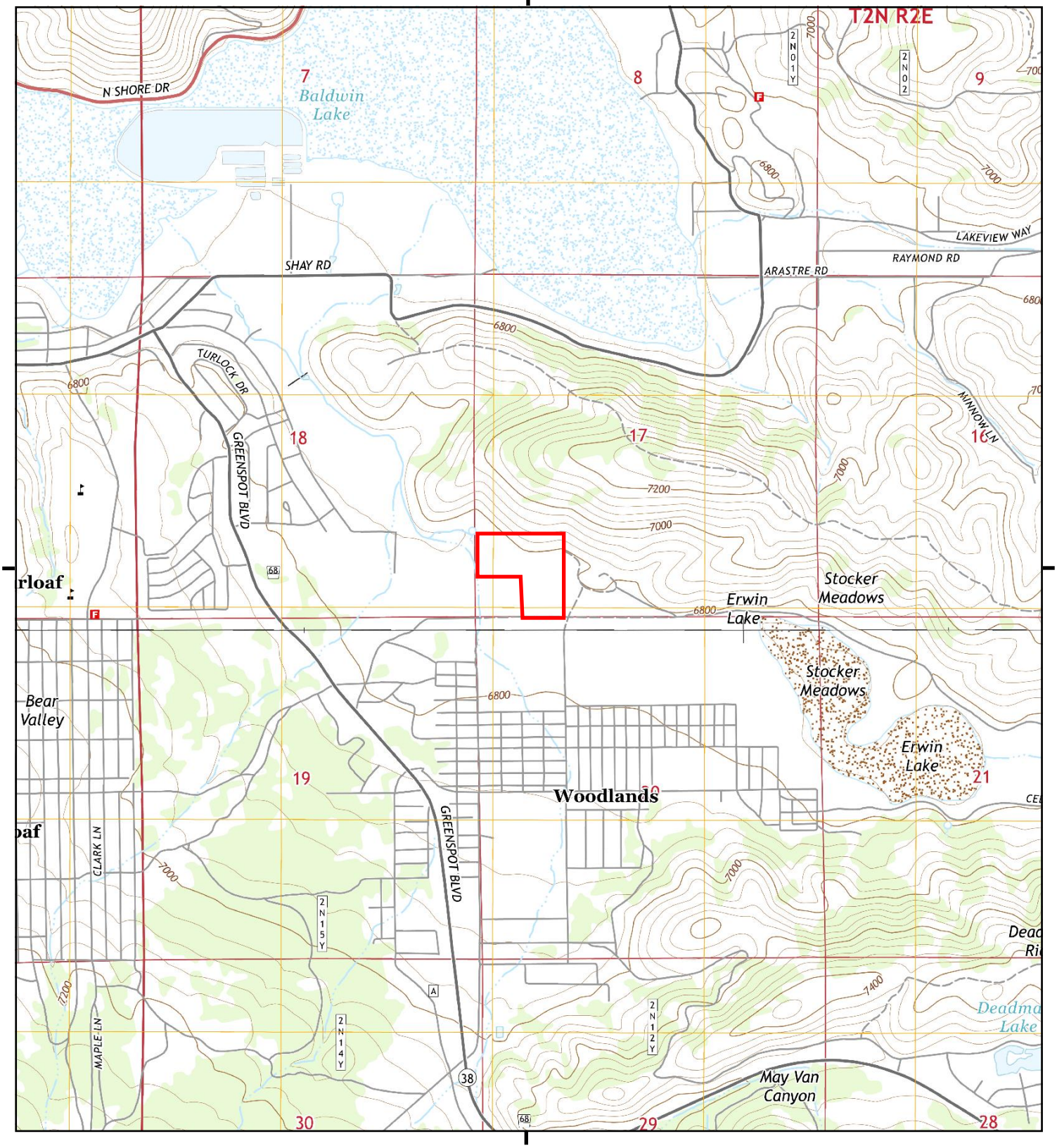
TP, Big Bear City, 2018, 7.5-minute
S, Moonridge, 2018, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N

Historical Topo Map

2015



This report includes information from the following map sheet(s).

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NW N NE
W E
SW S SE

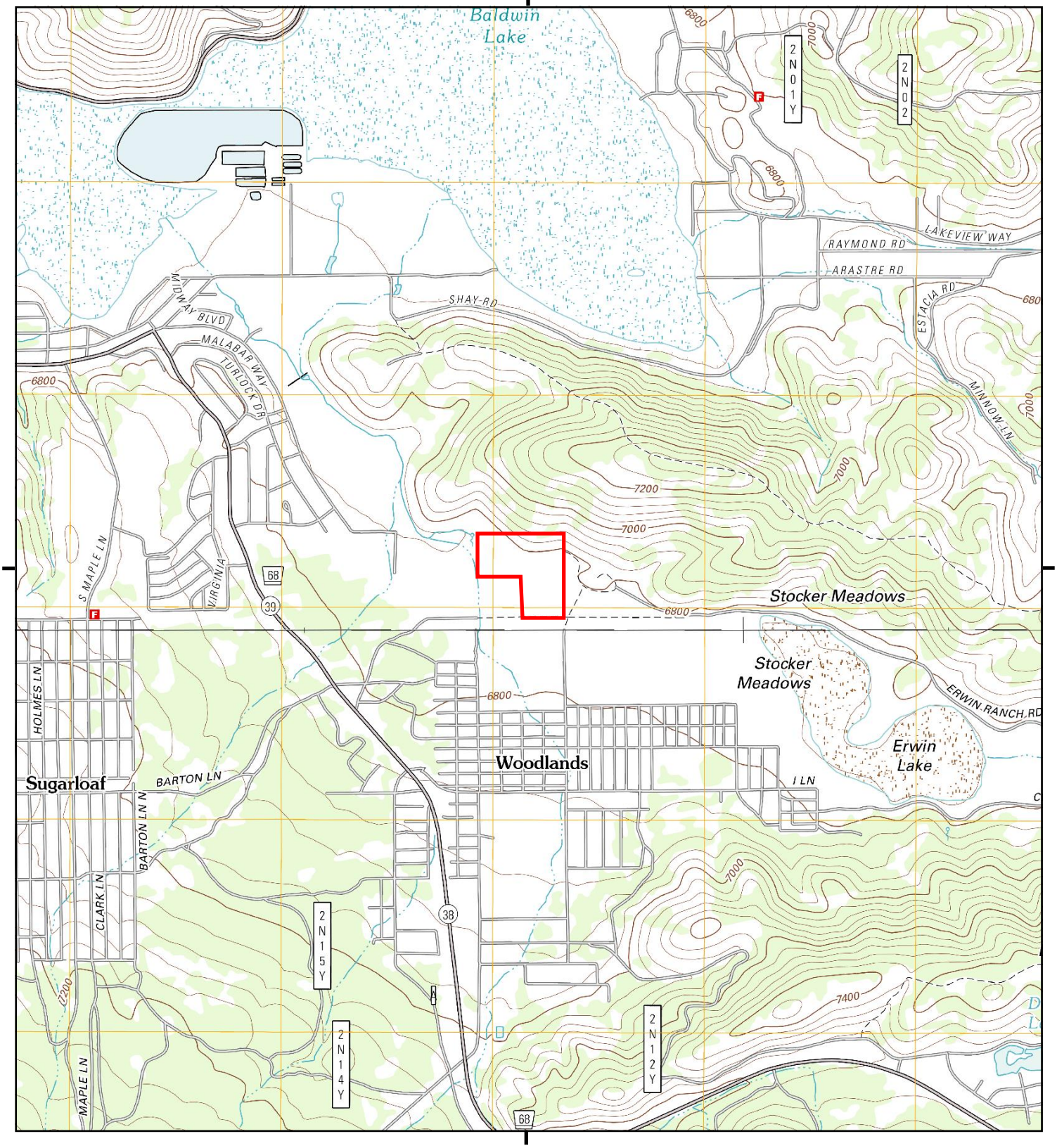
TP, Big Bear City, 2015, 7.5-minute
S, Moonridge, 2015, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N

Historical Topo Map

2012



This report includes information from the following map sheet(s).

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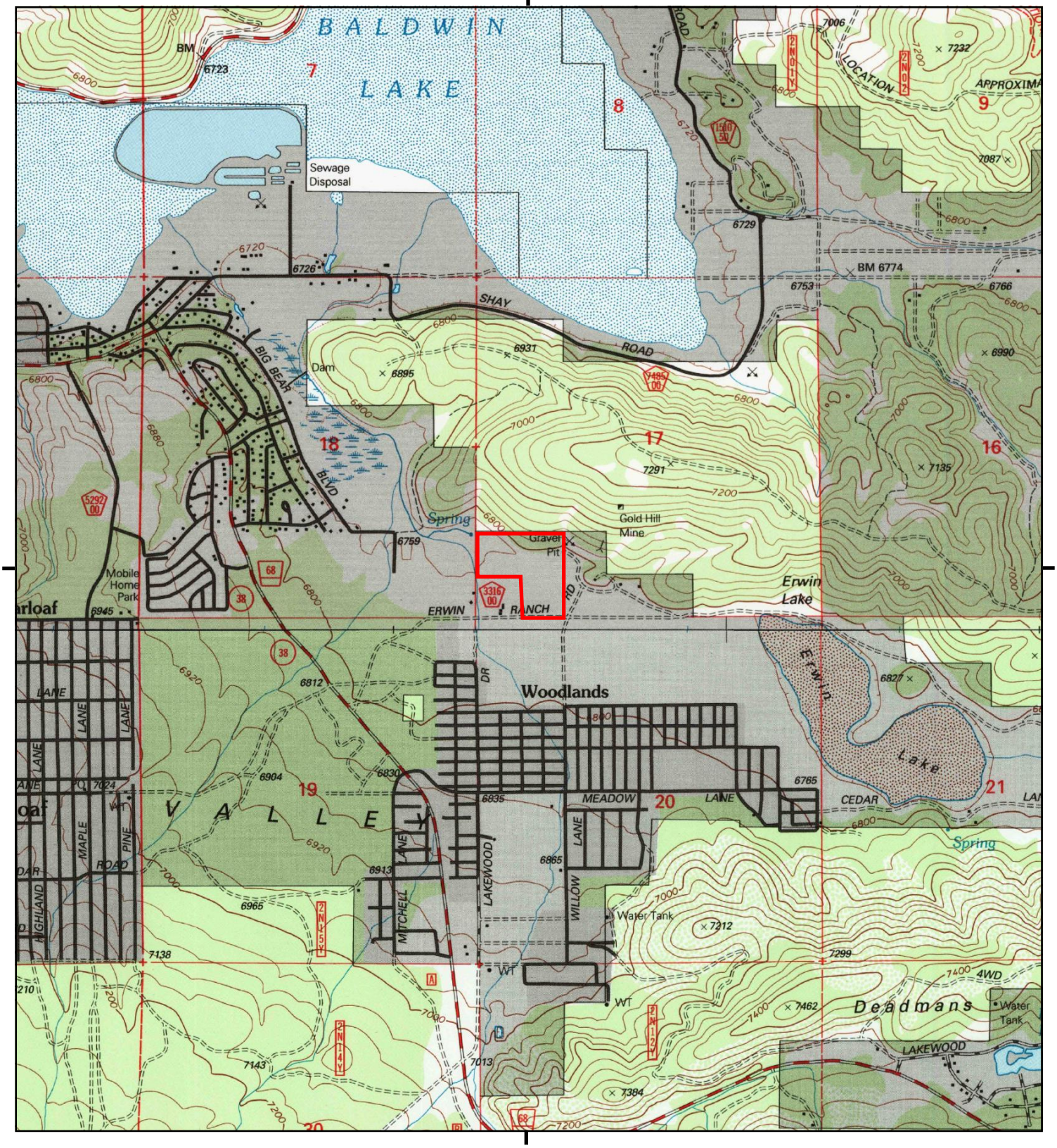
NW N NE
W E
SW S SE

TP, Big Bear City, 2012, 7.5-minute
S, Moonridge, 2012, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N



This report includes information from the following map sheet(s).

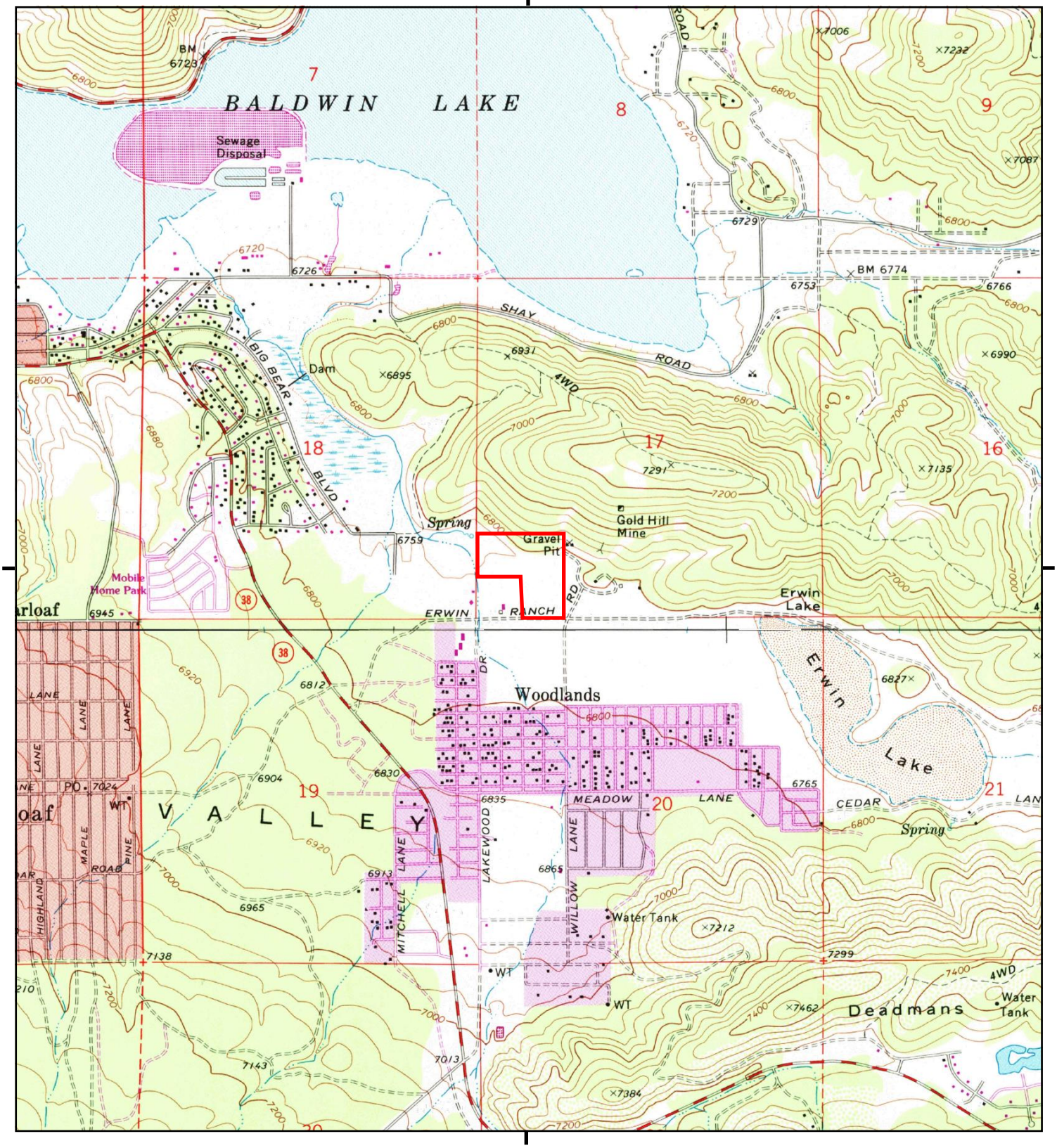
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Big Bear City, 1996, 7.5-minute
S, Moonridge, 1996, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

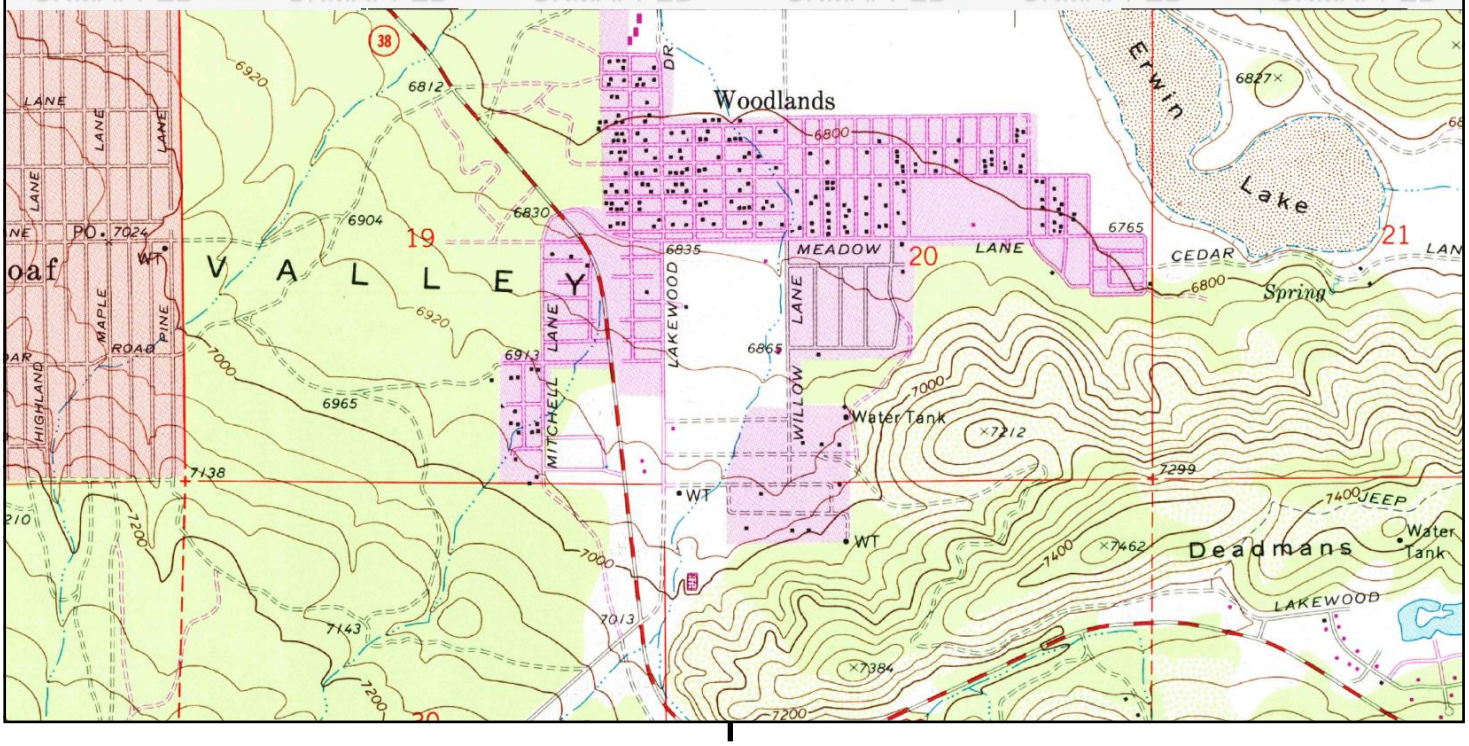
NW N NE
W E
SW S SE

TP, Big Bear City, 1994, 7.5-minute
S, Moonridge, 1994, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N

UNMAPPED



This report includes information from the following map sheet(s).

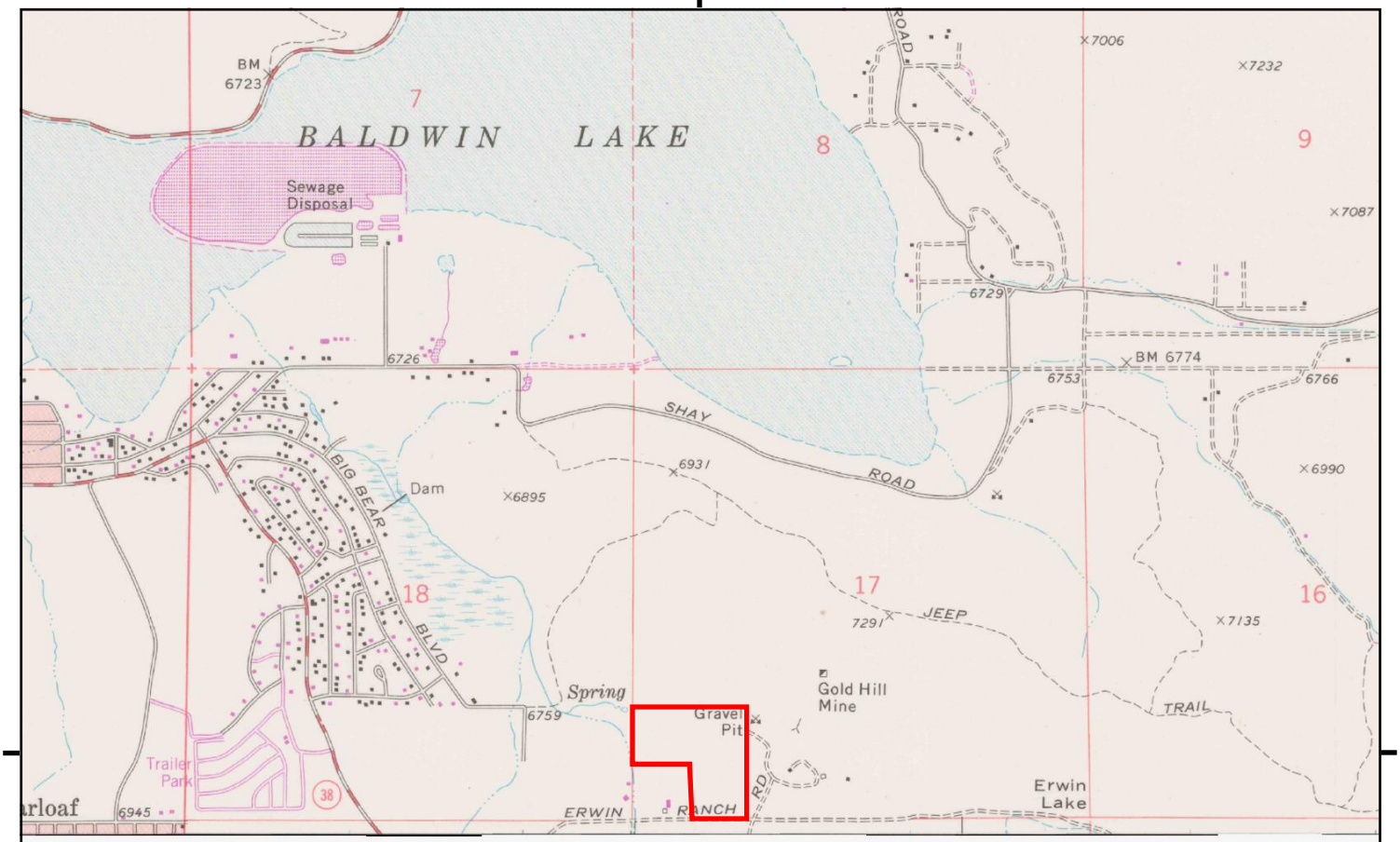
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

S, Moonridge, 1988, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N



UNMAPPED

This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

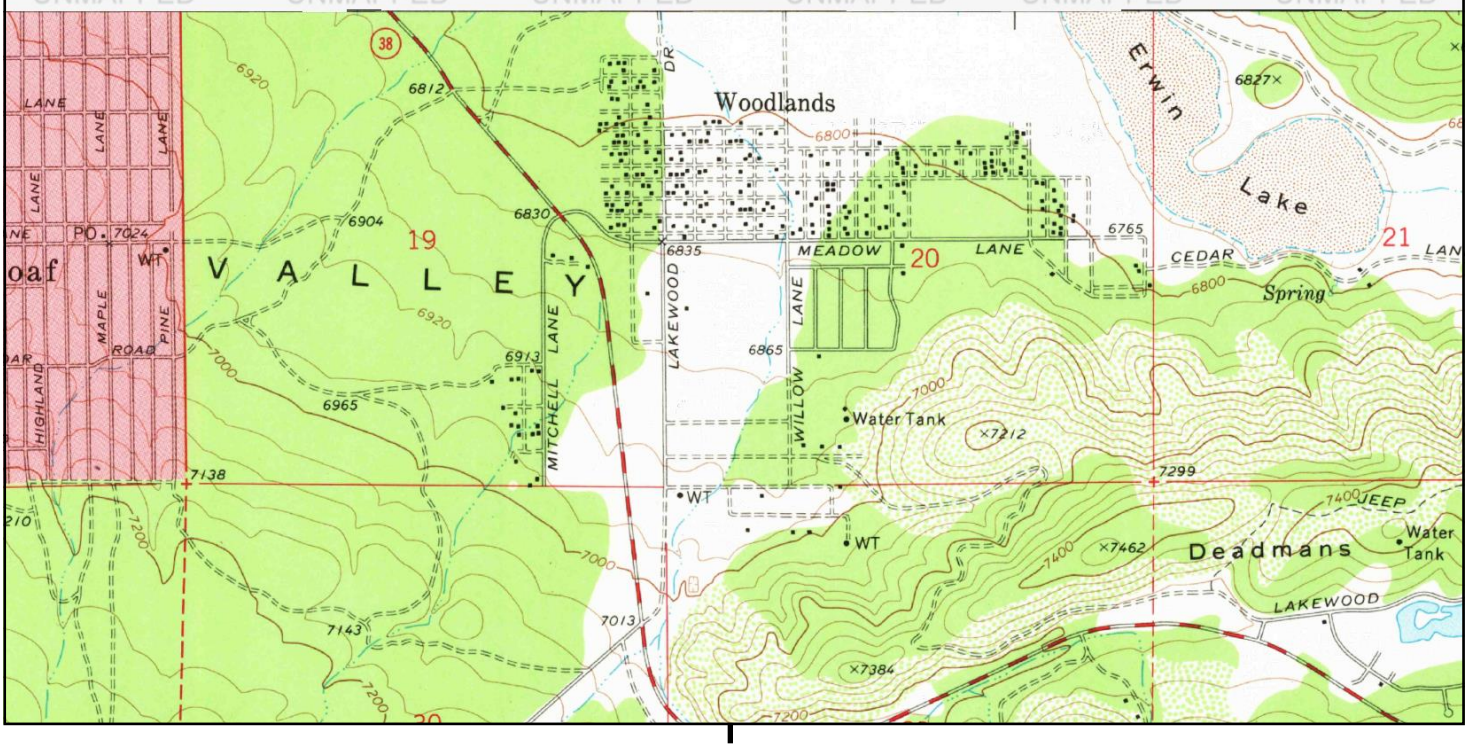
NW N NE
W E
SW S SE

TP, Big Bear City, 1979, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N

UNMAPPED



This report includes information from the following map sheet(s).

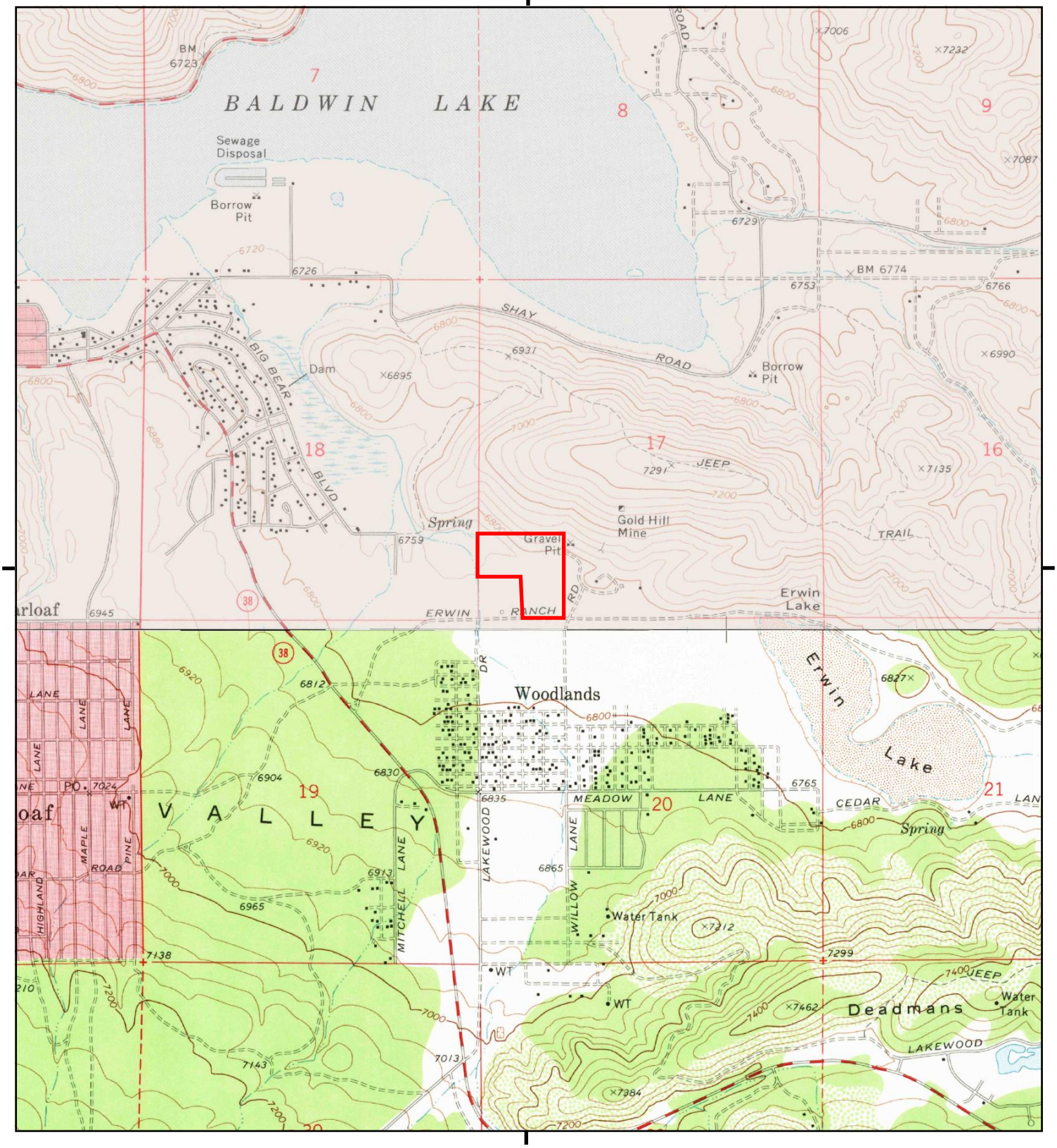
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

S, Moonridge, 1978, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

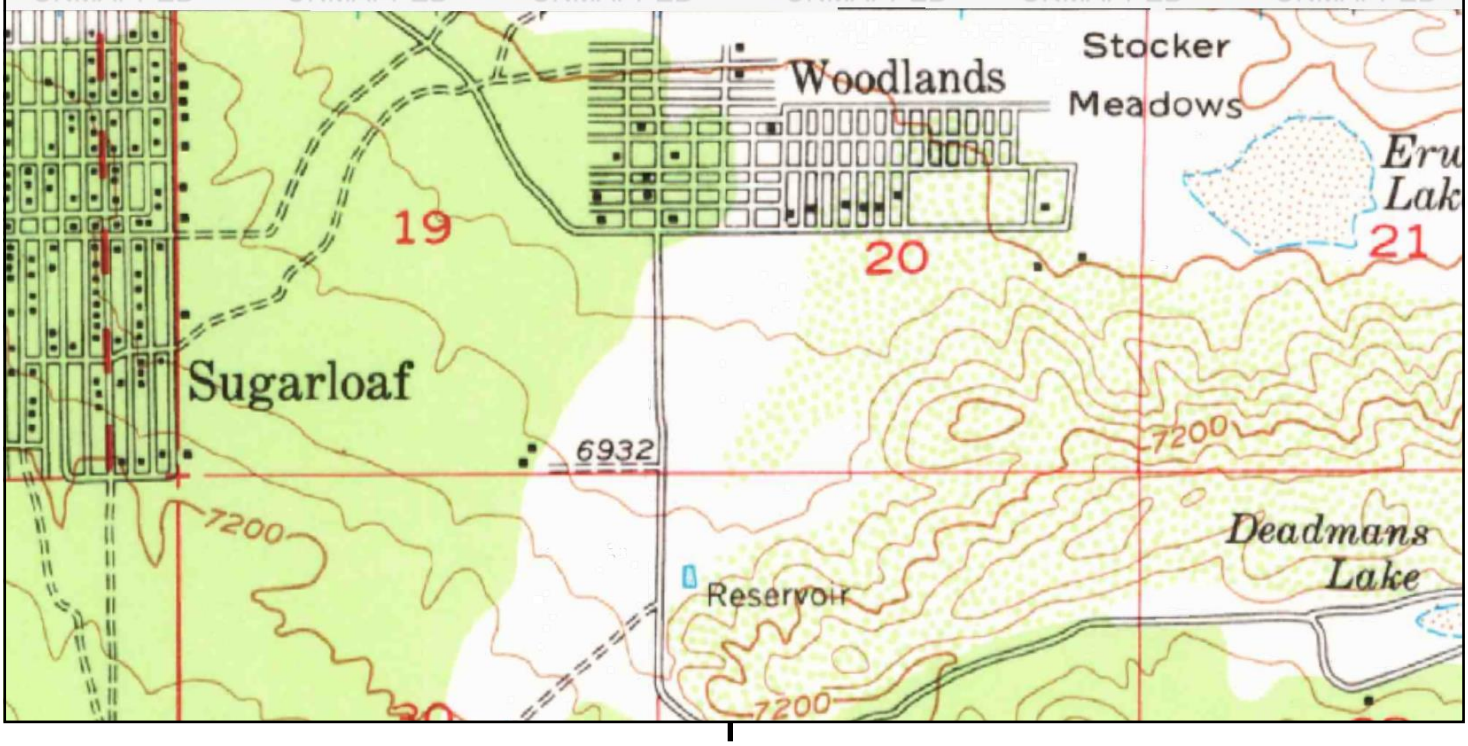
NW N NE
W E
SW S SE

TP, Big Bear City, 1971, 7.5-minute
S, Moonridge, 1970, 7.5-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N

UNMAPPED



This report includes information from the following map sheet(s).

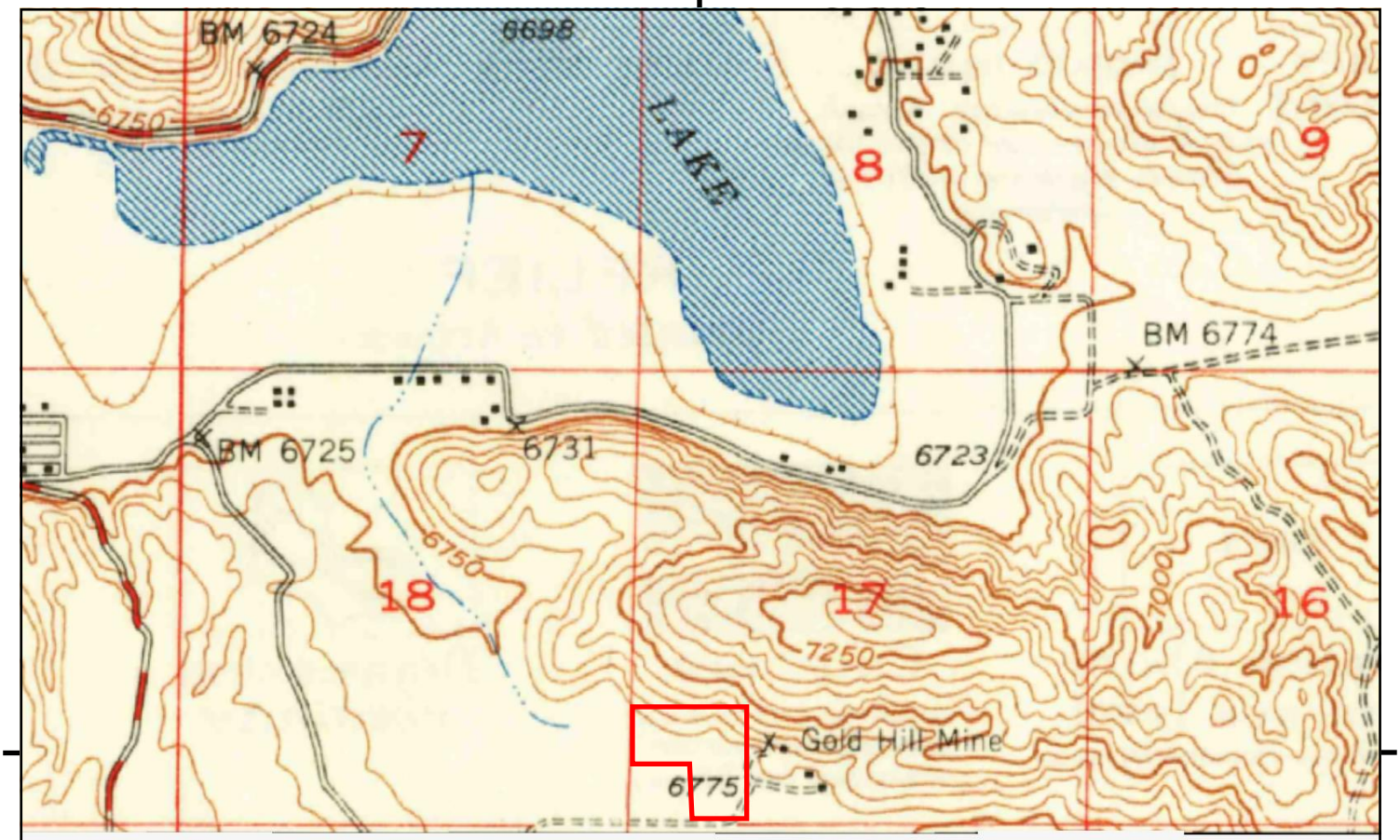
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

SW, San Gorgonio Mountain, 1954, 15-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N



UNMAPPED

This report includes information from the following map sheet(s).

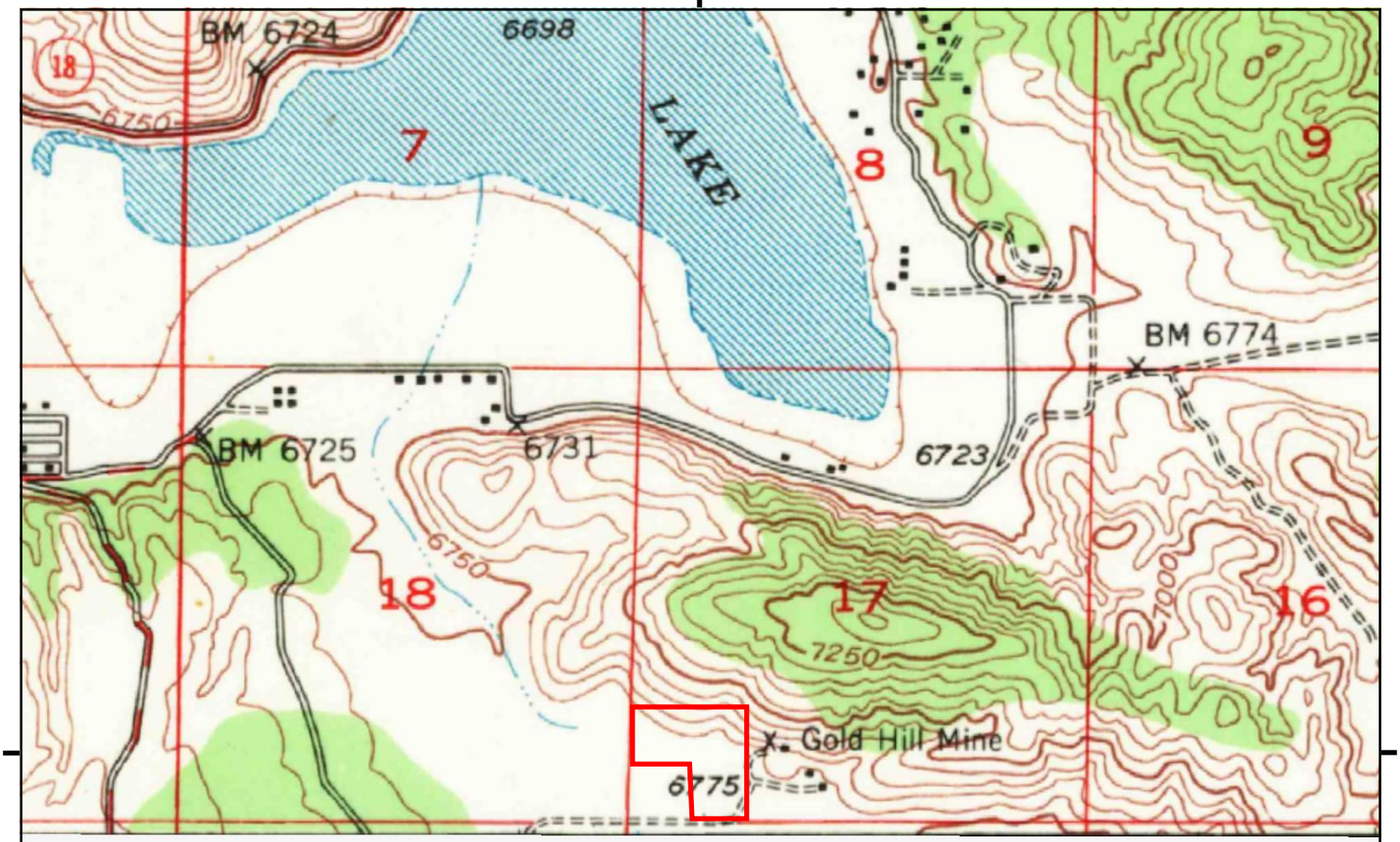
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lucerne Valley, 1949, 15-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N



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This report includes information from the following map sheet(s).

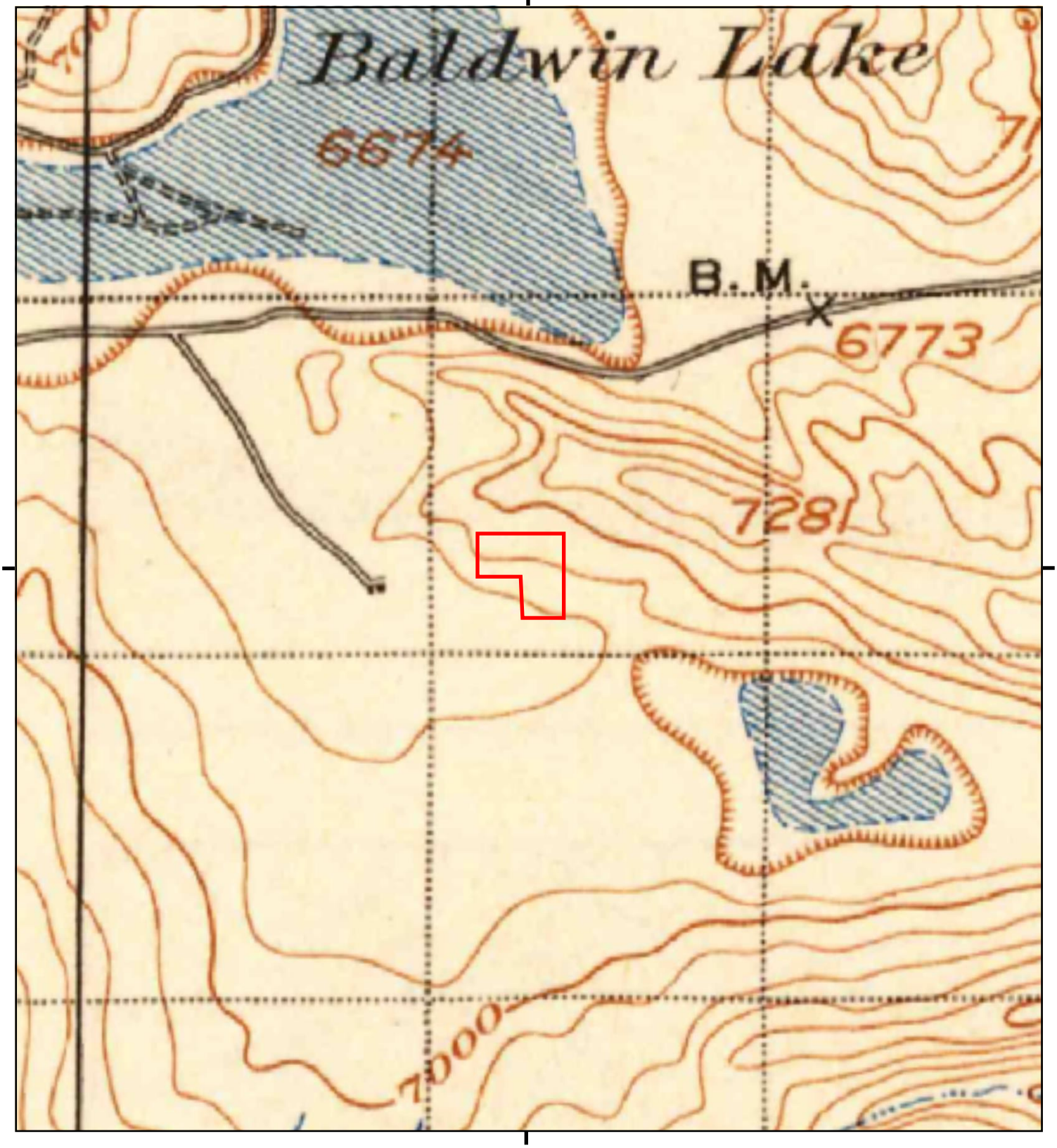
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lucerne Valley, 1947, 15-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, San Gorgonio, 1902, 30-minute

SITE NAME: Erwin Ranch Solar Project
ADDRESS: Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314
CLIENT: ERM - West, Inc.

N

APPENDIX C ENVIRONMENTAL REGULATORY DATABASE REPORT

Erwin Ranch Solar Project
Lakewood Drive and Erwin Ranch Road
Big Bear City, CA 92314

Inquiry Number: 7681395.2s
June 13, 2024

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E1527 - 21), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E2247 - 16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E1528 - 22) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

LAKEWOOD DRIVE AND ERWIN RANCH ROAD
BIG BEAR CITY, CA 92314

COORDINATES

Latitude (North):	34.2526180 - 34° 15' 9.42''
Longitude (West):	116.8026820 - 116° 48' 9.65''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	518168.2
UTM Y (Meters):	3789988.8
Elevation:	6777 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	50004943 BIG BEAR CITY, CA
Version Date:	2021
South Map:	50004039 MOONRIDGE, CA
Version Date:	2021

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20200615
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
LAKEWOOD DRIVE AND ERWIN RANCH ROAD
BIG BEAR CITY, CA 92314

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	GOLD HILL		MINES MRDS	Higher	158, 0.030, East
A2	GOLD HILL MINE		MINES MRDS	Higher	321, 0.061, East
3	THE RANCH CAMP	2052 ERWIN RANCH RD	San Bern. Co. Permit	Lower	780, 0.148, SW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Lists of Federal Delisted NPL sites

Delisted NPL ---------- National Priority List Deletions

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS ---------- Corrective Action Report

Lists of Federal RCRA TSD facilities

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Lists of Federal RCRA generators

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROLS ..... Institutional Controls Sites List

Federal ERNS list

ERNS ..... Emergency Response Notification System

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE ..... State Response Sites

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR ..... EnviroStor Database

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF ..... Solid Waste Information System

Lists of state and tribal leaking storage tanks

LUST ..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ..... Statewide SLIC Cases

Lists of state and tribal registered storage tanks

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

Lists of state and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Program Properties
INDIAN VCP ..... Voluntary Cleanup Priority Listing

Lists of state and tribal brownfield sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations

ODI ---------- Open Dump Inventory
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register
HIST Cal-Sites ---------- Historical Calsites Database
SCH ---------- School Property Evaluation Program
CDL ---------- Clandestine Drug Labs
Toxic Pits ---------- Toxic Pits Cleanup Act Sites
CERS HAZ WASTE ---------- California Environmental Reporting System Hazardous Waste
US CDL ---------- National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST ---------- SWEEPS UST Listing
HIST UST ---------- Hazardous Substance Storage Container Database
CERS TANKS ---------- California Environmental Reporting System (CERS) Tanks
CA FID UST ---------- Facility Inventory Database

Local Land Records

LIENS ---------- Environmental Liens Listing
LIENS 2 ---------- CERCLA Lien Information
DEED ---------- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---------- Hazardous Materials Information Reporting System
CHMIRS ---------- California Hazardous Material Incident Report System
LDS ---------- Land Disposal Sites Listing
MCS ---------- Military Cleanup Sites Listing
SPILLS 90 ---------- SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ---------- RCRA - Non Generators / No Longer Regulated
FUDS ---------- Formerly Used Defense Sites
DOD ---------- Department of Defense Sites
SCRD DRYCLEANERS ---------- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---------- Financial Assurance Information
EPA WATCH LIST ---------- EPA WATCH LIST
2020 COR ACTION ---------- 2020 Corrective Action Program List
TSCA ---------- Toxic Substances Control Act
TRIS ---------- Toxic Chemical Release Inventory System
SSTS ---------- Section 7 Tracking Systems
ROD ---------- Records Of Decision
RMP ---------- Risk Management Plans
RAATS ---------- RCRA Administrative Action Tracking System
PRP ---------- Potentially Responsible Parties
PADS ---------- PCB Activity Database System
ICIS ---------- Integrated Compliance Information System
FTTS ---------- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ---------- Material Licensing Tracking System

EXECUTIVE SUMMARY

COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM	EPA Fuels Program Registered Listing
PFAS NPL	Superfund Sites with PFAS Detections Information
PFAS FEDERAL SITES	Federal Sites PFAS Information
PFAS TSCA	PFAS Manufacture and Imports Information
PFAS TRIS	List of PFAS Added to the TRI
PFAS RCRA MANIFEST	PFAS Transfers Identified In the RCRA Database Listing
PFAS ATSDR	PFAS Contamination Site Location Listing
PFAS WQP	Ambient Environmental Sampling for PFAS
PFAS NPDES	Clean Water Act Discharge Monitoring Information
PFAS ECHO	Facilities in Industries that May Be Handling PFAS Listing
PFAS ECHO FIRE TRAIN	Facilities in Industries that May Be Handling PFAS Listing
PFAS PT 139 AIRPORT	All Certified Part 139 Airports PFAS Information Listing
AQUEOUS FOAM NRC	Aqueous Foam Related Incidents Listing
BIOSOLIDS	ICIS-NPDES Biosolids Facility Data
PFAS	PFAS Investigation Site Location Listing
AQUEOUS FOAM	Former Fire Training Facility Assessments Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
CHROME PLATING	Chrome Plating Facilities Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
ICE	Inspection, Compliance and Enforcement
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
HWTS	Hazardous Waste Tracking System
HAZNET	Facility and Manifest Data
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
HAZMAT	Hazardous Material Facilities

UIC ---------- UIC Listing
UIC GEO ---------- UIC GEO (GEOTRACKER)
WASTEWATER PITS ---------- Oil Wastewater Pits Listing
WDS ---------- Waste Discharge System
WIP ---------- Well Investigation Program Case List
MILITARY PRIV SITES ---------- MILITARY PRIV SITES (GEOTRACKER)
PROJECT ---------- PROJECT (GEOTRACKER)
WDR ---------- Waste Discharge Requirements Listing
CIWQS ---------- California Integrated Water Quality System
CERS ---------- CERS
NON-CASE INFO ---------- NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS ---------- OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS ---------- PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT ---------- SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ ---------- Well Stimulation Project (GEOTRACKER)
UST FINDER RELEASE ---------- UST Finder Releases Database
UST FINDER ---------- UST Finder Database
PFAS PROJECT ---------- NORTHEASTERN UNIVERSITY PFAS PROJECT
E MANIFEST ---------- Hazardous Waste Electronic Manifest System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---------- EDR Proprietary Manufactured Gas Plants
EDR Hist Auto ---------- EDR Exclusive Historical Auto Stations
EDR Hist Cleaner ---------- EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF ---------- Recovered Government Archive Solid Waste Facilities List
RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

MINES MRDS: Mineral Resources Data System

A review of the MINES MRDS list, as provided by EDR, and dated 08/23/2022 has revealed that there are 2 MINES MRDS sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GOLD HILL		E 0 - 1/8 (0.030 mi.)	A1	9
GOLD HILL MINE		E 0 - 1/8 (0.061 mi.)	A2	10

San Bern. Co. Permit: San Bernardino County Fire Department Hazardous Materials Division.

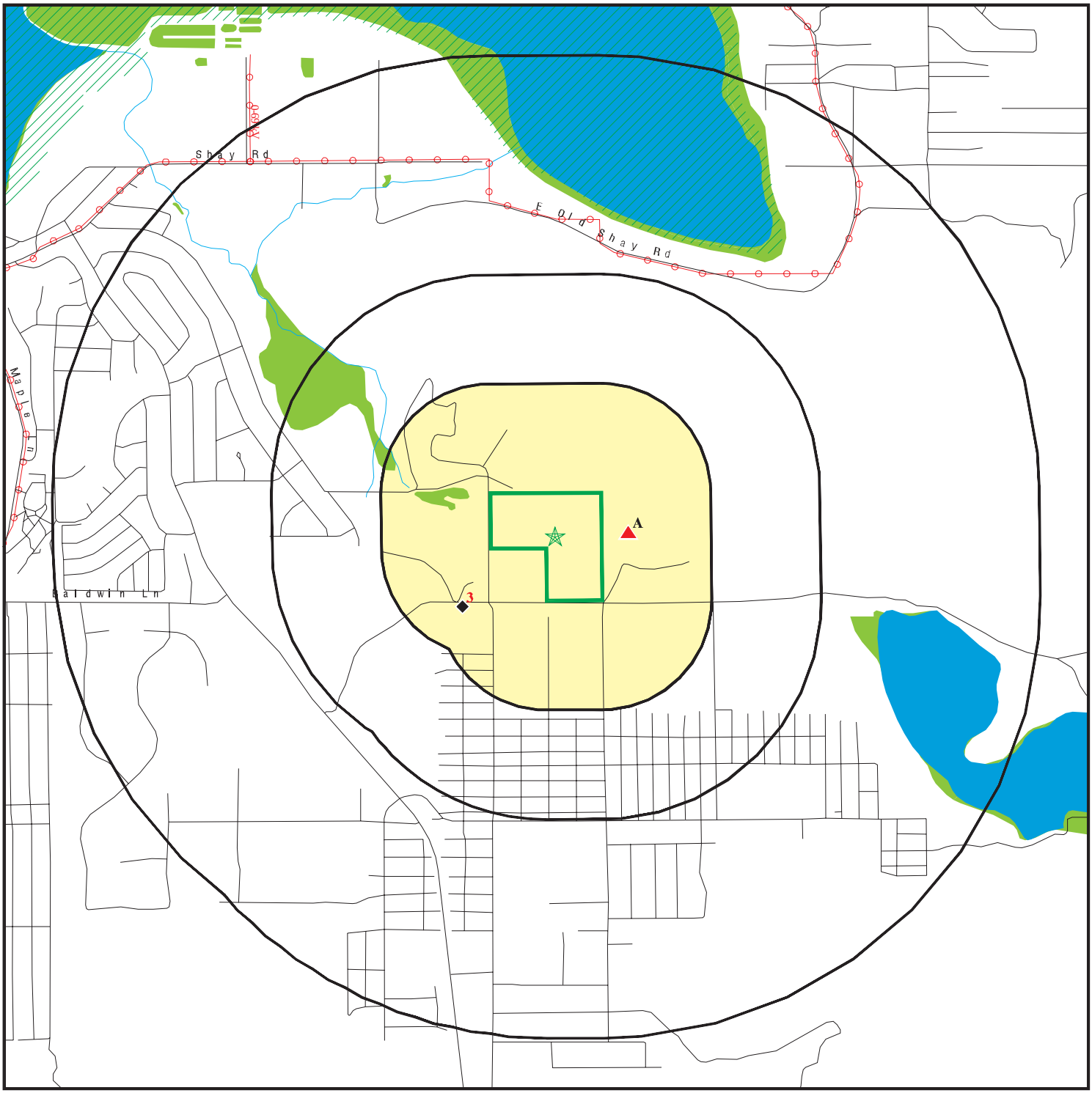
A review of the San Bern. Co. Permit list, as provided by EDR, and dated 02/13/2024 has revealed that there is 1 San Bern. Co. Permit site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
THE RANCH CAMP Facility Status: INACTIVE Facility Id: FA0015621	2052 ERWIN RANCH RD	SW 1/8 - 1/4 (0.148 mi.)	3	11

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 7681395.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Erwin Ranch Solar Project	CLIENT:	ERM - West, Inc.
ADDRESS:	Lakewood Drive and Erwin Ranch Road Big Bear City CA 92314	CONTACT:	Marlene Mattola
LAT/LONG:	34.252618 / 116.802682	INQUIRY #:	7681395.2s
		DATE:	June 13, 2024 3:17 pm

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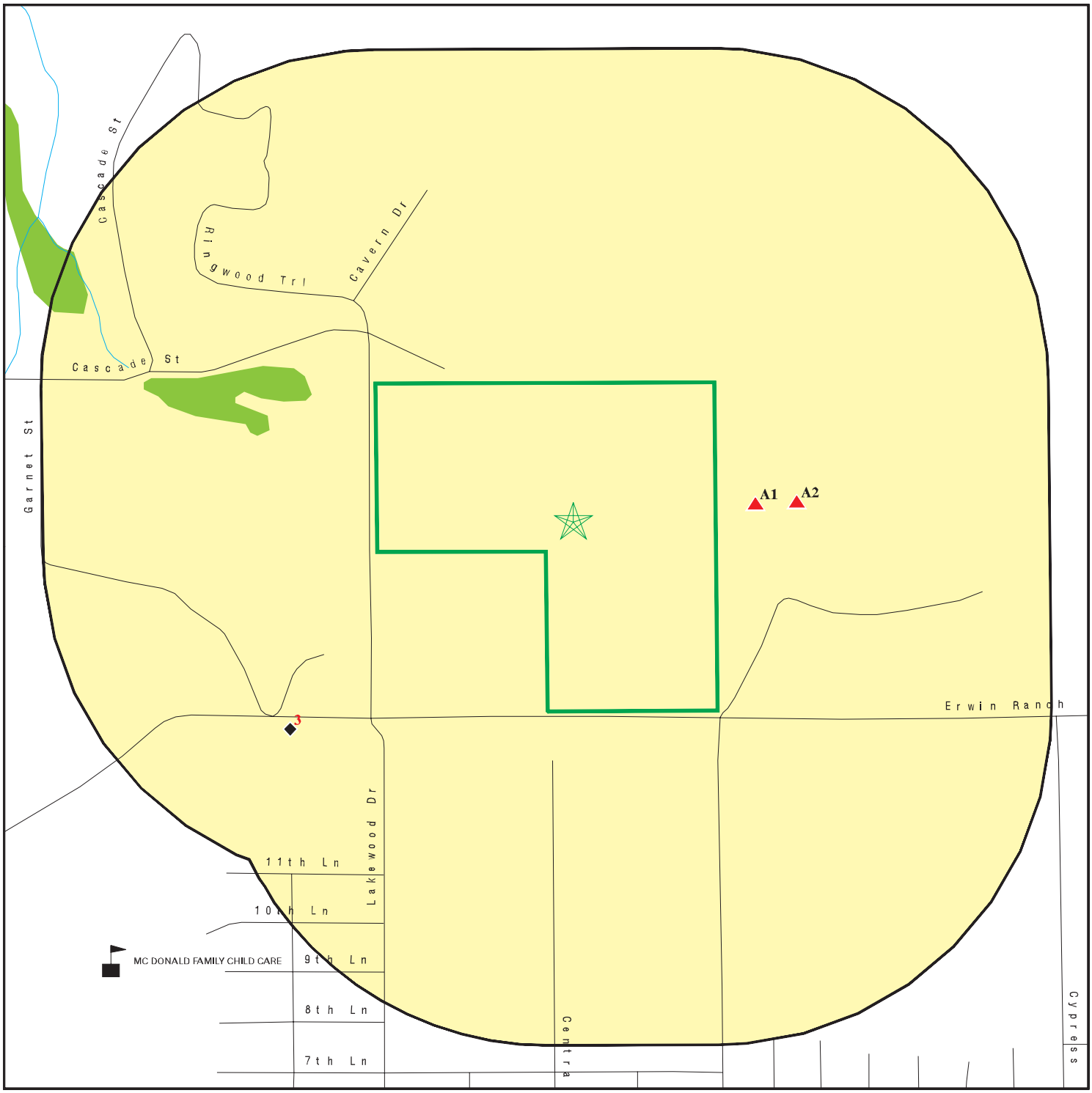
DETAIL MAP - 7681395.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Erwin Ranch Solar Project	CLIENT:	ERM - West, Inc.
ADDRESS:	Lakewood Drive and Erwin Ranch Road Big Bear City CA 92314	CONTACT:	Marlene Mattola
LAT/LONG:	34.252618 / 116.802682	INQUIRY #:	7681395.2s
		DATE:	June 13, 2024 3:18 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Lists of Federal NPL (Superfund) sites								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Lists of Federal Delisted NPL sites								
Delisted NPL	1.000		0	0	0	0	NR	0
Lists of Federal sites subject to CERCLA removals and CERCLA orders								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Lists of Federal CERCLA sites with NFRAP								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA facilities undergoing Corrective Action								
CORRACTS	1.000		0	0	0	0	NR	0
Lists of Federal RCRA TSD facilities								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Lists of Federal RCRA generators								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
Lists of state- and tribal (Superfund) equivalent sites								
RESPONSE	1.000		0	0	0	0	NR	0
Lists of state- and tribal hazardous waste facilities								
ENVIROSTOR	1.000		0	0	0	0	NR	0
Lists of state and tribal landfills and solid waste disposal facilities								
SWF/LF	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Lists of state and tribal leaking storage tanks								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
Lists of state and tribal registered storage tanks								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
Lists of state and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
Lists of state and tribal brownfield sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
MINES MRDS	0.250		2	0	NR	NR	NR	2
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
PFAS NPL	0.250		0	0	NR	NR	NR	0
PFAS FEDERAL SITES	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PFAS TSCA	0.250		0	0	NR	NR	NR	0
PFAS TRIS	0.250		0	0	NR	NR	NR	0
PFAS RCRA MANIFEST	0.250		0	0	NR	NR	NR	0
PFAS ATSDR	0.250		0	0	NR	NR	NR	0
PFAS WQP	0.250		0	0	NR	NR	NR	0
PFAS NPDES	0.250		0	0	NR	NR	NR	0
PFAS ECHO	0.250		0	0	NR	NR	NR	0
PFAS ECHO FIRE TRAIN	0.250		0	0	NR	NR	NR	0
PFAS PT 139 AIRPORT	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM NRC	0.250		0	0	NR	NR	NR	0
BIOSOLIDS	TP		NR	NR	NR	NR	NR	0
PFAS	0.250		0	0	NR	NR	NR	0
AQUEOUS FOAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
CHROME PLATING	0.500		0	0	0	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
San Bern. Co. Permit	0.250		0	1	NR	NR	NR	1
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
HAZMAT	0.250		0	0	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
UIC GEO	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	TP		NR	NR	NR	NR	NR	0
PROJECT	TP		NR	NR	NR	NR	NR	0
WDR	TP		NR	NR	NR	NR	NR	0
CIWQS	TP		NR	NR	NR	NR	NR	0
CERS	TP		NR	NR	NR	NR	NR	0
NON-CASE INFO	TP		NR	NR	NR	NR	NR	0
OTHER OIL GAS	TP		NR	NR	NR	NR	NR	0
PROD WATER PONDS	TP		NR	NR	NR	NR	NR	0
SAMPLING POINT	TP		NR	NR	NR	NR	NR	0
WELL STIM PROJ	TP		NR	NR	NR	NR	NR	0
UST FINDER RELEASE	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST FINDER	0.250		0	0	NR	NR	NR	0
PFAS PROJECT	0.500		0	0	0	NR	NR	0
E MANIFEST	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	2	1	0	0	0	3

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **GOLD HILL** **MINES MRDS** **1025541977**
East **N/A**
< 1/8 **SAN BERNARDINO (County), CA**
0.030 mi.
158 ft. **Site 1 of 2 in cluster A**

Relative: MINES MRDS:
Higher

Actual: Name: GOLD HILL
6791 ft. Address: Not reported
Deposit identification Number: 10035652
City,State,Zip: CALIFORNIA
URL: https://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10035652
MRDS Identification Number: M023507
MAS/MILS Identification Number: Not reported
Region: NA
Country: United States
Primary Commodities: Gold, Silver
Secondary Commodities: Lead, Copper
Tertiary Commodities: Not reported
Operation Type: Unknown
Deposit Type: Not reported
Production Size: S - Small amount of material produced (we do not know what criteria are used to make this determination)
Development Status: Past Producer
Ore Minerals or Materials: Not reported
Gangue Minerals or Materials: Quartz
Other Minerals or Materials: Not reported
Ore Body Form: Not reported
Workings Type: Surface/Underground
Mineral Deposit Model: Not reported
Alteration Processes: Not reported
Concentration Processes: Not reported
Previous Names: Not reported
Ore Controls: Mineralization Occurs Along Bedding Planes Of Quartzite, Near Contact Of Diabase And Monzonite
Reporter: Nelson, Scott C. (Albers, John, P.)
Host Rock Unit Name: Not reported
Host Rock Type: Diabase,Quartzite
Associated Rock Unit Name: Not reported
Associated Rock Type Code: Diabase
Structural Characteristics: Not reported
Tectonic Setting: Not reported
References: Not reported
First Production Year: Not reported
Began Before/After FPY: Not reported
Last Production Year: Not reported
Ended Before/After LPY: Not reported
Year Discovered: Not reported
Found Before/After YD: Not reported
Production History: Not reported
Discovery Information: Not reported
Latitude: 34.2528
Longitude: -116.8003

A2 **GOLD HILL MINE** **MINES MRDS** **1025708031**
East **N/A**
< 1/8 **SAN BERNARDINO (County), CA**
0.061 mi.
321 ft. **Site 2 of 2 in cluster A**

Relative: MINES MRDS:
Higher

Actual: Name: GOLD HILL MINE
6795 ft. Address: Not reported
Deposit identification Number: 10232092
City,State,Zip: CALIFORNIA
URL: https://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10232092
MRDS Identification Number: M023507
MAS/MILS Identification Number: 0060711128
Region: NA
Country: United States
Primary Commodities: Gold
Secondary Commodities: Not reported
Tertiary Commodities: Silver, Copper, Lead
Operation Type: Underground
Deposit Type: Not reported
Production Size: Not reported
Development Status: Past Producer
Ore Minerals or Materials: Not reported
Gangue Minerals or Materials: Not reported
Other Minerals or Materials: Not reported
Ore Body Form: Not reported
Workings Type: Not reported
Mineral Deposit Model: Not reported
Alteration Processes: Not reported
Concentration Processes: Not reported
Previous Names: Not reported
Ore Controls: Not reported
Reporter: Ridenour, James
Host Rock Unit Name: Not reported
Host Rock Type: Not reported
Associated Rock Unit Name: Not reported
Associated Rock Type Code: Not reported
Structural Characteristics: Not reported
Tectonic Setting: Not reported
References: Not reported
First Production Year: Not reported
Began Before/After FPY: Not reported
Last Production Year: Not reported
Ended Before/After LPY: Not reported
Year Discovered: Not reported
Found Before/After YD: Not reported
Production History: Not reported
Discovery Information: Not reported
Latitude: 34.25282
Longitude: -116.79976

3
SW
1/8-1/4
0.148 mi.
780 ft.

THE RANCH CAMP
2052 ERWIN RANCH RD
BIG BEAR CITY, CA 92314

San Bern. Co. Permit **S117388344**
N/A

Relative:
Lower

Actual:
6776 ft.

San Bern. Co. Permit:

Name:	THE RANCH CAMP
Address:	2052 ERWIN RANCH RD
City,State,Zip:	BIG BEAR CITY, CA 92314
Region:	SAN BERNARDINO
Facility ID:	FA0015621
Owner:	Big Bear Valley Recreation & Park District
Permit Number:	PT0034174
Permit Category:	HAZARDOUS MATERIALS 1-3 CHEMICALS SPECIAL
Facility Status:	INACTIVE
Expiration Date:	11/30/2020

Name:	THE RANCH CAMP
Address:	2052 ERWIN RANCH RD
City,State,Zip:	BIG BEAR CITY, CA 92314
Region:	SAN BERNARDINO
Facility ID:	FA0015621
Owner:	Big Bear Valley Recreation & Park District
Permit Number:	PT0037315
Permit Category:	AST GENERAL ACTIVITY (NB)
Facility Status:	INACTIVE
Expiration Date:	11/30/2017

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Lists of Federal NPL (Superfund) sites

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Lists of Federal Delisted NPL sites

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

Lists of Federal sites subject to CERCLA removals and CERCLA orders

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/20/2023
Date Data Arrived at EDR: 12/20/2023
Date Made Active in Reports: 01/24/2024
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 03/26/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/22/2024
Date Data Arrived at EDR: 05/01/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 23

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Quarterly

Lists of Federal CERCLA sites with NFRAP

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 04/22/2024
Date Data Arrived at EDR: 05/01/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 23

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA facilities undergoing Corrective Action

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/07/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA TSD facilities

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/07/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

Lists of Federal RCRA generators

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/07/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/07/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/07/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/14/2024
Date Data Arrived at EDR: 02/16/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 48

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2024
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2024
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/12/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 77

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

Lists of state- and tribal (Superfund) equivalent sites

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

Lists of state- and tribal hazardous waste facilities

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

Lists of state and tribal landfills and solid waste disposal facilities

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/06/2024
Date Made Active in Reports: 04/26/2024
Number of Days to Update: 80

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/07/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Quarterly

Lists of state and tribal leaking storage tanks

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30
Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80
Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27
Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29
Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/04/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/25/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

Lists of state and tribal registered storage tanks

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 11/16/2023
Date Data Arrived at EDR: 11/16/2023
Date Made Active in Reports: 02/13/2024
Number of Days to Update: 89

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/29/2024
Number of Days to Update: 85
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 02/13/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 06/03/2024
Number of Days to Update: 90
Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 06/06/2024
Next Scheduled EDR Contact: 09/23/2024
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56
Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/17/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/24/2023
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 56

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

Lists of state and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 07/08/2021
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/18/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

Lists of state and tribal brownfield sites

BROWNFIELDS: Considered Brownfieds Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 03/19/2024
Date Data Arrived at EDR: 03/19/2024
Date Made Active in Reports: 06/10/2024
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/11/2024
Date Data Arrived at EDR: 03/12/2024
Date Made Active in Reports: 05/10/2024
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/11/2024
Next Scheduled EDR Contact: 09/23/2024
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/28/2024
Number of Days to Update: 84

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 04/04/2024
Date Data Arrived at EDR: 04/05/2024
Date Made Active in Reports: 04/15/2024
Number of Days to Update: 10

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/22/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/04/2024
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 03/21/2024
Date Made Active in Reports: 06/12/2024
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 06/06/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

CERS HAZ WASTE: California Environmental Reporting System Hazardous Waste

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 02/01/2024
Date Data Arrived at EDR: 02/01/2024
Date Made Active in Reports: 04/24/2024
Number of Days to Update: 83

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/15/2024
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/06/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/14/2024
Number of Days to Update: 77

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 05/29/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/12/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 77

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/20/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System
California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/09/2024
Number of Days to Update: 77

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)
Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)
Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/04/2023
Date Data Arrived at EDR: 12/06/2023
Date Made Active in Reports: 12/12/2023
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/07/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/30/2024
Date Data Arrived at EDR: 02/13/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 51

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 05/14/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 06/07/2021
Date Data Arrived at EDR: 07/13/2021
Date Made Active in Reports: 03/09/2022
Number of Days to Update: 239

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/11/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 07/30/2021
Date Data Arrived at EDR: 02/03/2023
Date Made Active in Reports: 02/10/2023
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/11/2023
Date Data Arrived at EDR: 12/13/2023
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/13/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA Watch List

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 04/29/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: No Update Planned

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73
Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 06/14/2022
Date Made Active in Reports: 03/24/2023
Number of Days to Update: 283
Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/14/2024
Next Scheduled EDR Contact: 06/24/2024
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 11/13/2023
Date Made Active in Reports: 02/07/2024
Number of Days to Update: 86
Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/16/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/17/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 70
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/17/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2024
Date Data Arrived at EDR: 02/08/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 09/19/2023
Date Data Arrived at EDR: 10/03/2023
Date Made Active in Reports: 10/19/2023
Number of Days to Update: 16

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/20/2023
Date Data Arrived at EDR: 04/04/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 66

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/02/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 03/13/2024
Number of Days to Update: 57

Source: Nuclear Regulatory Commission
Telephone: 301-415-0717
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 11/27/2023
Date Made Active in Reports: 02/22/2024
Number of Days to Update: 87

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 05/28/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 05/28/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 03/25/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/23/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 01/11/2024
Date Made Active in Reports: 01/16/2024
Number of Days to Update: 5

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 03/20/2023
Number of Days to Update: 11

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/07/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 03/03/2023
Date Data Arrived at EDR: 03/03/2023
Date Made Active in Reports: 06/09/2023
Number of Days to Update: 98

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 04/26/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/16/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 02/29/2024
Date Data Arrived at EDR: 03/01/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 43

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/21/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 01/02/2024
Date Data Arrived at EDR: 01/03/2024
Date Made Active in Reports: 01/04/2024
Number of Days to Update: 1

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 01/07/2022
Date Data Arrived at EDR: 02/24/2023
Date Made Active in Reports: 05/17/2023
Number of Days to Update: 82

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/23/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/18/2024
Date Data Arrived at EDR: 03/19/2024
Date Made Active in Reports: 06/06/2024
Number of Days to Update: 79

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 05/30/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

MINES MRDS: Mineral Resources Data System

Mineral Resources Data System

Date of Government Version: 08/23/2022
Date Data Arrived at EDR: 11/22/2022
Date Made Active in Reports: 02/28/2023
Number of Days to Update: 98

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/09/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 87

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 05/29/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 12/17/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/06/2021
Date Data Arrived at EDR: 05/21/2021
Date Made Active in Reports: 08/11/2021
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/06/2023
Date Data Arrived at EDR: 09/13/2023
Date Made Active in Reports: 12/11/2023
Number of Days to Update: 89

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/08/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/12/2024
Date Data Arrived at EDR: 02/13/2024
Date Made Active in Reports: 04/04/2024
Number of Days to Update: 51

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 05/14/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Quarterly

PFAS NPL: Superfund Sites with PFAS Detections Information

EPA's Office of Land and Emergency Management and EPA Regional Offices maintain data describing what is known about site investigations, contamination, and remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) where PFAS is present in the environment.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 703-603-8895
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS FEDERAL SITES: Federal Sites PFAS Information

Several federal entities, such as the federal Superfund program, Department of Defense, National Aeronautics and Space Administration, Department of Transportation, and Department of Energy provided information for sites with known or suspected detections at federal facilities.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS TSCA: PFAS Manufacture and Imports Information

EPA issued the Chemical Data Reporting (CDR) Rule under the Toxic Substances Control Act (TSCA) and requires chemical manufacturers and facilities that manufacture or import chemical substances to report data to EPA. EPA publishes non-confidential business information (non-CBI) and includes descriptive information about each site, corporate parent, production volume, other manufacturing information, and processing and use information.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 01/04/2024
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS TRIS: List of PFAS Added to the TRI

Section 7321 of the National Defense Authorization Act for Fiscal Year 2020 (NDAA) immediately added certain per- and polyfluoroalkyl substances (PFAS) to the list of chemicals covered by the Toxics Release Inventory (TRI) under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provided a framework for additional PFAS to be added to TRI on an annual basis.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 01/04/2024
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-566-0250
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS RCRA MANIFEST: PFAS Transfers Identified In the RCRA Database Listing

To work around the lack of PFAS waste codes in the RCRA database, EPA developed the PFAS Transfers dataset by mining e-Manifest records containing at least one of these common PFAS keywords: PFAS, PFOA, PFOS, PERFL, AFFF, GENX, GEN-X (plus the VT waste codes). These keywords were searched for in the following text fields: Manifest handling instructions (MANIFEST_HANDLING_INSTR), Non-hazardous waste description (NON_HAZ_WASTE_DESCRIPTION), DOT printed information (DOT_PRINTED_INFORMATION), Waste line handling instructions (WASTE_LINE_HANDLING_INSTR), Waste residue comments (WASTE_RESIDUE_COMMENTS).

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 01/04/2024
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS ATSDR: PFAS Contamination Site Location Listing

PFAS contamination site locations from the Department of Health & Human Services, Center for Disease Control & Prevention. ATSDR is involved at a number of PFAS-related sites, either directly or through assisting state and federal partners. As of now, most sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film-forming firefighting foam (AFFF) was regularly used.

Date of Government Version: 06/24/2020
Date Data Arrived at EDR: 03/17/2021
Date Made Active in Reports: 11/08/2022
Number of Days to Update: 601

Source: Department of Health & Human Services
Telephone: 202-741-5770
Last EDR Contact: 04/22/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

PFAS WQP: Ambient Environmental Sampling for PFAS

The Water Quality Portal (WQP) is a part of a modernized repository storing ambient sampling data for all environmental media and tissue samples. A wide range of federal, state, tribal and local governments, academic and non-governmental organizations and individuals submit project details and sampling results to this public repository. The information is commonly used for research and assessments of environmental quality.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS NPDES: Clean Water Act Discharge Monitoring Information

Any discharger of pollutants to waters of the United States from a point source must have a National Pollutant Discharge Elimination System (NPDES) permit. The process for obtaining limits involves the regulated entity (permittee) disclosing releases in a NPDES permit application and the permitting authority (typically the state but sometimes EPA) deciding whether to require monitoring or monitoring with limits. Caveats and Limitations: Less than half of states have required PFAS monitoring for at least one of their permittees and fewer states have established PFAS effluent limits for permittees. New rulemakings have been initiated that may increase the number of facilities monitoring for PFAS in the future.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS ECHO: Facilities in Industries that May Be Handling PFAS Listing

Regulators and the public have expressed interest in knowing which regulated entities may be using PFAS. EPA has developed a dataset from various sources that show which industries may be handling PFAS. Approximately 120,000 facilities subject to federal environmental programs have operated or currently operate in industry sectors with processes that may involve handling and/or release of PFAS.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS ECHO FIRE TRAIN: Facilities in Industries that May Be Handling PFAS Listing

A list of fire training sites was added to the Industry Sectors dataset using a keyword search on the permitted facilitys name to identify sites where fire-fighting foam may have been used in training exercises. Additionally, you may view an example spreadsheet of the subset of fire training facility data, as well as the keywords used in selecting or deselecting a facility for the subset. as well as the keywords used in selecting or deselecting a facility for the subset. These keywords were tested to maximize accuracy in selecting facilities that may use fire-fighting foam in training exercises, however, due to the lack of a required reporting field in the data systems for designating fire training sites, this methodology may not identify all fire training sites or may potentially misidentify them.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PFAS PT 139 AIRPORT: All Certified Part 139 Airports PFAS Information Listing

Since July 1, 2006, all certified part 139 airports are required to have fire-fighting foam onsite that meet military specifications (MIL-F-24385) (14 CFR 139.317). To date, these military specification fire-fighting foams are fluorinated and have been historically used for training and extinguishing. The 2018 FAA Reauthorization Act has a provision stating that no later than October 2021, FAA shall not require the use of fluorinated AFFF. This provision does not prohibit the use of fluorinated AFFF at Part 139 civilian airports; it only prohibits FAA from mandating its use. The Federal Aviation Administration?s document AC 150/5210-6D - Aircraft Fire Extinguishing Agents provides guidance on Aircraft Fire Extinguishing Agents, which includes Aqueous Film Forming Foam (AFFF).

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-272-0167
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

AQUEOUS FOAM NRC: Aqueous Foam Related Incidents Listing

The National Response Center (NRC) serves as an emergency call center that fields initial reports for pollution and railroad incidents and forwards that information to appropriate federal/state agencies for response. The spreadsheets posted to the NRC website contain initial incident data that has not been validated or investigated by a federal/state response agency. Response center calls from 1990 to the most recent complete calendar year where there was indication of Aqueous Film Forming Foam (AFFF) usage are included in this dataset. NRC calls may reference AFFF usage in the ?Material Involved? or ?Incident Description? fields.

Date of Government Version: 12/28/2023
Date Data Arrived at EDR: 12/28/2023
Date Made Active in Reports: 03/04/2024
Number of Days to Update: 67

Source: Environmental Protection Agency
Telephone: 202-267-2675
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 03/29/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 12/16/2016
Date Data Arrived at EDR: 01/06/2017
Date Made Active in Reports: 03/10/2017
Number of Days to Update: 63

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 03/29/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: No Update Planned

BIOSOLIDS: ICIS-NPDES Biosolids Facility Data
The data reflects compliance information about facilities in the biosolids program.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 01/03/2024
Date Made Active in Reports: 01/16/2024
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-564-4700
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

PFAS: PFAS Contamination Site Location Listing
A listing of PFAS sites included in the Envirostor and GeoTracker databases. Locations of potential sources of per - and polyfluoroalkyl substances (PFAS). This does not mean that PFAS has been produced, used, or discharged at these sites.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/06/2024
Date Made Active in Reports: 05/29/2024
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

AQUEOUS FOAM: Former Fire Training Facility Assessments Listing
Airports shown on this list are those believed to use Aqueous Film Forming Foam (AFFF), and certified by the Federal Aviation Administration (FAA) under Title 14, Code of Federal Regulations (CFR), Part 139 (14 CFR Part 139). This list was created by SWRCB using information available from the FAA. Location points shown are from the latitude and longitude listed on the FAA airport master record.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/28/2024
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CHROME PLATING: Chrome Plating Facilities Listing

This listing represents chrome plating facilities the California State Water Resources Control Board staff identified as possibly being a source of Per- and polyfluoroalkyl substance (PFAS) contamination. Sites and locations were identified by staff with the Division of Water Quality in the California State Water Board. Data was collected from the CA Air Resources Board 2013 and 2018 - Cr VI emission survey, CA Emission Inventory, CA HAZ Waste discharge database and by reviewing storm water permits. Former chrome plating sites are also included that are open site investigation or remediation cases with the Regional Water Quality Control Boards and the Department of Toxic Substances Control.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/28/2024
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-341-5455
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/19/2024
Date Data Arrived at EDR: 03/19/2024
Date Made Active in Reports: 06/11/2024
Number of Days to Update: 84

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

CUPA LIV-PLE: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 02/14/2024
Date Data Arrived at EDR: 02/21/2024
Date Made Active in Reports: 05/08/2024
Number of Days to Update: 77

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

DRYCLEAN VENTURA: Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Ventura County Air Pollution Control District.

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 02/08/2024
Number of Days to Update: 23

Source: Ventura County Air Pollution Control District
Telephone: 805-645-1421
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN AMADOR: Amador Air District Drycleaner Facility Listing

A listing of drycleaner facility locations, for the Amador Air Quality Management District

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 77

Source: Amador Air Quality Management District
Telephone: 209-257-0112
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 02/20/2024
Date Data Arrived at EDR: 02/22/2024
Date Made Active in Reports: 05/08/2024
Number of Days to Update: 76

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

DRYCLEAN MOJAVE: Mojave Desert Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mojave Desert Air Quality Management District.

Date of Government Version: 04/15/2024
Date Data Arrived at EDR: 04/17/2024
Date Made Active in Reports: 04/24/2024
Number of Days to Update: 7
Source: Mojave Desert Air Quality Management District
Telephone: 760-245-1661
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN BUTTE: Butte County Air Quality Management DistrictDrycleaner Facility Listing
Butte County Air Quality Management DistrictDrycleaner Facility Listing.

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 10/18/2023
Date Made Active in Reports: 01/16/2024
Number of Days to Update: 90
Source: Butte County Air Quality Management District
Telephone: 530-332-9400
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN FEATHER RVR: Feather River Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Feather River Air Quality Management District.

Date of Government Version: 03/08/2023
Date Data Arrived at EDR: 03/09/2023
Date Made Active in Reports: 06/05/2023
Number of Days to Update: 88
Source: Feather River Air Quality Management District
Telephone: 530-634-7659
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN DIEGO: San Diego County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Diego County Air Pollution Control District.

Date of Government Version: 03/19/2024
Date Data Arrived at EDR: 03/21/2024
Date Made Active in Reports: 04/12/2024
Number of Days to Update: 22
Source: San Diego County Air Pollution Control District
Telephone: 858-586-2616
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 04/02/2024
Date Data Arrived at EDR: 04/05/2024
Date Made Active in Reports: 04/15/2024
Number of Days to Update: 10
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Annually

DRYCLEAN GRANT: Grant Recipients List
Assembly Bill 998 (AB 998) established the Non-Toxic Dry Cleaning Incentive Program to provide financial assistance to the dry cleaning industry to switch from systems using perchloroethylene (Perc), an identified toxic air contaminant and potential human carcinogen, to non-toxic and non-smog forming alternatives.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 01/26/2024
Date Made Active in Reports: 04/16/2024
Number of Days to Update: 81
Source: California Air Resources Board
Telephone: 916-323-0006
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

DRYCLEAN LAKE: Lake County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Lake County Air Quality Management District,

Date of Government Version: 02/15/2024
Date Data Arrived at EDR: 02/16/2024
Date Made Active in Reports: 05/02/2024
Number of Days to Update: 76

Source: Lake County Air Quality Management District
Telephone: 707-263-7000
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/15/2024
Number of Days to Update: 78

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Varies

DRYCLEAN MENDOCINO: Mendocino County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Mendocino County Air Quality Management District.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/28/2024
Date Made Active in Reports: 05/15/2024
Number of Days to Update: 77

Source: Mendocino County Air Quality Management District
Telephone: 707-463-4354
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN EAST KERN: Eastern Kern Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Eastern Kern Air Pollution Control District.

Date of Government Version: 01/12/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79

Source: Eastern Kern Air Pollution Control District
Telephone: 661-862-9684
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN IMPERIAL: Imperial County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Imperial County Air Pollution Control District

Date of Government Version: 04/25/2023
Date Data Arrived at EDR: 04/26/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 79

Source: Imperial County Air Pollution Control District
Telephone: 442-265-1800
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN YOLO-SOLANO: Yolo-Solano Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Yolo-Solano Air Quality Management District.

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/05/2024
Date Made Active in Reports: 03/20/2024
Number of Days to Update: 75

Source: Yolo-Solano Air Quality Management District
Telephone: 530-757-3650
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SHASTA: Shasta County Air Quality Management District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Shasta County Air Quality Management District.

Date of Government Version: 04/26/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/14/2023
Number of Days to Update: 78

Source: Shasta County Air Quality Management District
Telephone: 530-225-5674
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN MONTERY BAY: Monterey Bay Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Monterey Bay Air Quality Management District.

Date of Government Version: 01/03/2024
Date Data Arrived at EDR: 01/05/2024
Date Made Active in Reports: 03/20/2024
Number of Days to Update: 75
Source: Monterey Bay Air Quality Management District
Telephone: 831-647-9411
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN LUIS OB: San Luis Obispo County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Luis Obispo County Air Pollution Control District.

Date of Government Version: 01/03/2024
Date Data Arrived at EDR: 01/04/2024
Date Made Active in Reports: 03/20/2024
Number of Days to Update: 76
Source: San Luis Obispo County Air Pollution Control District
Telephone: 805-781-5756
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN PLACER: Placer County Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Placer County Air Quality Management District.

Date of Government Version: 05/15/2023
Date Data Arrived at EDR: 05/17/2023
Date Made Active in Reports: 08/14/2023
Number of Days to Update: 89
Source: Placer County Air Quality Management District
Telephone: 530-745-2335
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SAN JOAQUIN: San Joaquin Valley Air Pollution Control District District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the San Joaquin Valley Air Pollution Control District.

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/04/2024
Date Made Active in Reports: 03/21/2024
Number of Days to Update: 77
Source: San Joaquin Valley Air Pollution Control District
Telephone: 559-230-6001
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN BAY AREA: Bay Area Air Quality Management District Drycleaner Facility Listing
Bay Area Air Quality Management District Drycleaner Facility Listing.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 05/30/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1432
Source: Bay Area Air Quality Management District
Telephone: 415-516-1916
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN CALAVERAS: Calaveras County Environmental Management Agency Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Calaveras County Environmental Management Agency.

Date of Government Version: 06/17/2019
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1412
Source: Calaveras County Environmental Management Agency
Telephone: 209-754-6399
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

DRYCLEAN N COAST: North Coast Unified Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the North Coast Unified Air Quality Management District.

Date of Government Version: 11/30/2016
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1473
Source: North Coast Unified Air Quality Management District
Telephone: 707-443-3093
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN N SIERRA: Northern Sierra Air Quality Management District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sierra Air Quality Management District,

Date of Government Version: 05/07/2019
Date Data Arrived at EDR: 05/07/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1455
Source: Northern Sierra Air Quality Management District
Telephone: 530-274-9350
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SANTA BARB: Santa Barbara County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Santa Barbara County Air Pollution Control District.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1475
Source: Santa Barbara County Air Pollution Control District
Telephone: 805-961-8867
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN TEHAMA: Tehama County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Tehama County Air Pollution Control District.

Date of Government Version: 04/24/2019
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 05/01/2023
Number of Days to Update: 1468
Source: Tehama County Air Pollution Control District
Telephone: 530-527-3717
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN GLENN: Glenn County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Glenn County Air Pollution Control District.

Date of Government Version: 01/08/2024
Date Data Arrived at EDR: 01/10/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 77
Source: Glenn County Air Pollution Control District
Telephone: 530-934-6500
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN N SONOMA: Norther Sonoma County County Air Pollution Control District Drycleaner Facility Listing
A listing of drycleaner facility locations, for the Northern Sonoma County Air Pollution Control District.,

Date of Government Version: 01/05/2024
Date Data Arrived at EDR: 01/10/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 77
Source: Santa Barbara County Air Pollution Control District
Telephone: 707-433-5911
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

DRYCLEAN SACRAMENTO: Sacramento Metropolitan Air Quality Management DistrictDrycleaner Facility Listing
A listing of drycleaner facility locations, for the Sacramento Metropolitan Air Quality Management District.

Date of Government Version: 01/03/2024
Date Data Arrived at EDR: 01/10/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 77
Source: Sacramento Metropolitan Air Quality Management District
Telephone: 916-874-3958
Last EDR Contact: 01/03/2024
Next Scheduled EDR Contact: 09/11/2023
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2021
Date Data Arrived at EDR: 06/09/2023
Date Made Active in Reports: 08/30/2023
Number of Days to Update: 82
Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 06/11/2024
Next Scheduled EDR Contact: 09/23/2024
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

FIN ASSURANCE 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/11/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

FIN ASSURANCE 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/07/2024
Date Data Arrived at EDR: 02/28/2024
Date Made Active in Reports: 05/15/2024
Number of Days to Update: 77

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

ICE: Inspection, Compliance and Enforcement

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/07/2024
Date Data Arrived at EDR: 02/07/2024
Date Made Active in Reports: 02/07/2024
Number of Days to Update: 0

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 05/14/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/07/2024
Date Data Arrived at EDR: 02/07/2024
Date Made Active in Reports: 02/07/2024
Number of Days to Update: 0

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/14/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/02/2024
Date Data Arrived at EDR: 01/03/2024
Date Made Active in Reports: 03/21/2024
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Quarterly

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 01/26/2024
Date Data Arrived at EDR: 01/30/2024
Date Made Active in Reports: 04/17/2024
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2023
Date Data Arrived at EDR: 01/03/2024
Date Made Active in Reports: 03/21/2024
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Annually

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/28/2024
Number of Days to Update: 84

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 01/23/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/16/2024
Number of Days to Update: 79

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 05/29/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/06/2024
Date Made Active in Reports: 04/25/2024
Number of Days to Update: 79

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/07/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/17/2024
Number of Days to Update: 80

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 05/29/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/28/2024
Number of Days to Update: 84

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/08/2024
Date Data Arrived at EDR: 03/08/2024
Date Made Active in Reports: 05/29/2024
Number of Days to Update: 82

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 06/06/2024
Next Scheduled EDR Contact: 09/23/2024
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Annually

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/28/2024
Number of Days to Update: 84

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)

Underground control injection sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 02/11/2021
Date Data Arrived at EDR: 07/01/2021
Date Made Active in Reports: 09/29/2021
Number of Days to Update: 90

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 04/04/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/28/2024
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System
The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 02/26/2024
Date Data Arrived at EDR: 02/27/2024
Date Made Active in Reports: 05/14/2024
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 05/29/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/16/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 03/04/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

PFAS PROJECT: NORTHEASTERN UNIVERSITY PFAS PROJECT

The PFAS Contamination Site Tracker records qualitative and quantitative data from each site in a chart, specifically examining discovery, contamination levels, government response, litigation, health impacts, media coverage, and community characteristics. All data presented in the chart were extracted from government websites, such as state health departments or the Environmental Protection Agency, and news articles.

Date of Government Version: 05/19/2023
Date Data Arrived at EDR: 04/05/2024
Date Made Active in Reports: 06/06/2024
Number of Days to Update: 62

Source: Social Science Environmental Health Research Institute
Telephone: N/A
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Varies

E MANIFEST: Hazardous Waste Electronic Manifest System

EPA established a national system for tracking hazardous waste shipments electronically. This system, known as ?e-Manifest,? will modernize the nation?s cradle-to-grave hazardous waste tracking process while saving valuable time, resources, and dollars for industry and states.

Date of Government Version: 07/24/2023
Date Data Arrived at EDR: 04/18/2024
Date Made Active in Reports: 06/06/2024
Number of Days to Update: 49

Source: Environmental Protection Agency
Telephone: 833-501-6826
Last EDR Contact: 06/07/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

UST FINDER RELEASE: UST Finder Releases Database

US EPA's UST Finder data is a national composite of leaking underground storage tanks. This data contains information about, and locations of, leaking underground storage tanks. Data was collected from state sources and standardized into a national profile by EPA's Office of Underground Storage Tanks, Office of Research and Development, and the Association of State and Territorial Solid Waste Management Officials.

Date of Government Version: 06/08/2023
Date Data Arrived at EDR: 10/31/2023
Date Made Active in Reports: 01/18/2024
Number of Days to Update: 79

Source: Environmental Protecton Agency
Telephone: 202-564-0394
Last EDR Contact: 05/08/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Semi-Annually

UST FINDER: UST Finder Database

EPA developed UST Finder, a web map application containing a comprehensive, state-sourced national map of underground storage tank (UST) and leaking UST (LUST) data. It provides the attributes and locations of active and closed USTs, UST facilities, and LUST sites from states and from Tribal lands and US territories . UST Finder contains information about proximity of UST facilities and LUST sites to: surface and groundwater public drinking water protection areas; estimated number of private domestic wells and number of people living nearby; and flooding and wildfires.

Date of Government Version: 06/08/2023
Date Data Arrived at EDR: 10/04/2023
Date Made Active in Reports: 01/18/2024
Number of Days to Update: 106

Source: Environmental Protection Agency
Telephone: 202-564-0394
Last EDR Contact: 05/08/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank
The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites
A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 12/26/2023
Date Data Arrived at EDR: 12/26/2023
Date Made Active in Reports: 03/19/2024
Number of Days to Update: 84

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 04/27/2023
Date Data Arrived at EDR: 04/27/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 77

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 03/01/2024
Date Data Arrived at EDR: 03/19/2024
Date Made Active in Reports: 06/11/2024
Number of Days to Update: 84

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 01/19/2024
Date Data Arrived at EDR: 01/24/2024
Date Made Active in Reports: 04/09/2024
Number of Days to Update: 76

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/08/2024
Date Made Active in Reports: 04/26/2024
Number of Days to Update: 78

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/08/2022
Date Data Arrived at EDR: 08/09/2022
Date Made Active in Reports: 09/01/2022
Number of Days to Update: 23

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/28/2021
Date Data Arrived at EDR: 12/21/2021
Date Made Active in Reports: 03/03/2022
Number of Days to Update: 72

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 03/28/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List

Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List

CUPA facility list.

Date of Government Version: 08/12/2021
Date Data Arrived at EDR: 08/12/2021
Date Made Active in Reports: 11/08/2021
Number of Days to Update: 88

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List

Cupa facility list.

Date of Government Version: 01/17/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 76

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List

Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 10/30/2023
Date Data Arrived at EDR: 11/01/2023
Date Made Active in Reports: 01/23/2024
Number of Days to Update: 83

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 06/11/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 04/25/2024
Date Data Arrived at EDR: 05/01/2024
Date Made Active in Reports: 05/08/2024
Number of Days to Update: 7

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 01/26/2021
Date Made Active in Reports: 04/14/2021
Number of Days to Update: 78

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/08/2024
Date Made Active in Reports: 04/26/2024
Number of Days to Update: 78

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/08/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

LOS ANGELES COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AOCONCERN: Key Areas of Concerns in Los Angeles County

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 06/06/2024
Next Scheduled EDR Contact: 09/23/2024
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/16/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 03/26/2024
Number of Days to Update: 68

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/09/2024
Date Data Arrived at EDR: 01/10/2024
Date Made Active in Reports: 03/27/2024
Number of Days to Update: 77

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/09/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2022
Date Data Arrived at EDR: 01/12/2023
Date Made Active in Reports: 03/29/2023
Number of Days to Update: 76

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory

A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/13/2023
Date Data Arrived at EDR: 07/13/2023
Date Made Active in Reports: 09/27/2023
Number of Days to Update: 76

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 04/11/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 02/09/2024
Date Data Arrived at EDR: 03/19/2024
Date Made Active in Reports: 06/11/2024
Number of Days to Update: 84
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 02/09/2024
Date Data Arrived at EDR: 03/19/2024
Date Made Active in Reports: 06/11/2024
Number of Days to Update: 84
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 03/19/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation LA County List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/11/2023
Date Data Arrived at EDR: 10/17/2023
Date Made Active in Reports: 01/09/2024
Number of Days to Update: 84
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/18/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/12/2023
Date Data Arrived at EDR: 05/02/2023
Date Made Active in Reports: 06/13/2023
Number of Days to Update: 42
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 03/22/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/22/2021
Date Data Arrived at EDR: 11/18/2021
Date Made Active in Reports: 11/22/2021
Number of Days to Update: 4

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 11/15/2023
Date Data Arrived at EDR: 11/20/2023
Date Made Active in Reports: 02/15/2024
Number of Days to Update: 87

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/08/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2021
Date Data Arrived at EDR: 03/02/2021
Date Made Active in Reports: 05/19/2021
Number of Days to Update: 78

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/04/2021
Date Data Arrived at EDR: 10/06/2021
Date Made Active in Reports: 12/29/2021
Number of Days to Update: 84

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 03/22/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/31/2023
Date Data Arrived at EDR: 11/03/2023
Date Made Active in Reports: 01/23/2024
Number of Days to Update: 81

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups Orange County
Petroleum and non-petroleum spills.

Date of Government Version: 02/02/2024
Date Data Arrived at EDR: 03/13/2024
Date Made Active in Reports: 06/04/2024
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/22/2024
Date Data Arrived at EDR: 03/13/2024
Date Made Active in Reports: 06/04/2024
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/22/2024
Date Data Arrived at EDR: 03/13/2024
Date Made Active in Reports: 06/04/2024
Number of Days to Update: 83

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 02/28/2024
Date Data Arrived at EDR: 02/28/2024
Date Made Active in Reports: 05/16/2024
Number of Days to Update: 78

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/04/2024
Date Made Active in Reports: 03/29/2024
Number of Days to Update: 85

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/11/2024
Next Scheduled EDR Contact: 09/23/2024
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/04/2024
Date Data Arrived at EDR: 01/04/2024
Date Made Active in Reports: 03/21/2024
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/11/2024
Next Scheduled EDR Contact: 09/23/2024
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/21/2022
Date Made Active in Reports: 03/16/2023
Number of Days to Update: 85

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/25/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/07/2022
Date Data Arrived at EDR: 12/09/2022
Date Made Active in Reports: 03/01/2023
Number of Days to Update: 82

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 03/25/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 01/17/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 01/26/2024
Number of Days to Update: 8

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 02/13/2024
Date Data Arrived at EDR: 02/14/2024
Date Made Active in Reports: 05/02/2024
Number of Days to Update: 78

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 05/16/2024
Date Data Arrived at EDR: 05/22/2024
Date Made Active in Reports: 05/24/2024
Number of Days to Update: 2

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/01/2023
Date Data Arrived at EDR: 01/31/2024
Date Made Active in Reports: 04/17/2024
Number of Days to Update: 77
Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing
A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/22/2021
Date Data Arrived at EDR: 10/19/2021
Date Made Active in Reports: 01/13/2022
Number of Days to Update: 86
Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24
Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing
Cupa facilities

Date of Government Version: 02/01/2024
Date Data Arrived at EDR: 02/01/2024
Date Made Active in Reports: 04/24/2024
Number of Days to Update: 83
Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 02/01/2024
Date Data Arrived at EDR: 02/01/2024
Date Made Active in Reports: 04/24/2024
Number of Days to Update: 83
Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Quarterly

SAN FRANCISO COUNTY:

SAN FRANCISCO MAHER: Maher Ordinance Property Listing
a listing of properties that fall within a Maher Ordinance, for all of San Francisco

Date of Government Version: 01/15/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 04/05/2024
Number of Days to Update: 78

Source: San Francisco Planning
Telephone: 628-652-7483
Last EDR Contact: 04/16/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/06/2024
Next Scheduled EDR Contact: 09/23/2024
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/14/2024
Date Data Arrived at EDR: 02/14/2024
Date Made Active in Reports: 05/02/2024
Number of Days to Update: 78

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/06/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 05/31/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 02/21/2024
Date Data Arrived at EDR: 02/22/2024
Date Made Active in Reports: 05/08/2024
Number of Days to Update: 76

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 05/17/2024
Next Scheduled EDR Contact: 09/02/2024
Data Release Frequency: No Update Planned

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

SITE MIT SANTA CRUZ: Site Mitigation Santa Cruz County List
Sites may become contaminated with toxic chemicals through illegal dumping or disposal, from leaking underground storage tanks, or through industrial or commercial activities.The goal of the site mitigation program is to protect the public health and the environment while facilitating completion of contaminated site clean-up projects in a timely manner.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 06/23/2023
Date Made Active in Reports: 07/13/2023
Number of Days to Update: 20

Source: Santa Cruz Environmental Health Services
Telephone: 831-454-2761
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/09/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 09/15/2021
Date Data Arrived at EDR: 09/16/2021
Date Made Active in Reports: 12/09/2021
Number of Days to Update: 84

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 07/02/2021
Date Data Arrived at EDR: 07/06/2021
Date Made Active in Reports: 07/14/2021
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 06/30/2021
Date Data Arrived at EDR: 06/30/2021
Date Made Active in Reports: 09/24/2021
Number of Days to Update: 86

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/15/2024
Next Scheduled EDR Contact: 07/01/2024
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2022
Date Data Arrived at EDR: 02/10/2022
Date Made Active in Reports: 05/04/2022
Number of Days to Update: 83

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/05/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/03/2023
Date Data Arrived at EDR: 08/24/2023
Date Made Active in Reports: 09/12/2023
Number of Days to Update: 19

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 05/22/2024
Next Scheduled EDR Contact: 09/09/2024
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 12/05/2023
Date Data Arrived at EDR: 02/01/2024
Date Made Active in Reports: 02/28/2024
Number of Days to Update: 27

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 06/06/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 01/17/2024
Date Data Arrived at EDR: 01/18/2024
Date Made Active in Reports: 04/03/2024
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/07/2022
Date Data Arrived at EDR: 10/07/2022
Date Made Active in Reports: 12/21/2022
Number of Days to Update: 75

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/12/2024
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/12/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/26/2023
Date Data Arrived at EDR: 01/24/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 75
Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/22/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/02/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/26/2023
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/09/2024
Number of Days to Update: 77
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/15/2024
Next Scheduled EDR Contact: 07/29/2024
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/27/2024
Date Data Arrived at EDR: 03/05/2024
Date Made Active in Reports: 05/29/2024
Number of Days to Update: 85
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/04/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/18/2023
Date Data Arrived at EDR: 12/26/2023
Date Made Active in Reports: 03/19/2024
Number of Days to Update: 84
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/22/2024
Next Scheduled EDR Contact: 07/08/2024
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 01/22/2024
Date Data Arrived at EDR: 01/23/2024
Date Made Active in Reports: 04/08/2024
Number of Days to Update: 76

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 04/19/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 02/05/2024
Date Data Arrived at EDR: 02/06/2024
Date Made Active in Reports: 04/25/2024
Number of Days to Update: 79

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/07/2024
Next Scheduled EDR Contact: 08/19/2024
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 03/29/2024
Next Scheduled EDR Contact: 07/15/2024
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 11/30/2023
Date Made Active in Reports: 12/01/2023
Number of Days to Update: 1

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 04/25/2024
Next Scheduled EDR Contact: 08/05/2024
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/08/2024
Next Scheduled EDR Contact: 07/22/2024
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 11/30/2021
Date Made Active in Reports: 02/18/2022
Number of Days to Update: 80

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/13/2024
Next Scheduled EDR Contact: 08/26/2024
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/03/2024
Next Scheduled EDR Contact: 09/16/2024
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

ERWIN RANCH SOLAR PROJECT
LAKEWOOD DRIVE AND ERWIN RANCH ROAD
BIG BEAR CITY, CA 92314

TARGET PROPERTY COORDINATES

Latitude (North):	34.252618 - 34° 15' 9.42''
Longitude (West):	116.802682 - 116° 48' 9.66''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	518168.2
UTM Y (Meters):	3789988.8
Elevation:	6777 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	50004943 BIG BEAR CITY, CA
Version Date:	2021
South Map:	50004039 MOONRIDGE, CA
Version Date:	2021

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

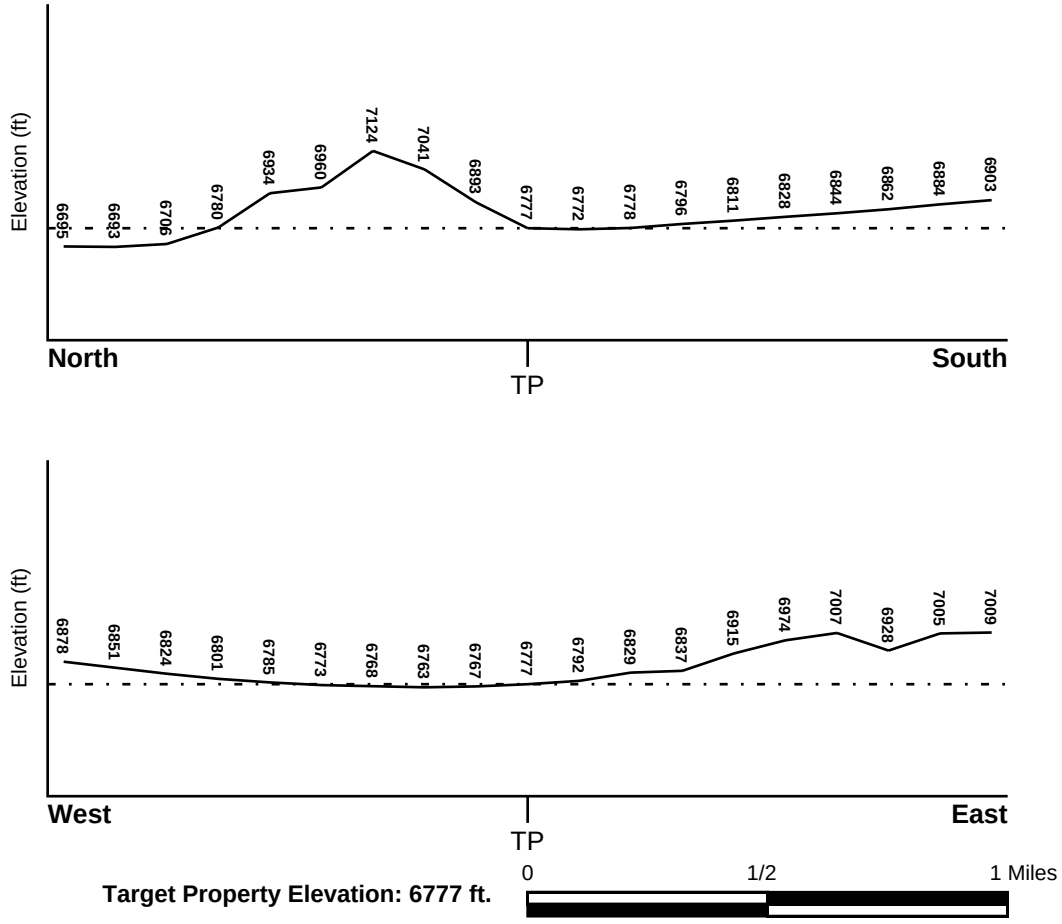
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06071C7320H	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06071C7315H	FEMA FIRM Flood data
06071C8030F	FEMA Q3 Flood data
06071C8050F	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BIG BEAR CITY	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

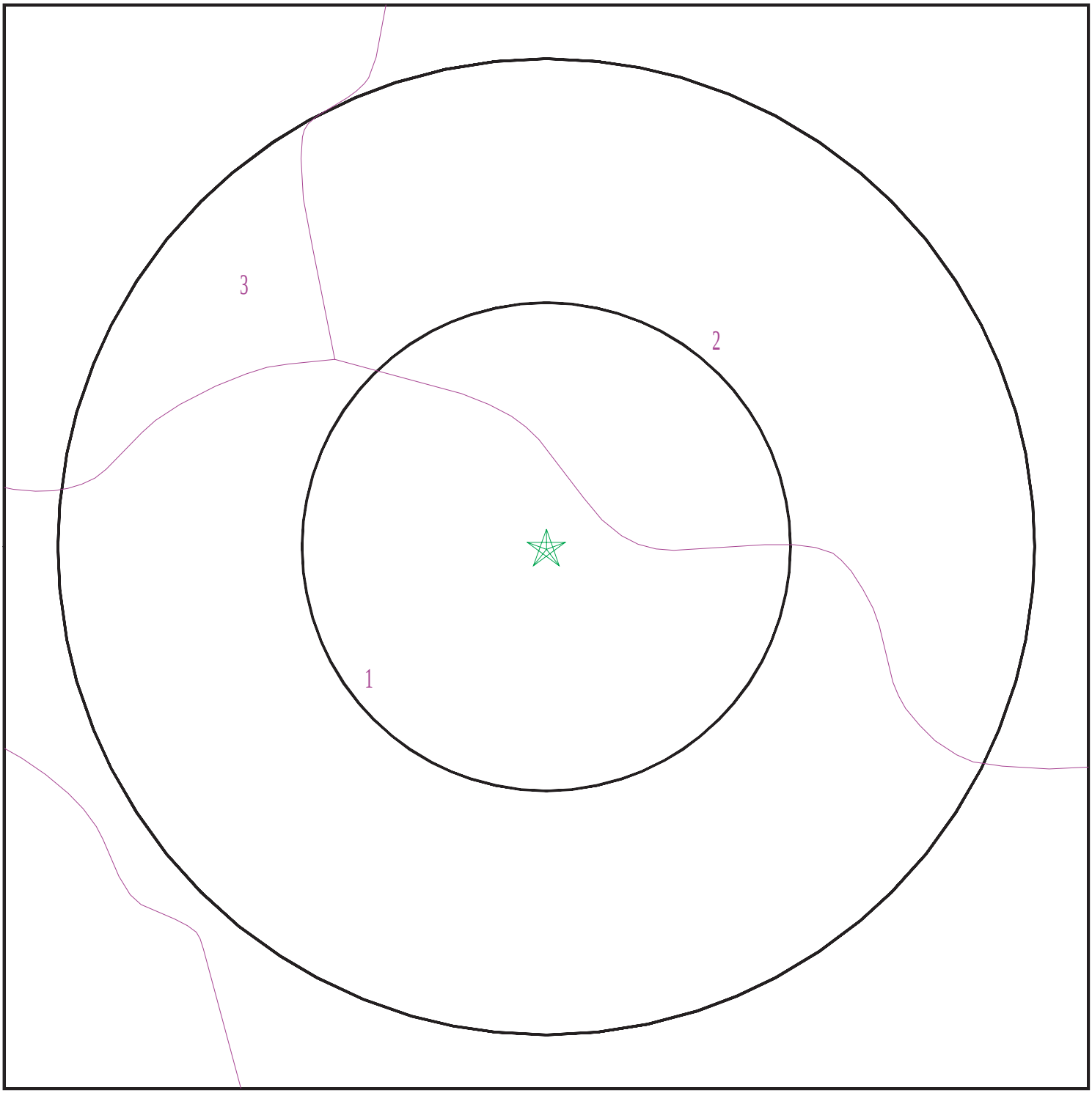
Era:	Paleozoic
System:	Pennsylvanian
Series:	Upper Paleozoic
Code:	uPz *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 7681395.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Erwin Ranch Solar Project	CLIENT:	ERM - West, Inc.
ADDRESS:	Lakewood Drive and Erwin Ranch Road Big Bear City CA 92314	CONTACT:	Marlene Mattola
LAT/LONG:	34.252618 / 116.802682	INQUIRY #:	7681395.2s
		DATE:	June 13, 2024 3:19 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Avawatz family

Soil Surface Texture: stratified gravelly loamy coarse sand to loamy coarse sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	24 inches	59 inches	stratified gravelly loamy coarse sand to loamy coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 141 Min: 40	Max: 7.3 Min: 6.1
2	7 inches	24 inches	gravelly coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 141 Min: 40	Max: 7.3 Min: 6.1
3	0 inches	7 inches	gravelly loamy coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 141 Min: 40	Max: 7.3 Min: 6.1

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Olete family

Soil Surface Texture: very cobbly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 30 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	very cobbly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: Min:	Max: Min:
2	3 inches	25 inches	very cobbly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: Min:	Max: Min:
3	25 inches	29 inches	unweathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: Olete family

Soil Surface Texture: very cobbly sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 30 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	very cobbly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: Min:	Max: Min:
2	3 inches	25 inches	very cobbly sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: Min:	Max: Min:
3	25 inches	29 inches	unweathered bedrock	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	Not reported	Max: Min:	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

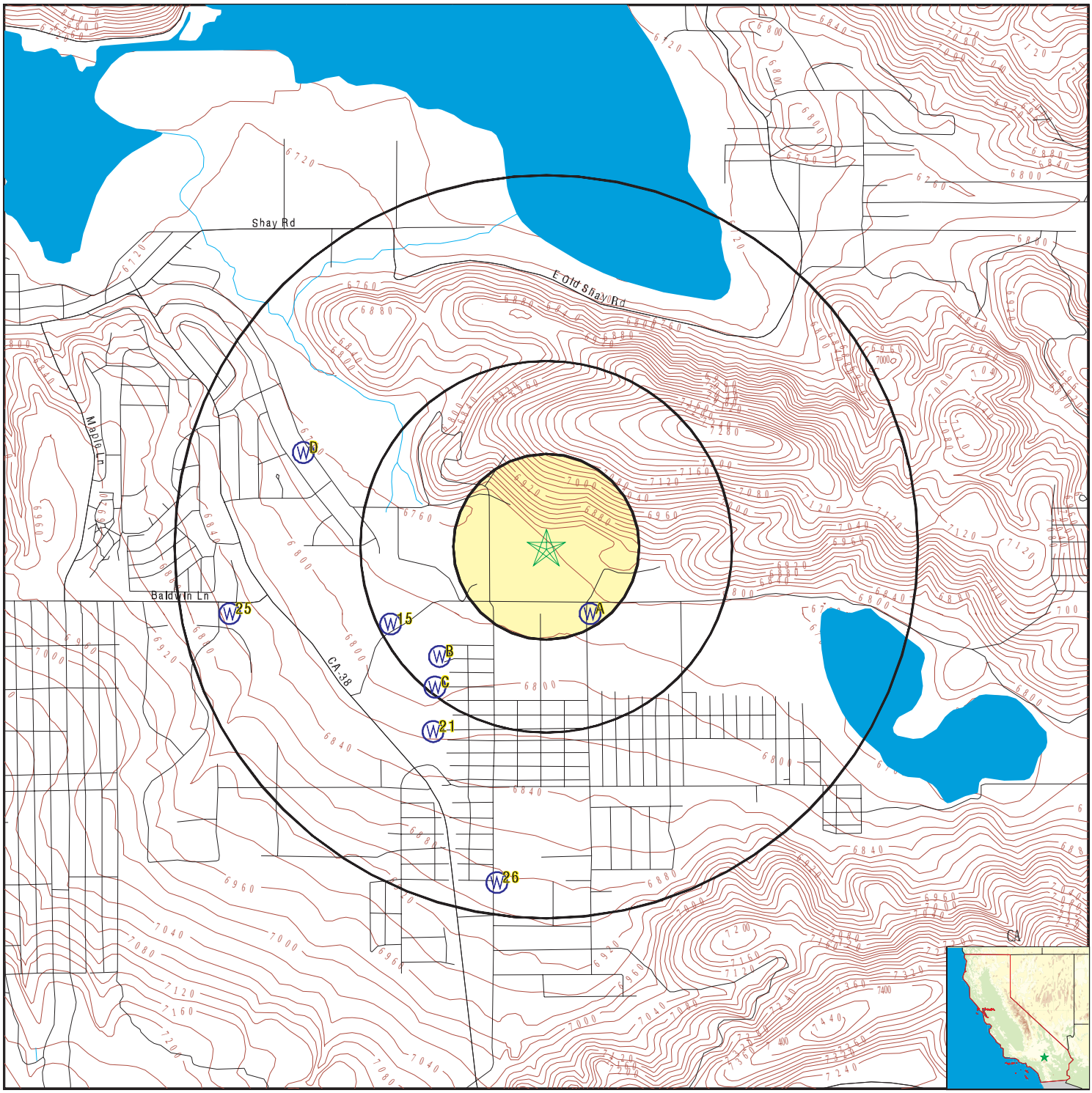
MAP ID	WELL ID	LOCATION FROM TP
A1	1674	1/8 - 1/4 Mile SSE
A2	1673	1/8 - 1/4 Mile SSE
A3	1675	1/8 - 1/4 Mile SSE
A4	1677	1/8 - 1/4 Mile SSE
A5	1676	1/8 - 1/4 Mile SSE
A6	CADDW2000014937	1/8 - 1/4 Mile SE
A7	CADDW2000009025	1/8 - 1/4 Mile SE
B8	CADWR0000005196	1/4 - 1/2 Mile SW
B9	CADWR0000035191	1/4 - 1/2 Mile SW
B10	CADDW2000010098	1/4 - 1/2 Mile SW
B11	CADDW2000014817	1/4 - 1/2 Mile SW
B12	CADDW2000001590	1/4 - 1/2 Mile SW
B13	CADDW2000002401	1/4 - 1/2 Mile SW
C14	CADDW2000018182	1/4 - 1/2 Mile SW
15	CADWR9000007259	1/4 - 1/2 Mile WSW
C16	CAUSGS000001022	1/4 - 1/2 Mile SW
C17	CAUSGSN00013675	1/4 - 1/2 Mile SW
C18	CADDW2000013762	1/4 - 1/2 Mile SW
C19	CADDW2000023459	1/4 - 1/2 Mile SW
C20	18860	1/2 - 1 Mile SW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
21	CADWR0000024383	1/2 - 1 Mile SSW
D22	CAUSGSN00011420	1/2 - 1 Mile WNW
D23	CAUSGS000000901	1/2 - 1 Mile WNW
D24	CADDW2000005695	1/2 - 1 Mile WNW
25	1672	1/2 - 1 Mile WSW
26	CADWR9000007194	1/2 - 1 Mile South

PHYSICAL SETTING SOURCE MAP - 7681395.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Erwin Ranch Solar Project	CLIENT:	ERM - West, Inc.
ADDRESS:	Lakewood Drive and Erwin Ranch Road Big Bear City CA 92314	CONTACT:	Marlene Mattola
LAT/LONG:	34.252618 / 116.802682	INQUIRY #:	7681395.2s
		DATE:	June 13, 2024 3:18 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
SSE
1/8 - 1/4 Mile
Lower

CA WELLS **1674**

Seq:	1674	Prim sta c:	02N/02E-19A02 S
Frds no:	3610061003	County:	36
District:	13	User id:	TAN
System no:	3610061	Water type:	G
Source nam:	10 TH LANE WELL 27 - INACTIVE	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	341500.0	Longitude:	1164800.0
Precision:	8	Status:	IR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3610061	System nam:	City Of Big Bear Lake - Big Bear Pines
Hqname:	S.C.W.C.-BIG BEAR PINES	Address:	P.O. BOX 1929
City:	BIG BEAR LAKE	State:	CA
Zip:	92315	Zip ext:	Not Reported
Pop serv:	2993	Connection:	3658
Area serve:	BIG BEAR PINES-SUGARLOAF		

Sample date:	22-OCT-13	Finding:	5.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

Sample date:	30-OCT-12	Finding:	6.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

A2
SSE
1/8 - 1/4 Mile
Lower

CA WELLS **1673**

Seq:	1673	Prim sta c:	02N/02E-19A01 S
Frds no:	3610061002	County:	36
District:	13	User id:	TAN
System no:	3610061	Water type:	G
Source nam:	10 TH LANE WELL 26 - ABANDONED	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	341500.0	Longitude:	1164800.0
Precision:	8	Status:	AB
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3610061	System nam:	City Of Big Bear Lake - Big Bear Pines
Hqname:	S.C.W.C.-BIG BEAR PINES	Address:	P.O. BOX 1929
City:	BIG BEAR LAKE	State:	CA
Zip:	92315	Zip ext:	Not Reported
Pop serv:	2993	Connection:	3658
Area serve:	BIG BEAR PINES-SUGARLOAF		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A3
SSE
1/8 - 1/4 Mile
Lower

CA WELLS **1675**

Seq:	1675	Prim sta c:	02N/02E-19A03 S
Frds no:	3610061004	County:	36
District:	13	User id:	TAN
System no:	3610061	Water type:	G
Source nam:	11 TH LANE WELL 28 - ABANDONED	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	341500.0	Longitude:	1164800.0
Precision:	8	Status:	AB
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3610061	System nam:	City Of Big Bear Lake - Big Bear Pines
Hqname:	S.C.W.C.-BIG BEAR PINES	Address:	P.O. BOX 1929
City:	BIG BEAR LAKE	State:	CA
Zip:	92315	Zip ext:	Not Reported
Pop serv:	2993	Connection:	3658
Area serve:	BIG BEAR PINES-SUGARLOAF		

A4
SSE
1/8 - 1/4 Mile
Lower

CA WELLS **1677**

Seq:	1677	Prim sta c:	02N/02E-19A05 S
Frds no:	3610061006	County:	36
District:	13	User id:	TAN
System no:	3610061	Water type:	G
Source nam:	LAKEWOOD WELL 05	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	341500.0	Longitude:	1164800.0
Precision:	8	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3610061	System nam:	City Of Big Bear Lake - Big Bear Pines
Hqname:	S.C.W.C.-BIG BEAR PINES	Address:	P.O. BOX 1929
City:	BIG BEAR LAKE	State:	CA
Zip:	92315	Zip ext:	Not Reported
Pop serv:	2993	Connection:	3658
Area serve:	BIG BEAR PINES-SUGARLOAF		

Sample date:	19-OCT-17	Finding:	0.14
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		

Sample date:	19-OCT-17	Finding:	2.1
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		

Sample date:	19-OCT-17	Finding:	2.4
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	2.
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	17.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	13.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	31.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	130.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	200.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	160.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	7.9
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	320.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	200.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	19-OCT-17	Finding:	0.7
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	19-OCT-17	Finding:	3.6
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	10-OCT-14	Finding:	930.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	10-OCT-14	Finding:	220.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	0.16
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	10-OCT-14	Finding:	13.
Chemical:	SULFATE	Report units:	MG/L

Dlr:	0.5		
Sample date:	10-OCT-14	Finding:	6.2
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	1.8
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	9.8
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	19.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	38.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	170.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	210.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	170.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	7.1
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	350.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	4.1
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	08-OCT-13	Finding:	4.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	17-OCT-12	Finding:	3.8
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

A5
SSE
1/8 - 1/4 Mile
Lower

CA WELLS **1676**

Seq:	1676	Prim sta c:	02N/02E-19A04 S
Frds no:	3610061001	County:	36

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

District:	13	User id:	TAN
System no:	3610061	Water type:	G
Source nam:	10 TH LANE NORTH WELL	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	341500.0	Longitude:	1164800.0
Precision:	8	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3610061	System nam:	City Of Big Bear Lake - Big Bear Pines
Hqname:	S.C.W.C.-BIG BEAR PINES	Address:	P.O. BOX 1929
City:	BIG BEAR LAKE	State:	CA
Zip:	92315	Zip ext:	Not Reported
Pop serv:	2993	Connection:	3658
Area serve:	BIG BEAR PINES-SUGARLOAF		

Sample date:	10-OCT-14	Finding:	47.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	6.6
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

Sample date:	10-OCT-14	Finding:	420.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	7.3
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	200.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	240.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	210.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	1500.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		

Sample date:	10-OCT-14	Finding:	22.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	8.3
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	1.7
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	6.6

Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	19.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	10-OCT-14	Finding:	0.16
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	10-OCT-14	Finding:	260.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	08-OCT-13	Finding:	4.4
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	17-OCT-12	Finding:	9.
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

A6
SE **CA WELLS** **CADDW2000014937**
1/8 - 1/4 Mile
Lower

GAMA:

Well ID:	CA3610061_002_002	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	3610061-002
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610061_002_002&store_num=		
GeoTracker Data:	Not Reported		

A7
SE **CA WELLS** **CADDW2000009025**
1/8 - 1/4 Mile
Lower

GAMA:

Well ID:	CA3610061_004_004	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	3610061-004
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610061_004_004&store_num=		
GeoTracker Data:	Not Reported		

B8
SW **CA WELLS** **CADWR0000005196**
1/4 - 1/2 Mile
Higher

Well ID:	02N02E19A002S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	02N02E19A002S	GAMA PFAS Testing:	Not Reported

Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=02N02E19A002S&store_num=
GeoTracker Data: Not Reported

B9
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR0000035191**

Well ID: 02N02E19A001S
Well Type: UNK
Source: Department of Water Resources
Other Name: 02N02E19A001S
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=02N02E19A001S&store_num=
GeoTracker Data: Not Reported

B10
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CADDW2000010098**

GAMA:

Well ID: CA3610061_001_001
Well Type: MUNICIPAL
Source: DDW
Other Names: 3610061-001
GAMA Pfas testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610061_001_001&store_num=
GeoTracker Data: Not Reported

B11
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CADDW2000014817**

GAMA:

Well ID: CA3610061_003_003
Well Type: MUNICIPAL
Source: DDW
Other Names: 3610061-003
GAMA Pfas testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610061_003_003&store_num=
GeoTracker Data: Not Reported

B12
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CADDW2000001590**

GAMA:

Well ID: CA3610044_206_206
Well Type: MUNICIPAL
Source: DDW
Other Names: 3610044-206
GAMA Pfas testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610044_206_206&store_num=

GeoTracker Data: Not Reported

B13
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CADDW2000002401**

GAMA:

Well ID:	CA3610061_006_006	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	3610061-006
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610061_006_006&store_num=		
GeoTracker Data:	Not Reported		

C14
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CADDW2000018182**

GAMA:

Well ID:	CA3610061_007_007	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	3610061-007
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610061_007_007&store_num=		
GeoTracker Data:	Not Reported		

15
WSW
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR9000007259**

State Well #:	02N02E19A008S	Station ID:	50396
Well Name:	Vaqueros Well	Basin Name:	Bear Valley
Well Use:	Observation	Well Type:	Single Well
Well Depth:	112	Well Completion Rpt #:	534895

C16
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CAUSGS000001022**

GAMA:

Well ID:	BEAR-S09	Well Type:	MUNICIPAL
Source:	United States Geological Survey		
Other Names:	BEAR-S09	GAMA Pfas testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGS&samp_date=&global_id=&assigned_name=BEAR-S09&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C17
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CAUSGSN00013675**

Well ID:	USGS-341400116480001	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-341400116480001	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-341400116480001&store_num=		
GeoTracker Data:	Not Reported		

C18
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CADDW2000013762**

GAMA:

Well ID:	CA3610061_010_010	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	3610061-010
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610061_010_010&store_num=		
GeoTracker Data:	Not Reported		

C19
SW
1/4 - 1/2 Mile
Higher

CA WELLS **CADDW2000023459**

GAMA:

Well ID:	CA3610044_210_210	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	3610044-210
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610044_210_210&store_num=		
GeoTracker Data:	Not Reported		

C20
SW
1/2 - 1 Mile
Higher

CA WELLS **18860**

Seq:	18860	Prim sta c:	3610061-010
Frds no:	3610061010	County:	36
District:	13	User id:	TAN
System no:	3610061	Water type:	G
Source nam:	LAKEWOOD WELL 07	Station ty:	WELL/AMBNT/MUN/INTAKE
Latitude:	341450.0	Longitude:	1164830.0
Precision:	3	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

System no:	3610061	System nam:	City Of Big Bear Lake - Big Bear Pines
Hqname:	S.C.W.C.-BIG BEAR PINES	Address:	P.O. BOX 1929
City:	BIG BEAR LAKE	State:	CA
Zip:	92315	Zip ext:	Not Reported
Pop serv:	2993	Connection:	3658
Area serve:	BIG BEAR PINES-SUGARLOAF		

Sample date:	19-OCT-17	Finding:	13.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		

Sample date:	19-OCT-17	Finding:	0.3
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		

Sample date:	19-OCT-17	Finding:	1.9
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	12.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	18.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	39.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	170.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	200.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	170.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	7.5
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	350.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	0.13
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		

Sample date:	19-OCT-17	Finding:	200.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		

Sample date:	19-OCT-17	Finding:	4.
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		

Sample date:	10-OCT-14	Finding:	620.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	10-OCT-14	Finding:	210.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	0.14
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	10-OCT-14	Finding:	15.
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	10-OCT-14	Finding:	5.3
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	1.7
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	9.4
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	18.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	37.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	170.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	200.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	160.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	7.1
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	340.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	10-OCT-14	Finding:	2.8
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	08-OCT-13	Finding:	2.4
Chemical:	NITRATE (AS NO3)	Report units:	MG/L

Dlr:	2.		
Sample date:	17-OCT-12	Finding:	2.3
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		

21
SSW
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000024383**

Well ID:	02N02E19H001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	02N02E19H001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=02N02E19H001S&store_num=		
GeoTracker Data:	Not Reported		

D22
WNW
1/2 - 1 Mile
Lower

CA WELLS **CAUSGSN00011420**

Well ID:	USGS-341500116480001	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-341500116480001	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-341500116480001&store_num=		
GeoTracker Data:	Not Reported		

D23
WNW
1/2 - 1 Mile
Lower

CA WELLS **CAUSGS000000901**

GAMA:

Well ID:	BEAR-S13	Well Type:	MUNICIPAL
Source:	United States Geological Survey		
Other Names:	BEAR-S13	GAMA Pfas testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGS&samp_date=&global_id=&assigned_name=BEAR-S13&store_num=		
GeoTracker Data:	Not Reported		

D24
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADDW2000005695**

GAMA:

Well ID:	CA3610008_006_006	Well Type:	MUNICIPAL
Source:	DDW	Other Names:	3610008-006
GAMA Pfas testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DHS&samp_date=&global_id=&assigned_name=CA3610008_006_006&store_num=		

GeoTracker Data: Not Reported

25
WSW
1/2 - 1 Mile
Lower

CA WELLS 1672

Seq:	1672	Prim sta c:	02N/02E-18L01 S
Frds no:	3610008006	County:	36
District:	13	User id:	TAN
System no:	3610008	Water type:	G
Source nam:	WELL 02	Station ty:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Latitude:	341500.0	Longitude:	1164900.0
Precision:	8	Status:	AR
Comment 1:	Not Reported	Comment 2:	Not Reported
Comment 3:	Not Reported	Comment 4:	Not Reported
Comment 5:	Not Reported	Comment 6:	Not Reported
Comment 7:	Not Reported		

System no:	3610008	System nam:	Big Bear City Csd
Hqname:	Not Reported	Address:	139 EAST BIG BEAR BLVD.
City:	BIG BEAR CITY	State:	CA
Zip:	92314	Zip ext:	Not Reported
Pop serv:	7000	Connection:	5276
Area serve:	BIG BEAR CITY		

Sample date:	07-JUN-17	Finding:	230.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L
Dlr:	0.		

Sample date:	07-JUN-17	Finding:	410.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		

Sample date:	07-JUN-17	Finding:	200.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		

Sample date:	07-JUN-17	Finding:	7.1
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		

Sample date:	07-JUN-17	Finding:	5.3
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		

Sample date:	07-JUN-17	Finding:	8.3
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		

Sample date:	07-JUN-17	Finding:	2.
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	07-JUN-17	Finding:	12.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	07-JUN-17	Finding:	18.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		

Sample date:	07-JUN-17	Finding:	49.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JUN-17	Finding:	240.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	07-JUN-17	Finding:	1.4
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	07-JUN-17	Finding:	200.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	31-MAY-17	Finding:	1.4
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	08-JUN-16	Finding:	0.89
Chemical:	NITRATE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	08-JUN-16	Finding:	0.11
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	11-MAY-16	Finding:	0.12
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	24-FEB-16	Finding:	2.
Chemical:	CHROMIUM, HEXAVALENT	Report units:	UG/L
Dlr:	1.		
Sample date:	24-FEB-16	Finding:	57.
Chemical:	ALUMINUM	Report units:	UG/L
Dlr:	50.		
Sample date:	13-AUG-14	Finding:	0.11
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)	Report units:	MG/L
Dlr:	0.1		
Sample date:	18-JUN-14	Finding:	930.
Chemical:	NITRATE + NITRITE (AS N)	Report units:	MG/L
Dlr:	0.4		
Sample date:	18-JUN-14	Finding:	11.65
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)	Report units:	Not Reported
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	4.1
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	18-JUN-14	Finding:	0.45
Chemical:	LANGELIER INDEX @ 60 C	Report units:	Not Reported
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	250.
Chemical:	TOTAL DISSOLVED SOLIDS	Report units:	MG/L

Dlr:	0.		
Sample date:	18-JUN-14	Finding:	4.
Chemical:	VANADIUM	Report units:	UG/L
Dlr:	3.		
Sample date:	18-JUN-14	Finding:	22.
Chemical:	MANGANESE	Report units:	UG/L
Dlr:	20.		
Sample date:	18-JUN-14	Finding:	1500.
Chemical:	IRON	Report units:	UG/L
Dlr:	100.		
Sample date:	18-JUN-14	Finding:	4.8
Chemical:	SULFATE	Report units:	MG/L
Dlr:	0.5		
Sample date:	18-JUN-14	Finding:	9.9
Chemical:	CHLORIDE	Report units:	MG/L
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	2.5
Chemical:	POTASSIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	12.
Chemical:	SODIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	20.
Chemical:	MAGNESIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	51.
Chemical:	CALCIUM	Report units:	MG/L
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	210.
Chemical:	HARDNESS (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	230.
Chemical:	BICARBONATE ALKALINITY	Report units:	MG/L
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	190.
Chemical:	ALKALINITY (TOTAL) AS CACO3	Report units:	MG/L
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	7.3
Chemical:	PH, LABORATORY	Report units:	Not Reported
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	400.
Chemical:	SPECIFIC CONDUCTANCE	Report units:	US
Dlr:	0.		
Sample date:	18-JUN-14	Finding:	20.
Chemical:	SOURCE TEMPERATURE C	Report units:	C
Dlr:	0.		

Sample date:	04-JUN-14	Finding:	3.4
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	04-JUN-14	Finding:	3.4
Chemical:	TURBIDITY, LABORATORY	Report units:	NTU
Dlr:	0.1		
Sample date:	05-JUN-13	Finding:	4.8
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	06-JUN-12	Finding:	7.4
Chemical:	NITRATE (AS NO3)	Report units:	MG/L
Dlr:	2.		
Sample date:	09-MAY-12	Finding:	6.6e-002
Chemical:	RADIUM 228	Report units:	PCI/L
Dlr:	1.		
Sample date:	09-MAY-12	Finding:	0.637
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	09-MAY-12	Finding:	0.203
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		
Sample date:	01-FEB-12	Finding:	0.516
Chemical:	RADIUM 228 COUNTING ERROR	Report units:	PCI/L
Dlr:	0.		
Sample date:	01-FEB-12	Finding:	0.205
Chemical:	RADIUM 228 MDA95	Report units:	PCI/L
Dlr:	0.		

26
South
1/2 - 1 Mile
Higher

CA WELLS **CADWR9000007194**

State Well #:	02N02E20N001S	Station ID:	50397
Well Name:	Erwin Park Well	Basin Name:	Bear Valley
Well Use:	Other	Well Type:	Single Well
Well Depth:	334	Well Completion Rpt #:	61413

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92314	8	1

Federal EPA Radon Zone for SAN BERNARDINO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SAN BERNARDINO COUNTY, CA

Number of sites tested: 18

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.678 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005, 2010 and 2015 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

Geothermal Wells Listing
Department of Conservation
Telephone: 916-445-9686
Geothermal well means a well constructed to extract or return water to the ground after it has been used for heating or cooling purposes. Geothermal wells in California (except for wells on federal leases which are administered by the Bureau of Land Management) are permitted, drilled, operated, and permanently sealed and closed (plugged and abandoned) under requirements and procedures administered by the Geothermal Section of the Department of Conservations Geologic Energy Management Division (CalGEM, formerly DOGGR).

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D PROFESSIONAL PROFILES

Kevin Bryan, PG, CEG QSD/QSP

Project Manager/Principal Geologist

Kevin has 28 years' diverse project management and consulting experience in the environmental, geotechnical, and land development fields providing strategic support to public, private, and municipal clients in Southern California. He has managed engineers, geologists, and technical staff to identify and deliver seamless client-centric project solutions, and has led high performing teams in the areas of large-scale environmental and geotechnical investigations and cleanups, property entitlement processes, and industrial/commercial property redevelopment. Kevin has played a key role in proposing, managing, and executing numerous major multi-year environmental services contracts with public, municipal, and school district clients across Southern California.



Experience: 28 years' experience in geotechnical, environmental, and land development fields supporting projects in commercial, industrial, manufacturing, construction, education, and municipal sectors

Email: kevin.bryan@erm.com

Education

- M.S., Geological Sciences, San Diego University, San Diego, USA, 1992
- B.S., Geological Sciences, San Diego University, San Diego, USA, 1989

Professional Affiliations and Registrations

- Professional Geologist (CA #6950)
- Certified Engineering Geologist (CA #2182)
- Qualified SWPPP Developer/Practitioner (QSD/QSP - #06950)
- OSHA 40hr HAZWOPER Certification and 8-hour refreshers
- Current First Aid/CPR, AED Certification

Languages

- English, native speaker

Fields of Competence

- Groundwater/Soil/Soil Vapor/Air Investigation
- Site Remediation
- Stormwater Management
- Transactional Due Diligence
- Environmental Health and Safety Auditing
- Regulatory Compliance Auditing
- Feasibility Studies for Planning Purposes
- Geotechnical Investigations
- Land Development
- Project Management and Staff Mentorship

Key Industry Sectors

- Commercial Development
- Industrial Manufacturing
- Education
- Transportation
- Municipal

Key Projects Prior to Joining ERM

ENVIRONMENTAL

Port of Los Angeles - Environmental Management Division (POLA), San Pedro, CA

Project Manager/Primary Point of Contact for multi-year, multi-project, on-call, environmental services contract. Total contract amount $6.4M over 6 years examples:

- Environmental Management System currently used by Construction and Maintenance (C&M) and several other Divisions at the POLA (ERM).
- Remediation and Human Health Risk Assessment related to the Berth 200 CP Transfer Junction Rail Realignment Project (LCI).
- Site characterization/investigation and Human Health Risk Assessment for the Ports O' Call redevelopment project (ERM).
- Soil Management Plan for Ports O' Call redevelopment project, (LCI).
- Port Police Building Aspects analysis (ERM).
- Southern California International Gateway Project (SCIG), spot remediation of chemically impacted soils at 100-acre site (LCI).
- Soil Vapor Investigation northwest corner of the Southern California International Gateway Project (SCIG), implementation of work plan developed by another consultant prior to installation and sampling of 25+ nested soil vapor probes, reporting (LCI).
- Focused Groundwater and Soil Screening Report, Exxon Mobil Tank Farm Area 2, 531 and 551 Pilchard Street, Terminal Island, Los Angeles County, California (LCI).
- As-built Completion Summary Report, Vopak Pipeline Relocation for the Berth 200 Rail Yard Project, Former Koppers Facility Site (LCI).
- Long term remedial costs estimates for former Koppers wood-treating facility.
- Soil and Soil Vapor sampling Exxon Mobile Southwest Bulk Fuel Storage Terminal #1, Exxon Mobile Bulk Crude Tank Storage Farm.

County of Los Angeles Department of Public Works – Los Angeles County, CA

Project Manager - Preparation of Countywide policy document for Local Agency Management Program (LAMP) for Onsite Waste Water Treatment Systems (OWTS). Policy applies to all OWTS in Los Angeles County that have domestic wastewater design flows of up to 10,000 gallons per day (gpd). Currently applies to over 26,000 OWTS across LA County.

County of Los Angeles Department of Public Health (DPH), Los Angeles, CA

Project Manager/Primary Point of Contact for Department of Public Health as part of the County Toxic Threat Task Force during Aliso Canyon Natural Gas Leak Disaster. Prepared and implemented Time Critical Residential Indoor Environmental Sampling Program for residences and a school in the Porter Ranch Community to assess the indoor environment for residual contaminants potentially associated with the Aliso Canyon Facility natural gas blowout. Project Manager/prime contractor and core steering committee member working closely with DPH during design and implementation of the $25M multi-year Public Health Research Study of the long-term effects of the Aliso Canyon Natural Gas Blowout, considered the largest natural gas leak in US. History.

County of San Diego – Campo Area, San Diego County, CA - Project Manager

Underground Fuel Storage Tank (UST) removal and groundwater investigation during removal of 2 previously unknown underground storage tanks (1 diesel and 1 gasoline) associated with the Former Camp Lockett Military Facility motor pool area. Prepared tank removal and closure report for submittal to San Diego Department of Environmental Health (SDDEH).

Pilot Flying J Fuels - dba Maxum Petroleum, Port of Los Angeles, Terminal Island, CA

Directly responsible for site characterization investigation and preparation and implementation of

Remedial Action Plan associated with remediation at active marine fueling terminal. Project include demolition of existing above ground tanks, underground piping, and associated appurtenances, permitting with agencies and POLA, quarterly and annual groundwater monitoring, coordination with adjacent lease holders, management of all subcontractors and oversight of demolition and remedial actions including soil removal and replacement prior to in-situ chemical oxidation. Coordination with Regional Water Quality Control Board (RWQCB) to obtain approval of Long term bio-sparging, bio-venting workplan and operation and maintenance plan.

G&M Oil, Soil Vapor Extraction Remediation, San Diego, CA
Principal technical review of two environmental site assessment and remediation projects in San Diego for G&M Oil. Both sites had leaking underground storage tanks (LUSTs) removed which were the documented sources of soil and groundwater contamination. Reviewed groundwater monitoring reports and site history and participated in site closure (in process) via natural attenuation (Station 63). At Station 45 considerable site assessment and remediation activities had taken place since 2007. A Dual-Phase Extraction (DPE) system was installed and became operational in 2011. Currently, the DPE remediation has removed free product to the maximum practical extent and closure is anticipated in 2015. Both G&M Oil Sites have been accepted by and are reimbursed by the State of California UST reimbursement fund.

San Diego Ball Park Village Redevelopment Project, San Diego, CA
Directly responsible for preparation and implementation of site characterization and Property Mitigation Plan (PMP) for proposed Ballpark Village Parcel C project. Project consists of proposed mixed-use, 38-level, condominium/apartment tower, below grade parking structure supporting five separate wood framed apartment/retail and condominium buildings and a pedestrian plaza located at Imperial Avenue and Park Boulevard. Work was completed under guidance of County of San Diego Department of Environmental Health (SDDEH) and Site Assessment and Mitigation (SAM) Program Manual. Primary remedial focus was driven by elevated concentrations of lead (anthropogenic) impacted fill associated with historic San Diego Gas and Electric (SDG&E) Station A formerly located on-Site. Additional chemicals of concern include polynuclear aromatic hydrocarbons (PAHs) associated with burn ash from former SDG&E manufactured gas plant (MGP) operations, petroleum hydrocarbon impacted soil from former underground storage tanks (USTs), and abandoned Unocal Pipeline.

Blue Sky San Diego Redevelopment Project, San Diego, CA
Principal technical review of Property Mitigation Plan (PMP) associated with downtown redevelopment project. Mitigation included removal of former underground storage tank (petroleum), numerous cisterns, and burn pits (i.e. backyard incinerators or trash burn pits) and brick lined wells. Additional scope included sampling and analyses of impacted soils for waste characterization prior to disposal.

Balfour Beatty Group Audit Protocol (BBGAP-US) North American Environmental Health and Safety Audit Program.
Project Lead Auditor. Project Director/Manager and lead environmental auditor during implementation of EH&S audit protocol program. Audit protocol included onsite evaluation of implementation and consistency of environmental management systems, overall EH&S operations, SWPPP and Stormwater compliance, subcontractor performance evaluations, document review, daily presentation of findings to BB executives and project team and final closure reporting. Individual audits required an average of 4-5 days to complete at the specific site, examples:

- San Diego, CA - Douglas Barnhart- MCRD Barracks Building 570 Reconstruction Project.

- Glendale, AZ - Demolition and remodel, 570-units of residential housing at Luke AFB.
- Plano, TX - Bank of America Data Center, complete reconfiguration and retrofitting of 400,000 square foot data center facility.
- Gillette, WY - BB-Rail Construction and Maintenance Division operations at active 5,000-acre open pit coal mine.
- Red Bluff, CA - BB-Infrastructure Division U.S. Bureau of Reclamation Red Bluff Diversion Dam (RBDD) Fish Passage Improvement Project.
- Denver, CO - City of Denver Light rail Expansion Project, Littleton to Denver Airport.
- Fort Carson, CO - Demolition and remodel of 300-unit Military Housing Project at Fort Carson.
- Washington, DC - National Public Radio Headquarters Construction Project Site.
- Englewood, FL - $40M Lemon Bay High School re-construction Project.
- Goldsboro, NC, - BB-Rail Traction Power Group manufacturing facility.
- Indianapolis, IN - Rail switchyard construction at largest plastics manufacturing plant in US.

Rancho Santa Fe School District Expansion Properties, Rancho Santa Fe, CA

- Preparation and completion of Preliminary Endangerment Assessment (PEA), Supplemental Site Investigation (SSI) and Human Health Risk Assessment (HHRA) associated with proposed school district expansion properties. Managed personnel, fieldwork, report preparation, and negotiations with Department of Toxic Substances Control (DTSC) during preparation of title Land Use Restrictions under extremely tight timeline resulting in agency approval of PEA and SSI. Timely PEA completion and approval resulted in school district receiving additional $4 million in California Department of Education (CDE) funding.

Kop-Coat, Inc., City of Vernon, CA

Preparation and implementation of Facility Closure Plan for former industrial paint and marine coatings manufacturer. Facility closure operations included detailed inventory and environmental evaluation of equipment previously used during manufacturing processes. Equipment included large hydraulic floor-mounted mixers, steel mixing and storage vessels, aboveground storage tanks that held solvents and hazardous waste materials, in-ground hydraulic lifts, and industrial ball and pebble mills. Project included removal of 17 underground storage tanks which formerly held various solvents, raw materials, storm water, and tung oil. Completion and submittal of closure report for removal and disposal of all manufacturing equipment and former USTs.

OSKI Energy – Gysers Geothermal Resource Area, Lake County, CA

Performed environmental review support services and completed engineering geologic review of former geothermal resource area exploratory drilling pads, slopes, and access roads prior to proposed re-initiation of deep drilling exploration operations. Pad and roadway areas contained asbestos bearing rock and other environmentally sensitive natural and engineered materials.

McMillin – Land Development, Chula Vista, CA

Consulting services associated with property impacted by unexploded ordinance (UXO) and located within a Formerly Used Defense Site (FUDS) overlay. Initiated and supported negotiations between client and United States Army Corps of Engineers (USACE), California Environmental Protection Agency (Cal EPA), and Department of Toxic Substances Control (DTSC) related to Voluntary Clean-up Agreement (VCA) options.

Imerys/World Minerals – Celite Mine, Lompoc, CA

Team Lead during EH&S review and assessment of 5,000-acre diatomaceous earth (DE) mine and processing facility located in Lompoc, Ca. Assessment included audit of environmental documentation and permitting, compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements as well as visual assessment of existing tailings impoundments and dam structures.

Ian Todd, AICP

Partner, Renewables

Ian is a Partner focused on siting, development, permitting, and land use entitlement for renewable energy projects throughout California and the West. Ian has extensive experience across all technologies including solar (photovoltaics and concentrated), battery storage, and onshore and offshore wind. He works with project proponents and agencies throughout the project planning process to ensure proposed actions are environmentally and technically feasible, and assists in facilitating solutions for siting limitations and constraints. Drawing on his background in environmental law and policy, along with environmental science, he thoroughly understands the local, state, and federal regulatory framework and can guide clients through an effective permitting strategy. Ian is an excellent leader and mediator of multidisciplinary teams and works with project team members to meet regulatory compliance requirements, conflict resolution, and client and agency expectations.



Experience: 14 years of experience in environmental and land use permitting for renewable energy infrastructure projects.

Email: ian.todd@erm.com

LinkedIn: www.linkedin.com/in/ian-todd

Education

- MELP, Environmental Law and Policy, Vermont Law School, 2014
- BA, Environmental Studies, University of San Diego, 2009

Professional Affiliations and Registrations

- American Institute of Certified Planners
- American Clean Power
- Offshore Wind California

Languages

- English, native speaker

Fields of Competence

- Renewable energy development
- Land use and zoning
- Siting
- Permitting strategy
- California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) document preparation
- Environmental law and policy
- Critical issues analyses and risk assessment
- Land use entitlement
- M&A due diligence

Key Industry Sectors

- Solar
- Onshore and Offshore Wind
- Battery Energy Storage Systems (BESS)
- Power

Publications

- California Data – Implications for Planning and Permitting, Offshore Wind California, December 2020.

Key Projects Prior to Joining ERM

Antelope Expansion 3 Solar Project
Served as the project manager for a 150-acre solar project in unincorporated Los Angeles County. The project included preparation of a Mitigated Negative Declaration (MND) and technical studies including rare plants, jurisdictional delineation, and general biological resources. Worked closely with the project applicant, sPower, Los Angeles County staff, California Department of Fish and Wildlife (CDFW), and the Audubon Society to identify appropriate on-site and off-site compensatory mitigation for project impacts. The project was approved unanimously by the Los Angeles County Board of Supervisors in September 2019.

California Offshore Wind Constraints Analyses (Multiple Clients)
Served as the Permitting and Siting Lead for multiple desktop analyses for the proposed Morro Bay and Humboldt Wind Energy Areas (WEAs) for several potential leaseholders prior to the lease auction. Examined the WEAs and identified constraints within each of the lease areas, potential cable routes, and landfall and onshore location gen-tie sites. Examined environmental and anthropogenic resources, including marine mammals, commercial fisheries, benthic habitats, terrestrial and marine archaeology, viewshed, and substrates, among others. The analysis included heat maps to depict the most and least constrained areas in the marine environment, a permitting matrix, and identification of potential substation and landfall locations.

Heliogen Lancaster Solar Demonstration Project
Directed the preparation and coordination of a Conditional Use Permit (CUP) and entitlement services related to the Lancaster Solar Test Facility located in the City of Lancaster. The Lancaster Solar Test Facility includes demonstration projects for concentrated solar technologies, hydrogen production, and automated vehicle testing. Under a tight schedule, coordinated with the City on the requisite technical studies and prepared a noise study and air quality report.

Gas Company Road Solar Project
Served as the project manager for an up to 8 megawatt alternating current (MWAC) crystalline solar photovoltaic (PV) energy generation facility, power conversion system (PCS), and Battery Energy Storage System (BESS). The project site consists of two irregular-shaped parcels. Parcel Number 220-240-26, which is approximately 53.24 acres, is zoned for Industrial uses and would be developed with the MWAC solar PV energy generation system and BESS energy storage system. Managed the agency coordination and Incidental Take Permitting for the project for the Nelson's antelope squirrel, San Joaquin kit fox, and Temblor legless lizard.

Fifth Standard Solar Project
Served as the project director for pre-construction and construction compliance services for the 1,600-acre Fifth Standard Solar Project. Services included biological resources, cultural resources, and paleontological resources monitoring and Worker Environmental Awareness Program (WEAP) training. In addition to construction compliance monitoring, invasive weed mapping and mitigation strategies for invasive weed control were conducted. Worked closely with the client and construction contractor to coordinate construction schedule and associated monitoring needs to provide efficient and cost-effective compliance needs.

Polaris Solar Project
Served as the project manager supporting Heliogen with their environmental and land use permitting at the Polaris Solar Project which is a concentrated solar facility providing renewable steam to the adjacent Rio Tinto Borax Mine for industrial processing. The project requires an Authority to Construct permit from the Eastern Kern County Air Pollution Control District (APCD), who is acting as the California Environmental Quality Act (CEQA) lead agency. Led agency coordination with the APCD on

the Authority to Construct and CEQA, along with Kern County on the grading and building permit processes. The project also required an Incidental Take Permit (ITP) for Mojave Ground Squirrel and Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW).

The cultural resources survey discovered multiple resources related to the historic mining facility at the Rio Tinto Borax Mine which has been in operation for over 150 years.

Capella Solar Project
Served as the project manager assisting with Conditional Use Permitting for a 142-acre, 5 MW concentrated solar facility (CSP) demonstration project located in unincorporated Kern County, California. The project included an approximately 330-foot-tall power tower. Directed preparation of all the necessary technical studies for the purposes of CEQA including hydrology, biological resources, cultural resources, air quality, paleontological resources, water supply assessment, noise, Phase I ESA, energy, visual resources, glare, and transportation. Worked with Heliogen to design the facility to avoid impacts to Joshua trees. The project included protocol surveys for the endangered Mojave ground squirrel. Assisted with outreach to the Audubon Society related to bird impacts and possible mitigation strategies. National Environmental Policy Act (NEPA) environmental review was also required due grant funding from the Department of Energy (DOE). Provided peer review of the CEQA/NEPA document and permitting and agency strategy on behalf of the applicant.

Vikings Solar Project
Served as the project manager for a variety of technical studies for a CUP for a 100 MW solar and storage project in Imperial County, California. These studies included biological resources, cultural resources, aquatic resources, air quality/greenhouse gas (GHG) emissions, traffic, agricultural land conversion, and paleontological resources. ERM was able to make all project deadlines within an accelerated timeframe. Provided the client with permitting strategy and CEQA support for the project as it moved through the permitting phase with Imperial County.

Noosa Battery Energy Storage System Project
Served as the project manager for the preparation of a critical issues analysis and environmental due diligence for a 400MWh BESS in the City of Ripon, California. Upon completion of the critical issues analysis, it was determined that the project was categorically exempt from CEQA. Assisted in the land use permitting application and entitlements including a CUP, Project Description, Site Plan, and Environmental Information Form. Ministerial permitting such as a grading permit, demolition permit, and Construction General Permit were also obtained. Worked closely with the developer, land use attorney, and City Planning Department to ensure a smooth permit review process.

Orsted Revolution Wind Farm
NEPA and Quality Assurance/Quality Control (QA/QC) Lead for the proposed 704-MW offshore wind farm that will provide 304 MW to Connecticut and 400 MW to Rhode Island.

Starlight Solar Project
Served as the project manager for a 700-acre, 100-MW utility-scale solar and 800-MW battery storage project located on private land in eastern unincorporated San Diego County – the Starlight Solar Project. San Diego County is the lead agency for the project. The project is an important component of meeting the County's local renewable energy procurement targets. The Environmental Impact Report (EIR) will be supported by several technical studies including biology, jurisdictional waters, cultural resources, wildfire, noise, air quality, and visual resources (including glare and visual simulations). Assisted in the design of the project by identifying constraints and working with the design

team to limit environmental impacts. Conducted protocol-level Quino checkerspot butterfly surveys and seasonal rare plant surveys. A mitigation area up to approximately 2,000 acres for the solar project is located adjacent to the solar project which was identified in consultation with California Department of Fish and Wildlife. Led tribal outreach and consultation on behalf of the applicant.

Several Counties in California Solar Due Diligence
Served as the project manager for a high-level permitting strategy for potential solar development options in several California counties. Permitting strategy included constraints associated with biological resources, land use plans, agricultural lands, environmental review requirements, cultural resources, and zoning. Spearheaded the technical memorandum framework and provided oversight of individual planners researching and writing about key issues.

Soda Mountain Solar Project
Served as the Project Director of the controversial Soda Mountain Solar Project. The project was initially denied by the San Bernardino County Board of Supervisors in 2016. Services provided to-date include agency outreach and consultation to establish a new CEQA lead agency. Agencies that have been consulted include the CDFW, California Energy Commission (CEC), Lahontan Regional Water Quality Control Board (RWQCB), and San Bernardino County to establish a workable permitting pathway for the project. Ultimately, CDFW was determined to be the appropriate lead agency and preparation of an Incidental Take Permit (ITP) was undertaken to initiate the CEQA process. A Notice of Preparation was released in January 2023 and Draft EIR is anticipated in winter 2024.

Morgan Valley Wind Project
Served as the project manager for an early-stage wind project. Managed high-level agency coordination, biological and cultural resource surveys (including rare plant surveys), and land use permitting for meteorological towers associated with the Morgan Valley Wind Project in unincorporated Lake County, California.

North Star Solar Project
Served as the Project Director managing the CUP process for the North Star Solar Project in unincorporated Riverside County, California. The CUP will cover the 150 MW solar generation facility. Managed the technical studies and CEQA environmental review for the project. The project is controversial due to its proximity to the Salton Sea and several rural residences. Technical studies include biological resources, cultural resources, paleontology, visual/glare, air quality, and noise.

CAISO Greenfield Siting and Permitting Research
Served as the project manager for a high-level siting and due diligence package for a renewable development company within the California Integrated System Operator (CAISO) territory to determine general areas to begin studying wind energy development opportunities. The environmental due diligence analysis identified previous development trends, general environmental risks (e.g., agricultural land), biological resources, land use constraints, policy moratoriums, and political context for eight California counties. In addition, 12 site-specific areas of interest were analyzed that were provided by the developer. The analysis concluded with opportunities and constraints for each of the counties and areas of interest. Based on the analysis, the renewable development company determined that one county and one area of interest were particularly suitable for wind energy development and further development activities were mobilized.

Overnight Solar Project
Served as the Project Director assisting with the processing of a CUP and a Zone Change for the Overnight Solar Project located in unincorporated San Bernardino County, California. Primary liaison

with the San Bernardino County Land Use Services Department and working closely with the County on the zone change and CUP. The approval would be unprecedented for a utility-scale solar project located on land zoned as Rural Living (RL) as the County currently has a moratorium for solar projects within the RL land use designation.

Milford Solar II Project
Led the preparation of a Plan of Development (POD) and Environmental Assessment (EA) for the Bureau of Land Management (BLM), Cedar City Office, related to a generation tie-line for a 2,000-acre, 250 MW solar project with a 130,000 square foot BESS facility. Assisted Longroad Energy with the preparation and submittal of an Environmental Assessment Report (EAR) for the Beaver County Planning Department and facilitated a public scoping hearing. Managed environmental resource surveys (biological, water, and cultural resources and a glare study) and reporting in support of project permitting. The project team utilized creative solutions by utilizing the EAR for County approvals, but also for the purposes of CEQA compliance. CEQA compliance was required by the Southern California Public Power Authority (SCPPA) for the approval of their power purchase agreement.

Renewables Siting and Regulatory Screening Program
Serve as a consultant to the Western Power Trading Forum Project Development and Operations Committee providing monthly regulatory and policy updates related to utility-scale renewable generation and transmission projects. The monthly updates are focused on land use, political framework of local decisionmakers, and environmental permitting. The purpose of the committee is to identify suitable project locations for site development for members.

Southern California Edison Fort Irwin Reliability Project
Managed and contributed to preparation of EA/MND for this transmission line improvement project located on lands administered by the BLM and Department of Defense as well as private landowners. Services include the development of the BLM Plan of Development (POD), preparation of the EA, and biological, jurisdictional waters, cultural, and paleontological technical studies and reports to support the EA, POD, and environmental permits.

Moorpark-Pardee No. 4 Transmission Line Rating Remediation Project
Served as the project manager for General Order (GO 131-D) evaluation for a new Southern California Edison 230 kV transmission line from the Moorpark Substation to the Pardee Substation in Los Angeles and Ventura Counties. Directed extensive biological and cultural environmental surveys required to determine project impacts and avoidance/minimization measures for the project. Prepared U.S. Army Corps of Engineers and California Department of Fish and Wildlife permit applications for waters of the U.S. and waters of the State. Directed protocol-level surveys for the federally listed California gnatcatcher. Identified environmental constraints to assist in permitting and planning strategy.

Southern California Edison (SCE) Transmission Line Rating Remediation Program
Served as the program manager for ongoing environmental services support to SCE with their G.O. 131-D internal compliance program. Projects remediate G.O. 95 transmission line remediation rating discrepancies on bulk transmission and subtransmission lines throughout SCE's service territory. Projects included a variety of construction activities, including structure replacements, helicopter use, structure raises, interset structures, and wire work in nearly all types of natural and urban environments in Southern California. Dozens of G.O. 131-D Environmental Evaluations and technical background surveys and studies were completed to determine avoidance/minimization measures, and support and document no significant impacts

associated with the ongoing capital improvement projects.

Marlene Mattola

Consultant II, Due Diligence

Marlene is a consultant with 5 years of professional experience. Experience in due diligence assessments including Phase I ESAs for various commercial, industrial, and residential sites. She has completed Environmental Compliance Reviews, Corporate Desktop Reviews, Health & Safety Audits, and other advisory products. Her experience also includes conducting Phase II ESAs and remedial activities for residential and commercial sites involving soil, groundwater, soot and ash, mold, and asbestos. Marlene was Environmental Health and Safety (EH&S) coordinator for several remediation sites and conducted site inspections to assess compliance with stormwater, hazardous waste regulations, hazardous material, BMP maintenance, EHS compliance, air quality, environmental field sampling, monitoring, and surveying.



Experience: 5 years' experience in environmental consulting

Email: marlene.mattola@erm.com

LinkedIn: https://www.linkedin/com/in/mmattola

Education

- Bachelor of Science, Biology
  Old Dominion University, USA, 2013

Languages

- English

Fields of Competence

- Phase I and II Site Assessments
- Project Management
- Environmental Compliance Reviews
- Health and Safety Reviews
- Remediation and Construction Oversite

Key Industry Sectors

- Commercial
- Industrial
- Manufacturing

Key Projects Prior to Joining ERM

Phase I Environmental Site Assessments
Performed due diligence assessments including Phase I ESAs for various commercial, industrial, and residential sites. Prepared technical reports using historical and government records, database searches, hydrogeological analysis, interviews, and site reconnaissance. Prepared cost estimates, scopes of services and assisted writing proposals for environmental and remediation opportunities.

Phase II Environmental Site Assessments
Conducted Phase II ESAs and remedial activities for residential and commercial sites involving soil, groundwater, soot and ash, mold, and asbestos. Performed inspections, oversight, sampling, interpreting laboratory data and wrote technical reports. Took leadership as the Environmental Health and Safety (EH&S) coordinator for several remediation sites and helped prepare Site Specific Health and Safety Plans (SSHP) and Job Safety Analyses (JSAs). Prepared billing and invoicing documents for numerous venders and subcontractors.

Environmental Compliance
Conducted site inspections to assess compliance with stormwater, hazardous waste regulations, hazardous material, BMP maintenance, EHS compliance, air quality, environmental field sampling, monitoring and surveying. Prepared technical documents, environmental compliance reviews, environmental permit application packages, audits, plans, permit applications and reports for a variety of environmental programs including wastewater, hazardous waste, hazardous material, air quality, Stormwater Pollution Prevention Plans (SWPPP), and Spill Prevention, Control, and Countermeasure (SPCC) plans.

Kristal Nadimyan

Managing Consultant

Kristal is a Managing Consultant with ERM's Impact Assessment and Planning team. Kristal has over 6 years of experience supporting and managing Utility, Development, Solar, and BESS projects in California. Her management skillset includes oversight and execution of multi-tasked, multi-phased scopes of work and supervision of cross-functional teams. She has managed teams of 20+ people and focuses on providing high quality deliverables under tight timelines and budget. She is also experienced in biological habitat assessments and acts as a jurisdictional delineation technician.



EXPERIENCE: 6 years of experience in the Energy sector

LINKEDIN: www.linkedin.com/in/kristal-nadimyan-1126a015b/

EMAIL: kristal.nadimyan@erm.com

EDUCATION

- B.S. Environmental Science, California State University, Fresno, USA, 2018
- A.A Social Science, Reedley College, Reedley, USA, 2013

LANGUAGES

- English, native speaker
- Spanish, limited working proficiency

FIELDS OF COMPETENCE

- Project Management
- Team leadership and coordination
- QA/QC

KEY INDUSTRY SECTORS

- Energy

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- Utility
- Development

TRAININGS AND WORKSHOPS

- Basic Wetland Delineation. Wetland Training Institute, Inc. (WTI), February, 2019
- Plant Identification for Southern California, Wetland Training Institute, Inc. (WTI), May, 2022
- CPR/AED (American Red Cross), 2018

KEY PROJECTS

Managing Consultant - IMPACT ASSESSMENT & PLANNING | ERM | MARCH 2021 – CURRENT

PROJECT MANAGER FOR A SOLAR DEVELOPMENT CLIENT IN CALIFORNIA REQUIRING A SUITE OF TECHNICAL STUDIES ON PUBLIC LAND

- Ensured adherence to scope, schedule, and budget for a proposed 500 megawatt (MW) solar generation facility located on 3,200 acres of land managed by the Bureau of Land Management (BLM) in Imperial County, California.
- Created and negotiated budget augments, resulted in a running project total of 2.1M.
- Oversaw multidisciplinary team including of technical experts and ensured high quality deliverables. Technical scope included biological and cultural resources assessments, jurisdictional determination, paleontological analysis, traffic analysis, air quality and greenhouse gas analysis, hydrological analyses, restoration and revegetation plan, visual resources analysis.
- Regularly met and coordinated with BLM, El Centro office and Imperial County Planning department in preparation of a joint CEQA/NEPA document.
- Built positive rapport and collaborative communication with agencies.
- Oversaw staffing of a multi-phased biological field effort with more than 50 rotating field staff, while ensuring adherence to strict BLM and CDFW protocols and timeline.
- Informed client of siting implications and advised on alternatives to minimize impacts to biological and waters resources to limit mitigation costs and offsets.
- Leveraged ArcGIS Online to illustrate and advise on areas of high resource density.
- Provided high-quality deliverables to client under tight timelines and budget.
- Remained highly flexible and resilient under shifting project demands with minimal oversight.

- PROJECT MANAGER FOR MULTIPLE UTILITY-SCALE BATTERY ENERGY STORAGE SYSTEMS (BESS) FOR CLIENT SITES ACROSS CALIFORNIA

  - Managed up to (3) BESS projects at a given time in Sacramento, Kings, Los Angeles, Riverside, and San Luis Obispo counties.
  - Oversaw project from development of proposal, through CIA analysis, CUP permit submittal, and CEQA process.
  - Oversight of technical scope and subject matter experts. Delivery of high-quality technical deliverables in support of CEQA including biological report, cultural report, air quality and greenhouse gas analyses,

grading plans, jurisdictional delineation report, Phase I environmental report, hydrology report, and noise studies.

- CURRENT ACTING PROJECT MANAGER FOR A KEY CLIENT IN CALIFORNIA (TRANSMISSION/POWER SECTOR) DEVELOPMENT AND MANAGEMENT OF MULTI-YEAR PROGRAMS
    - Prioritized client-focused customer service and quality deliverables.
    - Leveraged management skillset to successfully select and oversee a team of up to 25 people across multiple disciplines to support project growth.
    - Designed and staffed a programmatic workflow model.
    - Regularly acted as technical subject matter expert for program, providing guidance, training, and mentorship to junior staff, ensuring compliance and adherence to contract
    - Oversight of large-scale construction project compliance and team and subconsultant management.
    - Well-versed in schedule and task execution, as well as negotiations for out-of-scope tasks and contract augments.
    - Regularly acted as jurisdictional delineation technician in support of senior delineators.
    - Conducted nesting bird surveys in compliance with the Migratory Bird Treaty Act (MBTA).

- DEPUTY PROJECT MANAGER FOR PROPOSED ENERGY STORAGE CENTER PROJECT IN RIVERSIDE COUNTY, CALIFORNIA
    - Assisted with proposal/budget, performed field work, and aided in development of the biological resources due-diligence/constraints analysis for an undeveloped 30-acre site within the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP).
    - Biological technical document preparation.
    - Supported project manager in advising the client regarding anticipated state and federal regulatory permitting and mitigation requirements associated with project impacts to potentially jurisdictional aquatic features onsite.

- DEPUTY PROJECT MANAGER FOR PRIVATE DEVELOPMENT PROJECT IN SAN BERNARDINO COUNTY, CALIFORNIA REQUIRING AN ENTIRE SUITE OF TECHNICAL STUDIES FOR ENTITLEMENT.
    - Managed schedule and delegation for multidisciplinary team. Multi-tasked technical scope included biological and cultural resources assessments, traffic analysis, greenhouse gas impact analysis, hydrology/drainage assessment, stormwater assessment, and fiscal impact assessment.
    - Assisted in preparation of the jurisdictional delineation and biological resources assessment for the project.
    - Approved biologist for general biological assessments in San Bernardino County.

- PROJECT BIOLOGIST FOR A KEY CLIENT PROJECT REQUIRING DESKTOP SITING STUDIES FOR AN ANTICIPATED 500 KV TRANSMISSION LINE EXPANSION PROJECT PENDING CALIFORNIA INDEPENDENT SYSTEM OPERATOR (ISO) DECISION.
    - Assisted in preparation draft preliminary routing support studies with eight different routing options within a compressed schedule and budget in advance of a Critical Issues Analysis (CIA) for the project.
    - Leveraged ArcGIS Web Map technology to easily compile and analyze various data sources for the client given anticipated and known environmental constraints under a variety of potential siting options.

KEY PROJECTS PRIOR TO JOINING ERM

WILDLIFE BIOLOGIST II | Cardno | May 2019 – March 2021

MANAGEMENT EXPERIENCE FOR A KEY CLIENT IN CALIFORNIA (TRANSMISSION/POWER SECTOR)

- Supported a high volume of construction requests occurring on private and public lands across California.
- Coordinated construction schedules and ensured construction and field staff remained compliant with environmental requirements and BMP's in support of projects occurring in various high fire risk areas throughout California.
- Acted as field point of contact for field staff personnel and reported construction non-compliances to client.
- Performed biological and wetlands desktop reviews and field surveys.
- Oversaw and trained junior staff.
- Performed Quality Assurance and Quality Control of field staff reports amongst eight firms, ensuring a high-quality standard and consistency of reporting was maintained for the client.
- Identified and reported issues to sub-consultant managers and navigated delicate situations including poor reporting performance.

FIELD SCIENTIST (ON-CALL) | COLIBRI ECOLOGICAL CONSULTING | JUNE 2018 – MAY 2019

- Conducted federal and state listed special-status species surveys, general biological assessments, jurisdictional delineations for large scale projects, including the California High Speed Rail and a Key Client in California in the Transmission and Power Sector.
- Extensive surveying for species including: blunt-nosed leopard lizard, pacific fisher, Yosemite toad, Sierra Nevada yellow legged frog, western pond turtle, and nesting birds.

RESEARCH SUPERVISOR AND ASSISTANT | CALIFORNIA STATE UNIVERSITY FRESNO | OCTOBER 2017 – JUNE 2018

- Assisted in sediment analysis of samples from multiple sites in Morro Bay, CA, using various laboratory techniques and equipment.
- Operated a particle analyzer for grain size analysis and logged and analyzed data in Microsoft Excel.
- Oversaw and directed freshmen students in conducting analysis from start to finish.



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APPENDIX G LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT

Limited Phase II Environmental Site Assessment

Bear Valley Solar Energy Project

PREPARED FOR
EDF Renewables Distribution-Scale Power

DATE
31 July 2025

REFERENCE
0739207



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.	
DOCUMENT TITLE	Limited Phase II Environmental Site Assessment
DOCUMENT SUBTITLE	Bear Valley Solar Energy Project
PROJECT NUMBER	0739207
DATE	31 July 2025
AUTHOR	Edwin Rodriguez
CLIENT NAME	EDF Renewables Distribution-Scale Power

DOCUMENT HISTORY

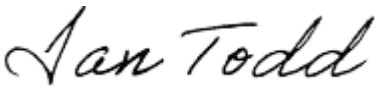
				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
1	000	Edwin Rodriguez	Kevin Bryan, Mat Carson	Ian Todd	10 January 2025	
2	000	Edwin Rodriguez	Linnea Hofstrom, Mat Carson	Ian Todd	31 July 2025	Response to County comments

SIGNATURE PAGE

Limited Phase II Environmental Site Assessment

Bear Valley Solar Energy Project

0739207



Ian Todd
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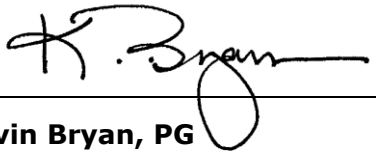
Edwin Rodriguez
Managing Consultant



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ACRONYMS AND ABBREVIATIONS

Acronym	Description
bgs	Below Ground Surface
DTSC	Department of Toxic Substances Control
ERM	Environmental Resources Management, Inc.
ESA	Environmental Site Assessment (for either Phase I or Phase II)

Acronym	Description
HASP	Health and Safety Plan
mg/kg	Milligrams per kilogram
mg/L	Milligrams per Liter
QA/QC	quality assurance/quality control
STLC	Soluble Threshold Limit Concentration
TTLC	Total Threshold Limit Concentration
USEPA	U.S. Environmental Protection Agency
WET	Waste Extraction Test

1. INTRODUCTION

Environmental Resources Management, Inc. (ERM) conducted a Limited Phase II Environmental Site Assessment (ESA) Report (Report) for the Bear Valley Solar Energy Project site located in Big Bear, unincorporated San Bernardino County, California ("Subject Property" or "Property"). In ERM's Phase I ESA, dated 23 July 2024, ERM identified one recognized environmental condition (REC) related to historical mining operations (ERM 2024). To evaluate the REC and the potential for mining-related hazardous metals that could have infiltrated into the surrounding soil at the Subject Property, ERM collected limited soil samples near the mining features, conducted laboratory analysis, and assessed the results to determine if mining-related hazardous metals are present within the Subject Property above California regulatory limits. This Report summarizes the results of this Limited Phase II ESA.

2. BACKGROUND

2.1 LOCATION

The Subject Property is located on the eastern side of Lakewood Drive and southern side of Erwin Ranch Road, in Big Bear, unincorporated San Bernardino County, California. The general location of the Subject Property and the physiographic features of the surrounding area are depicted on Figure 1, developed from the United States Geological Survey 7.5-minute quadrangle for Big Bear City, California, dated 2021.

2.2 GEOLOGY AND HYDROGEOLOGY

According to the EDR report included with the Phase I ESA (ERM 2024), surface soils in the Subject Property vicinity are described as generally composed of Avawats and Olete soils. Avawats soils are generally described as Class A soils that are well drained with high infiltration rates. Olete soils are generally described as Class B soils that are moderately well drained with moderate infiltration rates. The Olete soil type is not hydric.

According to the EDR report, 26 state groundwater wells are present within a 1-mile radius of the Subject Property. No public water supply wells or federal groundwater wells are present within a 1-mile radius of the Subject Property

The generalized results of gold mining and processing are mineral dusts, mill site residues, and mineral processing wastes containing arsenic, lead, manganese, and petroleum. Contaminants affect site soils and structures and may also affect drainage sediments and proximate locales due to windblown migration and/or surface water transport. The Property-specific, depth to groundwater data necessary to determine shallow groundwater flow direction for the Subject Property are not available, and as such, ERM cannot accurately determine groundwater flow direction at the Subject Property. However, based on surface topography, it is expected that groundwater generally flows to the west toward Baldwin Lake.

It is important to note that groundwater flow direction can be influenced locally and regionally by the presence of local wetland features, surface topography, recharge, and discharge areas, horizontal and vertical inconsistencies in the types and location of subsurface soils, and proximity to water pumping levels.

2.3 CURRENT SITE USE

According to information from the Property representative and EDR report, no operations are currently being conducted at the Subject Property.

3. SOIL SAMPLING AND WASTE MANAGEMENT

3.1 PRE-FIELD ACTIVITIES

Before initiating field activities, ERM conducted the following tasks:

- Prepared a Site-specific Health and Safety Plan (HASP) in accordance with Title 29 of the Code of Federal Regulations, Part 1910.120, and California Code of Regulations, Section 5192.
- Procured necessary sampling materials and equipment to perform soil sampling.
- Sub-surface clearance prior to the ground disturbance activities performed. Marked soil boring locations and notified Underground Service Alert (Dig Alert).
- Performed an onsite private utility survey to locate and mark underground utilities near all proposed boring locations.

3.2 SOIL SAMPLING METHODS

ERM conducted soil sampling on 11 November 2024. ERM advanced seven soil borings within the Subject Property boundary, as shown on Figure 2. Six of the soil borings (SS-2 through SS-7) were field borings located within the approximate area for mining operations (production shaft, ventilation shaft, and mine shaft). To assess "background" conditions unaffected by previous mining operations, ERM identified soil sample SS-1 as a potential representative location and sampled soil at this location for comparison to the other soil borings located closer to the mining operations. To assess the soils at the depth of anticipated ground disturbances needed for construction of the proposed Project, ERM planned to bore via hand augering into the soil to total depth of 5.0 feet below ground surface (bgs) at each location and sample at pre-determined depth intervals of 2.5 feet bgs and 5.0 feet bgs.

Soil borings were visually logged by onsite field geologist to record lithology in accordance with the Unified Soil Classification System. Samples were also observed for indications of potential soil impact (e.g., odor, staining) and any other relevant characteristics.

In total, 11 soil samples (10 primary sample, one profile sample, and one quality assurance/quality control [QA/QC] sample) from the seven soil borings were analyzed for metals by United States Environmental Protection Agency (USEPA) Method 6010B and for total mercury by USEPA Method 7471A. Samples were sent to Enthalpy Analytical, an accredited third-party laboratory, for analysis. Upon completion of soil sampling, ERM backfilled soil borings with bentonite and restored the surface to match the undisturbed conditions.

3.3 DECONTAMINATION PROCEDURES

In between augering each borehole, sampling materials and hand augers were decontaminated using an Alconox solution. Loose material was removed from the hand auger bucket using a brush, and the bucket was then rinsed with purified water and cleaned prior to advancing to the next borehole.

3.4 INVESTIGATION DERIVED WASTE

Soil cuttings were sampled, profiled, and backfilled into respective borings once a waste profile had been generated at each location.

4. RESULTS

4.1 FIELD DESCRIPTION OF BOREHOLE CUTTINGS

Borings SS-1, SS-4, SS-5, and SS-7 were completed to a total depth of 5.0 feet bgs with sample depth intervals at 2.5 feet bgs and 5.0 feet bgs, as planned; however, borings SS-2, SS-3, and SS-6 were completed to total depth of 0.5 feet bgs, with a lone sample taken at the same depth, due to the gravelly soil precluding sampling at the pre-determined sampling intervals.

Onsite soil generally consisted of silts (ML), clay (CL), gravel (GM), and silty sands (SM). Soils were observed to be generally soft, slightly moist, fine- to dense and dry gravel, to a depth of 5.0 feet bgs. No noticeable odor or discoloration of soil samples was observed. Field notes detailing soil sampling activities and lithology are included as Appendix A, and sample locations are included on Figure 2.

4.2 LABORATORY QUALITY ASSURANCE

Enthalpy Analytical reviewed the analytical data for adherence to applicable QA/QC procedures, and deemed the analysis and results as valid. All data can be used for decision making purposes and are included as Appendix B.

4.3 SOIL SAMPLING RESULTS SUMMARY

ERM analyzed 11 soil samples for heavy metals via USEPA Method 6010B, and for total mercury by USEPA Method 7471A.

The soil samples collected were compared to the Soluble Threshold Limit Concentration (STLC) and Total Threshold Limit Concentration (TTLC), both California requirements for hazardous waste.

Table 1 contains the soil analytical results. The following is a summary of these results:

- Ten metals were detected in all soil samples (Arsenic, Barium, Beryllium, Chromium, Cobalt, Copper, Lead, Nickel, Vanadium, Zinc). All detections were below the STLC/TTLC regulatory limits.
- Analyte sample SS-2-0.5-20241111 had a total Chromium reading of 54 mg/kg. This exceeds the STLC trigger value (50 milligrams per kilograms [mg/kg]), considered 10 times the STLC regulatory value. Therefore, an STLC test, or also referred to as the waste extraction test (WET), was performed. The lab control sample yielded an STLC test (WET leachate) reading of 3.878 mg/L for Chromium, which does not exceed the STLC regulatory limit of 5 mg/L. Therefore, the soil is not considered hazardous waste.
- One sample detected Silver below the STLC/TTCL regulatory limit.
- Two samples detected Molybdenum below the STLC/TTCL regulatory limit.
- Antimony, Cadmium, Selenium, and Thallium were non-detect across all samples.
- Mercury was non-detect across all samples.

5. CONCLUSIONS AND RECOMMENDATIONS

ERM assessed 11 soil samples obtained from seven borings during the Limited Phase II ESA. All analyzed compounds detected above their respective laboratory method detection limit were below their respective STLC/TTLC regulatory limits. Based on the results of the laboratory analyses presented in this Report, it is ERM's professional opinion that the specific metals of concern analyzed within the soil samples are not measured above the regulatory limits promulgated by the Department of Toxic Substances Control (DTSC) to be defined as hazardous waste. Furthermore, the soils analyzed do not appear to be impacted by any historical releases associated with the Subject Property's former use of mining.

6. REFERENCES

Environmental Resources Management, Inc. (ERM). 2024. *Phase I Environmental Site Assessment*. July 2024.

Department of Toxic Substances Control (DTSC). 2024. *Persistent and Bioaccumulative Toxic Substances, STLC and TTLC Regulatory Limits*. Available online: https://dtsc.ca.gov/persistent-and-bioaccumulative-toxic-substances/.

TABLE

Table 1
Analytical Data Summary
Bear Valley Solar Energy Project
Big Bear, Unincorporated San Bernardino County, California

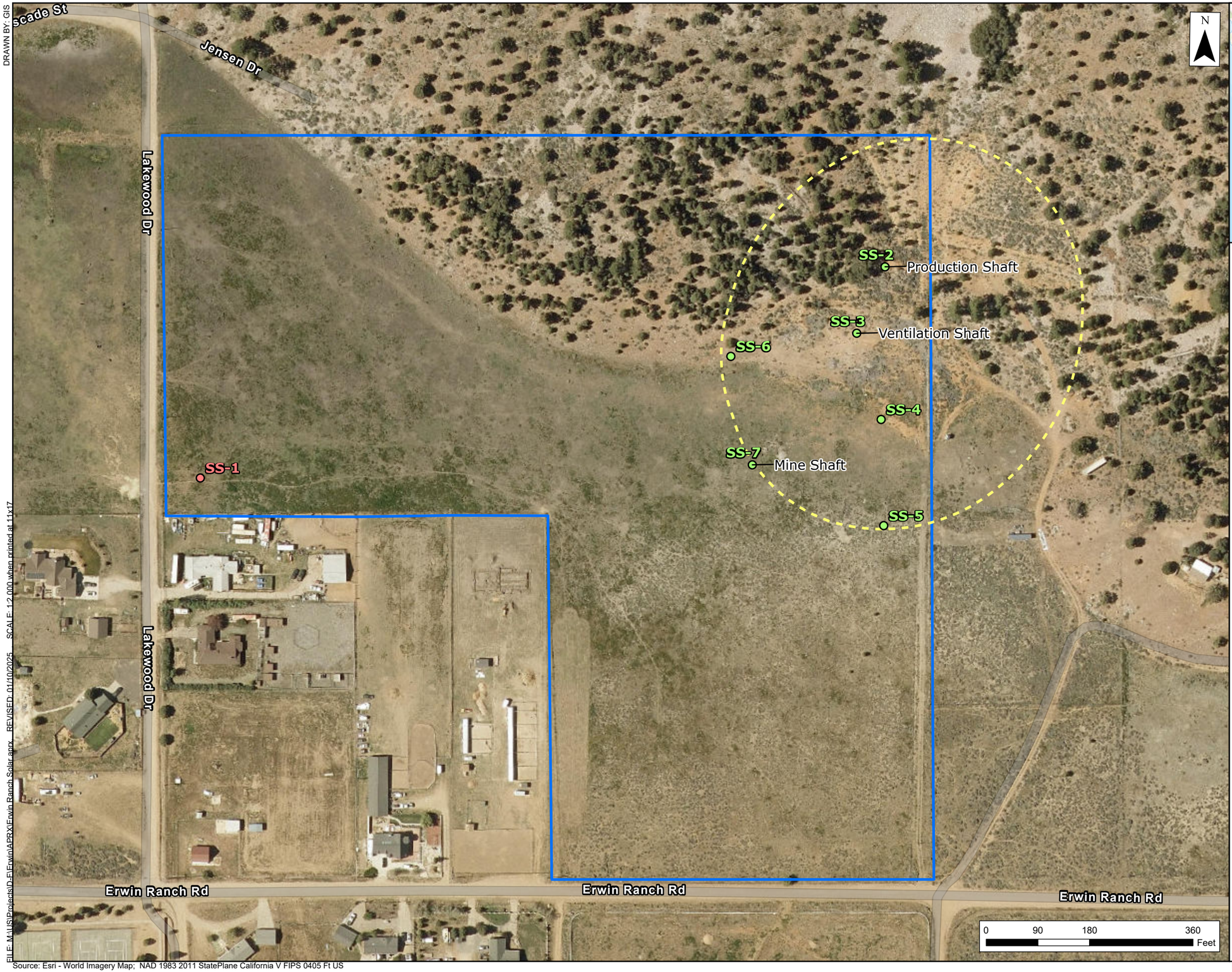
					USEPA 6010B (Prep: EPA 3050B)															USEPA 7471A (Prep: Method)
				Analyte	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Chromium (WET)	Cobalt	Copper	Lead	Molbdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
				Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				STLC Regulatory Level(*) in mg/L	15	5	100	0.75	1		5	80	25	5	350	20	1	5	70	24	250	0.2
				STLC Trigger Level(*) in mg/kg	150	50	1000	7.5	10	50		800	250	50	3500	200	10	50	700	240	2500	2
Location	**Sample Date**	**Lab ID**	**Matrix**	**Depth**																	
SS-1-2.5-20241111	11/11/2024	520119-001	Soil	2.5 Feet	ND	2	210	0.83	ND	25	-	11	22	12	ND	17	ND	ND	ND	53	70	ND
SS-1-5-20241111	11/11/2024	520119-002	Soil	1.5 Feet	ND	2.9	150	0.93	ND	25	-	12	26	15	ND	20	ND	ND	ND	69	76	ND
SS-5-2.5-20241111	11/11/2024	520119-003	Soil	2.5 Feet	ND	2.5	180	0.84	ND	22	-	12	25	13	ND	19	ND	ND	ND	56	66	ND
SS-5-5-20241111	11/11/2024	520119-004	Soil	5 Feet	ND	2.7	99	0.57	ND	15	-	8.2	15	9.1	ND	12	ND	ND	ND	54	47	ND
SS-7-2.5-20241111	11/11/2024	520119-005	Soil	2.5 Feet	ND	2.6	200	0.95	ND	24	-	13	26	14	ND	20	ND	ND	ND	62	73	ND
SS-7-5-20241111	11/11/2024	520119-006	Soil	5 Feet	ND	2.8	77	0.52	ND	13	-	6.4	12	8	ND	10	ND	ND	ND	50	45	ND
SS-4-2.5-20241111	11/11/2024	520119-007	Soil	2.5 Feet	ND	3.2	260	1.00	ND	26	-	19	28	16	1.3	26	ND	ND	ND	72	74	ND
SS-4-5-20241111	11/11/2024	520119-008	Soil	5 Feet	ND	2.6	95	0.7	ND	17	-	10	18	11	ND	15	ND	ND	ND	60	52	ND
SS-3-0.5-20241111	11/11/2024	520119-009	Soil	0.5 Feet	ND	3.6	90	0.68	ND	15	-	10	14	9.3	ND	11	ND	ND	ND	36	33	ND
SS-6-0.5-20241111	11/11/2024	520119-010	Soil	0.5 Feet	ND	1.7	150	0.66	ND	22	-	8.5	18	12	ND	17	ND	ND	ND	34	76	ND
SS-2-0.5-20241111	11/11/2024	520119-011	Soil	0.5 Feet	ND	4.1	140	0.82	ND	54	3.878	12	21	16	1.3	32	ND	0.89	ND	44	53	ND

(*) If a substance is ten times (by rule of thumb) the STLC value found on the TTLC, the Waste Extraction test (WET) value should be used. If any subtance in the waste so analyze equals or exceeds the STLC value, it is considered a hazardous toxic waste.

FIGURES

DRAWN BY: GIS

FILE: M:\US\Projects\D-F\Erwin\APRX\Erwin Ranch Solar.aprx REVISED: 01/10/2025 SCALE: 1:2,000 when printed at 11x17





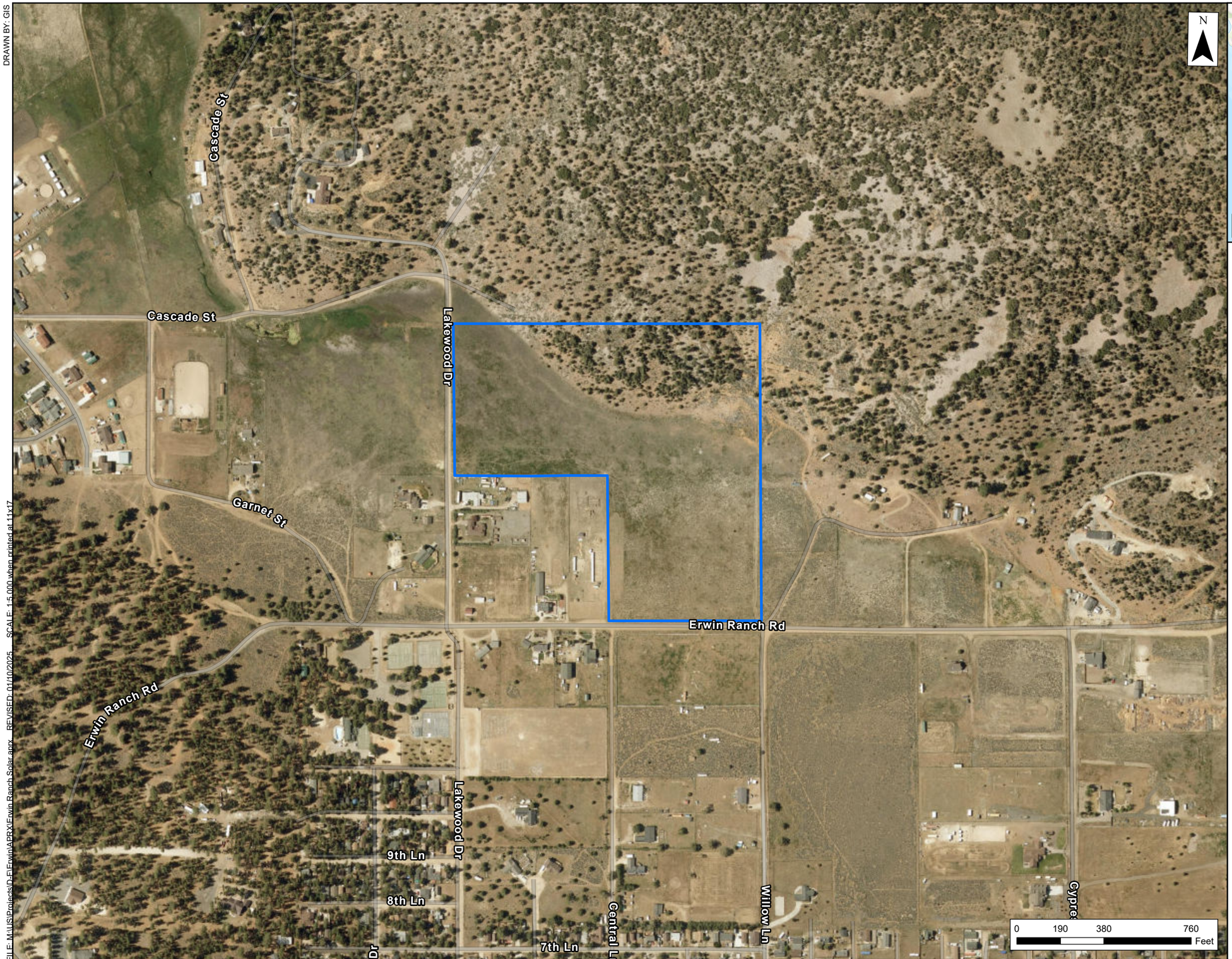
Legend

- Background Sample Point
- Soil Sample Points
- Approximate Mining Operations (On and Off Site)
- Site Boundary

Source: Esri - World Imagery Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

Figure 2
Soil Sample Locations
Limited Phase II Soil Sampling
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM





Legend

Site Boundary

Figure 1
Site Location
Limited Phase II Soil Sampling
Bear Valley Solar Energy Project
San Bernardino County, CA

ERM

DRAWN BY: GIS

FILE: M:\US\Projects\D-F\Erwin\APRX\Erwin Ranch Solar.aprx REVISED: 01/10/2025 SCALE: 1:5,000 when printed at 11x17

Source: Esri - World Imagery Map; NAD 1983 2011 StatePlane California V FIPS 0405 Ft US

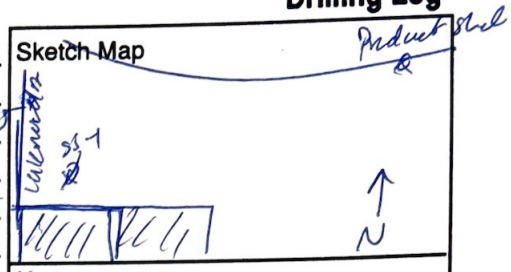
APPENDIX A BORING LOGS

Environmental Resources Management
1920 Main Street, Suite 300
Irvine, CA 92614
949-623-4700 Fax 949-623-4711

Drilling Log

Project: Bear Valley
Owner: —
Location: Big Bear
Project Number: 0739207
Boring Number: SS-1
Total Depth of Auger: —
Auger Diameter: 2.25
Surface Elevation: —
Water Level: Initial —
24-hrs. —
Total Depth of Soil Sampler: 5'
Total Depth of Ground Water Sampler: —
~~Ground Water~~ Sample Interval(s): 2.5' and 5'
Drilling Company: ERM
Drilling Method: HA
Driller: GS / NM
Log By: GS
Date Drilled: 11/11/24

Sketch Map



Notes

Depth (Feet)	Graphic Log and USCS Designation	~~FID (ppm)~~	~~PID (ppm)~~	Sample Interval	Soil Description and Observations (Color, Texture, Structures, Odor, Foreign Matter)
1	ML				0-1 ~~SAND, SILT~~, sandy, 10YR 4/3 Brown,
2	CL				~~med~~ soft, damp, no s/o
3				2-5	1-2.5 CLAY, silty, 10Y 3/2 v. dark grayish brown,
4	ML				soft, damp, no s/o, low plasticity.
5				5'	2.5-5 ML, SILT, clayey 10YR 3/2 v. dark
					grayish brown, soft, damp, no s/o / non plastic
					End of Borehole GS 11/11/2024

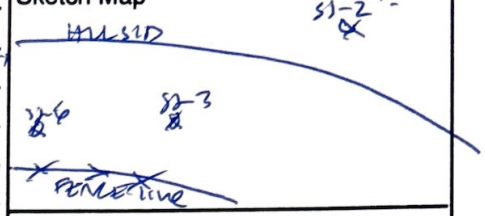
GS

Environmental Resources Management
1920 Main Street, Suite 300
Irvine, CA 92614
949-623-4700 Fax 949-623-4711

Drilling Log

Project Bear Valley Owner —
Location Big Bear Project Number 0729207
Boring Number SS-1 Total Depth of Auger 0.5 Auger Diameter 2.25"
Surface Elevation — Water Level: Initial — 24-hrs. —
Total Depth of Soil Sampler 0.5 Total Depth of Ground Water Sampler —
~~Ground Water~~ Sample Interval(s) 0-5
Drilling Company ERM Drilling Method HSA
Driller GS/NM Log By GS Date Drilled 11/11/24

Sketch Map



Notes

Depth (Feet)	Graphic Log and USCS Designation	FID (ppm)	PID (ppm)	Sample Interval	Soil Description and Observations (Color, Texture, Structures, Odor, Foreign Matter)
1	GM			0.5	0-0.5" GRAVELLY silty, fine sand 5Y 5/6 yellowish red, dense, dry no/o,
2					END OF BOREHOLE GS 11/11/2024

11/11/24

Environmental Resources Management
1920 Main Street, Suite 300
Irvine, CA 92614
949-623-4700 Fax 949-623-4711

Drilling Log

Project Bear Valley Owner —
Location 616 BEARD Project Number 0779207
Boring Number SS-3 Total Depth of Auger 0-5 Auger Diameter 2-25
Surface Elevation — Water Level: Initial — 24-hrs. —
Total Depth of Soil Sampler 0-5' Total Depth of Ground Water Sampler —
~~Ground Water Sample~~ Interval(s) 0-5'
Drilling Company Ebm Drilling Method HA
Driller BS/NM Log By BS Date Drilled 11/11/24

Sketch Map: HILLSIDE BS; SS-3; N

Notes

Depth (Feet)	Graphic Log and USCS Designation	FID (ppm)	PID (ppm)	Sample Interval	Soil Description and Observations (Color, Texture, Structures, Odor, Foreign Matter)
1	GM			G 0.5	0-0.5 GRAVEL, 0.5"-4", cobbles, silty, some fine grained sand, dense, dry, 5Y 5/6, yellowish red, no odor; native soil
2					
3					
4					
5					END of Borehole @ 5 11/11/24

Environmental Resources Management
1920 Main Street, Suite 300
Irvine, CA 92614
949-623-4700 Fax 949-623-4711

Drilling Log

Project Bear Valley Owner —
Location SS-4 Project Number 07-39207
Boring Number SS-4 Total Depth of Auger — Auger Diameter 2.25
Surface Elevation — Water Level: Initial — 24-hrs. —
Total Depth of Soil Sampler 5' Total Depth of Ground Water Sampler —
~~Ground Water~~ Sample Interval(s) 2.5' and 5'
Drilling Company ERM Drilling Method Hand Auger
Driller GS/NM Log By GS Date Drilled 11/11/2024

Sketch Map: Production Shaft; SS-4; Monument; N

Notes

Depth (Feet)	Graphic Log and USCS Designation	FID (ppm)	PID (ppm)	Sample Interval	Soil Description and Observations (Color, Texture, Structures, Odor, Foreign Matter)
1	ML				0–4' ML 10YR 4/3 SILT, loose, dry, no s/o, nonplastic, trace fine sand.
2				2.5	
3					
4					4–5' SM SAND, fine grained, silty, medium dense, dry, no s/o, trace gravel 0.5"
5	SM			5'	

Ended Borehole GS 11/11/24

Environmental Resources Management
1920 Main Street, Suite 300
Irvine, CA 92614
949-623-4700 Fax 949-623-4711

Drilling Log

Project Bear Valley Owner —
Location Big Bear, Project Number 0739207
Boring Number SS-5 Total Depth of Auger — Auger Diameter 2.25
Surface Elevation — Water Level: Initial — 24-hrs. —
Total Depth of Soil Sampler 5' Total Depth of Ground Water Sampler —
~~Ground Water~~ Sample Interval(s) 2-5'; 5'
Drilling Company ERM Drilling Method HA
Driller GS/NM Log By GS Date Drilled 11/11/24

Sketch Map: Productshaft; Mineshaft; SS-5

Notes

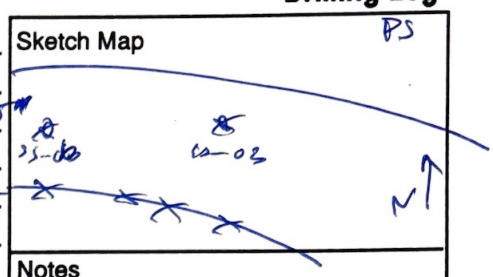
Depth (Feet)	Graphic Log and USCS Designation	~~FID (ppm)~~	~~PID (ppm)~~	Sample Interval	Soil Description and Observations (Color, Texture, Structures, Odor, Foreign Matter)
1	ML				~~0-3~~ 0-3.5 ML SILT 10YR 7/3 Brown, loose, dry, no s/o, non plastic, trace fine sand.
2					
3	~~ML~~ CL			2-5	
4					
5	~~SM~~ SM			5'	3.5-4.5 - CL CLAY, 10YR 3/2 v. dark gray brown, soft, dry, no s/o, low plasticity,
					4.5-5 SM; fine gravel yellowish red ~~reddish brown~~, 5Y 5/6, med dense, dry,
					End of Borehole 11/11/2024 GS

Environmental Resources Management
1920 Main Street, Suite 300
Irvine, CA 92614
949-623-4700 Fax 949-623-4711

Drilling Log

Project Bear Valley Owner
Location Big Bear, Project Number 0739207
Boring Number SS-6 Total Depth of Auger 0.5 Auger Diameter 8-25"
Surface Elevation — Water Level: Initial — 24-hrs. —
Total Depth of Soil Sampler 0.5 Total Depth of Ground Water Sampler —
~~Ground Water Sample~~ Interval(s) 0-5'
Drilling Company ERM Drilling Method HA
Driller GS/NM Log By GS Date Drilled 11/11/24

Sketch Map



Notes

Depth (Feet)	Graphic Log and USCS Designation	FID (ppm)	PID (ppm)	Sample Interval	Soil Description and Observations (Color, Texture, Structures, Odor, Foreign Matter)
1	GM				0-0.5' GRAVEL, 0.5"-4", cobbles, angular, silty, some sand fine grained, loose, dry, 5Y 6/6 yellowish red, no s/o, Refusal

Grab at Borehole GS 11/11/24

GS 11/11/24

Environmental Resources Management
1920 Main Street, Suite 300
Irvine, CA 92614
949-623-4700 Fax 949-623-4711

Drilling Log

Project ~~BTG~~ Bear Valley Owner

Location Big Bear Project Number

Boring Number SS-7 Total Depth of Auger 5' Auger Diameter 2-25"

Surface Elevation — Water Level: Initial — 24-hrs. —

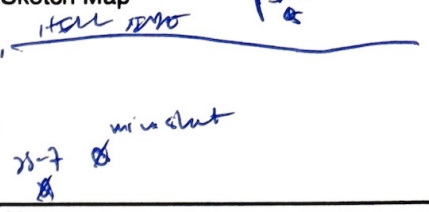
Total Depth of Soil Sampler 5' Total Depth of Ground Water Sampler —

~~Ground Water~~ Sample Interval(s) 2.5' - 5'

Drilling Company EMM Drilling Method HSA

Driller GS/NM Log By GS Date Drilled 11/11/24

Sketch Map



Notes

Depth (Feet)	Graphic Log and USCS Designation	FID (ppm)	PID (ppm)	Sample Interval	Soil Description and Observations (Color, Texture, Structures, Odor, Foreign Matter)
1					ML SILT, 10YR4/3, Brown, stiff, dry, no s/o, trace fine sand. 0-4.5'
2	ML			2-5	
3					
4					SM SAND, silty, fine grained, 5Y5/6 yellowish red, med dense, dry, no s/o. 4.5-5'
5	SM			5'	
					End of Borehole @ 5' 11/11/2024

APPENDIX B LABORATORY DATA AND VALIDATION REPORT

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number : 520119
Report Level : II
Report Date : 11/22/2024

Analytical Report *prepared for:*

Kevin Bryan
ERM - IRVINE
1920 Main Street
Suite #300
Irvine, CA 92614

Location: Bear Valley Solar Energy, 0739207

Authorized for release by:

Patty Mata, Project Manager
patty.mata@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

ENTHALPY ANALYTICAL

Sample Summary

Kevin Bryan
ERM - IRVINE
1920 Main Street
Suite #300
Irvine, CA 92614

Lab Job #: 520119
Location: Bear Valley Solar Energy, 0739207
Date Received: 11/11/24

Sample ID	Lab ID	Collected	Matrix
SS-1-2.5-20241111	520119-001	11/11/24 08:08	Soil
SS-1-5-20241111	520119-002	11/11/24 08:20	Soil
SS-5-2.5-20241111	520119-003	11/11/24 08:50	Soil
SS-5-5-20241111	520119-004	11/11/24 09:00	Soil
SS-7-2.5-20241111	520119-005	11/11/24 09:18	Soil
SS-7-5-20241111	520119-006	11/11/24 09:30	Soil
SS-4-2.5-20241111	520119-007	11/11/24 10:35	Soil
SS-4-5-20241111	520119-008	11/11/24 10:41	Soil
SS-3-0.5-20241111	520119-009	11/11/24 11:10	Soil
SS-6-0.5-20241111	520119-010	11/11/24 11:25	Soil
SS-2-0.5-20241111	520119-011	11/11/24 11:40	Soil

Case Narrative

ERM - IRVINE 1920 Main Street Suite #300 Irvine, CA 92614 Kevin Bryan	Lab Job Number: 520119 Location: Bear Valley Solar Energy, 0739207 Date Received: 11/11/24

- This data package contains sample and QC results for eleven soil samples, requested for the above referenced project on 11/11/24. The samples were received cold and intact.
- Revised report on 11/22/24 to include additional STLC (WET) results for sample SS-2-0.5-20241111.

Metals (EPA 6010B and EPA 7471A) Soil:

- Low recoveries were observed for barium and antimony in the MS/MSD of SS-1-2.5-20241111 (lab # 520119-001); the LCS was within limits, and the associated RPDs were within limits.
- No other analytical problems were encountered.

Metals (EPA 6010B) WET Leachate:

No analytical problems were encountered.

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 526119

Page: 1 of 2

Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: 13.8 - 2.5 / 13.3 Iced / 1 CP (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	ERM	Quote #:	
Report To:	Kevin Bryan	Project Name:	Bear Valley Solar Energy
Email:	Kevin.Bryan@erm.com	Project #:	0739207
Address:	1920 Main St. Suite 300	P.O. #:	0739207
	Irvine, CA 92614	Address:	
Phone:	949-623-4700	Global ID:	
Fax:	949-623-4711	Sampled By:	GS/NM

Analysis Request

6010 / 7471 CAM17 Metals

Test Instructions / Comments

EQuIS Edd J flags

Send Results to:

Kevin.Bryan@erm.com

Mat.Carson@erm.com

Gustavo.Sandoval@erm.com

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	
1	SS-1-2.5-2024 11 11	11/11/24	0808	Soil	1 / 9oz	—	X
2	SS-1-5-2024 11 11		0820				X
3	SS-5-2.5-2024 11 11		0850				X
4	SS-5-5-2024 11 11		0900				X
5	SS-7-2.5-2024 11 11		0918				X
6	SS-7-5-2024 11 11		0930				X
7	SS-9-2.5-2024 11 11		1035				X
8	SS-9-5-2024 11 11		1041				X
9	SS-3-0.5-2024 11 11		1110				X
10	SS-6-0.5-2024 11 11	↓	1125	↓	↓		X

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:		Gustavo Sandoval	ERM / Consultant	11/11/24 1638
[1] Received By:		Tris Kelly	Enthalpy	11/11/24 1638
[2] Relinquished By:				
[2] Received By:				
[3] Relinquished By:				
[3] Received By:				

ENTHALPY ANALYTICAL

Chain of Custody Record

Lab No: 520119

Page: 2 of 2

Turn Around Time (rush by advanced notice only)

Standard:	X	5 Day:		3 Day:	
2 Day:		1 Day:		Custom TAT:	

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = HNO_3 4 = H_2SO_4 5 = NaOH 6 = Other

Sample Receipt Temp: (lab use only)

CUSTOMER INFORMATION		PROJECT INFORMATION	
Company:	EPM	Quote #:	
Report To:	Kevin Bryan Kevin.bryan@	Project Name:	Bear Valley Solar Energy
Email:	~~1920 Main St Suite 300 CVM.~~ com	Project #:	1739707
Address:	~~Irvine, CA 92614~~	P.O. #:	0739707
	1920 Main St. Suite 300 Irvine, CA	Address:	
Phone:	949-623-4700	Global ID:	
Fax:	949-623-4711	Sampled By:	GS/NM

	Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.
1	SS-2-0.5-20241111	11/11/24	1140	Soil	1/902	—
2						
3						
4						
5						
6						
7						
8						
9						
10						

Analysis Request

X 6010/7471 CAM17 Metals										

Test Instructions / Comments

	Signature	Print Name	Company / Title	Date / Time
[1] Relinquished By:		Cristina Sandoval	EPM / Consultant	11/11/24 1638
[1] Received By:	Tris Kelly	Tris Kelly	Enthalpy	11/11/24 1638
[2] Relinquished By:				
[2] Received By:				
[3] Relinquished By:				
[3] Received By:				

SAMPLE RECEIPT CHECKLIST

ENTHALPY

Section 1: General Info

Date Received: 11/11/24 WO# 520119 Client: ERM

Section 2: Shipping / Custody **Are custody seals present?** ☐ Yes ☑ No

Custody seals intact on arrival? ☑ N/A ☐ Yes ☐ No ☐ On cooler / box ☐ On samples

Shipping Info: _____

Section 3a: Condition / Packaging ☐ **Outside 0.0 - 6.0°C (0.0 - 10.0°C for microbiology) (PM notified)**

Date Opened 11/11/24 By (initials) TLK Type of ice used : ☑ Wet ☐ Blue/Gel ☐ None

☑ Samples received on ice directly from the field; cooling process had begun. (if checked, skip temperatures)

☐ Sample matrix doesn't require cooling (e.g. air, bulk PCB). (if checked, skip temperatures)

If no cooler: Observed/Adjusted Temp (°C): _____ / _____ Thermometer/IR Gun: IR01 CF: -0.5

Cooler Temp (°C) #1: 13.8 / 13.3 #2: ____ / ____ #3: ____ / ____ #4: ____ / ____ #5: ____ / ____ #6: ____ / ____

Section 3b: Microbiology Samples ■ **No microbiology samples submitted (skip 3b)**

☐ Within temp range 0.0 - 10.0°C or received on ice directly from field.

☐ Adequate headspace for microbiology analysis.

Section 3c: Air Samples ■ **No air samples submitted (skip 3c)**

☐ 1.4L Canisters ☐ 6L Canisters ☐ Tedlar Bags ☐ MCE Cassettes ☐ Sorbent Tubes ☐ Other _____

Section 4: Containers / Labels / Samples	YES	NO	N/A
1) Were custody papers present, filled properly, and legible?	x		
2) Is the sampler's name present on the CoC?	x		
3) Were containers received in good condition (unbroken / unopened / uncompromised)?	x		
4) Were the samples bagged? (required for microbiology samples; recommended for soil samples)	x		
5) Were all of, and only, the correct samples received?	x		
6) Are sample labels present, legible, and in agreement with the CoC?	x		
7) Does the container count match the CoC?	x		
8) Was sufficient sample volume / mass received for the analyses requested?	x		
9) Were samples received in proper containers for the analyses requested?	x		
10) Were samples received with > 1/2 holding time remaining?	x		
11) Are samples properly preserved as indicated by CoC / labels?	x		
12) Unpreserved VOAs received - If necessary, was the hold time changed in LIMS?			x
13) Are VOA vials free from headspace/bubbles > 6mm?			x

Section 5: Explanations / Comments ☐ **PM notified**

Date Logged 11/11/24 **By (print)** Tris Kelly **(sign)** Tris Kelly

Date Labeled 11/11/24 **By (print)** Tris Kelly **(sign)** Tris Kelly

Outlook

[External] - RE: Bear Valley Solar Energy, 0739207 - Enthalpy Data (520119)

From Kevin Bryan <Kevin.Bryan@erm.com>
Date Mon 11/18/2024 11:51 AM
To Patty Mata <patty.mata@enthalpy.com>

Yes please. STLC for Chromium.

ERM
Sustainability is our business

Kevin Bryan
Consultant Director - Geologist

Sacramento
+1 (949)-208-7286 (direct)
+1 (442)-287-2534 (mobile)

erm.com

From: Patty Mata <patty.mata@enthalpy.com>
Sent: Monday, November 18, 2024 11:05 AM
To: Kevin Bryan <Kevin.Bryan@erm.com>
Subject: Bear Valley Solar Energy, 0739207 - Enthalpy Data (520119)

EXTERNAL MESSAGE

Hi Kevin,

Sample SS-2-0.5-20241111 had total chromium over the STLC trigger level, so please let me know if you need STLC test performed.

Data qualifiers and additional information necessary for the interpretation of the test results are contained in the PDF file and may not be included in the EDD.

Please find attached the following files:
• PDF Deliverable
• EQuIS EFWEDD EDD (520119_equis_efwedd_ermw.zip)

Email was also sent to: edd@erm.com, gustavo.sandoval@erm.com, mat.carson@erm.com

With Regards,

Patty Mata
Project Manager

Analysis Results for 520119

Kevin Bryan
ERM - IRVINE
1920 Main Street
Suite #300
Irvine, CA 92614

Lab Job #: 520119
Location: Bear Valley Solar Energy, 0739207
Date Received: 11/11/24

Sample ID: SS-1-2.5-20241111 **Lab ID: 520119-001** **Collected: 11/11/24 08:08**
Matrix: Soil

520119-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Arsenic	**2.0**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Barium	**210**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Beryllium	**0.83**		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Chromium	**25**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Cobalt	**11**		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Copper	**22**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Lead	**12**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Nickel	**17**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Vanadium	**53**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Zinc	**70**		mg/Kg	5.0	1	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 520119

Sample ID: SS-1-5-20241111 **Lab ID: 520119-002** **Collected: 11/11/24 08:20**
Matrix: Soil

520119-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.9	0.98	355222	11/11/24	11/12/24	SBW
Arsenic	**2.9**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Barium	**150**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Beryllium	**0.93**		mg/Kg	0.49	0.98	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.49	0.98	355222	11/11/24	11/12/24	SBW
Chromium	**25**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Cobalt	**12**		mg/Kg	0.49	0.98	355222	11/11/24	11/12/24	SBW
Copper	**26**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Lead	**15**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Nickel	**20**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	2.9	0.98	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.49	0.98	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	2.9	0.98	355222	11/11/24	11/12/24	SBW
Vanadium	**69**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Zinc	**76**		mg/Kg	4.9	0.98	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Sample ID: SS-5-2.5-20241111 **Lab ID: 520119-003** **Collected: 11/11/24 08:50**
Matrix: Soil

520119-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Arsenic	**2.5**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Barium	**180**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Beryllium	**0.84**		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Chromium	**22**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Cobalt	**12**		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Copper	**25**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Lead	**13**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Nickel	**19**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Vanadium	**56**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Zinc	**66**		mg/Kg	5.0	0.99	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 520119

Sample ID: SS-5-5-20241111 **Lab ID: 520119-004** **Collected: 11/11/24 09:00**
Matrix: Soil

520119-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.9	0.98	355222	11/11/24	11/12/24	SBW
Arsenic	**2.7**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Barium	**99**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Beryllium	**0.57**		mg/Kg	0.49	0.98	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.49	0.98	355222	11/11/24	11/12/24	SBW
Chromium	**15**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Cobalt	**8.2**		mg/Kg	0.49	0.98	355222	11/11/24	11/12/24	SBW
Copper	**15**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Lead	**9.1**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Nickel	**12**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	2.9	0.98	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.49	0.98	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	2.9	0.98	355222	11/11/24	11/12/24	SBW
Vanadium	**54**		mg/Kg	0.98	0.98	355222	11/11/24	11/12/24	SBW
Zinc	**47**		mg/Kg	4.9	0.98	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Sample ID: SS-7-2.5-20241111 **Lab ID: 520119-005** **Collected: 11/11/24 09:18**
Matrix: Soil

520119-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Arsenic	**2.6**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Barium	**200**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Beryllium	**0.95**		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Chromium	**24**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Cobalt	**13**		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Copper	**26**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Lead	**14**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Nickel	**20**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Vanadium	**62**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Zinc	**73**		mg/Kg	5.0	0.99	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.16	1.1	355355	11/13/24	11/13/24	MLL

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 520119

Sample ID: SS-7-5-20241111 **Lab ID: 520119-006** **Collected: 11/11/24 09:30**
Matrix: Soil

520119-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Arsenic	**2.8**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Barium	**77**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Beryllium	**0.52**		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Chromium	**13**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Cobalt	**6.4**		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Copper	**12**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Lead	**8.0**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Nickel	**10**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Vanadium	**50**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Zinc	**45**		mg/Kg	5.0	1	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Sample ID: SS-4-2.5-20241111 **Lab ID: 520119-007** **Collected: 11/11/24 10:35**
Matrix: Soil

520119-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Arsenic	**3.2**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Barium	**260**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Beryllium	**1.0**		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Chromium	**26**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Cobalt	**19**		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Copper	**28**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Lead	**16**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Molybdenum	**1.3**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Nickel	**26**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.50	0.99	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	3.0	0.99	355222	11/11/24	11/12/24	SBW
Vanadium	**72**		mg/Kg	0.99	0.99	355222	11/11/24	11/12/24	SBW
Zinc	**74**		mg/Kg	5.0	0.99	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 520119

Sample ID: SS-4-5-20241111 **Lab ID: 520119-008** **Collected: 11/11/24 10:41**
Matrix: Soil

520119-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Arsenic	**2.6**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Barium	**95**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Beryllium	**0.70**		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Chromium	**17**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Cobalt	**10**		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Copper	**18**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Lead	**11**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Nickel	**15**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.50	1	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	3.0	1	355222	11/11/24	11/12/24	SBW
Vanadium	**60**		mg/Kg	1.0	1	355222	11/11/24	11/12/24	SBW
Zinc	**52**		mg/Kg	5.0	1	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Sample ID: SS-3-0.5-20241111 **Lab ID: 520119-009** **Collected: 11/11/24 11:10**
Matrix: Soil

520119-009 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.9	0.96	355222	11/11/24	11/12/24	SBW
Arsenic	**3.6**		mg/Kg	0.96	0.96	355222	11/11/24	11/12/24	SBW
Barium	**90**		mg/Kg	0.96	0.96	355222	11/11/24	11/12/24	SBW
Beryllium	**0.68**		mg/Kg	0.48	0.96	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.48	0.96	355222	11/11/24	11/12/24	SBW
Chromium	**15**		mg/Kg	0.96	0.96	355222	11/11/24	11/12/24	SBW
Cobalt	**10**		mg/Kg	0.48	0.96	355222	11/11/24	11/12/24	SBW
Copper	**14**		mg/Kg	0.96	0.96	355222	11/11/24	11/12/24	SBW
Lead	**9.3**		mg/Kg	0.96	0.96	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	0.96	0.96	355222	11/11/24	11/12/24	SBW
Nickel	**11**		mg/Kg	0.96	0.96	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	2.9	0.96	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.48	0.96	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	2.9	0.96	355222	11/11/24	11/12/24	SBW
Vanadium	**36**		mg/Kg	0.96	0.96	355222	11/11/24	11/12/24	SBW
Zinc	**33**		mg/Kg	4.8	0.96	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 520119

Sample ID: SS-6-0.5-20241111	Lab ID: 520119-010	Collected: 11/11/24 11:25
	Matrix: Soil	

520119-010 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B									
Antimony	ND		mg/Kg	2.9	0.97	355222	11/11/24	11/12/24	SBW
Arsenic	**1.7**		mg/Kg	0.97	0.97	355222	11/11/24	11/12/24	SBW
Barium	**150**		mg/Kg	0.97	0.97	355222	11/11/24	11/12/24	SBW
Beryllium	**0.66**		mg/Kg	0.49	0.97	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.49	0.97	355222	11/11/24	11/12/24	SBW
Chromium	**22**		mg/Kg	0.97	0.97	355222	11/11/24	11/12/24	SBW
Cobalt	**8.5**		mg/Kg	0.49	0.97	355222	11/11/24	11/12/24	SBW
Copper	**18**		mg/Kg	0.97	0.97	355222	11/11/24	11/12/24	SBW
Lead	**12**		mg/Kg	0.97	0.97	355222	11/11/24	11/12/24	SBW
Molybdenum	ND		mg/Kg	0.97	0.97	355222	11/11/24	11/12/24	SBW
Nickel	**17**		mg/Kg	0.97	0.97	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	2.9	0.97	355222	11/11/24	11/12/24	SBW
Silver	ND		mg/Kg	0.49	0.97	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	2.9	0.97	355222	11/11/24	11/12/24	SBW
Vanadium	**34**		mg/Kg	0.97	0.97	355222	11/11/24	11/12/24	SBW
Zinc	**76**		mg/Kg	4.9	0.97	355222	11/11/24	11/12/24	SBW
Method: EPA 7471A Prep Method: METHOD									
Mercury	ND		mg/Kg	0.15	1.1	355355	11/13/24	11/13/24	MLL

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 520119

Sample ID: SS-2-0.5-20241111	Lab ID: 520119-011	Collected: 11/11/24 11:40

520119-011 Analyte	Result	Qual	Units	RL	Matrix	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3050B										
Antimony	ND		mg/Kg	3.0	Soil	0.99	355222	11/11/24	11/12/24	SBW
Arsenic	**4.1**		mg/Kg	0.99	Soil	0.99	355222	11/11/24	11/12/24	SBW
Barium	**140**		mg/Kg	0.99	Soil	0.99	355222	11/11/24	11/12/24	SBW
Beryllium	**0.82**		mg/Kg	0.50	Soil	0.99	355222	11/11/24	11/12/24	SBW
Cadmium	ND		mg/Kg	0.50	Soil	0.99	355222	11/11/24	11/12/24	SBW
Chromium	**54**		mg/Kg	0.99	Soil	0.99	355222	11/11/24	11/12/24	SBW
Cobalt	**12**		mg/Kg	0.50	Soil	0.99	355222	11/11/24	11/12/24	SBW
Copper	**21**		mg/Kg	0.99	Soil	0.99	355222	11/11/24	11/12/24	SBW
Lead	**16**		mg/Kg	0.99	Soil	0.99	355222	11/11/24	11/12/24	SBW
Molybdenum	**1.3**		mg/Kg	0.99	Soil	0.99	355222	11/11/24	11/12/24	SBW
Nickel	**32**		mg/Kg	0.99	Soil	0.99	355222	11/11/24	11/12/24	SBW
Selenium	ND		mg/Kg	3.0	Soil	0.99	355222	11/11/24	11/12/24	SBW
Silver	**0.89**		mg/Kg	0.50	Soil	0.99	355222	11/11/24	11/12/24	SBW
Thallium	ND		mg/Kg	3.0	Soil	0.99	355222	11/11/24	11/12/24	SBW
Vanadium	**44**		mg/Kg	0.99	Soil	0.99	355222	11/11/24	11/12/24	SBW
Zinc	**53**		mg/Kg	5.0	Soil	0.99	355222	11/11/24	11/12/24	SBW
Method: EPA 6010B Prep Method: METHOD										
Chromium	ND		mg/L	0.30	WET Leachate	10	356082	11/21/24	11/21/24	SBW
Method: EPA 7471A Prep Method: METHOD										
Mercury	ND		mg/Kg	0.15	Soil	1.1	355355	11/13/24	11/13/24	MLL

ND Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID: QC1206162**	**Batch: 356082**
Matrix: WET Leachate	**Method: EPA 6010B**	**Prep Method: METHOD**

QC1206162 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Chromium	ND		mg/L	0.30	11/21/24	11/21/24

Type: Lab Control Sample	**Lab ID: QC1206163**	**Batch: 356082**
Matrix: WET Leachate	**Method: EPA 6010B**	**Prep Method: METHOD**

QC1206163 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Chromium	3.878	4.000	mg/L	97%		80-120

Type: Lab Control Sample Duplicate	**Lab ID: QC1206164**	**Batch: 356082**
Matrix: WET Leachate	**Method: EPA 6010B**	**Prep Method: METHOD**

QC1206164 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Chromium	3.951	4.000	mg/L	99%		80-120	2	20

Type: Blank	**Lab ID: QC1203246**	**Batch: 355222**
Matrix: Soil	**Method: EPA 6010B**	**Prep Method: EPA 3050B**

QC1203246 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Antimony	ND		mg/Kg	3.0	11/11/24	11/12/24
Arsenic	ND		mg/Kg	1.0	11/11/24	11/12/24
Barium	ND		mg/Kg	1.0	11/11/24	11/12/24
Beryllium	ND		mg/Kg	0.50	11/11/24	11/12/24
Cadmium	ND		mg/Kg	0.50	11/11/24	11/12/24
Chromium	ND		mg/Kg	1.0	11/11/24	11/12/24
Cobalt	ND		mg/Kg	0.50	11/11/24	11/12/24
Copper	ND		mg/Kg	1.0	11/11/24	11/12/24
Lead	ND		mg/Kg	1.0	11/11/24	11/12/24
Molybdenum	ND		mg/Kg	1.0	11/11/24	11/12/24
Nickel	ND		mg/Kg	1.0	11/11/24	11/12/24
Selenium	ND		mg/Kg	3.0	11/11/24	11/12/24
Silver	ND		mg/Kg	0.50	11/11/24	11/12/24
Thallium	ND		mg/Kg	3.0	11/11/24	11/12/24
Vanadium	ND		mg/Kg	1.0	11/11/24	11/12/24
Zinc	ND		mg/Kg	5.0	11/11/24	11/12/24

ENTHALPY ANALYTICAL

Batch QC

Type:	**Lab Control Sample**	**Lab ID:**	**QC1203247**	**Batch:**	**355222**
Matrix:	**Soil**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC1203247 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Antimony	96.52	100.0	mg/Kg	97%		80-120
Arsenic	94.98	100.0	mg/Kg	95%		80-120
Barium	105.8	100.0	mg/Kg	106%		80-120
Beryllium	98.80	100.0	mg/Kg	99%		80-120
Cadmium	100.4	100.0	mg/Kg	100%		80-120
Chromium	99.39	100.0	mg/Kg	99%		80-120
Cobalt	105.9	100.0	mg/Kg	106%		80-120
Copper	98.78	100.0	mg/Kg	99%		80-120
Lead	103.5	100.0	mg/Kg	103%		80-120
Molybdenum	95.98	100.0	mg/Kg	96%		80-120
Nickel	106.0	100.0	mg/Kg	106%		80-120
Selenium	91.76	100.0	mg/Kg	92%		80-120
Silver	49.98	50.00	mg/Kg	100%		80-120
Thallium	102.2	100.0	mg/Kg	102%		80-120
Vanadium	98.03	100.0	mg/Kg	98%		80-120
Zinc	100.9	100.0	mg/Kg	101%		80-120

Type:	**Matrix Spike**	**Lab ID:**	**QC1203248**	**Batch:**	**355222**
Matrix (Source ID):	**Soil (520119-001)**	**Method:**	**EPA 6010B**	**Prep Method:**	**EPA 3050B**

QC1203248 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Antimony	25.15	ND	97.09	mg/Kg	26%	*	75-125	0.97
Arsenic	96.10	1.990	97.09	mg/Kg	97%		75-125	0.97
Barium	307.9	211.3	97.09	mg/Kg	100%		75-125	0.97
Beryllium	99.50	0.8323	97.09	mg/Kg	102%		75-125	0.97
Cadmium	96.33	0.2142	97.09	mg/Kg	99%		75-125	0.97
Chromium	123.2	25.24	97.09	mg/Kg	101%		75-125	0.97
Cobalt	111.5	10.90	97.09	mg/Kg	104%		75-125	0.97
Copper	124.5	21.86	97.09	mg/Kg	106%		75-125	0.97
Lead	110.5	11.93	97.09	mg/Kg	102%		75-125	0.97
Molybdenum	90.68	ND	97.09	mg/Kg	93%		75-125	0.97
Nickel	117.2	17.44	97.09	mg/Kg	103%		75-125	0.97
Selenium	90.04	ND	97.09	mg/Kg	93%		75-125	0.97
Silver	50.67	ND	48.54	mg/Kg	104%		75-125	0.97
Thallium	95.63	ND	97.09	mg/Kg	98%		75-125	0.97
Vanadium	155.8	52.67	97.09	mg/Kg	106%		75-125	0.97
Zinc	166.9	70.46	97.09	mg/Kg	99%		75-125	0.97

ENTHALPY ANALYTICAL

Batch QC

Type:	Matrix Spike Duplicate	Lab ID:	QC1203249	Batch:	355222
Matrix (Source ID):	Soil (520119-001)	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC1203249 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Antimony	26.49	ND	96.15	mg/Kg	28%	*	75-125	6	41	0.96
Arsenic	93.91	1.990	96.15	mg/Kg	96%		75-125	1	35	0.96
Barium	277.5	211.3	96.15	mg/Kg	69%	*	75-125	10	20	0.96
Beryllium	96.99	0.8323	96.15	mg/Kg	100%		75-125	2	20	0.96
Cadmium	93.97	0.2142	96.15	mg/Kg	98%		75-125	2	20	0.96
Chromium	120.4	25.24	96.15	mg/Kg	99%		75-125	2	20	0.96
Cobalt	108.7	10.90	96.15	mg/Kg	102%		75-125	2	20	0.96
Copper	122.1	21.86	96.15	mg/Kg	104%		75-125	1	20	0.96
Lead	108.4	11.93	96.15	mg/Kg	100%		75-125	1	20	0.96
Molybdenum	88.37	ND	96.15	mg/Kg	92%		75-125	2	20	0.96
Nickel	114.5	17.44	96.15	mg/Kg	101%		75-125	2	20	0.96
Selenium	87.11	ND	96.15	mg/Kg	91%		75-125	2	20	0.96
Silver	49.40	ND	48.08	mg/Kg	103%		75-125	2	20	0.96
Thallium	92.92	ND	96.15	mg/Kg	97%		75-125	2	20	0.96
Vanadium	156.8	52.67	96.15	mg/Kg	108%		75-125	1	20	0.96
Zinc	162.5	70.46	96.15	mg/Kg	96%		75-125	2	20	0.96

Type:	Post Digest Spike	Lab ID:	QC1203250	Batch:	355222
Matrix (Source ID):	Soil (520119-001)	Method:	EPA 6010B	Prep Method:	EPA 3050B

QC1203250 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Antimony	90.20	ND	100.0	mg/Kg	90%		75-125	1
Arsenic	94.27	1.990	100.0	mg/Kg	92%		75-125	1
Barium	308.3	211.3	100.0	mg/Kg	97%		75-125	1
Beryllium	96.41	0.8323	100.0	mg/Kg	96%		75-125	1
Cadmium	94.08	0.2142	100.0	mg/Kg	94%		75-125	1
Chromium	118.9	25.24	100.0	mg/Kg	94%		75-125	1
Cobalt	108.1	10.90	100.0	mg/Kg	97%		75-125	1
Copper	120.1	21.86	100.0	mg/Kg	98%		75-125	1
Lead	107.1	11.93	100.0	mg/Kg	95%		75-125	1
Molybdenum	95.13	ND	100.0	mg/Kg	95%		75-125	1
Nickel	113.2	17.44	100.0	mg/Kg	96%		75-125	1
Selenium	89.13	ND	100.0	mg/Kg	89%		75-125	1
Silver	49.67	ND	50.00	mg/Kg	99%		75-125	1
Thallium	93.62	ND	100.0	mg/Kg	94%		75-125	1
Vanadium	147.4	52.67	100.0	mg/Kg	95%		75-125	1
Zinc	162.4	70.46	100.0	mg/Kg	92%		75-125	1

Type:	Blank	Lab ID:	QC1203642	Batch:	355355
Matrix:	Soil	Method:	EPA 7471A	Prep Method:	METHOD

QC1203642 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Mercury	ND		mg/Kg	0.14	11/13/24	11/13/24

ENTHALPY ANALYTICAL

Batch QC

Type:	**Lab Control Sample**	**Lab ID:**	**QC1203643**	**Batch:**	**355355**
Matrix:	**Soil**	**Method:**	**EPA 7471A**	**Prep Method:**	**METHOD**

QC1203643 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Mercury	0.7990	0.8333	mg/Kg	96%		80-120

Type:	**Matrix Spike**	**Lab ID:**	**QC1203644**	**Batch:**	**355355**
Matrix (Source ID):	**Soil (520119-001)**	**Method:**	**EPA 7471A**	**Prep Method:**	**METHOD**

QC1203644 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Mercury	0.8814	ND	0.9091	mg/Kg	97%		75-125	1.1

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC1203645**	**Batch:**	**355355**
Matrix (Source ID):	**Soil (520119-001)**	**Method:**	**EPA 7471A**	**Prep Method:**	**METHOD**

QC1203645 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Mercury	0.8818	ND	0.9091	mg/Kg	97%		75-125	0	20	1.1

* Value is outside QC limits
ND Not Detected



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APPENDIX H AQUATIC RESOURCES DELINEATION REPORT

Aquatic Resources Delineation Report

Bear Valley Solar Energy Project, San Bernardino County, California

PREPARED FOR

EDF Renewables Distribution-Scale Power

DATE

21 August 2024

REFERENCE

0739207



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.	
DOCUMENT TITLE	Aquatic Resources Delineation Report
DOCUMENT SUBTITLE	Bear Valley Solar Energy Project, San Bernardino County, California
PROJECT NUMBER	0739207
Date	21 August 2024
Version	01
Author	Nicholas Smith, Managing Technical Consultant, Scientist
Client name	EDF Renewables Distribution-Scale Power

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Version	001	Nicholas Smith	Ingrid Eich	Ian Todd	8.5.2024	
Version	002	Nicholas Smith	Mat Carson	Ian Todd	8.21.2024	
Version	003	Nicholas Smith	Mat Carson	Ian Todd	1.27.2025	

SIGNATURE PAGE

Aquatic Resources Delineation Report

Bear Valley Solar Energy Project, San Bernardino County, California

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ACRONYMS AND ABBREVIATIONS

CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
CWA	Clean Water Act
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
FR	Federal Register
NHD	National Hydrography Dataset
NWI	National Wetlands Inventory
OHWM	Ordinary High-Water Mark
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
Procedures	State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State
Project	Bear Valley Solar Energy Project
SWRCB	State Water Resources Control Board
USACE	United States Army Core of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VegCAMP	Vegetation Classification and Mapping Program
WOS	Waters of the State
WOUS	Waters of the United States

1. INTRODUCTION

On 1 July, 2024, Environmental Resources Management, Inc. (ERM) lead delineator Nicholas Smith and delineation support technician Marissa Juarez conducted a delineation of aquatic resources on an approximately 30-acre area located on privately owned land in an unincorporated area of the City of Big Bear City, San Bernardino County, California. The purpose was to determine whether wetlands and non-wetlands waters potentially subject to federal jurisdiction under Section 404 of the Clean Water Act (CWA) and potentially subject to state jurisdiction under Section 401 of the CWA, the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), and Section 1600 of the California Fish and Game Code (CFGC) are present, and if so, their extent within the Project Area.

This report presents the methods and results of the delineation. United States Army Corps of Engineers (USACE) Arid West Wetland Determination datasheets completed in the field are provided in Appendix B. Representative photographs of the Project Area are included in Appendix C.

1.1 PROJECT LOCATION

The Project Area is located on privately-owned land in an unincorporated area southeast of the City of Big Bear City within the southwestern portion of San Bernardino County. The Project Area shares its western boundary with Lakewood Drive and a residence with an equestrian facility, its northern boundary with San Bernardino National Forest, its eastern boundary with undeveloped private property, and its southern boundary with Erwin Ranch Road. The Project Area consists of rural, undeveloped land and comprises one parcel, Assessor’s Parcel Number 0314-401-29-0-000.

The Project Area is located on the North 1/2 of the Southwest 1/4 of the Southwest 1/4 and the Southeast 1/4 of the Southwest 1/4 of the Southwest 1/4 of Section 17, Township 2 North, Range 2 East, San Bernardino Meridian in the County of San Bernardino, State of California. The approximate Project Area centroid with a latitude / longitude of 34°15'08.80" N / 116°48'09.08" W.

1.2 PROJECT DESCRIPTION

On behalf of Bear Valley Electric Service (BVES; Applicant), EDF Renewables Distribution-Scale Power (EDFR-DSP) is developing the Bear Valley Solar Energy Project (Project), which is a 5.7-megawatt (MW) alternating current (ac) solar photovoltaic (PV) facility located on private land in unincorporated San Bernardino County. The Project will interconnect to the BVES grid and serve the local community with renewable energy. As the Applicant under the California Environmental Quality Act, BVES will own and operate the Project.

2. REGULATORY SETTING

2.1 FEDERAL REGULATION

On 29 August 2023, the United States Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE) issued a final rule to amend the final "Revised Definition of 'waters of the United States'" rule (Federal Register [FR], 18 January 2023). This final rule conforms the definition of "waters of the United States" (WOUS) to the United States Supreme Court's 25 May 2023 decision in the case of Sackett v. Environmental Protection Agency. The conforming rule "Revised Definition of 'WOUS'" became effective on 8 September 2023. The amended January 2023 rule is not currently operative in certain states and for certain parties due to ongoing litigation. In California, where the January 2023 rule is not enjoined, the USACE is interpreting the phrase "waters of the United States" consistent with the 2023 rule as amended (88 FR 3143, 18 January 2023, as amended in 88 FR 61969, 8 September 2023).

Section 404 of the CWA regulates the discharge of dredged or fill material into "waters of the United States." Recently adopted 2023 federal regulations implementing the CWA (40 Code of Federal Regulations (CFR) Part 120.2(a)) define "waters of the United States" to include the following:

(a) Waters of the United States means:

(1) Waters which are:

(i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(ii) The territorial seas; or

(iii) Interstate waters;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters:

(i) Waters identified in paragraph (a)(1) of this section; or

(ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

(b) The following are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(2) through (5) of this section:

(1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;

(2) Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA;

(3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;

(4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;

(5) Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;

(6) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;

(7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and

(8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

2.1.1 WETLANDS

Wetlands are defined in 33 CFR 328.3 (c) as:

> *...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

Adjacent is defined as

> *having a continuous surface connection.*

The basis for determining whether a given area is a wetland for the purposes of Section 404 of the CWA is outlined in the USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and

the Regional Supplement to the Corps of Engineers Delineation Manual: Arid West Region (USACE 2008a).

2.1.2 NON-WETLAND WATERS

The limit of federal jurisdiction in intermittent or perennial non-tidal, non-wetland waters, extends to the OHWM, which is defined in the federal regulations as:

> *...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

2.2 STATE REGULATION

2.2.1 WATERS OF THE STATE

The California Porter-Cologne Act regulates the discharge of dredge or fill material into the "waters of the State" (WOS), which are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." In April 2019 (and revised 6 April 2021), the State Water Resources Control Board (SWRCB) adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures) (SWRCB 2021). The Procedures became effective 28 May 2020. The Procedures define the term "wetland" as follows:

> *An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, of shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.*

The Procedures utilize existing USACE delineation guidance (Environmental Laboratory 1987; USACE 2008) and consider any WOUS as identified in an aquatic resource report verified by the USACE to meet the state definition of WOS. The Procedures also recognize wetlands that have no vegetation, wetlands that are natural or created by a modification of a WOS, and artificial wetlands that meet specific criteria. Artificial wetland specific criteria include: (1) a result of compensatory mitigation, (2) those identified in a water quality control plan, (3) those that resulted from historic human activity, and (4) those that are greater than one acre in size unless it was created for a specific purpose (SWRCB 2020). Exclusions to artificial wetlands include those that are for: (1) industrial or municipal wastewater treatment or disposal, (2) certain types of stormwater treatment facilities, (3) agricultural crop irrigation, (4) industrial processing or cooling, and (5) fields flooded for rice growing (SWRCB 2020). On

6 April 2021, the SRWCB adopted a resolution to confirm that the Procedures are in effect as state policy for water quality control.

2.2.2 SECTION 1602 OF THE CALIFORNIA FISH AND GAME CODE

Section 1602 of the CFGC regulates activities that substantially divert or obstruct the natural flow of—or substantially change or use any material from—the bed, channel, or bank of any river, stream, or lake. Such activities may require a Lake and Streambed Alteration Agreement with the California Department of Fish and Wildlife (CDFW). CDFW regulations define the term stream, which includes creeks and rivers, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 California Code of Regulations Section 1.72).

3. METHODS

3.1 LITERATURE REVIEW

Prior to conducting the delineation and in the process of determining jurisdictional status in the field, reference materials were reviewed, including the following:

- California Department of Water Resources (DWR) Best Available Maps (BAM) 100-Year Floodplain Awareness Dataset (DWR 2024a);
- California DWR California's Groundwater Bulletin 118 – Bear Valley Groundwater Basin (DWR 2004);
- California DWR Sustainable Groundwater Management Act (SGMA) Data Viewer (DWR 2024b);
- Google Earth current and historic aerial photographs (Google Earth 2024);
- Federal Emergency Management Agency (FEMA) – Mapped Floodplain (FEMA, 2024).
- Nationwide Environmental Title Research (NETR) Historic Aerials (NETROnline 2024);
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2024);
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 2024);
- USGS Big Bear City, California – San Bernardino County 7.5-minute topographic quadrangle map (USGS 2015a);
- USGS Geohydrology of Big Bear Valley, California: Phase 1—Geologic Framework, Recharge, and Preliminary Assessment of the Source and Age of Groundwater (USGS 2012); and
- USGS National Hydrography Dataset (NHD) (USGS 2024).

3.2 FIELD INVESTIGATION

A focused evaluation of indicators of wetlands and waters was performed within the Project Area on 1 July 2024. The methods used in this study to delineate jurisdictional features were based on the following:

- The USACE Wetlands Delineation Manual (Corps Manual; Environmental Laboratory 1987);
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Arid West Supplement; USACE 2008a);
- National OHWM Field Delineation Manual for Rivers and Streams: Interim Version (USACE 2022);
- A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States (USACE 2008b); and
- Ordinary High Flows and the Stage-Discharge Relationship in the Arid West Region (USACE 2011),

The routine method for wetland delineation described in the Corps Manual was used to identify areas potentially subject to USACE Section 404 jurisdiction within the Project Area. A general description of the Project Area, including plant communities, topography, and land use, was generated during the delineation. The methods for evaluating the presence of WOUS and WOS employed during the delineation are described in detail herein.

3.2.1 WATERS OF THE UNITES STATES

3.2.1.1 CLEAN WATER ACT SECTION 404 WETLANDS

The Project Area was evaluated for indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and Arid West Supplement (USACE 2008a).

The three parameters used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils according to the Corps Manual (Environmental Laboratory 1987) for areas not considered "problem areas" or "atypical situations":

> *"…(E)vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."*

3.2.1.2 CLEAN WATER ACT SECTION 404 NON-WETLAND WATERS OF THE UNITED STATES

All potential non-wetland WOUS were examined for indicators of an OHWM based upon 33 CFR 328.3(e) and the methods outlined in the *USACE Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (USACE 2008b).

When linear aquatic features exhibiting indicators of an OHWM were encountered, OHWM widths were recorded (in feet) using an ESRI Fieldmap for ArcGIS application on a mobile device. The OHWM was manually measured at locations where transitions were apparent. Where notable features such as culverts or depressions were observed in the field but not visible on the aerial map, they were also recorded with an ESRI Fieldmap for ArcGIS. Other data recorded included bank-to-bank width, bank height and morphology, substrate type, and all vegetation within and adjacent to the feature. Where features were clearly visible on aerial photography, such as linear drainage features exhibiting sandy beds, the centerline was digitized by hand using ESRI ArcGIS Pro. The line was then buffered based on the widths measured in the field to create a polygon representing the approximate spatial extent of jurisdiction.

3.2.2 WATERS OF THE STATE

WOS are under the jurisdiction of the SWRCB and nine Regional Water Quality Control Boards. For the purposes of CWA Section 401 Certification, WOS are considered identical to USACE jurisdiction. In addition, the Project Area was evaluated for isolated wetlands that would not be subject to federal jurisdiction but would be potentially regulated under the Porter-Cologne Act.

3.2.3 SECTION 1602 OF THE CALIFORNIA FISH AND GAME CODE

Features potentially subject to Section 1602 of the CFGC under the jurisdiction of CDFW were mapped from top-of-bank to top-of-bank and examined for the presence of riparian vegetation.

4. RESULTS

4.1 ENVIRONMENTAL SETTING

The Project Area consists of predominantly undeveloped land bordered by Erwin Ranch Road to the south, San Bernardino National Forest to the north, Lakewood Drive to the northwest, a residence with an equestrian facility to the west, and private property to the east. The Project Area is located approximately 2.5 miles to the southeast of Big Bear City, California, approximately 4 miles to the southeast of Big Bear Lake, approximately 1.5 miles to the south of Baldwin Lake, and approximately 0.6 miles northwest of Erwin Lake. The Project Area is located within Level IV EPA's Ecoregion 8f, also known as the Southern California Montane Conifer Forest, which occurs on the igneous-dominated mountains of the eastern Transverse Range and the Peninsular Ranges, at elevations generally ranging from 5,000 to 8,500 feet (Griffith 2016). The pinyon-juniper woodland hillside in the northern area of the Project Area contains an inactive gold mine. At the time of ERM's site visit, a partially backfilled excavation approximately 5 feet by 5 feet wide and 10 feet deep was observed on the northeastern portion of the Project Area. The excavation appears to be an abandoned mineshaft. The opening of the shaft is partially blocked with heavily weathered and degraded wooden planks. What appears to be a small tailing pile was observed adjacent to the mineshaft. A former ventilation shaft within a 10-foot by 10-foot concrete slab and production shaft with subgrade machinery were also observed approximately 250-300 feet northeast of the mineshaft. The ventilation shaft was capped, and the production shaft was backfilled with soil and covered with a metal grate. Wild donkeys were also observed on site during the field visit.

4.1.1 TOPOGRAPHY

The Project Area is in the Big Bear Valley and consists of a sloped pinyon-juniper woodland in the north, a minor topographic depression dominated by upland mustards in the northwestern to north central area, and a flat big sagebrush plant community in the south (Appendix A, Figure 1, *Vicinity and Topographic Map*). The sloped pinyon-juniper woodland is characterized by 30 to 50 percent slopes and occurs between approximately 6,785 and 6,875 feet above mean sea level (Google Earth 2024). The minor topographic depression is characterized by 0 to 2 percent slopes at the toe-of-slope of the wooded hillside and occurs between approximately 6,780 and 6,785 feet above mean sea level. The flat big sagebrush community is characterized by 0 to 2 percent slopes and occurs between approximately 6,785 and 6,790 feet above mean sea level. The minor topographic depression is demarcated by slight changes in elevation (approximately 1 to 2 feet) associated with the toe of slope at the base of the woodland to the north, Lakewood Drive to the west, the residence with the equestrian facility to the southwest, the flat big sagebrush community to the south, and the 5-foot by 5-foot abandoned mineshaft and associated mining facilities to the east (Google Earth 2024).

4.1.2 CLIMATE

Big Bear Valley has warm summers and cold winters with precipitation occurring as rainfall in the warmer months and snowfall in the colder months. Average daily summer temperatures range between 60 to 70 degrees Fahrenheit, and average daily winter temperatures range between 35

to 40 degrees Fahrenheit (NOAA 2024; USGS 2012). Due to the rain shadow effect of the San Bernardino Mountains, annual precipitation distribution within the valley is variable, ranging from approximately 35 inches on the western edge of Big Bear Lake to approximately 18 inches on the eastern edge of Baldwin Lake (USGS 2012).

Thirty-year climatological normals (1991-2020) for the 4-square-kilometer grid cell containing the Project Area interpolated by the data values among the surrounding grid cells indicate an annual average precipitation of 20.88 inches, (ranging from 0.12 inches in June, the driest month, to 4.73 inches in February, the wettest month) with an average July maximum temperature of 80.1 degrees Fahrenheit, and an average December minimum temperature of 23.1 degrees Fahrenheit (PRISM Climate Group 2023). Historical precipitation data from 2014 to 2023 indicates the most winter precipitation occurred in February 2019 (11.76 inches) and the most summer precipitation occurred in August 2023 (4.31 inches). The USACE Antecedent Precipitation Tool (APT) Version 2.0, which is a desktop tool that compares antecedent precipitation with normal ranges based on NOAA's Daily Global Historical Climatology Network, indicates that weather conditions at the time of the field investigation represent normal conditions (USACE 2023).

4.1.3 VEGETATION

The vegetative community of the pinyon-juniper woodland hillside within the northern area of the Project Area was identified as the *Pinus monophyla* – (*Juniperus osteosperma*) Woodland Alliance (Singleleaf pinyon – Utah juniper woodlands). The sparsely vegetated community within the minor topographic depression in the northwestern to north central area of the Project Area was identified as the *Brassica nigra - Centaurea (solstitialis, melitensis)* Herbaceous Semi-Natural Alliance (Upland mustards or star-thistle fields). The vegetative community within the flat, southern region of the Project Area was identified as the *Artemesia tridentata* Shrubland Alliance (Big sagebrush) (Appendix A, Figure 2, *Soils and Vegetation Communities Map*). These vegetation alliances were field verified on 1 July 2024 using the California Native Plant Society (CNPS) Manual of California Vegetation (CNPS 2024).

Singleleaf pinyon – Utah juniper woodlands are natural communities with an open to intermittent canopy that typically occur on alluvial fans, pediments, slopes, ridges, canyons, and ravines with well-drained soils. Within the Project Area, singleleaf pinyon (*Pinus monophylla; [UPL]*) is dominant in the tree canopy with lower relative canopy cover of California juniper (*Juniperus californica; [UPL]*). The intermittent to continuous shrub layer includes big sagebrush (*Artemesia tridentata; [UPL]*), rubber rabbitbrush (*Ericameria nauseosa; [UPL]*), plains pricklypear (*Opuntia polyacantha [UPL]*), and bitterbrush (*Purshia tridentata; [UPL]*). Vegetation in the herbaceous layer is sparse and includes cheatgrass (*Bromus tectorum*; [UPL]), winterfat (*Krascheninnikovia lanata; [UPL])*, and apricot mallow (*Sphaeralcea ambigua* var. *amibgua; [UPL])*.

Upland mustard fields are semi-natural herbaceous communities with an open to continuous canopy that occur in fallow fields, rangelands, grasslands, roadsides, levee slopes, disturbed coastal scrub, riparian areas, cleared roadsides, and waste places. Soils typically consist of clays or sandy loams. Members of this community are highly variable though often contain over 80% relative cover of non-native ruderal forbs (CNPS 2024). Within the Project Area, non-native plant species observed were tansy mustard (*Descurainia sophia*; *[UPL]*), dwarf mallow (*Malva neglecta;*

[UPL]), tumble mustard (*Sisymbrium altissimum*; [*FACU]),* quack grass (*Elymus repens*; *[FAC]),* European stickseed (*Lappula squarrosa; [UPL]),* and rough pigweed *(Amaranthus retroflexus; [FACU])*. Trace occurrences of native plants encountered within this community were mugwort (*Artemesia ludoviciana; [FACU])*, Pacific lupine (*Lupinus lepidus; [UPL]*), yarrow (*Achillea millefolium*; [FACU]), and rattlesnake sandmat (*Euphorbia albomarginata*; [UPL]). A small population (two individuals) of Big Bear Valley milk vetch (*Astragalus lentiginosus* var*. sierrae*; *[UPL]*), a CNDDB 1B.2 Special Status Plant (fairly threatened in California), was observed on the periphery of this vegetation community (CDFW 2024).

Big sagebrush shrublands are natural communities with open to continuous canopies that occur on plains, alluvial fans, bajadas, pediments, lower slopes, valley bottoms, hills, ridges, seasonal and perennial stream channels, and dry washes within well-drained, deep, sandy to loamy soils. Within the Project Area, big sagebrush (*Artemesia tridentata; [UPL]*)*,* rubber rabbitbrush (*Ericameria nauseosa; [UPL]*), tansy mustard (*Descurainia sophia; [UPL]*), and quack grass (*Elymus repens [FAC]*) were observed. Trace populations of blue flag iris (*Iris missouriensis, [FACW]*) were observed in minor topographic depressions within this section of the site.

4.1.4 SOILS

The USDA NRCS Web Soil Survey (NRCS 2024) was reviewed to determine the soil types mapped as occurring within the Project Area (Appendix A, Figure 2, *Soils and Vegetation Communities Map*). The Project Area consists of three different soil complexes including:

Aquents-Grunney complex, 0 to 4 percent slopes (2dvmq) – This complex of poorly drained soils is comprised of Aquents and Grunney soils. Aquents soils formed in mixed alluvium and occur in floodplains and treads. They are typically comprised of sandy loam, have an occasional frequency of flooding, and are characterized as hydric soils. Grunney soils formed in mixed alluvium and occur in floodplains and treads. They are typically comprised of muck, mucky loam, and sandy loam, have an occasional frequency of flooding and ponding, range from non-saline to very slightly saline, and are characterized as hydric soils.

Moonridge-Shayroad-Caribоucreek complex, 0 to 4 percent slopes (2dvn1) – This complex of well-drained soils is comprised of Moonridge, Shayroad, and Caribоucreek soils. Moonridge soils formed in alluvium derived primarily from granite and related rocks and occur within alluvial fans and treads. They are typically comprised of loam, have an occasional frequency of flooding, and are not characterized as hydric soils. Shayroad soils formed in alluvium derived primarily from granite and related rocks and occur within alluvial fans and treads. They are typically comprised of sandy loam, range from non-saline to very slightly saline, and are not characterized as hydric soils. Caribоucreek soils formed in mixed alluvium and occur within alluvial fans and treads. They are typically comprised of loam and clay loam, have an occasional frequency of flooding, and are not characterized as hydric soils.

Goldmountain-Deadmansridge-Deadpan complex, 30 to 50 percent slopes (2dvn6) – This complex of well-drained is comprised of Goldmountain, Deadmansridge, and Deadpan soils. Goldmountain soils formed in colluvium derived from metasedimentary rock and occur on mountain slopes. They are typically comprised of very gravelly loam to extremely gravelly loam with lithic bedrock restriction at approximately 20 and 30 inches of depth and are not

characterized as hydric soils. Deadmansridge soils formed in colluvium derived from igneous and metamorphic rock and occur on mountain slopes. They are typically comprised of very gravelly loam to very cobbly loam and are not characterized as hydric soils. Deadpan soils formed in formed in colluvium derived from igneous and metamorphic rock and occur on mountain slopes. They are typically comprised of cobbly loam to cobbly clay loam and are not characterized as hydric soils.

The field investigation confirmed hydric soils within the entire extent of the minor topographic depression in the northwestern to north central portion of the Project Area, corresponding with the Aquents-Grunney complex mapped by NRCS. Soils in this region of the Project Area contained a dark matrix with low chroma and value (2.5Y 2.5/1), approximately 1- 2% redox concentrations (2.5YR 4/8), and a sandy loam texture. Soils within the flat big sagebrush community corresponded with the Moonridge-Shayroad-Caribou creek complex, exhibited a uniform matrix of (2.5Y 4/1) with no redox concentrations, a clay loam texture, and were therefore identified as non-hydric. Soils within the pinyon-juniper woodland in the northern portion of the parcel were not sampled, as this region lies outside of the proposed development site.

4.1.5 HYDROLOGY

On a sub-basin scale, the Project Area is located within the Santa Ana watershed (HUC8 18070203), which drains to the Santa Ana River and ultimately to the Pacific Ocean, a Traditional Navigable Water. On a local sub-watershed level, the Project Area is within the Baldwin Lake watershed (HUC12 180702030101), which drains to Baldwin Lake, a natural, isolated, intermittent (periodically dry), alkali lake. Baldwin Lake does not exhibit a surface water drainage outlet, and it is unknown if subsurface hydrologic connectivity occurs between Baldwin Lake and Big Bear Lake (USGS 2012). The Project Area is also within the Bear Valley Groundwater Basin, an approximate 30.6 square mile area that extends from Big Bear Lake in the west to Baldwin Lake in the east and is bound by the crystalline rocks of the San Bernardino Mountains (DWR 2004; USGS 2012). The primary source of groundwater recharge is from percolation of precipitation and runoff and underflow from fractured crystalline rocks (DWR 2004).

According to the NWI imagery, the Project Area does not contain any mapped aquatic resource features. NWI imagery depicts a seasonally flooded, riverine intermittent stream bed (R4SBC) approximately 65 feet from the northwestern area of the parcel, a semi-permanently flooded riverine system with an unconsolidated bottom (R5UBF) approximately 125 feet from the northwestern area of the Project Area, and a seasonally saturated palustrine emergent wetland (PEM1B) approximately 290 feet from the northwestern area of the Project Area (USFWS 2024). Historic aerial imagery from 1938 indicates surface hydrologic connectivity between the northern sections of the Project Area and the adjacent seasonally saturated palustrine emergent wetland (Appendix A, Figure 3, *NWI Overview Map*); however, all subsequent aerial imagery displays no evidence of surface hydrologic connectivity (NETROnline 2024).

The Federal Emergency Management Agency (FEMA) mapped floodplain classifies the entire Project Area as an area of minimal flood hazard (FEMA 2024). However, the DWR BAM Awareness dataset mapped the northwestern area of the parcel as within a 100-year floodplain (DWR 2024a). While DWR BAM Awareness 100-year floodplains are not intended to replace FEMA regulatory

floodplains, these maps identify areas where storm flows have a 1% chance of being equaled or exceeded in any year (DWR 2024a) (Appendix A, Figure 4, *FEMA Effective and DWR BAM 100-YR Floodplain Awareness Map*). Although the County does not contain permitting requirements for projects located within a DWR BAM Awareness floodplain, consultation with the County's Land Use Services Department or Public Works Flood Control District may inform the need of a hydrology study or other requirement for Project review and approval.

The field investigation did not identify any hydrologic indicators within the Project Area. Oxidized rhizospheres associated with the fibrous roots of upland vegetation were observed along with hydric soils at the soil pit examined in the northwestern region of the Project Area (SP01); however, these iron oxide coatings occupied less than 2% of the volume of the layer, which is below the USACE Arid West Regional Supplement's threshold for a hydrologic indicator (USACE 2008a). Surface soil cracks were observed in proximity to the soil pit examined in the southern region of the Project Area (SP02); however, this hydrologic indicator occurred along non-hydric soils with a clay content and is likely associated with temporary ponding during the non-growing season.

The abandoned mining shaft in the north central area of the site contained standing water at an approximate depth of 10-15 feet during the time of the field investigation. This corresponds with normal conditions observed by DWR periodic groundwater level measurements taken from Vaqueros Well (State Well Number 02N02E19A008S) approximately 0.4 miles southwest of the Project Area (DWR 2024b). Within the past five years (2019 – 2024), these measurements indicate that the typical depth to groundwater fluctuates between approximately 20 to 30 feet during the summer growing season with seasonal spikes to between approximately 3 to 8 feet in spring melt seasons following years of high levels of winter precipitation (DWR 2024b).

4.2 JURISDICTIONAL DELINEATION RESULTS

The results of this jurisdictional delineation are based on the best professional judgement of the qualified delineators. However, all conclusions regarding potential jurisdiction in this report should be considered preliminary and at the final discretion of the regulatory agencies.

4.2.1 WATERS OF THE UNITED STATES

Despite the presence of hydric soils in the northwestern section of the Project Area and soil surface cracks in the southern section of the Project Area, the absence of hydrophytic vegetation throughout the entirety of the Project Area suggests that this site is not subject to jurisdiction under the current definition of WOUS. Therefore, no Section 404 permitting would be required for impacts within the Project Area.

4.2.2 WATERS OF THE STATE

As WOS are evaluated with the same criteria set forth as WOUS determinations, the absence of hydrophytic vegetation within the Project Area suggests that this site is not subject to jurisdiction under the current definition of WOS.

4.2.3 CDFW STREAMBED

Due to the absence of aquatic features containing a defined bed, bank, channel, or OHWM within the Project Area, it suggests that this site is not subject to CDFW jurisdiction. Therefore, no CFGC Section 1602 Streambed Alteration Agreement permitting would be required for impacts within the Project Area.

5. REFERENCES

California Department of Fish and Wildlife (CDFW). 2024. Special Vascular Plant, Bryophytes, and Lichens list. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline. Accessed July 2024.

California Department of Water Resources (DWR). 2004. Hydrologic Region South Coast, Bear Valley Groundwater Basin. Bulletin 118. Available online at https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/8_009_BearValley.pdf. Accessed July 2024.

_____. 2024a. Best Available Maps (BAM) 100-Year Floodplain Awareness Dataset. Available online at: https://gis.bam.water.ca.gov/bam/. Accessed July 2024.

_____. 2024b. Sustainable Groundwater Management Act (SGMA) Data Viewer. Available online at: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels. Accessed July 2024.

California Native Plant Society (CNPS). 2024. A Manual of California Vegetation, Online Edition. http://www.cnps.org/cnps/vegetation/; California Native Plant Society, Sacramento, CA. Accessed July 2024.

Environmental Laboratory. 1987. Corps of Engineers Wetland Delineation Manual, Final Report, Department of the Army Waterways Experiment Station, Vicksburg, Mississippi.

Google Earth 7.3.6.9326 (64-bit). 2024. Baldwin Lake, California. Available online at: https://earth.google.com/web/. Accessed July 2024.

Griffith, G. E., Omernik, J. M., Smith, D. W., Cook, T. D., Tallyn, E. D., Moseley, K., & Johnson, C. B. Ecoregions of California. US Geological Survey Open-File Report 1021. 2016. https://gaftp.epa.gov/EPADataCommons/ORD/Ecoregions/ca/CA_eco_PosterText_Final_Feb2016.docx. Accessed July 2024.

National Environmental Title Research (NETR) Online Historic Aerials. 2024. Baldwin Lake, California. [Online] Available at: https://www.historicaerials.com/viewer. Accessed July 2024.

PRISM Climate Group, Oregon State University. 2024. https://prism.oregonstate.edu, data accessed July 2024.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. 2024. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed July 2024.

State Water Resources Control Board (SWRCB). 2020. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Public Training. May 7. PowerPoint, 38 pages.

_____. 2021. State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Available online at: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (ca.gov). Adopted 2 April 2019 and revised 6 April 2021. Accessed: August 2023.

U.S. Army Corps of Engineers (USACE). 2008a. *Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble.* ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

_____. 2008b. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. Robert W. Lichvar and Shawn M. McColley. ERDC/CRREL TR-08-12. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

_____ 2011. Ordinary High Flows and the Stage-Discharge Relationship in the Arid West Region, ed. K. E. Curtis, R. W. Lichvar, and L. E. Dixon. ERDC/EL TR-11-12. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

_____ 2022. National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version. Gabrielle C. L. David et al. ERDC/CRREL TR-22-26. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

_____ 2023. Antecedent Precipitation Tool (APT) Version 2.0.0. [Software] Available for download online at: https://github.com/erdc/Antecedent-Precipitation-Tool. Accessed July 2024.

United States Department of Agriculture. 2024. List of Hydric Soils. Available online at: https://efotg.sc.egov.usda.gov/references/Public/IL/State_List_NRCS_Hydric_Soils_Report_Dynamic_Data.html. Accessed July 2024.

United States Fish and Wildlife Service (USFWS). 2024. National Wetlands Inventory (NWI). http://www.fws.gov/wetlands. Accessed July 2024.

United States Geological Survey (USGS). 2012. Geohydrology of Big Bear Valley, California phase 1—Geologic Framework, Recharge, and Preliminary Assessment of the Source and Age of Groundwater. Available at: https://pubs.usgs.gov/sir/2012/5100/pdf/sir20125100.pdf. Accessed July 2024.

_____. 2015. Big Bear City Quadrangle, California-San Bernardino Co 7.5-minute series. https://prd-tnm.s3.amazonaws.com/StagedProducts/Maps/USTopo/PDF/CA/CA_Big_Bear_City_20150313_TM_geo.pdf. Accessed July 2024.

_____. 2022. USGS The National Map (TNM) National Hydrography Dataset (NHD), at URL https://apps.nationalmap.gov/viewer/. Accessed July 2024.

APPENDIX A FIGURES

Figure 1. Vicinity and Topographic Map

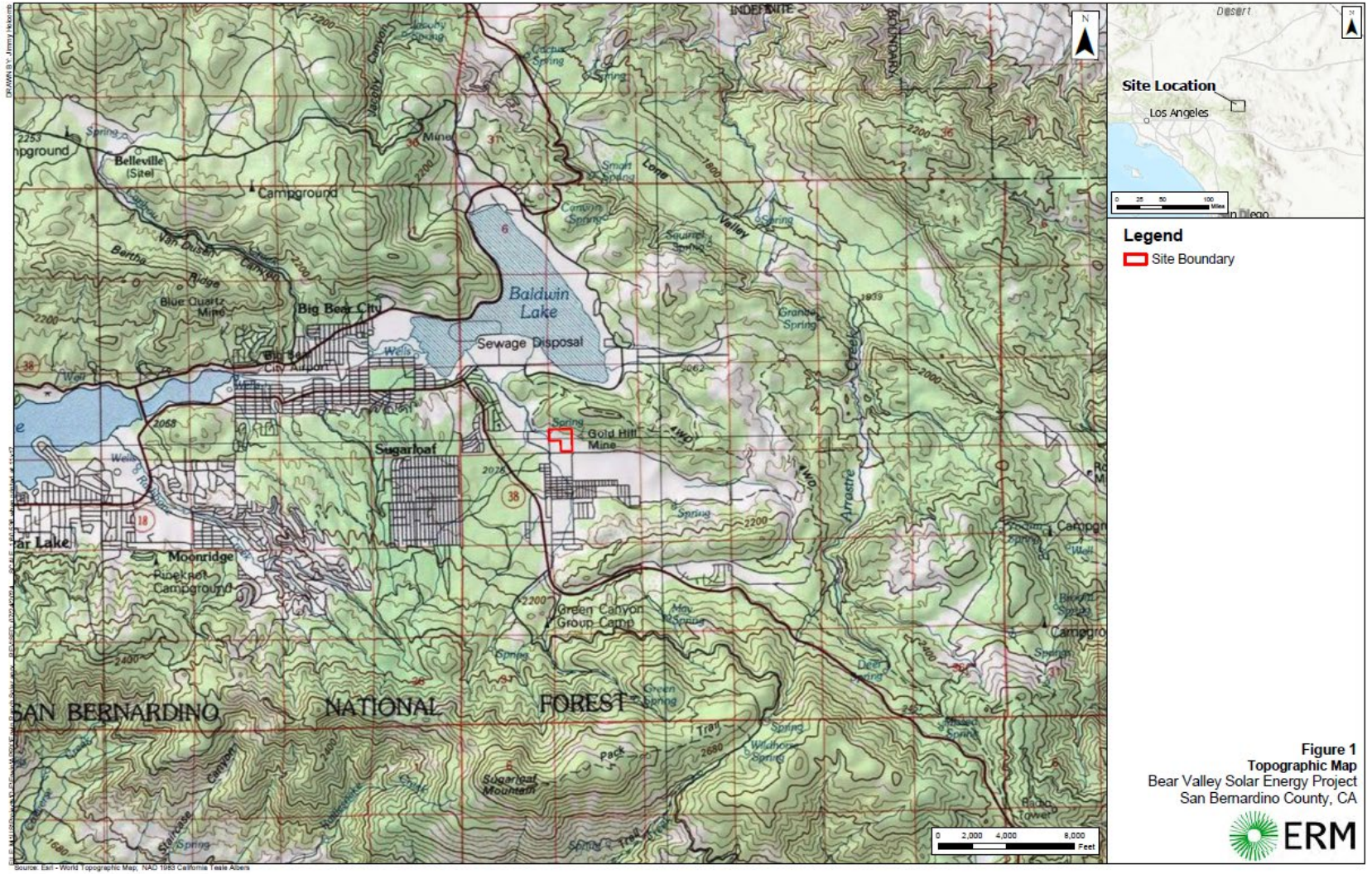

Figure 2. Soils and Vegetation Communities Map

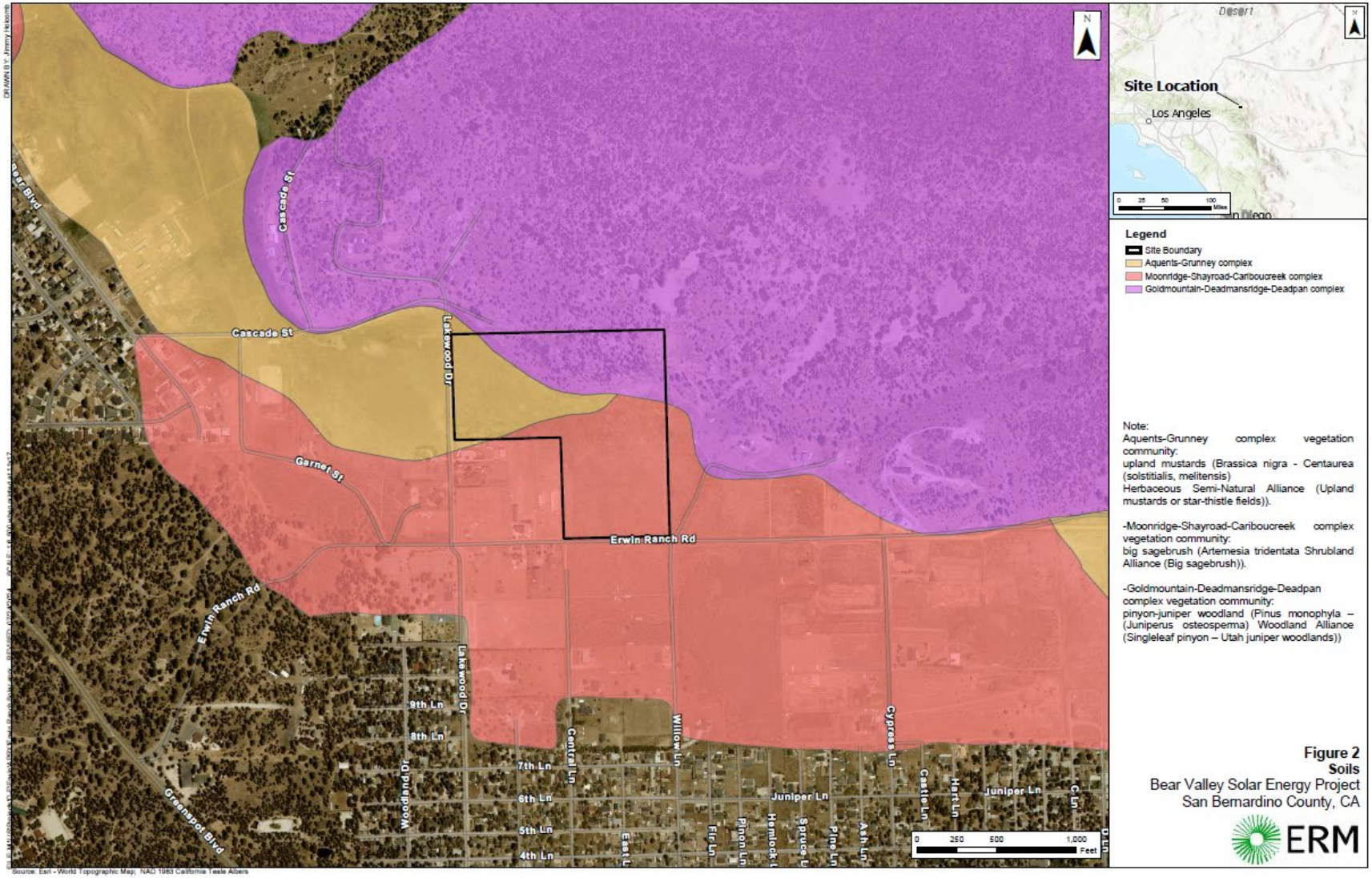

Figure 3. National Wetland Inventory (NWI) Map



Figure 4. FEMA Effective and DWR BAM 100-Year Floodplain Awareness Map



APPENDIX B USACE WETLAND DATASHEETS

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Bear Valley Solar Energy Project City/County: Big Bear/ San Bernadino County Sampling Date: 07/01/2024
Applicant/Owner: EDF Renewables Distributed Solutions State: CA Sampling Point: SP01
Investigator(s): Nick Smith & Marissa Juarez Section, Township, Range: 17, T02N, R02E
Landform (hillside, terrace, etc.): toe of slope Local relief (concave, convex, none): concave Slope (%): 1-2%
Subregion (LRR): LRR C Lat: 34.253809 Long: -116.804349 Datum: WGS84
Soil Map Unit Name: Aquents-Grunney complex, 0 to 4 percent slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
1% oxidized rhizospheres present on upland vegetatino at the periphery of sample point, falling below the USACE Arid West Regional Supplement's threshold for a hydrologic indicator

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 10')			
1. *Malva neglecta*	5	Yes	UPL
2. *Descurainia sophia*	1	Yes	UPL
3. *Sisymbrium altissimum*	1	Yes	FACU
4. *Artemisia ludoviciana*	1	Yes	FACU
5. *Elymus repens*	2	Yes	FAC
6. *Lupinus lepidus*	1	Yes	UPL
7. *Achillea millefolium*	1	Yes	FACU
8. *Lappula squarrosa*	1	Yes	UPL
	15	=Total Cover	
Woody Vine Stratum (Plot size: 10')			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 85 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 10 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 10.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	4	x 4 =	16
UPL species	9	x 5 =	45
Column Totals:	15 (A)		67 (B)
Prevalence Index = B/A =			4.47

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Early successional non-native vegetation dominates.

VEGETATION Continued – Use scientific names of plants.

Sampling Point: SP01

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	=Total Cover		
Sapling/Shrub Stratum			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
	=Total Cover		
Herb Stratum			
9. *Amaranthus retroflexus*	1	Yes	FACU
10. *Euphorbia albomarginata*	1	Yes	UPL
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	15 =Total Cover		
Woody Vine Stratum			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diamete at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size.

Woody Vine – All woody vines, regardless of height.

Remarks:

SOIL

Sampling Point: SP01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5Y 2.5/1	99	2.5YR 4/8	1	C	M	Loamy/Clayey	<2" ribbon. Sandy Clay Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Uniform to 16", dark matrix, minimal redox concentration. Taken at toe of slope

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

1% oxidized rhizospheres observed on roots of upland vegetation, surface disturbed by wild donkey tracks. While oxidized rhizospheres on living roots of upland vegetation were present, they fall below the 2% concentration threshold outlined in the USACE Arid West Regional Supplement.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Bear Valley Solar Energy Project City/County: Big Bear/ San Bernadino County Sampling Date: 07/01/2024
Applicant/Owner: EDF Renewables Distributed Solutions State: CA Sampling Point: SP02
Investigator(s): Nick Smith & Marissa Juarez Section, Township, Range: 17, T02N, R02E
Landform (hillside, terrace, etc.): outer edge of depression Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRR C Lat: 34.252054 Long: -116.802304 Datum: WGS84
Soil Map Unit Name: Moonridge-Shayroad-Caribouccreek complex, 0 to 4 percent slopes NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Surface soil cracks observed in small topographic depressions, likely due to puddling and the clay content in the soil.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 10)			
1. *Artemisia tridentata*	45	Yes	UPL
2. *Ericameria nauseosa*	10	No	UPL
3.			
4.			
5.			
	55 =Total Cover		
Herb Stratum (Plot size: 10)			
1. *Descurainia sophia*	5	Yes	UPL
2. *Elymus repens*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	10 =Total Cover		
Woody Vine Stratum (Plot size: 10)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 40 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	60	x 5 =	300
Column Totals:	65 (A)		315 (B)
Prevalence Index = B/A =			4.85

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5Y 4/1	100					Loamy/Clayey	No redox observed. Fine sandy clay loam texture

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

No hyrdic soil observed. Soil has a different color than the wetland sample point soil pit

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
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- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

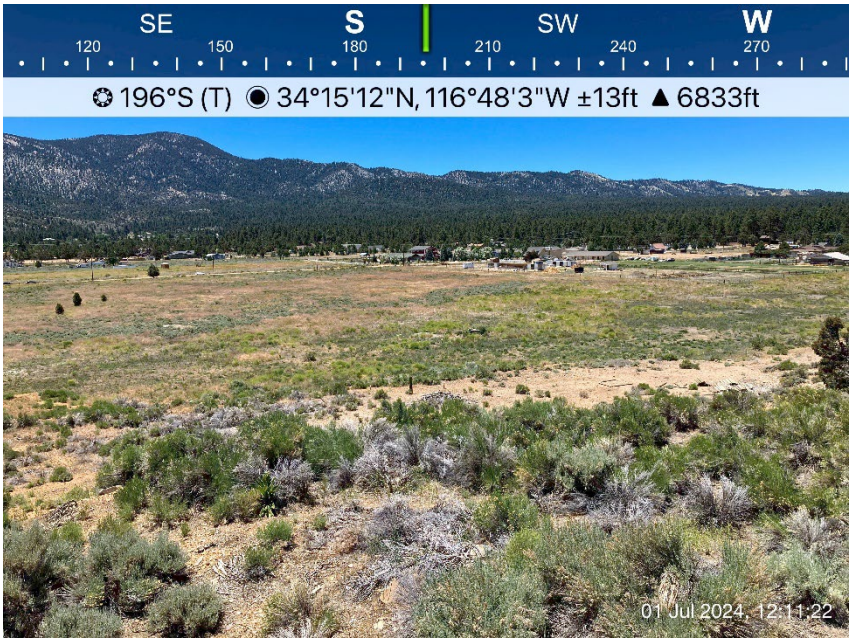
Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface soil cracks observed; however, soil content contains clay, prone to expansion and contraction with seasonal precipitation. Soils are noticably drier as well compared to SP01.

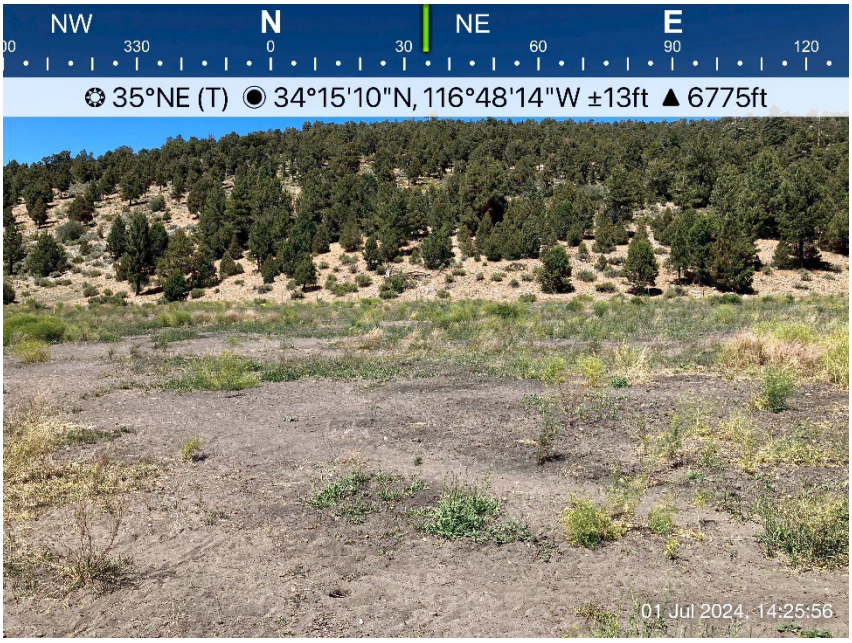
APPENDIX C PHOTOGRAPHS



Photograph 1. Overview photo of the proposed solar development site taken from the hillside near the northern boundary of the Project Area facing south.



Photograph 2. Representative photo of the wooded hillside near the northern boundary of the Project Area facing north.



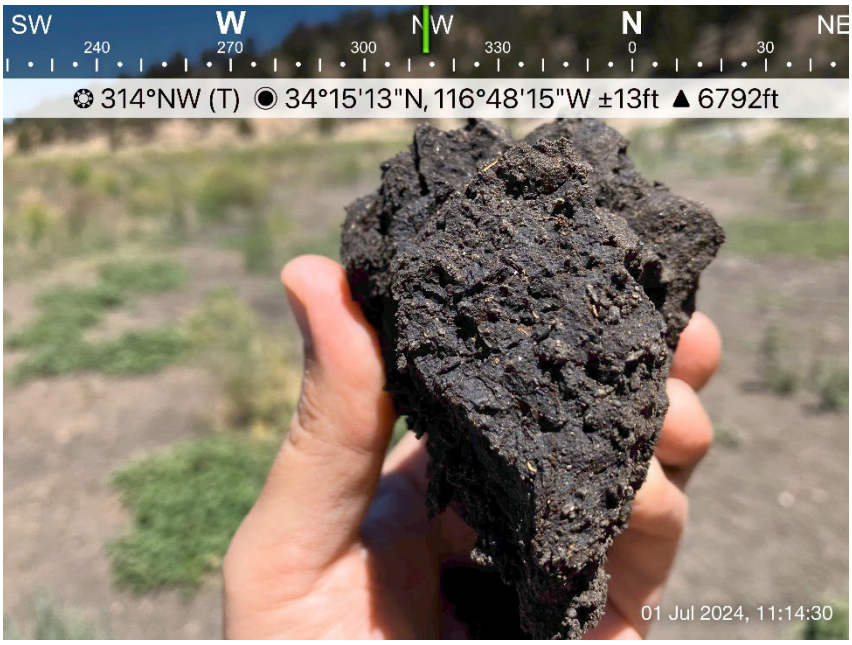
Photograph 3. Representative overview of the sparsely vegetated area in the minor topographic depression of the northwestern to north central section of the Project Area facing northeast.



Photograph 4. Representative overview of the sparsely vegetated area in the minor topographic depression of the northwestern to north central section of the Project Area facing southeast.



Photograph 5. Overview of Sample Point 01 (SP01) soil pit in the sparsely vegetated topographic depression facing south.



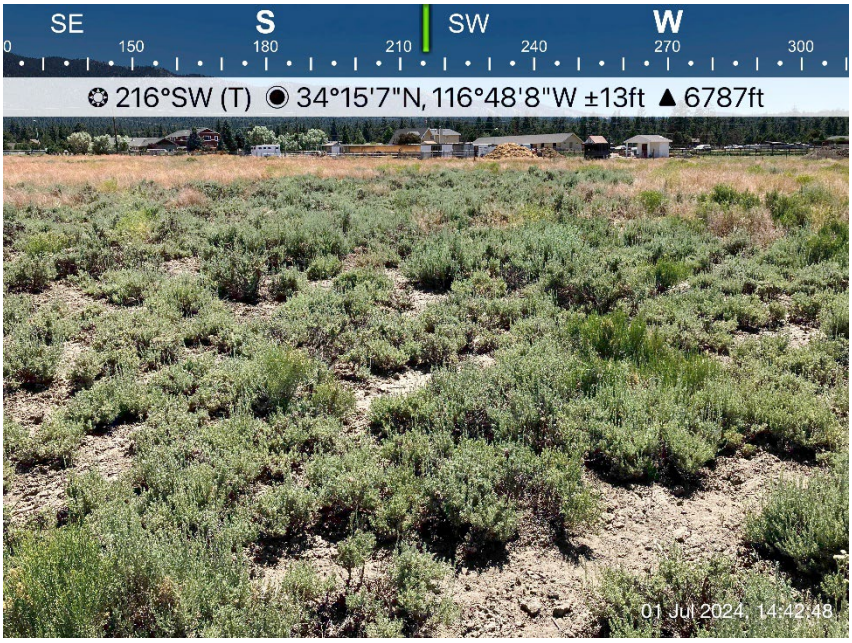
Photograph 6. Close-up of upper 6 inches of soil from Sample Point (SP01) facing northwest.



Photograph 7. Overview of the outer boundary of the minor topographic depression, indicating higher non-native upland mustard cover facing east.



Photograph 8. Overview of the transitional zone between the sparsely vegetated minor topographic depression and higher non-native upland mustard cover facing north.



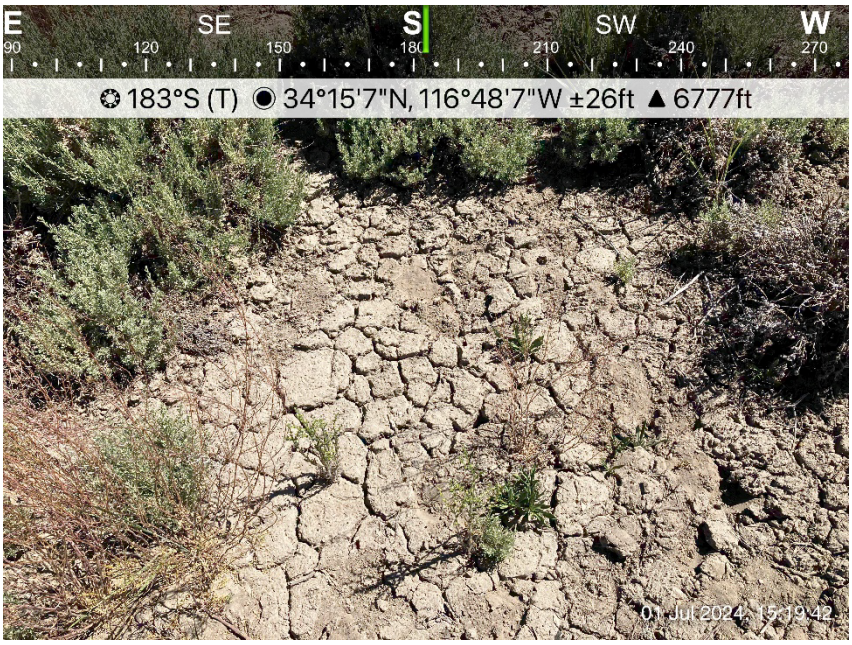
Photograph 9. Representative overview of the flat big sagebrush area of the southern section of the Project Area with the neighboring equestrian facility in the background facing southwest.



Photograph 10. Representative overview of the flat big sagebrush area of the southern section of the Project Area facing north.



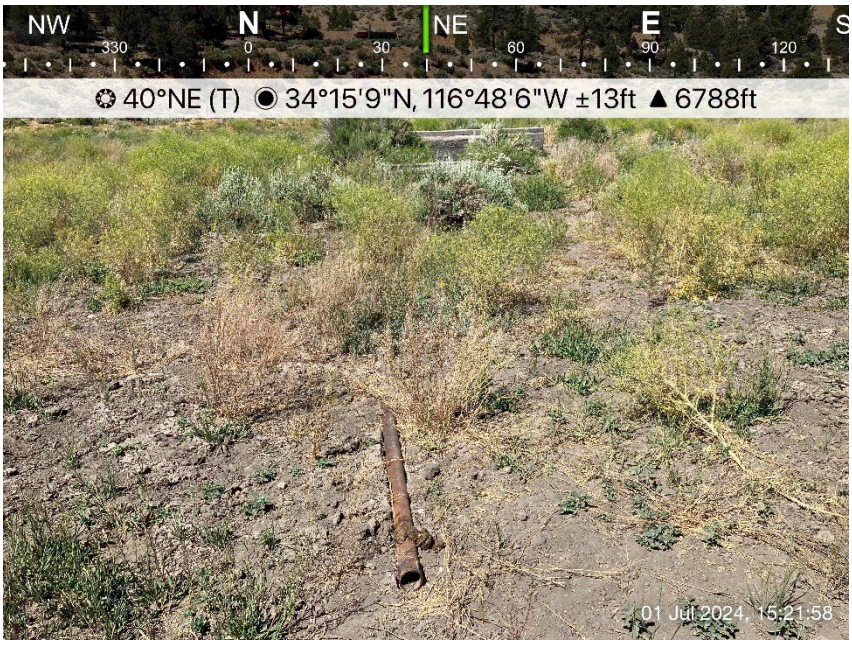
Photograph 11. Overview of Sample Point 02 (SP01) soil pit in the flat big sagebrush area of the southern section of the Project Area facing east.



Photograph 12. Soil surface cracks from the flat big sagebrush region of the southern section of the Project Area facing south.



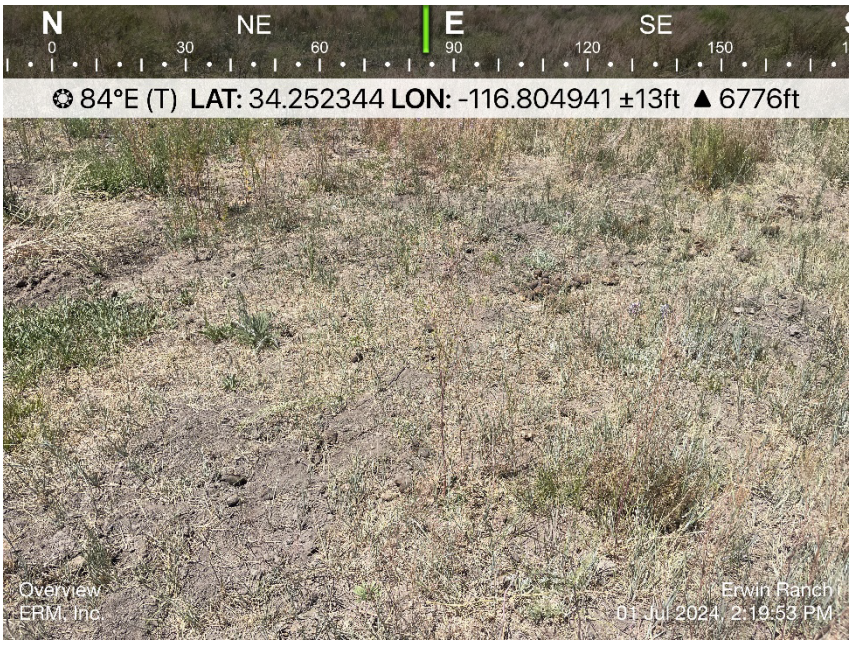
Photograph 13. Abandoned mineshaft containing standing water at a depth of 10 to 15 feet at the time of the field investigation facing northwest.



Photograph 14. Drainpipe (foreground) emerging from the abandoned mineshaft (midground) in front of a concrete barrier (background) in the north central section of the Project Area facing northeast.



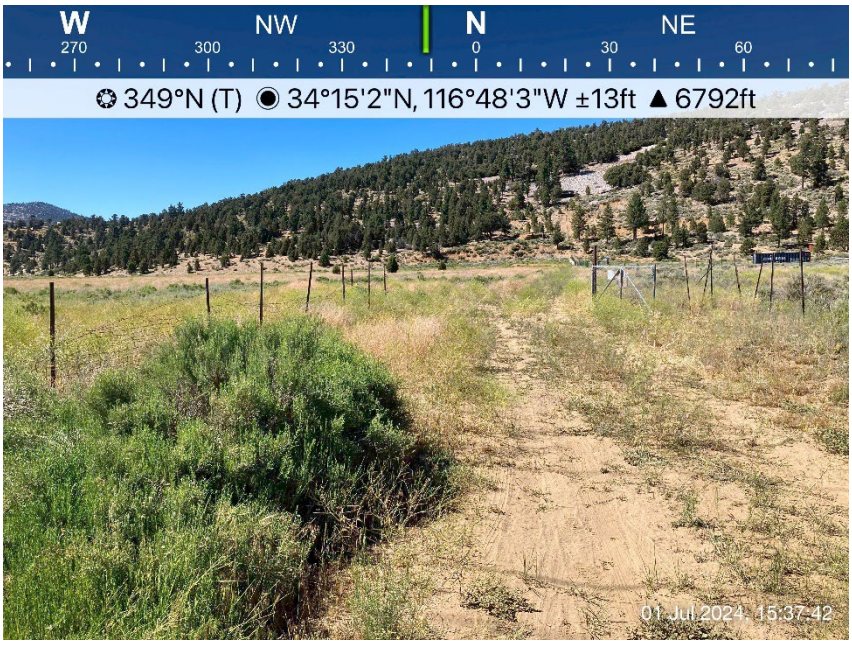
Photograph 15. Close-up of Big Bear Valley milk vetch (*Astragalus lentiginosus* var. *sierrae*) in the north central section of the Project Area facing southeast.



Photograph 16. Overview of vegetation community within the minor topographic depression with evidence of ungulate presence (scat) in the center right facing east.



Photograph 17. Animal burrow in the sparsely vegetated area of the northwestern section of the Project Area facing southeast.



Photograph 18. Unpaved access road from Erwin Ranch Road facing north.



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