Sacramento Municipal Utility District
Jackson Bulk Substation Project

Initial Study and Mitigated Negative Declaration • May 2026
Reflects Revisions Made in the Final IS/MND in October 2026



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ACRONYMS AND OTHER ABBREVIATIONS

AB	Assembly Bill
AFB	Air Force Base
AIA	Airport Influence Area
ALUCP	Airport Land Use Compatibility Plan
AMM	Avian Monitoring Measure
APN	Assessor's Parcel Number
APP	Avian Protection Program
AWE	Area West Environmental, Inc.
BMP	Best Management Practice
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CBC	California Building Standards Code
CCR	California Code of Regulations
CDF	California Department of Finance
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CGP	Construction General Permit
CGS	California Geological Survey
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DACs	Disadvantaged Communities
DTSC	Department of Toxic Substances Control
DWQ	Division of Water Quality
DWR	California Department of Water Resources
EGUSD	Elk Grove Unified School District
EIR	Environmental Impact Report
EJ	Environmental Justice
EO	Executive Order
EPA	U.S. Environmental Protection Agency

ESA	Federal Endangered Species Act
EV	Electric Vehicle
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FGDC	Federal Geographic Data Committee
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse Gas
GSP	Groundwater Sustainability Plan
GWP	Global Warming Potential
HCP	Habitat Conservation Plan
IPaC	Information for Planning and Consultation (USFWS)
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITE	Institute of Transportation Engineers
ITP	Incidental Take Permit
LUST	Leaking Underground Storage Tank
MLD	Most Likely Descendant
MM	Mitigation Measure
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone
MT	Metric Tons
MTP	Metropolitan Transportation Plan
MVA	Mega-Volt Ampere
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCIC	Northeast Information Center
ND	Negative Declaration
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NOI	Notice of Intent
NO_X	Oxides of Nitrogen

NPDES	National Pollutant Discharge Elimination System
NPS	National Parks Service
NRCS	U.S. Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PCE	Passenger Car Equivalent
PCC	Portland Cement Concrete
PF	Public Facility
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter ≤2.5 Microns
PM_{10}	Particulate Matter ≤10 Microns
PPV	Peak Particle Velocity
PRC	Public Resources Code
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SACOG	Sacramento Area Council of Governments
SCADA	Supervisory Control and Data Acquisition
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse Number
SCS	Sustainable Communities Strategy
SF_6	Sulfur Hexafluoride
SGMA	Sustainable Groundwater Management Act
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	California Surface Mining and Reclamation Act of 1975
SMFD	Sacramento Metropolitan Fire District
SMUD	Sacramento Municipal Utility District
SPCC	Spill Prevention, Control, and Countermeasure
SRA	State Responsibility Area
SSBMI	Shingle Springs Band of Miwok Indians
SSC	Species of Special Concern
SSHCP	South Sacramento Habitat Conservation Plan
SSD	Sacramento County Sheriff's Department
SVAB	Sacramento Valley Air Basin
SVC	Sacramento Valley Conservancy
SVP	Society of Vertebrate Paleontology

SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TCP	Traditional Cultural Place
TCL	Traditional Cultural Landscape
TCR	Tribal Cultural Resource
TMDL	Total Maximum Daily Load
UAIC	United Auburn Indian Community of the Auburn Rancheria
UCMP	U.C. Berkeley Museum of Paleontology
UCSB	University of California, Santa Barbara
UDA	Urban Development Area
UPA	Urban Policy Area
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VMT	Vehicle Miles Traveled
WUI	Wildland-Urban Interface

1.0 INTRODUCTION

1.1 Project Overview

The proposed project is Sacramento Municipal Utility District's (SMUD's) construction and operation of the Jackson Bulk Substation Project (proposed project) in Sacramento County, California. SMUD is proposing to construct a new approximately 18-acre bulk substation on a 44-acre site at the corner of Jackson Road and Excelsior Road, and construct new or modified overhead 69,000-volt (69kV) and 230,000-volt (230kV) power lines that would link the substation to the electrical grid.

1.2 Purpose of this Document

In 2019, SMUD purchased approximately 44 acres for the proposed substation in response to the planned significant growth in the area. Currently, SMUD customers in this area are served by SMUD's existing Jackson-Sunrise and Mayhew-Jackson distribution substations and SMUD's existing Hedge and Cordova bulk substations. As a result of the planned development along the Jackson corridor of Sacramento County, the projected electrical load will eventually exceed the capacity of these substations. Increasing the capacity of these substations is not feasible since the existing substation sites are fully utilized with no room for installing additional capacity. Therefore, installation of the proposed substation and associated overhead lines in the growth area is the only available, as well as the most efficient and reliable, means of serving this new electrical load.

The purpose of this Initial Study/Mitigated Negative Declaration (IS/MND) is to evaluate and disclose the potential environmental impacts of the proposed project. The IS/MND assesses the environmental effects of the proposed project as required under the California Environmental Quality Act (CEQA) (California Public Resources Code Section 21000 et seq.), in accordance with the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15000 et seq.). CEQA and the State CEQA Guidelines require that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects.

As the CEQA lead agency for the proposed project, SMUD has prepared this IS/MND to determine whether the proposed project may have a significant impact on the environment. In accordance with Section 15063 of the State CEQA Guidelines, an environmental impact report must be prepared if there is substantial evidence that the proposed project under review may have a potentially significant impact on the environment. A negative declaration (ND) or MND is a written statement prepared by the lead agency describing the reasons why the proposed project would not have a significant impact on the environment, and therefore, would not require preparation of an environmental impact report (State CEQA Guidelines Section 15371). According to Section 15070 of the State CEQA Guidelines, an ND or MND for a project subject to CEQA should be prepared when either:

- the IS shows that there is no substantial evidence, in light of the whole record before the lead agency, that the project may have a significant impact on the environment; or

- the IS identifies potentially significant impacts, but:
    - revisions in the project plans or proposals made by or agreed to by the applicant (in this case, SMUD) before the proposed IS/MND is released for public review would avoid the impacts or mitigate the impacts to a point where clearly no significant impacts would occur; and
    - there is no substantial evidence, in light of the whole record before the agency, that the proposed project as revised may have a significant impact on the environment.

As stated below, SMUD has analyzed the potential environmental impacts of the proposed project, determined that proposed project impacts are less than significant or can be reduced to less than significant with the implementation of mitigation measures, and has prepared this IS/MND.

1.3 Public Review Process

This draft IS/MND is being circulated for a 30-day public review period to all individuals who have requested a copy, local libraries, and appropriate agencies. A notice of intent (NOI) is also being distributed to all property owners on record identified by the Sacramento County Assessor's office as having property within 500 feet of the project boundaries. The NOI identifies where the document is available for public review and invites interested parties to provide written comments for incorporation into the final IS/MND.

A final IS/MND that includes written responses to comments received on significant environmental issues will be prepared. Before SMUD's Board of Directors makes a decision on the proposed project, the final IS/MND will be provided to all parties commenting on the public draft IS/MND.

1.4 SMUD Board Approval Process

The SMUD Board of Directors must adopt the IS/MND and approve the mitigation monitoring plan before it can approve the proposed project. The project and pertinent environmental documentation will be formally presented at a SMUD Environmental Resources and Customer Service Committee meeting for information and discussion. The SMUD Board of Directors will then consider adopting the final IS/MND and mitigation monitoring plan at its next regular Board meeting. Meetings of the SMUD Board of Directors are held at SMUD's Customer Service Center (6301 S Street, Sacramento, CA 95817-1899) and are open to the public. The public may comment at both meetings.

The IS/MND would be adopted and the project approved by the SMUD Board of Directors on the same date, consistent with past practice.

1.5 Organization of the Initial Study and Mitigated Negative Declaration

This IS/MND is organized into the following chapters:

Chapter 1, "Introduction," provides summary information about the proposed project, describes the public review process for the IS/MND, and includes the CEQA determination for the proposed project.

Chapter 2, "Project Description," contains a detailed description of the proposed project.

Chapter 3, "Environmental Checklist," provides an assessment of proposed project impacts by resource topic. The Environmental Checklist form from Appendix G of the State CEQA Guidelines is used to make one of the following conclusions for impacts from the proposed project:

- *No Impact*—the proposed project would have no impact on the resource area under evaluation.
- *Less-Than-Significant Impact*—the proposed project's adverse impacts on a resource area would not exceed established thresholds of significance.
- *Less-Than-Significant Impact with Mitigation Incorporated*—proposed mitigation measures would reduce the proposed project's adverse impacts to below established thresholds of significance.

Mitigation measures are noted after each impact discussion as appropriate.

Chapter 5, "List of Preparers," identifies the individuals who contributed to the IS/MND.

Chapter 6, "References," identifies the information sources used in preparing this document.

Appendices contain technical reports and other information to supplement the IS/MND.

1.6 Environmental Factors Potentially Affected

Impacts on the environmental factors below are evaluated using the checklist included in Chapter 3. SMUD determined that the environmental factors checked below would be less than significant with implementation of mitigation measures. It was determined that the unchecked factors would have a less-than-significant impact or no impact.

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

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.

☒ 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 proposed mitigation measures would reduce the proposed project's adverse impacts to below established thresholds of significance. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

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

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

Sarah A

Signature

May 5, 2026

Date

Sarah Ahmed

Printed Name

Sacramento Municipal Utility District

Lead Agency

2.0 PROJECT DESCRIPTION

2.1 Introduction

SMUD is proposing to construct and operate the new Jackson Bulk Substation Project (proposed project). The proposed project includes the construction of a new approximately 18-acre bulk substation and new or modified overhead 69,000-volt (69kV) and 230,000-volt (230kV) power lines that would link the substation to the electrical grid. Using transformers, substations transfer power from the transmission system to the distribution system that serves a particular area. The substation reduces the voltage from the large transmission lines and moves power into a system that powers residential and commercial customers. The proposed substation would convert high voltage from 230kV transmission lines to 69kV through transformers for local distribution into residential and commercial customers along Jackson Corridor.

2.2 Project Location and Setting

The proposed substation would be located on approximately 44 acres in unincorporated Sacramento County at the southeast corner of Excelsior Road and Jackson Road, referred to as the “substation site”. The substation site consists of two adjacent parcels, one located at 6037 Excelsior Road (APN 067-0050-039), and the other at 10590 Jackson Road (APN 067-0050-040) in Sacramento, Sacramento County, California (see Figure 2-1, Regional Location Map and Figure 2-2, project Area and Vicinity). The proposed project also includes linear corridors extending east, west, and south of the proposed substation that would be used for new or upgraded overhead lines, referred to as the “overhead line corridor”. Together, the substation site and the overhead line corridor comprise the “project area”.

The proposed substation site is predominantly used for grazing and temporary soil storage. Elder Creek flows southwest under the intersection of Jackson Road and Excelsior Road, at the northwestern boundary of the project site. The Sacramento County zoning designation of the property is Agricultural. The proposed substation site can be accessed from the west via Highway 16 (Hwy-16), also known as Jackson Road, and from the north or south via Excelsior Road. The substation site is located approximately 6.7 miles southeast of Highway 50/Highway 16 interchange.

Surrounding land uses include rural residences, ranch and grazing lands, and scattered commercial and industrial uses. Vernal pool/annual grassland complexes are adjacent to the north, east, and west of the substation site and are used for cattle grazing. Single-family residences are present within most of these lands. An equine facility with jumping courses, pavilions, and stables is to the immediate south of the substation site. East and west of the substation site on Jackson Road there are rural residences and grazing lands, intermixed with small-scale agriculture and commercial/industrial uses. Similar land uses are present to the north and south of the substation site on Excelsior Road.

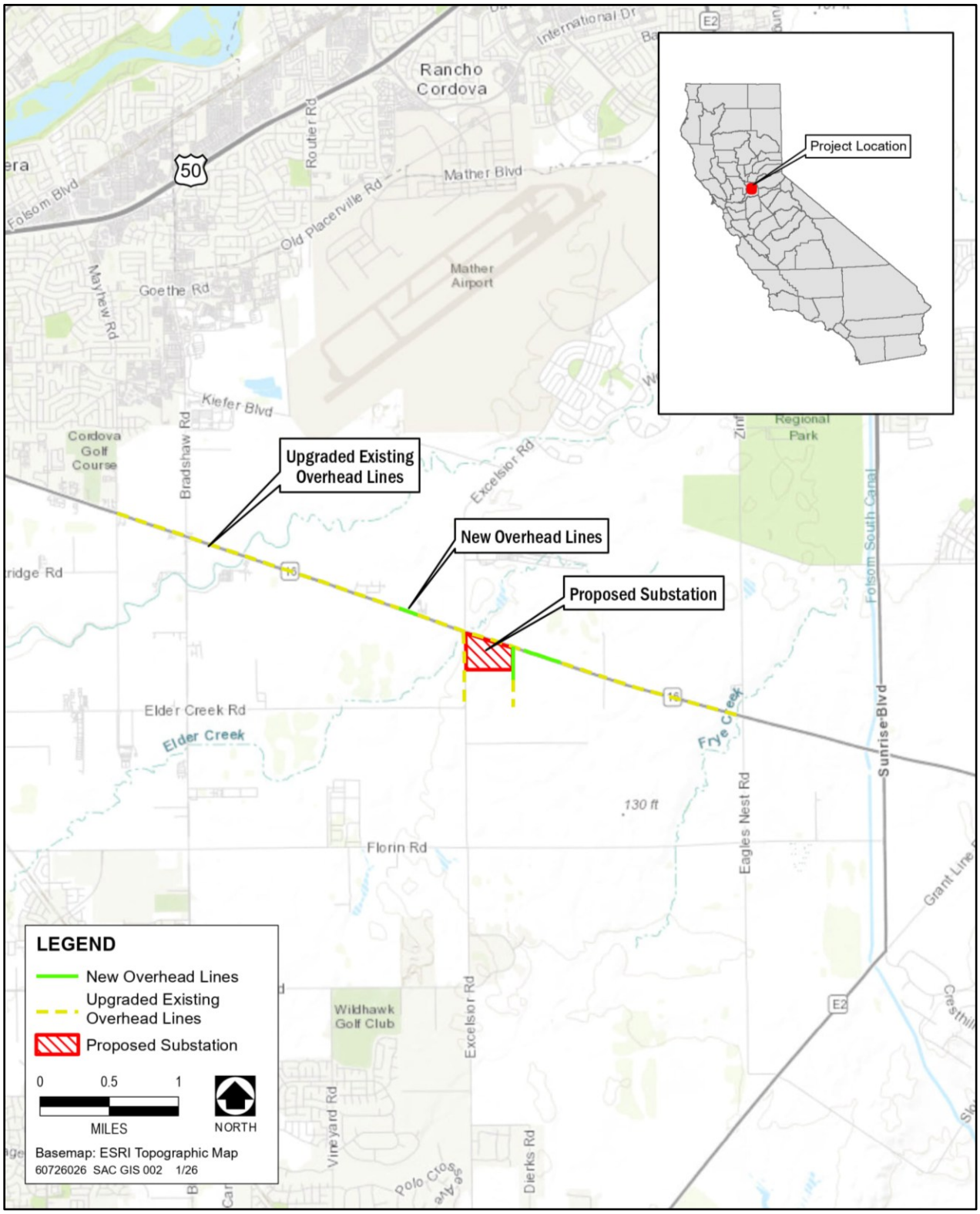


Figure 2-1. Regional Location Map

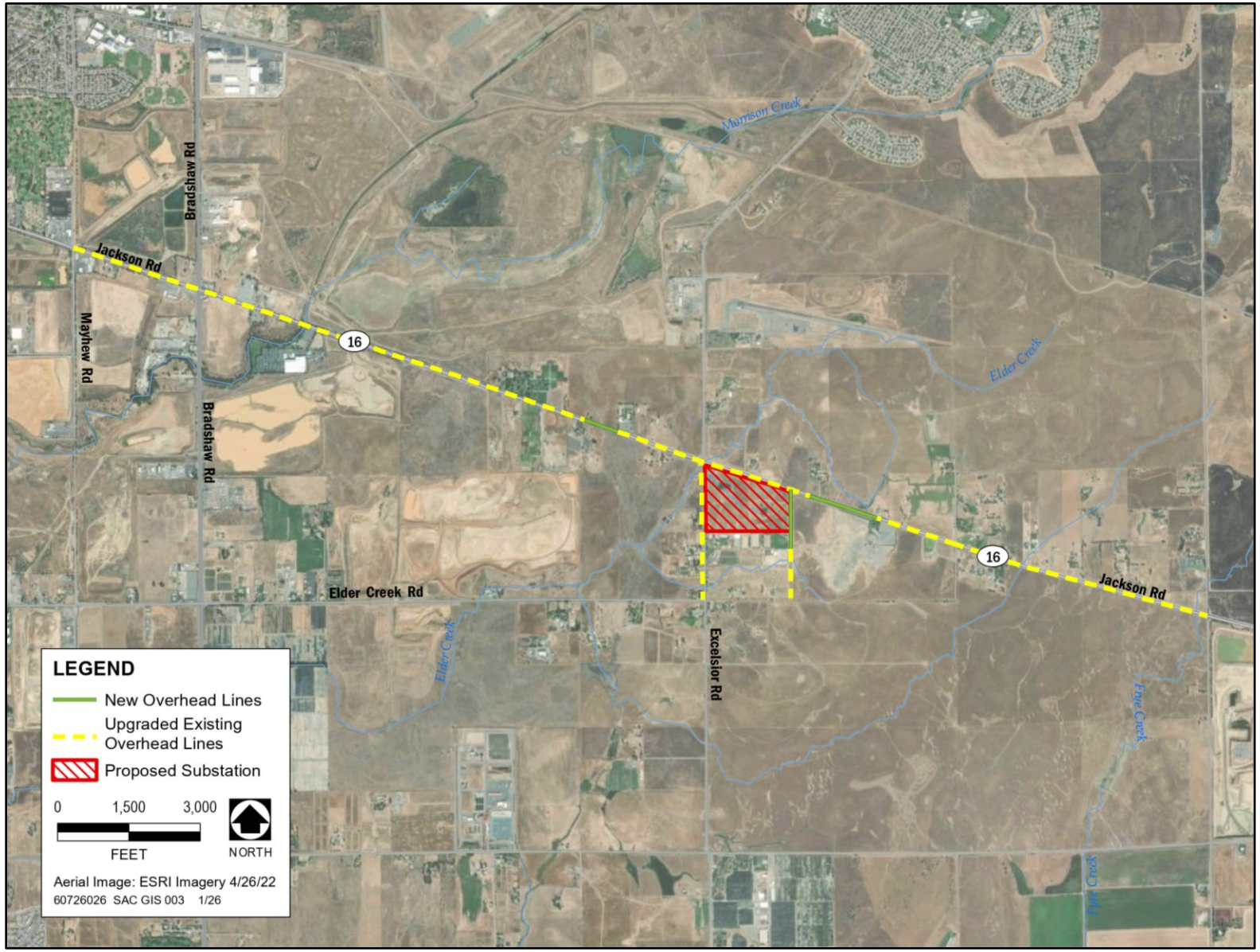


Figure 2-2. Project Area and Vicinity

2.3 Project Objectives

The objectives of the proposed project are to:

- increase the electric system capacity to meet expected customer electrical load growth as a result of planned land development and provide safe and reliable electric services to existing and proposed development along the Jackson Corridor;
- contribute to SMUD's goals for ensuring electric service reliability;
- provide greater operational flexibility between circuits and substations in the area;
- maximize the use of available SMUD property and resources; and
- minimize impacts to nearby sensitive receptors and sensitive natural communities.

2.3.1 SMUD Bulk Substation Site Selection Guidelines

When possible, SMUD locates bulk substation sites adjacent to an existing transmission source due to the difficulty and expense of extending transmission facilities. SMUD also considers the following:

- Compatibility with adjacent land uses;
- Compatibility with future development;
- Compatibility with potential future expansion of electric facilities;
- Integration into existing subtransmission (69kV) system;
- Proximity to freeway-controlled access areas and airport approach/departure flight zones;
- Minimization of impact to environmentally sensitive areas;
- Minimization of residential communities' visual impacts;
- Minimization of financial impact to SMUD's customer-owners; and
- Community input.

Typically, bulk substations require approximately 20 acres.

2.4 Project Background and History

In 2019, SMUD purchased approximately 44 acres for the proposed substation in response to the planned significant growth in the area. Currently SMUD customers in this area are served by SMUD's existing Jackson-Sunrise and Mayhew-Jackson distribution substations and SMUD's existing Hedge and Cordova bulk substations. As a result of the planned development along the

Jackson corridor of Sacramento County, the projected electrical load will eventually exceed the capacity of these substations. Increasing the capacity of these substations is not feasible since the existing substation sites are fully utilized with no room for installing additional capacity. Therefore, installation of the proposed substation and associated overhead lines in the growth area is the only available, as well as the most efficient and reliable, means of serving this new electrical load.

Since 2022, SMUD has used 11 acres of the substation site for the temporary storage of soils generated by various electrical infrastructure projects and activities throughout its service territory. Soil stockpiling practices have included limiting individual piles to 0.5-acre cells and implementing best management practices (BMPs) for stormwater management and wetland avoidance. Between 2022 and 2025, approximately 12,200 cubic yards of soil were delivered to the site, with an estimated 9,000 cubic yards of additional soil expected to be imported prior to the start of project construction as part of the SMUD's soil storage program.

In accordance with Section 15125 of the CEQA Guidelines, the project description will describe existing conditions at the time of review, but will also take into consideration the ongoing use of the site for soil storage and corresponding future changes pending construction (in terms of the volume of soil onsite prior to the start of construction). The existing soil storage program was evaluated previously and determined to be categorically exempt pursuant to Section 15300 of the CEQA Guidelines.

2.5 Proposed Project

The proposed project includes the construction and operation of a new bulk transmission substation (Jackson Bulk substation) and construction of new or modified overhead 69kV subtransmission and 230kV transmission power lines that would link the substation to the existing electrical grid. The new substation would include new electrical equipment, a control building, driveway access, site fencing, lighting, stormwater drainage, and utilities. The following sections provide detailed information about the proposed project components.

2.5.1 Project Components

Approximately 18 acres of the substation site would be graded and covered in crushed rock except where permanent concrete foundations for the control building, transformers, circuit breakers and other equipment, oil containment, and paved access roads would be built. The substation would be energized by interconnecting to the existing 230kV lines located adjacent to the southern edge of the site and would step the voltage down to 69kV. SMUD also proposes to grade and prepare the remaining approximately 26 acres of the property for drainage improvements and continued temporary soil storage located south of the proposed substation footprint. The substation footprint will maintain a 200-foot setback from both the south side of Jackson Road and the east side of Excelsior Road. See Figure 2-3, Conceptual Substation Design Plan.

Electrical Equipment

Electrical substations are an assemblage of electrical components. The main component of a substation is the switchyard, power transformers, circuit breakers, and control building. The proposed Jackson Bulk substation would initially include one 224 mega-volt ampere (MVA)

transformer that would receive 230kV and step it down to 69kV, and would include a second 224 MVA transformer at full build out when future load growth warrants the additional capacity increase.

Each power transformer would be approximately 35 feet tall, would contain up to 30,000 gallons of insulating mineral oil, and would be located near the center of the substation site. Each transformer would have a secondary containment system to collect and hold any oil leaks from the transformer. The maximum average sound level for each transformer would not exceed 80 decibel A-weighting (dBA) measured at a distance of 6 feet around the periphery of the transformer.

To accommodate for switching and system protection, the substation would include up to thirteen 230kV power circuit breakers, eight 69kV power circuit breakers and seven 69kV circuit switchers. Each 230kV circuit breaker would be approximately 25 feet tall and would contain approximately up to 180 pounds of sulfur hexafluoride (SF6) as an insulating medium. During switching and protective operation, the sound levels for the circuit breakers would not exceed 140 decibels (dB) measured at a distance of 50 feet around the perimeter of the circuit breaker. Noise generated by circuit breakers is typically intermittent and does not contribute substantially to overall operational noise levels at adjacent properties.

To improve the electrical system efficiency, the substation may also include up to two 69kV and one 230kV capacitor banks, and one 12,000-volt (12kV) shunt reactor, thirty-four 230kV disconnect switches, sixteen 69kV disconnect switches, ten sets of 230kV coupling capacitor voltage transformers (CCVTs), two sets of 69kV potential transformers (PT), and 69kV circuit switchers. The capacitor bank consists of individual capacitors, which contain approximately two gallons of insulating non-hazardous synthetic oil.

The substation would include 230kV and 69kV instrument transformers for remote supervisory control and data acquisition (SCADA), metering and protection purposes.

Each 230kV and 69kV instrument transformer contains approximately 10 to 20 gallons of insulating mineral oil.

To provide electricity for the substation operation, the proposed substation would also include up to three 12kV/480V station service pad-mounted transformers. Each pad-mounted transformer will contain approximately 85 gallons of insulating oil, which is typically natural ester fluid type oil, a non-toxic and biodegradable oil. The substation would also include battery systems using lead acid, located inside the control building or in an enclosure in the substation.

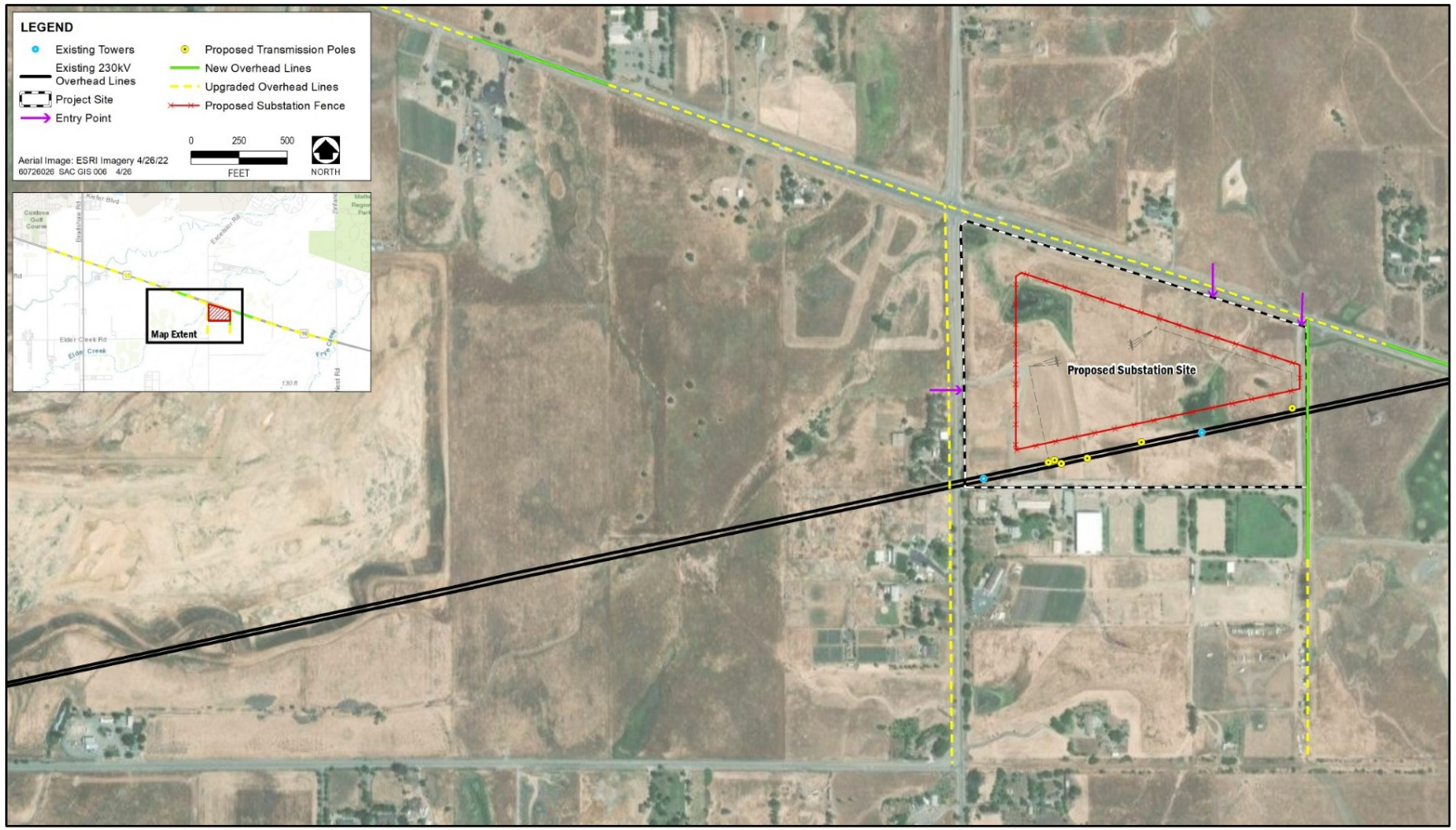


Figure 2-3. Conceptual Substation Site Plan

SMUD would use limited amounts of SF_6, a common insulating gas for high-voltage electrical systems, at the proposed substation site. Use of the proposed switchgear equipment would comply with recordkeeping, reporting, and leakage emission limit requirements in California Air Resources Board (CARB) regulations for reduction of SF_6 emissions.[1] As part of substation operations and maintenance activities, SMUD would monitor existing substation equipment to accurately and immediately identify any SF_6 leaks and immediately repair leaks that are discovered. SMUD is also an active member of the SF_6 Emission Reduction Partnership, which focuses on reducing emissions of SF_6 from transmission and distribution sources.

Electrical Bus

The proposed substation would include a network of steel structures that would support equipment, electrical buses, varying in height from approximately 16 to 80 feet tall. The electrical bus would be supported by equipment such as insulators, and would support overhead conductors entering the substation from the interconnecting subtransmission and transmission overhead lines.

Control Building

The proposed substation would include a two-story, approximately 8,000-square-foot control building. The control building would be constructed with masonry block, concrete, or steel walls. The control building would include a restroom for employees. To provide water service for the restroom, SMUD would install a water well and to provide sewer service for the restroom, SMUD would install a sanitary sewer septic system.

Substation Fencing

To maintain site security and public safety, the perimeter of the new substation would be fenced with either ten-foot security fencing consisting of chain link topped by barbed wire, ten-foot block retaining walls and/or two eight-to-ten-foot earthen berms topped with a ten-foot block retaining walls along the south and east perimeters of the substation. A commemorative mural, designed in consultation with the Wilton Rancheria, would be painted on the substation perimeter fencing/wall (see Section 3.18, “Tribal Cultural Resources” for more information).

Landscaping and Lighting

Landscaping and/or screening improvements would be installed between the property line and the substation fencing consistent with Sacramento County’s design standards.

The proposed substation would include installation of lighting as required by National Electrical Safety Code for substation operation. The installed lighting system is to be used only for

[1] In 2021, CARB finalized amendments to its Gas-Insulated Equipment (GIE) regulations (17 CCR § 95350). The primary focus of these changes is a phased ban on the acquisition of new SF6-insulated equipment, which began taking effect on January 1, 2025. SF_6 may still be used for the 230 kV transformers for the Project because they may have been purchased in advance or existing spare equipment may be used. The GIE regulations allow reporting entities to purchase GIE prior to the phase out and bring it into California no later than 24 months after the purchase date.

purposes of nighttime operations and maintenance. All substation lighting will be oriented downward toward major equipment to minimize glare onto surrounding property.

Stormwater

Stormwater runoff would be captured by an underground storm drain system and conveyed to a detention basin located at the northwestern corner of the site. To minimize drainage impacts, the on-site detention basin would be designed to allow pollutants to be filtered by vegetation and to promote natural infiltration into the subsurface. This would reduce both the flow rate and volume of stormwater discharged to the existing drainage swale at the corner of Jackson and Excelsior Roads, maintaining discharge levels consistent with historic conditions and minimizing downstream impacts. The basin would include a low-level outlet fitted with an orifice plate to meter outflows at a controlled rate, as well as a peak-level outlet sized for specific design storm events in accordance with Sacramento County standards.

Site Access

The proposed substation would be accessed from Jackson Road and Excelsior Road. The substation would include three driveway entrances: one existing gated driveway entrance from Jackson Road, one gated driveway entrance from Excelsior Road, and one new 30-foot-wide entrance from Jackson Road. Additionally, 20-foot-wide paved access roads would be constructed within the substation. Areas that are not paved or would house equipment or structures would be covered in crushed rock.

Overhead Lines and Poles

The proposed project involves construction of new overhead power lines and the modification of existing towers and overhead powerlines. It may include the replacement of two existing lattice towers located south of the proposed substation, as well as the construction of up to six new 230kV transmission monopoles, spaced approximately 500 to 1,000 feet apart within the existing transmission corridor. Additionally, up to five new 230kV transmission monopoles may be constructed within the substation site (see Figure 2-3).

Planned 69kV subtransmission improvements include converting approximately 0.5 miles of existing overhead 12kV lines along Excelsior Road and 4.65 miles along Jackson Road to single-circuit overhead 69kV lines with 12kV underbuild[2]. Additionally, approximately 0.5 miles of new 69kV lines would be constructed along Jackson Road. Up to 0.2 miles of new 69kV lines and 0.2 miles of modified existing overhead lines may also be constructed along the eastern boundary of the property going south to tie into an existing 69kV line on Elder Creek Road. This work will require replacing existing poles with taller, stronger poles and installing additional poles where new connections to existing overhead lines are required. In total, about 5.35 miles of existing overhead lines would be rebuilt, and approximately 0.7 miles of new 69kV overhead lines would be constructed (refer to Figure 2-2).

These upgrades are necessary for SMUD to meet its obligation to provide reliable electrical service to planned future developments in Sacramento County, including the Jackson Township Specific Plan, Mather South Community Plan Area, Newbridge Specific Plan, and the West

[2] Underbuild refers to the lower voltage circuit mounted lower, but on the same pole as the higher voltage circuit.

Jackson Highway Master Plan Area. The proposed improvements have been planned in consideration of these master planned communities and associated infrastructure upgrades, including future widening of Jackson Road. The substation would interconnect to SMUD's subtransmission system through the rebuilt and new overhead subtransmission facilities.

Fiber Optic Network Connection

The proposed substation would be connected to the existing SMUD-owned fiber optic network that runs on the existing overhead transmission structures. In order to interconnect the fiber optic network to the substation, a new pull box will be installed in the substation, and a 30-inch-wide trench would be constructed between the new pull box and one of the new transmission poles located south of the substation. The pull box and trench would be used to splice into the existing fiber optic cable and provide fiber cable from the pull box to the transmission pole and overhead into the substation site.

2.5.2 Project Operation and Maintenance

During normal operations, the substation would be operated remotely and continuously. Substation maintenance would occur on a regular basis from two to four times per month for internal inspections and four times per year for perimeter maintenance. Major maintenance would occur about once every three years. After the substation has been in operation for an extended period of time, the transformer oil would require filtering. Impurities in the filtrate would either be removed and recycled or disposed of in accordance with federal, state, and local hazardous waste disposal requirements. Additionally, restroom and vegetation management may occur with routine operations and maintenance activities.

2.5.3 Project Construction

Construction Phasing

Construction of the proposed substation would occur in several phases. The phases may be sequential, or they may overlap, and not all pieces of construction equipment may be used for the entire duration of a construction phase. The phases of construction would include the following:

- Site preparation
    - clearing and grubbing
    - site grading
    - drainage improvements and detention basin excavation
    - access road improvements
    - fencing installation
    - below-grade civil construction, including well construction and septic, foundations, electrical grounding, and conduits
- Substation components
    - control building construction
    - erection of steel components and poles

  - electrical equipment installation
  - testing and energization
- Overhead lines and poles
  - transmission line construction
  - subtransmission line construction

Site Preparation

Clearing and grubbing at the substation site would include removal of any existing facilities such as ground pipes, power poles, and barbed wire fencing. Vegetation would be cleared from the site, as needed.

The proposed substation site would be graded for substation equipment, drainage, and access roads. SMUD anticipates excavation and removal of existing soil and import of backfill to re-establish a level grade within the site. While volumes are not yet finalized, the project currently estimates a volume of up to 59,000 cubic yards of imported fill. Imported fill, and, to the extent feasible, excavated soil, would be used to construct a raised substation pad and a paved access road. The raised pad would have a maximum side slope of 2:1.

A stormwater detention basin would be excavated within the proposed substation in accordance with site drainage design requirements. The estimated excavation depth for the detention basin is 9 to 12 feet.

Below grade water and sewer lines and subsurface drainage components would be installed. Foundations for the control building and transistors would also be installed below grade. The maximum depth of construction within the substation site would be approximately 30 feet.

Following the installation of below grade infrastructure, 20-foot-wide access roads inside the substation would be paved, connecting the access points on Excelsior Road and Jackson Road with the control building and electrical equipment.

The proposed project will construct a 20-foot-wide all-weather access road within the transmission corridor south of the substation. Construction will include clearing and grubbing the route, excavating one foot below existing grade, compacting the subgrade, and placing geotextile fabric. Class II aggregate base will be installed in compacted lifts no greater than eight inches, achieving at least 95% maximum density, until the surface is six inches above existing grade. The finished road will maintain a preferred cross slope of three percent (maximum five percent) and provide drive-through access or a fire department-compliant turnaround at dead ends, ensuring year-round access and emergency vehicle compliance.

Substation Components

New substation equipment and overhead electrical conductors and cable would be installed to provide connectivity to existing incoming electrical transmission service and outgoing distribution service. The control building would be constructed and integrated with the switchyard. Substation battery backup systems would be installed inside the control building or in an enclosure in the substation. Erection of structural steel components for the substation would also occur.

69kV Subtransmission Line

Construction and installation of the additional overhead subtransmission lines would require new poles of either wood or imbedded steel. To the extent feasible, the new pole would be installed adjacent to the existing pole, generally within 10 feet. The new poles would be "framed" (cross arms, pins, insulators, grounds, bonding, markers, and other mounted electrical components) and any anchors and guy wires attached before the pole is "set" in the ground.

To set the new pole, SMUD would typically excavate a pole hole and any necessary anchor holes using a truck-mounted machine auger and line truck. An auger drill, slightly larger in diameter than the pole, would be used to excavate the hole, approximately 24 inches in diameter. The soil would be stockpiled directly adjacent to the hole. Pole setting depths would range from five to 14 feet. After the poles are set, SMUD workers would string new conductors.

230kV Transmission Line

Installation of the transmission line poles would consist of preparing an access road and construction pads, pole foundation preparation, pole installation, and transfer of existing 230kV circuits.

Existing access roads that are found to be unsuitable for SMUD equipment will be improved, or a new 0.5-mile, 15-foot-wide access road would be constructed, by re-grading and installing a geotextile membrane topped with 18 inches of class 2 aggregate base compacted to 95% of ultimate compaction with a cross slope not to exceed five percent. Access road improvements would be permanent.

In addition to the access road, SMUD would construct an approximately 35-foot by 100-foot temporary construction pad at the location of each new transmission pole within the substation site. SMUD may also need to install a vehicle turnaround at the end of the maintenance and construction pads of either the hammer head or cul-de-sac type as needed. Construction spoils will be staged within SMUD's right-of-way until testing of the spoils has determined a location for final disposal. The temporary construction pads would not be hard-surfaced (no asphalt). At the conclusion of project construction, the construction pads would be removed and only the access road would remain.

Preparation of the access road and construction pads would require the use of the following equipment and vehicles: sheepsfoot compactor; 1-ton service trucks; 20-ton tandem haul trucks; 5-ton 20-foot semi flatbed truck; front loader; semi-end dump truck; water truck; 20-hp generator; street sweeper; and construction staff vehicles.

Installation of steel transmission poles would require augering up to a nine-foot-diameter hole up to 30 feet deep using a truck-mounted machine auger. A steel reinforcing cage would be lowered into the hole by a crane. Concrete would be poured from a concrete truck to form the new reinforced concrete foundation. New electrical components (cross arms, pins, insulators, etc.) would be attached to the tubular steel pole, which would then be lifted to an upright position by a crane, and bolted to the concrete foundation by workers using hand-held power tools. The existing transmission line conductors would be transitioned over to the new pole using a crane and attached to the new tubular steel pole.

Construction Schedule

The schedule is dependent on forecasted future load growth driven by development addressed in the Jackson Township, New Bridge, Mather South and West Jackson Highway specific plans. Project construction is anticipated to begin during the first quarter of 2030 and commissioning and energization would occur in December 2032. SMUD anticipates the construction duration to be approximately 36 months for the new substation.

Table 2-1 summarizes the timeline for the project phase. The phases may be sequential, or they may overlap.

Table 2-1. Project Phase Timeline

Project Phase	Timeline
Clearing and grubbing	4 weeks
Grading, drainage facilities, and access road improvements	20 weeks
Installation of perimeter fencing and perimeter electrical grounding	12 weeks
Installation of well and septic, electrical grounding, below-ground conduits, cable troughs, and foundations	26 weeks
Construction of the control building	52 weeks
Integration of the control building with the switchyard	40 weeks
Paving of the substation interior access roads	3 weeks
Erection of structural steel components and tubular steel poles at proposed substation	12 weeks
Installation of the substation equipment and overhead lines	40 weeks
Commissioning phase	26 weeks

Personnel, Equipment, and Staging

Construction would require an average daily worker population of approximately 15 workers, with up to approximately 30 workers during peak construction activities associated with grading and heavy equipment deliveries. Construction would be limited to the hours between 7 a.m. and 6 p.m. Monday through Saturday, and between the hours of 9 a.m. and 6 p.m. on Sunday. Typically, construction activities would occur Monday through Friday, with work occurring on the weekend only when necessary.

Table 2-2 provides summary of the typical and anticipated construction equipment that would be used for each project phase.

Table 2-2. Summary of Anticipated Equipment for Each Project Phase

Equipment	Project Phase
Asphalt paver	Paving
Backhoe	Clearing and grubbing, grading, fencing, below grade civil construction, control building construction, paving,
Boom truck	Control building construction
Compactor	Clearing and grubbing, grading
Concrete truck	Fencing, below grade civil construction, control building construction,
Crane	Control building construction, erection of structural steel components and tubular steel poles, installation of new substation electrical components
Crew vehicles	Clearing and grubbing, grading, fencing, below grade civil construction, control building construction, paving, erection of structural steel components and tubular steel poles, installation of new substation electrical components
Dozer	Clearing and grubbing, grading
Excavator	Clearing and grubbing, grading, fencing, below grade civil construction, control building construction
Forklift	Fencing, below grade civil construction, control building construction, erection of structural steel components and tubular steel poles, installation of new substation electrical components
Front-end Loader	Clearing and grubbing, grading, below grade civil construction, control building construction, paving
Generator	Clearing and grubbing, grading, fencing, below grade civil construction, control building construction, paving, erection of structural steel components and tubular steel poles, installation of new substation electrical components
Grader	Clearing and grubbing, grading
Manlift	Control building construction, erection of structural steel components and tubular steel poles, installation of new substation electrical components
Scraper	Clearing and grubbing, grading
Semi-end dump truck	Clearing and grubbing, grading, fencing, below grade civil construction, control building construction, paving
Semi-flatbed truck	Fencing, below grade civil construction, control building construction, erection of structural steel components and tubular steel poles, installation of new substation electrical components
Service truck	Clearing and grubbing, grading, fencing, below grade civil construction, control building construction, paving, erection of structural steel components and tubular steel poles
Skid steer with drills	Fencing, below grade civil construction, control building construction
Tandem haul trucks	Clearing and grubbing, grading
Transformer oil processing equipment	Installation of new substation electrical components
Truck-mounted drill rig	Below grade civil construction, control building construction
Vibratory roller	Clearing and grubbing, grading, fencing, below grade civil construction, control building construction, paving,
Water truck/sweeper	Clearing and grubbing, grading, fencing, below grade civil construction, control building construction, paving, erection of structural steel components and tubular steel poles, installation of new substation electrical components
Welder	Below grade civil construction, control building construction, erection of structural steel components and tubular steel poles

Staging for construction equipment and a materials laydown area would be located within the substation site. During construction, access to the staging area would be maintained, with primary access through the gate along Excelsior Road, south of Jackson Road.

Construction materials would be delivered to the site and stored on the substation site or in the designated staging and laydown area. Deliveries would be made by concrete trucks, flatbed trucks, and tractor-trailer rigs. Hazardous materials, including paint, grease, epoxies, and oil would be delivered to the site, and stored in either storage lockers or covered containers, in accordance with local, state, and federal requirements. Once the electrical equipment has been installed, transformer oil and sealed batteries would be delivered and stored in approved containers.

2.6 Potential Permits and Approvals Required

Elements of the proposed project could be subject to the permitting and/or approval authority of other agencies. As the lead agency pursuant to CEQA, SMUD is responsible for considering the adequacy of this IS/MND and determining whether the project should be approved. The following agencies could require permits or approvals as part of project implementation:

- **United States Army Corps of Engineers (USACE):** Clean Water Act (CWA) Section 404 Permit (33 U.S.C. § 1344) for placement of discharge or fill into Waters of the United States.
- **State Water Resources Control Board (SWRCB)/Central Valley Regional Water Quality Control Board (RWQCB):** The RWQCB issues Construction Storm Water Discharge Permits under Water Quality Order 2022-0057-DWQ for projects that disturb more than one acre of land. The permit would require preparation and implementation of a stormwater pollution prevention plan (SWPPP) that would specify storm water BMPs.

  Should dewatering of the construction site occur, the project would apply for coverage under Water Quality Order 2003-0003-DWQ, which permits small and/or temporary dewatering projects (i.e., excavations during construction).
- **RWQCB:** CWA Section 401 Water Quality Certification (33 U.S.C. § 1341)
- **California Department of Fish and Wildlife (CDFW):** Lake and Streambed Alteration Agreement under Section 1602 of the California Fish and Game Code.
- **California Department of Transportation (Caltrans):** Caltrans issues permits for movement of oversized or excessive loads on state highways.
- **Sacramento Metropolitan Air Quality Management District (SMAQMD):** Authority to Construct/Permit to Operate pursuant to SMAQMD Regulation 2 (Rule 201 et seq.).
- **Sacramento County:** The project would require permits from the Sacramento County Environmental Management Department:
    - On-Site Wastewater Treatment Permit
    - Cathodic Protection Well Permit

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3.0 ENVIRONMENTAL CHECKLIST

Pursuant to Section 15063 of the CEQA Guidelines, this IS will provide SMUD with sufficient information to determine whether to prepare an environmental impact report (EIR), a mitigated negative declaration (MND), or a negative declaration (ND) for the proposed project. SMUD proposes to prepare an MND. The following analysis provides the project-specific information needed to address each CEQA checklist question.

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3.1 Aesthetics

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.1 Environmental Setting

Aesthetic (i.e., visual) resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Therefore, the environmental setting consists of the quality and character of the site and its surroundings as well as the sensitivity of viewers.

This section summarizes regulations applicable to aesthetic resources, describes the existing aesthetic resources within the project area, and provides an assessment of potential changes to those conditions that would result from implementation of the proposed project. Effects of the proposed project on the visual environment are generally defined in terms of the proposed project's physical characteristics and the potential visibility of those changes (including changes in lighting and glare), the extent to which the proposed project would change the perceived visual character and quality of the visual environment where it is located, and the expected level of sensitivity of the viewing public in the area.

Project Area and Surroundings

The proposed substation site consists of approximately 44 acres of undeveloped, disturbed land in unincorporated Sacramento County. The substation site is in a non-urbanized area as shown in maps prepared by the U.S. Census Bureau for the latest census (U.S. Census Bureau 2020). The substation site contains open spaces with grazing land, temporary soil storage, and sparse vegetation along the perimeter. Additionally, there are 230kV transmission lines and approximately 90-foot-tall lattice towers extending east to west through the southern portion of the project site and continuing off-site within SMUD's easement.

Surrounding land uses include rural residences, ranch and grazing lands, and scattered commercial and industrial uses. Vernal pool/annual grassland complexes are adjacent to the north, east, and west of the substation site and are used for cattle grazing. Single-family residences are present within most of these lands. The area is surrounded primarily by ranch

and grazing uses and sparsely populated by structures. An equine facility with jumping courses, pavilions, and stables is to the immediate south of the substation site. East and west of the site on Jackson Road there are rural residences and grazing lands, intermixed with small-scale agriculture and commercial/industrial uses. Similar land uses are present to the north and south of the site on Excelsior Road. Existing overhead lines are located along both roadways in the shoulder.

Viewer groups in the project area include occupants of rural residences, workers at ranch and grazing lands, employees and customers at the scattered commercial and industrial uses surrounding the substation site, and motorists traveling north/south on Excelsior Road and east/west on Jackson Road along the overhead line corridor.

3.1.2 Impacts and Mitigation Measures

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

A scenic vista is generally defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality, or a natural or cultural resource that is indigenous to the area. Scenic vistas consist of outstanding examples of the natural environment, or the built environment considering the surrounding context and setting. Scenic vistas exhibit the highest degree of vividness, intactness, and unity, and consist of outstanding examples that are often regarded as “the best of its kind.” No County-designated scenic vistas are located within the project area. The substation site consists of generally flat agricultural land with fencing and utility lattice towers, and the overhead line corridor consists primarily of developed roadways and existing infrastructure. The project area does not contain any unique geologic features, waterfalls, rock outcroppings, gorges, mountains, large stands of native trees, or other features that could be regarded as outstanding scenic features. Therefore, ***no impact*** on scenic vistas would occur.

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

There are no designated or eligible state or county scenic highways in the vicinity of the project area. The closest designated state scenic highway is SR 160, located approximately 10 miles to the southwest the project area (Caltrans 2018). Thus, the project would have ***no impact***.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The existing visual character of the project area is defined by agricultural, rural residential, and industrial uses; open spaces with ranch and grazing lands; transmission and distribution infrastructure; and developed roadways including Jackson Road and Excelsior Road. Although the proposed substation would be a departure from the visual condition of the substation site, the project includes screening and landscaping that would minimize public views of the site. The project would include either ten-foot tall security fencing, ten-foot tall block retaining walls and/or two eight-to-ten-foot tall earthen berms topped with ten-foot tall block retaining walls along the south and east perimeters of the substation. All proposed facilities would be setback approximately 200 feet from the project’s frontages on both Excelsior Road and Jackson Road.

Landscaping and/or screening improvements would be installed between the property line and the new substation fencing, and routine maintenance of the new landscaping would occur.

The proposed project would also install new 230kV monopoles and replace existing lattice towers with monopoles in the southern portion of the substation site, in addition to new or upgraded 69kV lines extending east, west, and south along Jackson Road and Excelsior Road. There are numerous distribution and transmission lines visible from the nearby roadways under existing conditions, and the new and replacement towers and lines would be visually consistent with these structures in terms of height, size, and materials used.

Although SMUD is the lead agency under CEQA, the project is in unincorporated Sacramento County with numerous Sacramento County General Plan policies relevant to reducing visual impacts from new development. The Public Facilities Element (Sacramento County 2019) specifically addresses the location selection and development of new public infrastructure facilities such as new substations and provides policy guidance concerning aesthetic effects related to the development of such uses. The following aesthetics policies were reviewed for consistency with the proposed project:

- Public Facility Policy (PF)-68: Cooperate with the serving utility in the location and design of energy production and distribution facilities in a manner that is compatible with surrounding land uses by employing the following methods when appropriate to the site
    - Visually screen facilities with topography and existing vegetation and install site-appropriate landscaping consistent with surrounding land use zone development standards where appropriate, except where it would adversely affect access to utility facilities, photovoltaic performance or interfere with power generating capability.
    - Provide site-compatible landscaping.
    - Minimize glare through siting, facility design, nonreflective coatings, etc. except for the use of overhead conductors.
    - Site facilities in a manner to equitably distribute their visual impacts in the immediate vicinity
- PF-85. To minimize visual impacts and protect the county's visual and aesthetic resources new bulk substations should be located in industrial and non-retail commercial areas when possible. To further minimize visual intrusion and potential land use conflicts, substations shall be enclosed with site-appropriate security fence in concert with a landscaped setback along all public street frontages.
- PF-95. Transmission lines should avoid paralleling recreation areas, historic areas, rural scenic highways, landscaped corridors, drainage basins, wetland mitigation, tree planting, and designated federal or state wild and scenic river systems, although these areas may be considered as options if facilities already exist there.
- PF-96. Locate transmission facilities in a manner that maximizes the screening potential of topography and vegetation

- PF-97. Utilize monopole construction, where practicable, to reduce the visual impact on a corridor's middle and distant views.

Additionally, the Sacramento County Zoning Code supports and implements the policies of the Sacramento County General Plan. Section 3.6.6, Utility and Public Service Facility Uses, would apply to the proposed project:

- Substations should be designed and constructed in such a manner as to minimize off-site visual and noise impacts. Planted or landscaped setbacks of at least 25 feet should be provided on all public street frontages of the parcel. For rights of-way with Public Utilities and Public Facilities, planted or landscaped setbacks of at least 31 feet should be provided on all public street frontages of the parcel.

The proposed project would support the General Plan policies and adhere to zoning code requirements related to new substations. The General Plan encourages the use of monopoles as a way to "reduce the visual impact on a corridor's middle and distant views" (PF-97). In addition to monopoles, the project would include new above ground overhead lines. In accordance with the Sacramento County General Plan policies, the proposed above ground overhead lines would avoid "paralleling recreation areas, historic areas, rural scenic highways, landscaped corridors, drainage basins, wetland mitigation, tree planting, and designated federal or state wild and scenic river systems" (PF-95). The project area contains existing utility infrastructure that is visually compatible with the proposed project, including lattice towers and transmission lines. With the proposed landscape screening, fencing, and 200-foot buffer, the proposed project would "maximize the screening potential of topography and vegetation" (PF-96), "visually screen facilities with topography and existing vegetation and install site-appropriate landscaping" (PF-68), and align with the 25-foot setback requirements of Section 3.6.6 of the Zoning Code. Therefore, the proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings, and the impact would be ***less than significant.***

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Construction activities would occur during daytime, and no nighttime lighting would be required for construction activities. Operation of the proposed substation would include low level lighting, as required by the National Electrical Safety Code, that would be incorporated into the project for security and safety purposes and to maintain adequate lighting for workers and maintenance of the facility, when needed. Lighting would be oriented downward to reduce light and glare on the surrounding properties. The operations building would be constructed using masonry block, concrete or steel walls that would be consistent with the General Plan Policy PF-68 to minimize glare through facility design and use of nonreflective coatings where feasible. Therefore, the project would have a ***less than significant impact*** related to light and glare and no mitigation is required.

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
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 uses?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.1 Environmental Setting

The proposed substation site is undeveloped, disturbed land that was historically partially developed as residential with horse pasture and other supporting uses. Surrounding land uses include rural residences, ranch and grazing lands, and scattered commercial and industrial uses.

The zoning designation of the proposed substation site is AG-160(SM) meaning a 160-acre minimum parcel size combined zoning for agriculture and surface mining. The purpose of AG-160 is to promote long-term agricultural use and discourage the premature and unnecessary conversion of agricultural land to urban uses. This zoning district permits both minor public utilities (e.g., electrical distribution lines) and major public utilities (e.g., electrical substations) with a Conditional Use Permit from the Zoning Administrator. The purpose of the Surface Mining Combining zoning district is to protect the mineral resources of the county from incompatible land use, manage the mineral resources, assure the county of an adequate supply of these resources with due consideration for the environment, and provide the restoration of mined lands for future use (Sacramento County 2015).

The Sacramento County General Plan designates the substation site parcels as GA-20, meaning a 20-acre minimum parcel size for general agricultural use (Sacramento County 2011). The Vineyard Community Plan designates the substation site as Permanent Agriculture (Sacramento County 1985).

The proposed overhead line corridor passes through lands zoned as agricultural, interim agricultural, industrial, and commercial, with land use designations of agricultural, residential, commercial and offices, recreation, industrial, and cemetery, public and quasi-public.

The State of California Department of Conservation maps and classifies farmland through the Farmland Mapping and Monitoring Program (FMMP) with the goal of documenting the location and extent of California's agricultural resources for consideration in the planning process. Classifications are based on a combination of land use, soil characteristics, and climate that determine the degree of suitability of the land for crop production. The FMMP Important Farmland Finder was used to evaluate the agricultural significance of the project area and assess existing Williamson Act contracts (California Department of Conservation 2020) (Figure 3.2-1). According to the most current FMMP, the proposed substation site is mapped as Grazing Land, which is land with existing vegetation suited to the grazing of livestock. A small area identified as Farmland of Local Importance is mapped near the northwest corner of the substation footprint. For Sacramento County, Farmland of Local Importance refers to lands which do not qualify as Prime, Statewide, or Unique designation, but are currently irrigated crops or pasture or non-irrigated crops; lands that would be Prime or Statewide designation and have been improved for irrigation but are now idle; and lands which currently support confined livestock, poultry operations, and aquaculture (Sacramento County 2019). The proposed overhead line corridor passes through land mapped primarily as Grazing Land, with small areas mapped as Urban, which is developed for uses other than agriculture.

Under the California Land Conservation Act of 1965, also known as the Williamson Act, private property owners can enter into contracts with local governments to permanently protect land (within agricultural preserves) for agricultural and open space purposes and in turn earn tax benefits. FMMP mapping indicates the eastern end of the distribution line alignment is adjacent to lands under an active Williamson Act contract. Sacramento County online mapping identifies additional parcels along the overhead line corridor as under Williamson Act contracts with a status of non-renewal, indicating termination of the contract. There are no Williamson Act contracts on the substation site parcels.

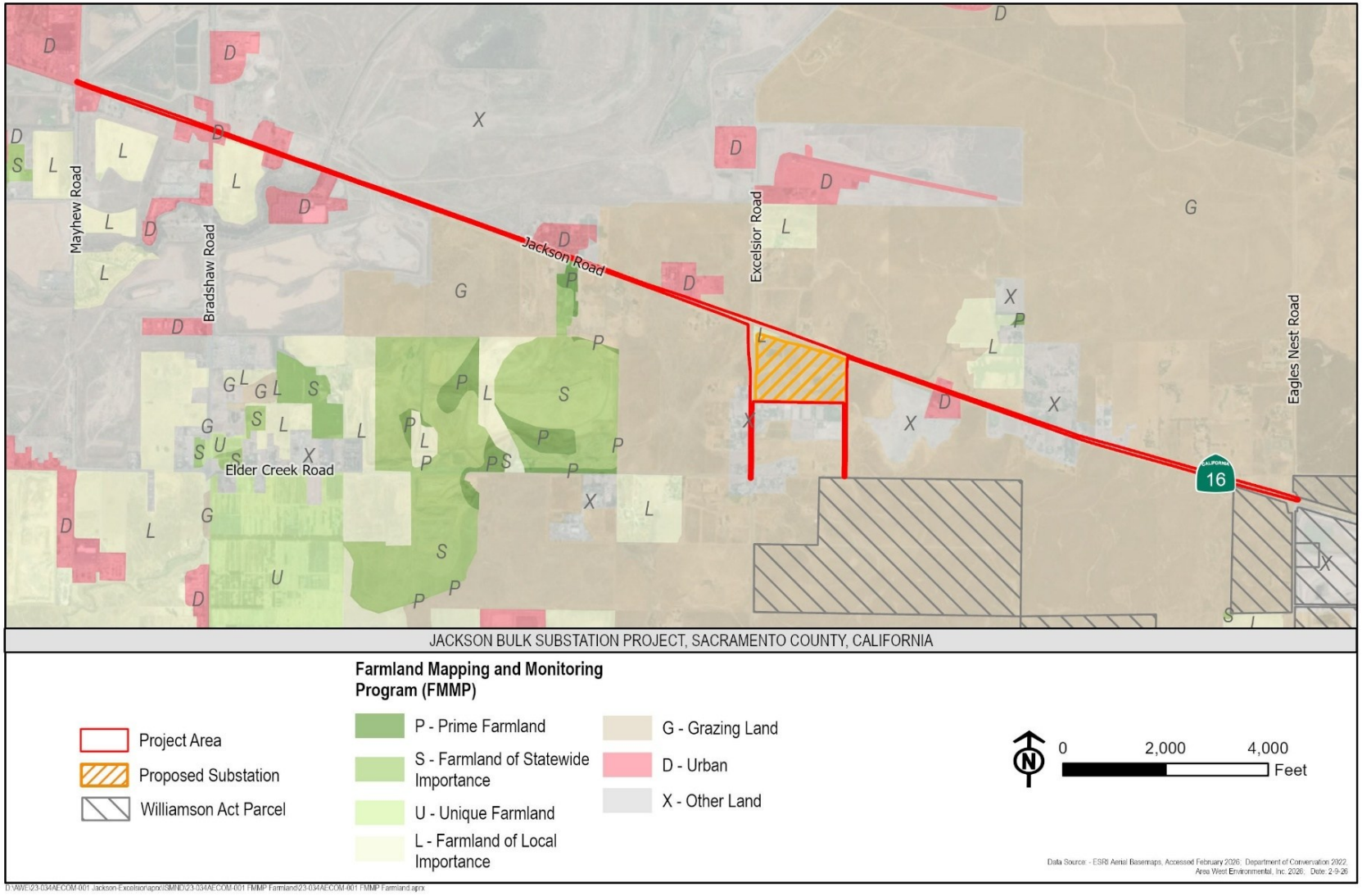


Figure 3.2-1. Farmland Mapping and Monitoring Program

The project area does not include forest land or land with substantial tree cover or any defined forest land, timberland, or timberland production zone pursuant to Section 12220 (g) and Section 51104 (g) in the California Public Resources Code.

3.2.2 Impacts and Mitigation Measures

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?

The proposed substation site is mapped as Grazing Land and the proposed overhead line corridor crosses lands mapped as Grazing Land and Urban; there are no lands within the substation site or along the proposed overhead line corridor mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) by the FMMP Important Farmland Finder. The substation site was historically used for grazing and has no history of other agricultural use. While grazing land is not considered important farmland, Sacramento County considers the loss of more than 50 acres of grazing land outside of the urban services boundary to be a significant impact (Sacramento County 2011). The proposed project would result in the loss of less than 50 acres of grazing land that is located inside the urban services boundary. There would be ***no impact*** and no mitigation would be required.

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

The proposed substation site was previously used for grazing, is currently zoned agriculture, and has never been under a Williamson Act contract. Sacramento Zoning Code indicates that electrical transmission lines of 100,000-volt or greater capacity may be located in any zoning district and shall be located in easements or rights of way that permit access for maintenance with minimal disruption to surrounding properties (Sacramento County 2015). There are existing overhead lines on the north side of Jackson Road, the west side of Excelsior Road, and crossing the southern portion of the substation site. The proposed project would construct new and modify existing overhead lines along Jackson Road and Excelsior Road where new connections to existing overhead lines are required. Existing transmission towers and poles would also be replaced within the substation site. The Sacramento Zoning Code indicates substations may be located on sites in all zoning districts, provided mitigation measures to minimize off-site visual and noise impacts are instituted as provided in Section 3.6.6.A.1.c, “Advisory for Other Permitting Requirements” (Sacramento County 2015). SMUD would comply with Section 3.6.6.A.1.a, which authorizes the County to review and approve the location of all new substations greater than 100kV. The proposed project would not affect agricultural land uses outside of the substation site and would not result in other changes in the existing environment that would conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, this impact would be ***less than significant*** and no mitigation is required.

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 areas zoned as forest land, timberland, or timberland zoned timberland production are present in the project area. Thus, the proposed project would not conflict with existing zoning for, or cause rezoning of, forestry resources. There would be ***no impact*** and no mitigation would be required.

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

The project area does not contain forest land as defined by Public Resources Code section 4526, nor 10 percent native tree cover that would be classified as forestland under PRC Section 12220(g). There would be ***no impact*** and no mitigation would be required.

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?

There are no intensive agricultural uses, such as cultivating row crops, taking place on any lands adjacent to the project area, though there are some grazing and agricultural-residential uses. SMUD would not encroach upon portions of parcels adjacent to the project area under active agricultural uses such that the parcels could become fragmented, reduced in size or irregularly shaped to such a degree that continuing agricultural land uses could be less profitable or otherwise less feasible. All construction staging areas and access roads would be sited within the substation site or within the existing road and utility rights of way. In addition, operations would not substantially increase vehicular traffic in areas where agricultural equipment uses local roads. There would be ***no impact*** and no mitigation would be required.

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3.3 Air Quality

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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. Would the project:				
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 ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

The project area is in unincorporated Sacramento County in the Sacramento Valley Air Basin (SVAB). The SVAB is a Federally and State recognized geographic area that includes all of Tehama, Glenn, Butte, Colusa, Yolo, Sutter, Yuba, Sacramento, and Shasta Counties, as well as portions of Solano and Placer Counties. In California, the California Air Resources Board (CARB) delegates air quality management responsibilities to local air quality management districts. Primary responsibilities of local air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that federal and state ambient air quality standards are met, as further described below. The Sacramento Metropolitan Air Quality Management District (SMAQMD) has local air quality jurisdiction within Sacramento County.

Individual air pollutants at certain concentrations may adversely affect human health and the environment, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) and CARB as being of concern both on a nationwide and statewide level, respectively: ozone; carbon monoxide; nitrogen dioxide; sulfur dioxide; lead; and particulate patter (PM), which is subdivided into two classes based on particle size – PM equal to or less than 10 micrometers in diameter (PM_{10}) and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$).

Ozone is not emitted directly into the air but is formed through a series of reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_X) in the presence of sunlight. These pollutants are referred to as “ozone precursors”, as their reaction leads to the formation of ozone.

A brief description of the source and health effects of criteria air pollutants is provided below in Table 3.3-1.

Table 3.3-1. Criteria Air Pollutants

Pollutant	Sources	Effects
Ozone	Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG, also sometimes referred to as volatile organic compounds by some regulating agencies) and NOX. The main sources of ROG and NOX, often referred to as ozone precursors, are products of combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels.	Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.
Carbon monoxide (CO)	CO is usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicle engines; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration.	Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.
Respirable particulate matter (PM_{10})	The major area-wide sources of PM_{10} are fugitive dust, especially from roadways, agricultural operations, and construction and demolition. Other sources of PM_{10} include crushing or grinding operations.	Short-term exposure to elevated concentrations of PM_{10} include worsening of respiratory diseases, such as asthma and chronic obstructive pulmonary disease. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and respiratory mortality.
Fine particulate matter ($PM_{2.5}$)	$PM_{2.5}$ sources include fugitive dust and all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. Exhaust emissions from mobile sources (e.g., passenger vehicles, trucks, and off-road equipment) contribute only a very small portion of directly emitted $PM_{2.5}$ emissions.	Short-term exposure to $PM_{2.5}$ has been associated with premature mortality, aggravation of respiratory and cardiovascular diseases, including asthma, bronchitis, and acute and chronic respiratory symptoms, such as shortness of breath and painful breathing.
Nitrogen dioxide (NO_2)	NO_2 is a reddish-brown gas that is a by- product of combustion processes. Mobile sources (e.g., passenger vehicles, trucks, and off-road equipment) and industrial operations are the main sources of NO_2.	Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility.
Sulfur dioxide (SO_2)	SO_2 is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel.	SO_2 is also a precursor to the formation of particulate matter, atmospheric sulfate, and atmospheric sulfuric acid formation that could precipitate downwind as acid rain.
Lead	Leaded gasoline, lead-based paint, smelters (i.e., metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere, with lead levels in the air decreasing substantially since leaded gasoline was eliminated in the United States.	Lead has a range of adverse neurotoxic health effects.

Sources: CARB 2025a, 2026a, EPA 2025a, 2025b, 2025c, 2025d, 2026a, WHO 2024
Notes: CO=carbon monoxide; NO_2= nitrogen dioxide; NOx=nitrogen oxides; ROG-=reactive organic gases; SO_2=sulfur dioxide

Health-based air quality standards have been established for these pollutants by EPA at the national level and by CARB at the state level. These standards are referred to as the national ambient air quality standards (NAAQS) and the California ambient air quality standards (CAAQS), respectively. The NAAQS and CAAQS were established to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. Because the air quality standards for these air pollutants are regulated using human and environment health-based criteria, they are commonly referred to as "criteria air pollutants." Both EPA and CARB designate areas of California as "attainment," "nonattainment," "maintenance," or "unclassified" for the various pollutant standards according to the federal Clean Air Act and the California Clean Air Act, respectively. With respect to regional air quality, Sacramento County is currently designated as nonattainment for the CAAQS for ozone and PM_{10} and as nonattainment for the NAAQS for ozone and $PM_{2.5}$. Sacramento County is designated as attainment or unclassified for all other NAAQS and CAAQS (EPA 2025e, CARB 2023).

Naturally occurring asbestos can also be an air toxic of concern that can be released as a result of earth disturbance during construction. The project area is not located within an area likely to contain naturally occurring asbestos (USGS 2011).

As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied upon to inform the evaluation of a proposed project's impacts related to air quality. SMAQMD prepared the Guide to Air Quality Assessment in Sacramento County (CEQA Guide) to assist lead agencies and project applicants in evaluating the potential air quality impacts of projects in the SVAB (SMAQMD 2021).

3.3.2 Impacts and Mitigation Measures

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

The Clean Air Act requires states to develop a statewide plan to attain and maintain the standards in all areas of the country and a region-specific plan to attain the standards for each area designated nonattainment or maintenance. These plans, known as State Implementation Plans or SIPs, are developed by state and local air quality management agencies for areas not meeting the ambient air quality standards, and submitted to EPA for approval. As noted above, the project region (i.e., Sacramento County) is nonattainment for CAAQS for ozone and PM_{10} and for the NAAQS for ozone and $PM_{2.5}$. SMAQMD has adopted several air quality attainment plans over the years that identify measures needed to attain the applicable air quality standards. As documented in SMAQMD's CEQA Guide (SMAQMD 2021), the recommended construction and operational mass emissions thresholds for ozone precursors correlate with the NO_X and ROG emissions reductions from heavy-duty vehicles and land use projects committed to in the regional air quality attainment plans. Similarly, the construction and operational mass emissions thresholds for PM correlate with SMAQMD's New Source Review (Rule 202) emission offset trigger levels, which prevent deterioration of ambient air quality and ensure projects do not worsen the region's attainment status for PM (SMAQMD 2015). Therefore, projects with emissions less than the recommended thresholds of significance for criteria air pollutants would not conflict with or obstruct implementation of the applicable air quality plans for the attainment and maintenance of ozone and PM standards.

Table 3.3-2 presents the most current significance thresholds established by SMAQMD, including maximum daily and annual thresholds for short-term construction. As noted above, a project with emission rates below these thresholds is generally considered to have a less-than-significant effect on air quality (SMAQMD 2021).

Table 3.3-2. SMAQMD Criteria Air Pollutant Thresholds of Significance for Construction and Operation

Pollutant	Daily Construction Threshold (pounds per day)	Daily Operational Threshold (pounds per day)	Annual Construction and Operational Threshold (tons per year)
ROG (VOC)	None	65	None
NO_X	85	65	None
PM_{10}	80[1]	80[1]	14.6[1]
$PM_{2.5}$	82[1]	82[1]	15[1]

Notes: ROG = reactive organic gases; VOC = volatile organic compound; NOX = nitrogen oxides; PM10 = respirable particulate matter with a diameter of 10 microns or less; PM2.5 = fine particulate matter with a diameter of 2.5 microns or less
Source: SMAQMD 2020a
[1] PM thresholds are zero (0) unless all feasible Best Available Control Practices/Best Management Practices are applied.

To allow for the use of non-zero PM_{10} and $PM_{2.5}$ thresholds of significance, SMAQMD recommends lead agencies require implementation of a set of Basic Construction Emissions Control Practices that serve as BMPs for all land use development projects. SMAQMD recommends lead agencies implement these emissions control practices as Conditions of Approval or include in a mitigation measure (SMAQMD 2021).

Construction

The proposed project would generate emissions as a result of construction activities, including exhaust emissions from the use of construction equipment and construction-related vehicles such as worker and vendor truck trips to and from the project site, and fugitive dust emissions from earth disturbing activities and travel on unpaved roadways. The proposed project's construction-related activities would be required to comply with SMAQMD rules and regulations established, in part, to ensure implementation of and consistency with strategies and actions of the applicable air quality plans, including but not limited to Rule 401 (Ringelmann Chart), Rule 402 (Nuisance), Rule 403 (Fugitive Dust), Rule 404 (Particulate Matter), and Rule 405 (Dust and Condensed Fumes).

As shown in Table 3.3-3 under impact (b) below, emissions that would result from the proposed project would be below SMAQMD-recommended daily and annual thresholds of significance for construction activities. However, because construction of the proposed project would generate PM emissions, implementation of construction BMPs would be required in order to apply SMAQMD's non-zero thresholds of significance for PM. Therefore, without implementation of applicable SMAQMD construction BMPs for PM emissions, the proposed project's construction activities could potentially conflict with or obstruct implementation of the applicable air quality plans. This impact would be ***potentially significant.***

Operation

Operational activities associated with the proposed project would include regular inspection and maintenance activities and would result in the generation of criteria air pollutant emissions associated with worker vehicle trips, including ROG, NO_X, PM_{10}, and $PM_{2.5}$. Since the project would generate PM emissions during operations, implementation of BMPs would be required to apply SMAQMD's non-zero thresholds of significance for PM. As shown in Table 3.3-4 under impact (b) below, project operational emissions would not exceed SMAQMD-recommended thresholds of significance. However, since the proposed project's operational activities would generate PM emissions during routine maintenance activities, the proposed project could potentially conflict with or obstruct implementation of applicable air quality plans if the applicable BMPs were not implemented. This impact would be ***potentially significant*.**

Mitigation Measures

Mitigation Measure AQ-1a. Implement SMAQMD Basic Construction Emission Control Practices for Substation Construction Activities

- The construction contractor shall include as a condition in the grading, improvement, and demolition plans, the following basic construction emissions control practices (best management practices) to be initiated at the start and maintained throughout the duration of construction activities associated with the proposed substation.
    - Water all exposed active work areas two times daily, or with adequate frequency for continued moist soil. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. However, do not overwater to the extent that sediment flows off the site.
    - Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
    - Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
    - Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
    - Suspend excavation, grading, and/or demolition activity when average wind speeds exceed 20 mph.
    - All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
    - Install wheel washers, rattle plates and/or rock aprons for all exiting trucks or equipment leaving the site.

- Treat site accesses from the paved road with a 6 to 12- inch layer of gravel to reduce generation of road dust and road dust carryout onto public roads.

- Post a publicly visible sign with the telephone number and person to contact at the County of Sacramento regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of SMAQMD shall also be visible to ensure compliance.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1]. For more information contact CARB at 877-593-6677, doors@arb.ca.gov, or www.arb.ca.gov/doors/compliance_cert1.html.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Mitigation Measure AQ-1b. Implement SMAQMD PM Operational Best Management Practices

- SMUD shall follow best management practice requirements for fugitive dust control during operational and maintenance activities associated with the project:

  - Limit vehicle speeds on unpaved roads to 15 mph.

  - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

  - Compliance with anti-idling regulations for diesel powered commercial motor vehicles (greater than 10,000 gross vehicular weight rating). The current requirements include limiting idling time to 5 minutes and installing technologies on the vehicles that support anti-idling. Information can be found on the California Air Resources Board's website: https://ww2.arb.ca.gov/ourwork/programs/idle-reduction-technologies/idle-reduction-technologies.

Significance After Mitigation

Construction

Mitigation Measure AQ-1a requires implementation of SMAQMD's Basic Construction Measures/BMPs for fugitive dust control to reduce the generation of on-site fugitive dust during earthwork and travel on unpaved roadways, maintain equipment in good operating condition,

and minimize equipment idling times as required by California Code of Regulations. With implementation of Mitigation Measure AQ-1a, the project's construction activities would not exceed SMAQMD's thresholds of significance and would not conflict with applicable air quality plans. This impact would be ***less than significant with mitigation***.

Operation

Project operational activities would result in emissions of PM associated with routine maintenance activities. Therefore, implementation of BMPs during operational activities is required in order to support the use of SMAQMD's non-zero thresholds of significance for operational PM emissions. Mitigation BMPs management practices to reduce PM emissions and ensure that the proposed project's operational activities would not conflict with applicable air quality plans. With implementation of Mitigation Measure AQ-1b, this impact would be ***less than significant with mitigation***.

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?

By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants results from past and present development within the SVAB, and this regional impact is cumulative rather than attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects.

The thresholds developed by SMAQMD are designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards. Projects that would exceed SMAQMD-recommended thresholds of significance would be considered to potentially contribute a cumulatively considerable net increase of criteria air pollutant emissions to the region.

Construction

The proposed project would generate emissions as a result of construction activities, including exhaust emissions from the use of construction equipment and construction-related vehicles such as worker and vendor truck trips to and from the project site, and fugitive dust emissions from earth disturbing activities and travel on unpaved roadways. Emissions were modeled using the California Emissions Estimated Model (CalEEMod). CalEEMod inputs were refined from defaults, as appropriate, using the following project-specific details regarding construction schedule, equipment, and import/export quantities, and operational vehicle trips.

Substation construction activities are anticipated to begin in the first quarter of 2030 and would occur in phases over approximately 36 months, as detailed in Table 2-1 of Chapter 2, "project Description," of this IS/MND. As indicated in the anticipated construction schedule that informed the construction emissions modeling, several phases would potentially overlap such that grading activities may be occurring in one area of the project site while construction activities are occurring elsewhere on the project site. Maximum daily emissions were conservatively estimated for overlapping phases and assumed equipment for each phase would be used for the maximum number of hours on the same day. Annual construction-related emissions were

estimated based on anticipated number of days within the overall duration of each construction phase that a piece of equipment would operate based on varying construction intensity levels throughout each phase. Emissions calculations account for haul trucks to import and export material for project construction. Approximately 59,000 cubic yards of material for engineered fill would be imported to the project site during construction. Any excavated material is proposed to be reused onsite and would not result in offsite hauling trips. Off-gassing emissions from paving activities account for paving of 125,000 square feet of asphalt access roads within the project site. Refer to Appendix A for emissions modeling details and output files.

Table 3.3-3 presents the project's maximum daily and annual construction-related emissions compared to the SMAQMD-recommended construction-related thresholds of significance.

Table 3.3-3. Summary of Maximum Unmitigated Daily and Annual Construction-Related Emissions of Criteria Air Pollutants and Precursor Emissions

Description	ROG (lbs/day)	NO_X (lbs/day)	PM_{10} [a] (lbs/day)	$PM_{2.5}$ [a] (lbs/day)	PM_{10} [a] (tons/year)	$PM_{2.5}$ [a] (tons/year)
Construction Emissions	**7**	**54**	**9**	**5**	**0.5**	**0.2**
SMAQMD Threshold of Significance	N/A	85	80	82	14.6	15
Threshold Exceeded?	N/A	No	No	No	No	No

Notes: NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; lbs = pounds; ROG = reactive organic gases; SMAQMD = Sacramento Metropolitan Air Quality Management District.

[a] Fugitive dust emissions include implementation of fugitive dust BMPs consistent with SMAQMD Rule 403 requirements (watering 2x daily).

As shown in Table 3.3-3, estimated emissions associated with construction of the project would not exceed SMAQMD-recommended thresholds of significance. Although construction-related emissions would not exceed SMAQMD thresholds, due to the nonattainment status of Sacramento County with respect to ozone, PM_{10}, and $PM_{2.5}$, SMAQMD recommends that all construction projects implement Basic Construction Emission Control Practices (SMAQMD 2021). Without implementation of SMAQMD's Basic Construction Emission Control Practices, as outlined in Mitigation Measure AQ-1a, the contribution of construction-related emissions from the project would have the potential to be cumulatively considerable, resulting in a ***potentially significant impact***.

Operations

Operational emissions associated with the proposed project would result from worker vehicle trips associated with routine inspection and maintenance activities. Operation of the proposed project would primarily occur remotely and would not require any regular on-site employees. The new control building and substation site would remain unoccupied except for periodic visits by SMUD personnel to perform internal equipment inspections and conduct routine perimeter maintenance. Regular substation visits would occur two to four times per month for internal inspections, and four times per year for perimeter maintenance.

Similar to construction, operational emissions were modeled in CalEEMod. For the purposes of estimating maximum daily emissions, it was assumed that internal inspections and perimeter

maintenance activities would be required on a single day, resulting in 2 worker-vehicle round trips per day. Maximum daily emissions and annual emissions are presented in Table 3.3-4.

Table 3.3-4. Summary of Unmitigated Maximum Daily and Annual Operational Emissions of Criteria Air Pollutants and Precursors

Emissions Source	ROG (lbs/day)	NO_X (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Operational Emissions	**0.3**	**0.1**	**0.04**	**0.04**	**0.0005**	**0.0002**
SMAQMD Threshold of Significance	65	65	80	82	14.6	15
Threshold Exceeded?	No	No	No	No	No	No

Notes: lbs = pounds; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases; SMAQMD = Sacramento Metropolitan Air Quality Management District.

Major maintenance would also occur about once every three years, and would vary in activity and required equipment based on the maintenance activities required. Operational emissions associated with major maintenance activities are not anticipated to exceed SMAQMD-recommended thresholds, as major maintenance activities would be much less intensive than construction and would occur infrequently and intermittently.

As shown in Table 3.3-4, maximum daily operational emissions would not exceed SMAQMD-recommended thresholds of significance. Since the project would generate PM emissions during operation, implementation of BMPs would be required in order to use SMAQMD's non-zero thresholds of significance. Therefore, this impact would be ***potentially significant*** without implementation of BMPs.

Mitigation Measures

Implement Mitigation Measure AQ-1a: Implement SMAQMD Basic Construction Emission Control Practices

Implement Mitigation Measure AQ-1b: Implement SMAQMD PM Operational Best Management Practices

Significance After Mitigation

Construction

Implementation of Mitigation Measure AQ-1a would ensure that the proposed project implements SMAQMD's Basic Construction Emission Control Practices, allowing the use of the non-zero particulate matter significance thresholds. Therefore, project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment and this impact would be ***less than significant with mitigation***.

Operation

Implementation of Mitigation Measure AQ-1b would ensure that the proposed project implements BMPs during operational activities, allowing the use of SMAQMD's non-zero thresholds of significance for operational PM emissions. With implementation of Mitigation

Measure AQ-1b, project operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment and this impact would be ***less than significant with mitigation.***

c) Expose sensitive receptors to substantial pollutant concentrations?

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Children, pregnant women, the elderly, those with existing health conditions, and athletes or others who engage in frequent exercise are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered sensitive receptors include schools, daycare centers, parks and playgrounds, and medical facilities. Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to pollutants present.

The substation site is surrounded by rural residences, ranch and grazing lands, and scattered commercial and industrial uses. The nearest sensitive receptors to the substation site are residences located on Jackson Road, Excelsior Road, approximately 400 feet to the west, north, and south of the proposed fence (i.e., the extent of construction and operational activities onsite). While there are also some residences along the overhead line corridor, exposure to emissions sources along the corridor would be limited to the areas immediately adjacent to active construction. Such exposures would not occur for extended periods at any one location due to the linear nature of the alignment construction activities, and would result in less intensive emissions than those from construction at the substation site.

Criteria Air Pollutants

Criteria air pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone is considered a regional criteria pollutant, whereas CO, NO_2, SO_2, and lead are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition.

As detailed in Section 3.3.1, “Environmental Setting,” exposure to criteria air pollutants can result in adverse health effects. The proposed project would primarily generate criteria air pollutant emissions during the construction phase, and the primary pollutants of concern would be ozone precursors (ROG and NO_X) and PM. Adverse health effects induced by regional criteria pollutant emissions (ozone precursors and PM) are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender], etc.). For these reasons, ozone precursors (ROG and NO_X) contribute to the formation of ground-borne ozone on a regional scale, where emissions of ROG and NO_X generated in one area may not equate to a specific ozone concentration in that same area. Similarly, some types of particulate pollutants may be transported over long distances or formed through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased regional ozone or PM concentrations are cumulative in nature. In other words, such health effects are the result of regional air quality conditions and the nonattainment status of a region that results from past, present, and future emissions sources in the region, as opposed to a single individual project or plan area.

Existing models have limited sensitivity to small changes in regional criteria air pollutant concentrations, and as such, translating project-generated regional criteria air pollutants to specific health effects would not produce meaningful results. In other words, minor increases in regional air pollution from project-generated ROG and NO_X would have nominal or negligible impacts on human health. Currently, CARB and EPA have not approved a quantitative method to meaningfully and consistently translate the mass emissions of criteria air pollutants from a project to quantified health effects. As explained in the amicus brief filed by the South Coast Air Quality Management District (SCAQMD) in the *Sierra Club v. County of Fresno* (2014) 26 Cal. App. 4th 704, it "takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels" (SCAQMD 2015).

In 2020, SMAQMD published "Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District" (SMAQMD 2020ab), which provides a screening level analysis to estimate the health effects of criteria air pollutants and their precursors, as well as provides guidance for conducting a health effects analysis of a project that satisfies the requirements of the *Sierra Club v. County of Fresno*, (2018) 6 Cal. App. 5th 502 case ruling regarding the proposed Friant Ranch Project. The guidance was prepared by conducting regional photochemical modeling and relies on the EPA's Benefits Mapping and Analysis Program to assess health impacts from ozone and $PM_{2.5}$. Analysis was conducted to estimate the level of health effects for a proposed project that has emissions at the maximum SMAQMD-recommended thresholds of significance using 41 hypothetical project locations, as well as a screening model conducted to estimate potential health effects for strategic areas where development is anticipated to cause exceedance of thresholds of significance. The results were used to develop two screening tools intended to support individual projects in analyzing health risks from criteria pollutants: the Minor project Health screening Tool for projects with criteria pollutant emissions below SMAQMD's adopted thresholds of significance, and the Strategic Area project Health Screening Tool for projects with emissions between two and six times the SMAQMD threshold levels.

The modeling results support a conclusion that any one proposed project in the Sacramento Federal Ozone Nonattainment Area, which is inclusive of the project area, with emissions at or below the maximum SMAQMD thresholds of significance levels for criteria air pollutants does not on its own lead to sizeable health effects (SMAQMD 2020ab). The findings of the SMAQMD screening modeling indicate that the mean health incidence for a project emitting at the threshold of significance levels at all 41 representative locations was less than 3 per year for mortality and less than 1.5 per year for other health outcomes evaluated.

In addition, as shown in Table 3.3-3 and Table 3.3-4, construction-related and operational emissions of criteria air pollutants associated with the proposed project would be substantially below the SMAQMD regional thresholds of significance. The regional thresholds of significance were designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards, which were established using health-based criteria to protect the public with margin of safety from adverse health impacts due to exposure to air pollution. As described previously, the SMAQMD modeling indicated that a project with emissions below the maximum SMAQMD thresholds would not lead to sizeable health effects on its own. In addition, the tool's outputs are based on the simulation of a full year of exposure at the maximum daily average exposure, which is not a realistic scenario. As discussed above, the nature of criteria pollutants is such that the emissions from an individual project cannot be directly identified as responsible for

health impacts within any specific geographic location. As a result, attributing health risks at any specific geographic location to a single project is not feasible, and this information and consideration is presented for informational purposes only.

Toxic Air Contaminants (TACs)

Construction of the proposed project would generate TAC emissions from the use of heavy-duty construction equipment, vendor trucks, and construction worker vehicles. These activities could expose nearby receptors to TACs, primarily in the form of diesel particulate matter (DPM) generated by the diesel-fueled vehicles and construction equipment. More than 90 percent of DPM is less than 1 micrometer in diameter and, thus, is a subset of $PM_{2.5}$ (CARB 2025). Therefore, exhaust $PM_{2.5}$ is used as the upper limit for DPM emissions associated with construction of the proposed project.

Health risk is a function of the concentration of contaminants in the environment and the duration of exposure to those contaminants. The risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. Health effects from TACs are often described in terms of individual cancer risk, which is based on a 30-year lifetime exposure to TACs (Office of Environmental Health Hazard 2015). As described above, construction activities are anticipated to occur over a 36-month duration, with potential overlapping construction phases modeled to represent a worst-case scenario of maximum daily emissions. While construction activities may overlap and are modeled to demonstrate maximum daily emissions, it is more likely that overlapping phases would not also occur during peak intensity of equipment use for all such phases on the same day. Furthermore, such activities would be geographically dispersed throughout the substation site and would not all be concentrated along site boundaries that are closest to off-site sensitive receptors. Concentrations of mobile-source (e.g., vehicles and off-road equipment) DPM emissions are typically reduced by 60 percent at a distance of 300 feet from the source (Zhu and Hinds 2002), and by 70 percent at approximately 500 feet (CARB 2005). Construction would vary in activity and equipment intensity and would take place throughout the substation site and along the overhead line corridor, thereby limiting the amount of time that emitting equipment would be along the project site perimeters, closest to off-site residences. Even during the most intensive construction periods, maximum daily unmitigated emissions of exhaust $PM_{2.5}$ would be approximately 1.65 pounds per day, and typically less than 0.6 pounds per day (see Appendix A for detailed emissions calculation outputs). It is also important to note that the maximum daily emissions would only occur if all anticipated equipment were operated all day simultaneously for a given day, which is unlikely. Furthermore, the level of peak emissions accounts for peak construction activity that may occur intermittently but would not occur throughout the entire construction duration, as well as accounts for emissions generated by equipment and vehicles that would serve the entire project area and would not be concentrated to a single sensitive receptor. While diesel-powered vehicles would likely support material hauling and deliveries during construction, these activities would be associated with trips to and from the project area. As such, these activities are not expected to be concentrated in any one location for an extended period.

Project construction would also be required to comply with all applicable SMAQMD rules and regulations, including idling restrictions. Due to the intermittent and temporary nature of construction activities at any given location and the dispersive properties of TACs, the temporary construction activities would be unlikely to expose sensitive receptors to substantial TAC concentrations.

As described previously, operation of the proposed project would be limited to routine maintenance and inspection activities by SMUD personnel. Vehicles trips to the project area would primarily be gasoline-powered light-duty vehicles, which are not substantial sources of TAC emissions (i.e., DPM) that are primarily associated with diesel-fueled vehicles. Additionally, major maintenance activities anticipated to occur approximately once every three years would be much less intensive than construction and would occur intermittently for short-term durations. The operational phase of the proposed project would not contain any stationary TAC sources.

For the reasons described above, construction and operation of the proposed project would not expose sensitive receptors to substantial TAC concentrations, and this impact would be ***less than significant.***

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

The occurrence and severity of odor impacts depend on numerous factors, including the source's nature, frequency, and intensity; wind speed and direction; and the presence of sensitive receptors. Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (i.e., irritation, anger, or anxiety) to physiological, including circulatory and respiratory effects, nausea, vomiting, and headache. The ability to detect odors varies considerably among the population and, overall, is quite subjective.

Construction

Sources that may emit odors during construction activities include exhaust from construction equipment and heavy-duty trucks and off-gassing from paving activities, which could be considered offensive to some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the project area; however, this effect would be minor and of short duration. Construction-related emissions, such as those leading to odors, would not occur in the immediate vicinity of any sensitive receptor for an extended period of time and would dissipate with distance. In addition, the proposed project would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. As a result, the proposed project would not result in other emissions, such as those leading to odors, affecting a substantial number of people. Therefore, this impact would be ***less than significant***.

Operation

The proposed project would not generate long-term objectionable odors during operations. The land uses associated with the project are utility-related and would not include typical odor-generating land uses, such as composting facilities, wastewater treatment plants, or rendering plants (SMAQMD 2021). As a result, the proposed project would not result in other emissions, such as those leading to odors, affecting a substantial number of people. This impact would be ***less than significant***.

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3.4 Biological Resources

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?	☐	☐	☒	☐
c)	Have a substantial adverse effect on state or federally-protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means?	☐	☒	☐	☐
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
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?	☐	☐	☒	☐

3.4.1 Environmental Setting

This section discusses biological resources with potential to occur in the proposed substation site and overhead line corridor and evaluates potential impacts associated with project implementation. The “substation site” refers to the location of the proposed bulk substation in the southeast corner of the intersection of Jackson Road and Excelsior Road. The “overhead line corridor” refers to the proposed overhead line alignment along Jackson Road from Mayhew Road to Eagles Nest Road, as well as along Excelsior Road south of Jackson Road and east of the substation site south of Jackson Road. The project area includes both the proposed substation site and overhead line corridor. Area West Environmental, Inc. (AWE) completed a Biological Resources Evaluation Report for the substation site (AWE 2026). The results of that report are summarized in this section.

The project area is located within the Sacramento Valley, with elevations ranging from approximately 85 to 125 feet above mean sea level. The region has a Mediterranean climate and receives an average of 18.11 inches of rain annually (Western Regional Climate Center

2025). Land uses surrounding the project area include rural residences, ranch and grazing lands, and scattered commercial and industrial uses.

The substation site and overhead line corridor are within the permit area of SMUD's Operations, Maintenance, and New Construction Habitat Conservation Plan (SMUD HCP, SMUD 2024a). The SMUD HCP supports issuance of Incidental Take Permits (ITP) from U.S. Fish and Wildlife Service (USFWS) for SMUD activities with potential to impact special-status species. The SMUD HCP Covered Species include 7 state and federally endangered and threatened species: slender Orcutt grass (*Orcuttia tenuis*), Sacramento Orcutt grass (*Orcuttia viscida*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), California tiger salamander (*Ambystoma californiense*), and giant garter snake (*Thamnophis gigas*). The proposed project will be covered by and implemented in compliance with the SMUD HCP, including all applicable avoidance and minimization measures. The SMUD HCP provides streamlined federal permitting from operations and maintenance and new construction projects such as the proposed project. The SMUD HCP provides a framework for conserving covered species and habitats through impact avoidance, minimization, and mitigation measures association with project implementation. The proposed project is a covered activity under the SMUD HCP and will adhere to the SMUD HCP procedures for ITP issuance for covered species.

The following data sources were reviewed to determine which biological resources may be subject to project impacts:

- General topography obtained from the *Carmichael* USGS 7.5 minute topographic quadrangle map;
- A review of the SMUD HCP and its Modeled Habitat and Land Cover mapping (SMUD 2024a);
- USFWS Information for Planning and Consultation (IPaC) for the project area (USFWS 2026a);
- CDFW California Natural Diversity Database (CNDDB) Biogeographic Information and Observation System (BIOS) 6 for the project area USGS quadrangle *Carmichael* and surrounding eight quadrangles: *Folsom, Citrus Heights, Elk Grove, Sloughhouse, Buffalo Creek, Rio Linda, Florin,* and *Sacramento East* (CDFW 2026);
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants Database for the *Folsom, Citrus Heights, Elk Grove, Sloughhouse, Buffalo Creek, Rio Linda, Florin,* and *Sacramento East*, and *Carmichael* USGS 7.5-minute quadrangles (CNPS 2026a);
- National Marine Fisheries Service (NMFS) West Coast Region Intersection of USGS 7.5" Topographic Quadrangles with National Oceanic and Atmospheric Administration Fisheries Endangered Species Act Listed Species, Critical Habitat, Essential Fish Habitat, and Marine Mammal Protection Act Species Data within California Google Earth KML (NMFS 2026);

- A search of unobscured Research Grade iNaturalist observations within a 5-mile radius of the substation site (iNaturalist 2025);
- National Hydrography Dataset (NHD) (USGS 2025);
- National Resources Conservation Service (NRCS) Web Soil Survey Report (NRCS 2026);
- USFWS's National Wetland Inventory (NWI) Maps (USFWS 2026b); and
- A review of the South Sacramento Habitat Conservation Plan (SSHCP) and its modeled species habitat layers (Sacramento County et al 2018).

Appendix B provides copies of special-status species lists obtained from the USFWS, CDFW, CNPS, and NMFS, as well as an evaluation of their potential to occur within the project area. A SMUD HCP land cover map book for the project area is also found in Appendix B.

Biological surveys were conducted at the proposed substation site on December 10 and 18, 2024, January 6, February 19, March 29, April 15, June 20, and July 26, 2025. The surveys conducted in December 2024 focused on delineating aquatic resources and identifying potential habitat for special-status species. The January 6 and February 19 surveys focused on western spadefoot (*Spea hammondii*). A vegetation survey occurred on March 29, 2025; the April 15, June 20, and July 26, 2025 surveys targeted special-status plants and wildlife with the potential to occur within the proposed substation site. During the visits in March, April, June, and July 2025, protocol-level surveys for special-status plant species and surveys generally following species protocols and guidelines for northwestern pond turtle (*Actinemys marmorata*), tricolored blackbird (*Agelaius tricolor*), monarch butterfly (*Danaus plexippus*), Crotch's bumblebee (*Bombus crotchii*), Swainson's hawk (*Buteo swainsoni*), burrowing owl (*Athene cunicularia*), and western spadefoot were conducted. Presence was assumed for some wildlife species based on modeled habitat from the SMUD HCP and SSHCP. A rationale for the occurrence determination within the project area is included for each species in Appendix B.

Land Cover Types

The SMUD HCP land cover of the overhead line corridor and field surveys of the substation site identified the following generalized habitat communities (land cover) present within the project area (Figure 3.4-1 and Appendix B):

- Grasses and Forbs
- Urban
- Barren/Disturbed
- Cropland
- Pasture
- Valley Foothill Riparian
- Riverine
- Open Water/Fringe
- Seasonal Wetland/Seasonal Swale and Vernal Pool
    - Seasonal Swale
    - Seasonal Wetland

  - Vernal Swale
  - Vernal Pool
- Other Depressional Wetland

Grasses and Forbs

The SMUD HCP classifies the grasses and forbs land cover type as characterized by herbaceous plant cover and predominantly non-native annual grasses and forbs, with less than 10 percent cover of woody vegetation (trees and shrubs). This land cover type generally occurs in the well-drained upland areas where the topography consists of flat plains or gently rolling foothills. This land cover is usually dominated by introduced non-native annual grasses such as wild oats (*Avena fatua*), soft chess (*Bromus hordeaceous*), brome (*Bromus* spp.), barley (*Hordeum vulgare*), medusa-head grass (*Elymus caput-medusae*), and annual fescues (*Festuca* spp.). Forbs are rarely dominant to annual grasses and consist of yellowflower tarweed (*Holocarpha virgata*), Fitch's false tarplant (*Centromadia fitchii*), prickly lettuce (*Lactuca serriola*), dove weed (*Croton setiger*), yellow star-thistle (*Centaurea solstitialis*), filaree (*Erodium* spp.), broad-leaf filaree (*Erodium botrys*), dovefoot geranium (*Geranium molle*), clovers (*Trifolium* spp.), and bur clover (*Medicago polymorpha*). Grasses and forbs land cover occurs throughout the project area and increases in density eastward along the overhead line corridor. (SMUD 2024a)

Based on the biological surveys at the proposed substation site, the majority of the land cover at the substation site is grasses and forbs. Grasses and forbs (wild oats and annual brome grasslands [*Avena* spp. – *Bromus* spp. Herbaceous semi-natural alliance]) occurs throughout the substation site, surrounding most aquatic features and disturbed areas. This community is dominated by non-native grass species such as soft chess, ripgut brome (*Bromus diandrus*), medusa head, perennial rye grass (*Festuca perennis*), and foxtail barley (*Hordeum murinum* ssp. *leporinum*). Additionally, blue gum eucalyptus (*Eucalyptus globulus*) trees are present in four groups within this land cover.

Four upland ditches are present within the grasses and forbs land cover at the proposed substation site, two of which occur along Excelsior Road as roadside ditches. These features convey water ephemerally to surrounding seasonal wetlands. These features are primarily unvegetated, containing only upland grasses and forbs characteristic of disturbed land cover, such as brome, fescue, and common groundsel (*Senecio vulgaris*).

Urban

The SMUD HCP characterizes urban land cover by anthropogenic features such as urban centers, industrial areas, airports, wastewater treatment plants, residences, and other developed areas that consist of human-made structures and surfaces (e.g., buildings, parking lots, roads, bridges, driveways) and associated landscaping (e.g., trees, shrubs, and lawns). Urban land cover is present throughout the overhead line corridor (SMUD 2024a). During the biological field surveys of the proposed substation site, urban portions were mapped based on the presence of anthropogenic features, including roadway and riprap. This land cover is largely devoid of vegetation, with non-native plants and ornamentals such as bamboo (*Bambusa* spp.) and Osage orange (*Maclura pomifera*). Urban areas within and adjacent to the substation site include Jackson Road, Excelsior Road, parcels to the south, and roads running through the substation site.

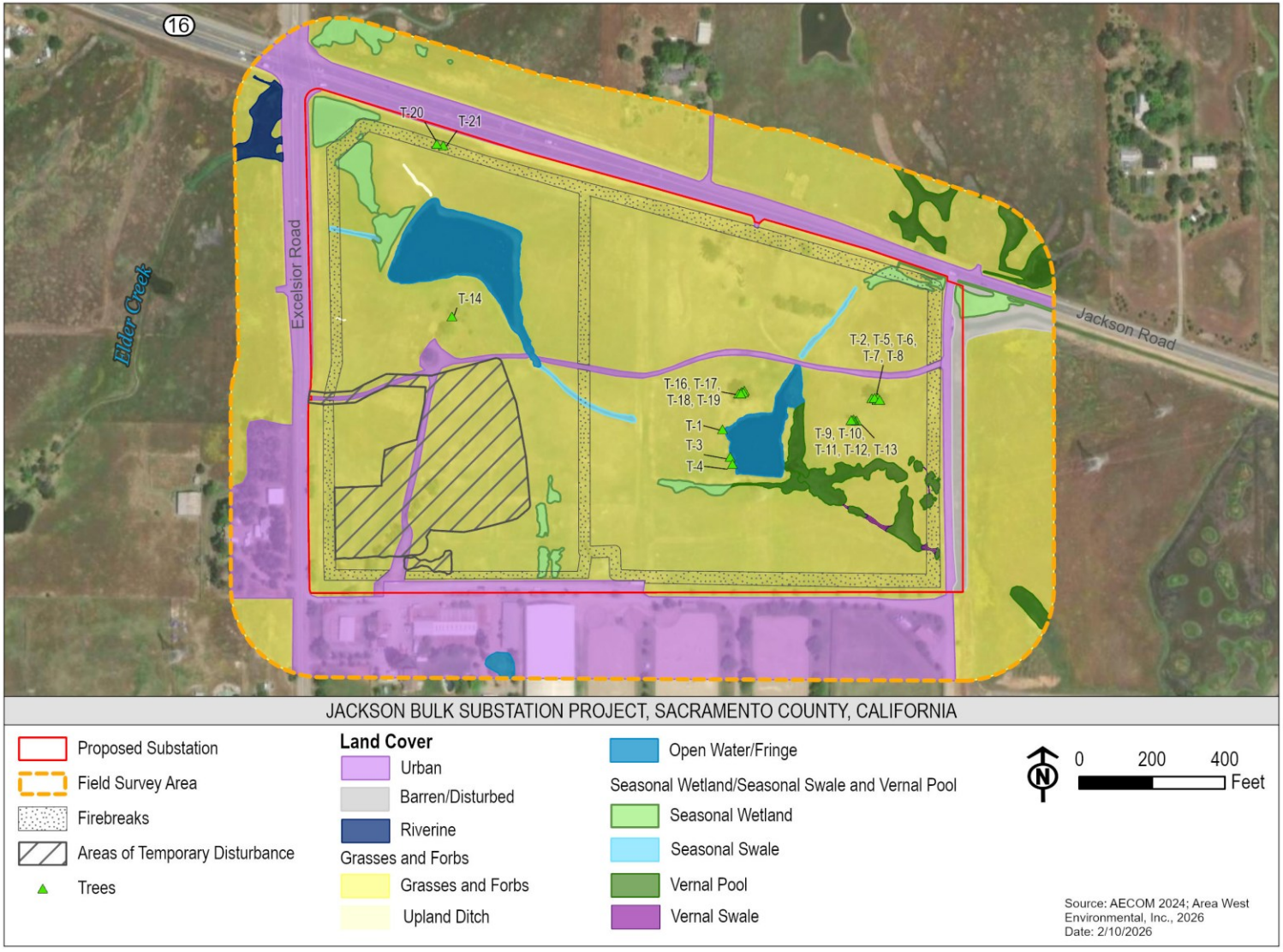


Figure 3.4-1. Land Cover Types and Trees at the Substation Site

Barren/Disturbed

Barren/disturbed land cover is characterized by the SMUD HCP as areas that are generally void of vegetation or disturbed regularly such that vegetative growth is sparse. In the SMUD HCP, barren is defined as any area with less than 2 percent total cover by herbaceous plants and less than 10 percent total cover by trees or shrubs. Disturbed areas have been subject to previous or ongoing disturbances. Scraped or graded land, gravel mining, and waste disposal, roadsides, trails, and parking lots are included in this land cover type. Disturbed land cover is vegetated with diverse weedy plants and typically includes Johnson grass (*Sorghum halepense*), Canadian horseweed (*Erigeron canadensis*), milk thistle (*Silybum marianum*), yellow star-thistle, and field bindweed (*Convolvulus arvensis*). Barren/disturbed land cover is mostly in the western portion of the overhead line corridor (SMUD 2024a).

Based on the biological surveys at the proposed substation site, barren/disturbed land cover is characterized by non-native or invasive plants common to disturbed habitats. This land cover is uncommon in the substation site, only occurring near the eastern edge of the substation site. Much of the land cover is bare ground with only scattered herbs throughout. Species observed in this land cover include filaree species, pineapple weed (*Matricaria discoidea*), milk thistle, shining pepperweed (*Lepidium nitidum*), foxtail barley, and rattail sixweek grass (*Festuca myuros*).

Cropland

The SMUD HCP defines cropland as agriculture lands, including livestock feedlots and poultry farms that are not orchards or vineyards, pasture lands, or rice fields. Croplands are located on flat to gently rolling terrain. When flat terrain is put into crop production, it usually is leveled to facilitate irrigation. Rolling terrain is either dry farmed or irrigated by sprinklers. Agricultural crops within the SMUD HCP typically include corn (*Zea mays*), safflower (*Carthamus tinctorius*), common wheat (*Triticum aestivum*), oats, sorghum (*Sorghum* spp.), barley, beans (*Phaseolus* spp.), Sudangrass (*Sorghum bicolor* ssp*. drummondii*), sugar beets (*Beta vulgaris*), cowpeas (*Vigna* spp.), garlic (*Allium sativum*), mustard greens (*Brassica juncea*), spinach (*Spinacia oleracea*), and sunflowers (*Helianthus* spp.). Cropland is identified in the overhead line corridor at the southeast intersection of Jackson Road and Bradshaw Road (SMUD 2024a).

Pasture

Pasture within the SMUD HCP is characterized by irrigated lands that produce year-round onsite forage for livestock. The vegetation in Pasture is usually a mixture of perennial grasses and legumes that can reach 100 percent ground cover. Because of their intensive need for water, pastures usually occur on level or nearly level terrain with clayey soils to maximize irrigation (flood irrigation). Plant species seeded in pastures also vary; perennial rye grass, tall fescue (*Festuca arundinacea*), dallisgrass (*Paspalum dilatatum*), white clover (*Trifolium repens*), strawberry clover (*Trifolium fragiferum*), and garden bird's-foot-trefoil (*Lotus corniculatus*) are common plant species seeded in pastures. A small portion of pasture land cover is identified within the overhead line corridor north of Jackson Road and east of Tree View Road (SMUD 2024a).

Valley Foothill Riparian

The SMUD HCP Valley Foothill Riparian land cover is composed of floodplain, bottomland, and streambank plant communities that occur along inland creeks, streams, rivers, and other waterways. Undisturbed riparian land cover is characterized by dominant vegetation types that are tolerant of, and adapted to, relatively high soil moisture content. In areas disturbed by frequent flooding, fire, or human activity, riparian often consists of smaller trees, more shrubs, and more invasive non-native species. Common species in the overstory canopy layer are Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*) and valley oak (*Quercus lobata*). Other species that commonly occur in the midstory include California black walnut (*Juglans hindsii*), interior live oak (*Quercus wislizeni*), box elder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), Goodding's black willow (*Salix gooddingii*), and big-leaf maple (*Acer macrophyllum*), depending on specific site characteristics (elevation, soils, and hydrologic regime). Valley foothill riparian land cover is located along Jackson Road east of Bradshaw Road, adjacent to Morrison Creek (SMUD 2024a).

Riverine

The SMUD HCP characterizes riverine land cover as perennial, intermittent, and ephemeral waterways. Perennial rivers within the SMUD HCP area include the Sacramento, American, Mokelumne and Cosumnes rivers. Perennial creeks and streams support flowing water year-round in normal rainfall years. There are more than 40 named creeks, streams, and sloughs in Sacramento County. Some of the larger perennial creeks, streams, and sloughs within the HCP include Arcade Creek, Buffalo Creek, Deer Creek, Dry Creek, Morrison Creek, Steelhead Creek, South Fork Putah Creek, and Willow Creek (SMUD 2024a).

Per the SMUD HCP land cover mapping, riverine land cover within and adjacent to the overhead line corridor consists of Morrison Creek (located east of Bradshaw Road and flows perpendicular to Jackson Road), Elder Creek (located in the southeast corner of Excelsior Road and Jackson Road), and numerous unnamed tributaries to Elder Creek. Tributaries to Elder Creek are mapped west of Excelsior Road, south of Jackson Road and east of Excelsior Road, and east of Tree View Road. Frye Creek, located west of Eagles Nest Road, is also identified as riverine land cover by the SMUD HCP.

During the biological surveys at the proposed substation site, riverine land cover, an intermittent stream (Elder Creek), was mapped adjacent to but outside of the substation site. Elder Creek flows into Morrison Creek, which then flows into the Sacramento River. Near the substation, the creek flows generally northeast to southwest, passing under both Jackson Road and Excelsior Road, and averages 55 feet wide. The riverine feature is unvegetated within the channel and dominated by rushes (*Juncus* ssp.) along the bank.

Open Water/Fringe

The SMUD HCP classifies open water/fringe land cover as perennially ponded bodies of water that are generally absent of vegetation. These water bodies vary in size and depth and include lakes, reservoirs, ponds, and stockponds. Open water features in the SMUD HCP may range from less than an acre to hundreds of acres. Depths range from a few inches to hundreds of feet. Open water land cover generally has a depth greater than 3.5 feet. Although generally unvegetated, emergent plants (broad-leaf cattail [*Typha latifolia*]), submergent plants

(pondweeds [*Potamogeton* spp.]), and floating plants (e.g., lesser duckweed [*Lemna aequinoctialis*], large mosquito fern [*Azolla filiculoides*], hairy pepperwort [*Marsilea vestita* ssp. *vestita*], water lilies [*Nymphaea* spp.], and western water-milfoil [*Myriophyllum hippuroides*]) are often present in the more shallow "fringe". Within the overhead line corridor, open water/fringe land cover (a stockpond) was identified in the northeast corner of Excelsior Road and Elder Creek Road, south of Jackson Road (SMUD 2024a).

Three open water features (stockponds) are present within the vicinity of the proposed substation site, two of which occur in the substation site. The two stockponds within the substation site are largely unvegetated, supporting willows (*Salix* spp.), cattail (*Typha* spp.), and annual grasses along the margins. American bullfrog (*Lithobates catesbeianus*) and pacific tree frog (*Pseudacris regilla*) were heard and observed in both open water features within the substation site. The third open water feature, located south of the substation site, contains soft rush (*Juncus effusus*) along its margins.

Seasonal Wetland/Seasonal Swale and Vernal Pool

The SMUD HCP characterizes vernal pool, seasonal wetland, and swale land cover as seasonally flooded depressions and seasonal wetlands that support a native endemic flora under a combination of specific climatic, soil, hydrologic, and topographic conditions. These conditions include a Mediterranean climate, soil types that include a restrictive subsurface layer impermeable to water infiltration on which a shallow water table is perched during the wet season, and a micro-topographic pattern of shallow depressions and swales in a level landscape. Vernal pool, seasonal wetland, and swale land cover are typically dominated by short-lived annual native plants that can complete their lifecycles during the inundation and drying phases that characterize the land cover. Native endemic plants typical of vernal pools include several species of downingia (*Downingia* spp.), goldfields (*Lasthenia* spp.), popcornflower (*Plagiobothrys* spp.), clovers, bractless hedge-hyssop (*Gratiola ebracteata*), coyote thistle (*Eryngium* spp.), spikerush (*Eleocharis* spp.), rush, buttercup (*Ranunculus* spp.), woolly marbles (*Psilocarphus* spp.), willowherb (*Epilobium cleistogamum*), quillwort (*Isoetes* spp.), and navarretia (*Navarretia* spp.). Vernal pool, seasonal wetland, and swale land cover is identified east of Bradshaw Road, and north and south of Jackson Road within the overhead line corridor (SMUD 2024a).

Field surveys of the proposed substation site identified four habitat types within this land cover type: seasonal swale, vernal swale, seasonal wetland, and vernal pool.

Seasonal Swale

It was determined during the biological surveys of the proposed substation site that seasonal swales are present between open water features and seasonal wetlands in the substation site. These swales convey water between aquatic features, often through installed culverts. A combination of upland and wetland vegetation species are present within these features. Vegetation within these areas is dominated by grasses such as waxy mannagrass (*Glyceria declinata*) and perennial rye grass.

Vernal Swale

During the biological surveys of the proposed substation site, vernal swales were mapped based on their topography and supported plant species. Vernal swales within the substation site convey water between vernal pool features while supporting vernal pool endemic and other wetland obligate plant species. Vegetation observed in these features include little quaking grass (*Briza minor*), common tarweed (*Centromadia pungens*), common microcalis (*Cicendia quadrangularis*), brome fescue (*Festuca bromoides*), western toad rush (*Juncus bufonius*), rosy Douglas' meadowfoam (*Limnanthes douglasii* ssp. *rosea*), hyssop loosestrife (*Lythrum hyssopifolia*), water montia (*Montia fontana*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), and stalked popcorn flower (*Plagiobothrys stipitatus*).

Seasonal Wetland

During the biological surveys of the proposed substation site, the biologists observed vegetation in the seasonal wetlands is similar to those recorded in seasonal swales, with less diversity in species overall. Species in this land cover include spiny buttercup (*Ranunculus muricatus*), curly dock (*Rumex crispus*), hyssop loosestrife, waxy mannagrass, western toad rush, tall flatsedge (*Cyperus eragrostis*), and common tarweed.

Vernal Pool

Based on the biological surveys conducted at the proposed substation site, vernal pools are characterized based on their topography, seasonality, and supported plant species endemic to the land cover type. Vernal pools are located in the southeast section of the substation site and on adjacent properties within the vicinity. Vegetation present in these features are comprised of vernal pool endemic species, such as annual hair grass (*Deschampsia danthonioides*), spike rush (*Eleocharis palustris*), Great Valley button celery (*Eryngium castrense*), field owl clover (*Castilleja campestris* ssp. *campestris*), rosy Douglas' meadowfoam, and stalked popcorn flower, as well as other facultative and facultative wetland plant species such as winged water-starwort (*Callitriche marginata*), needle spikerush (*Eleocharis acicularis* var*. acicularis*), waxy mannagrass, western toad rush, chaffweed (*Lysimachia minima*), and hyssop loosestrife. A few of these features were affected by firebreaks cut between April and June of 2025, which removed vegetation within the approximately 36-foot-wide path.

Other Depressional Wetland

The SMUD HCP includes other depressional wetland land cover as a comprehensive category for all wetland types that do not meet the classifications for the riverine; open water/fringe; or vernal pool, seasonal wetland, and swale land cover types.

Per the SMUD HCP, although usually dominated by hydrophytic (water-loving) plants such as grasses, reeds, rushes, and sedges, the vegetation within the other depressional wetlands land cover varies with the differing hydrologic regimes (seasonal, intermittent, and perennial inundation or saturation). Other depressional wetlands that are inundated perennially or nearly so to a depth of less than 3 feet are usually dominated by emergent monocots such as cattails, common tules (*Schoenoplectus acutus* var. *occidentalis*), and arrowhead (*Sagittaria* spp.). If the wetland has ponding durations that are quarterly (3 months) to semi-permanent (6 months), then species such as American water-plantain (*Alisma triviale*) and swamp smartweed

(*Persicaria hydropiperoides*) may occur. If the wetland is only inundated seasonally (less than 3–4 months), then plants such as common spikerush, Mediterranean barley (*Hordeum marinum* ssp*. gussoneanum*), toad rush, and tall flat sedge are present. Within the overhead line corridor, other depressional wetland land cover is located in the northeast corner of Excelsior Road and Jackson Road, surrounding the riverine feature tributary to Elder Creek, and northwest of Tree View Road and Jackson Road (SMUD 2024a).

Trees

There are 21 trees within the substation site, primarily found in small groups (Figure 3.4-1).

Table 3.4-1. Trees within the Substation Site

Tree Number	Scientific Name	Common Name	Diameter at Breast Height (DBH) (inches)
1	*Salix* spp.	Willow	35 (multistem)
2	*Eucalyptus globulus*	Blue gum	30.75 (multistem)
3	*Quercus wislizeni*	Interior live oak	20 (multistem)
4	*Salix* spp.	Willow	20 (multistem)
5	*Eucalyptus globulus*	Blue gum	10.5
6	*Eucalyptus globulus*	Blue gum	32
7	*Eucalyptus globulus*	Blue gum	11
8	*Eucalyptus globulus*	Blue gum	36
9	*Eucalyptus globulus*	Blue gum	15
10	*Eucalyptus globulus*	Blue gum	17.5 (multistem)
11	*Eucalyptus globulus*	Blue gum	11
12	*Eucalyptus globulus*	Blue gum	27 (multistem)
13	*Eucalyptus globulus*	Blue gum	12.5
14	*Washingtonia* spp.	Palm tree	16
15	*Eucalyptus globulus*	Blue gum	30
16	*Eucalyptus globulus*	Blue gum	32
17	*Eucalyptus globulus*	Blue gum	10
18	*Eucalyptus globulus*	Blue gum	12
19	*Eucalyptus globulus*	Blue gum	11
20	*Robinia pseudoacacia*	Black locust	18 (multistem)
21	*Robinia pseudoacacia*	Black locust	26 (multistem)

Special-status Species

Special-status species are plants and wildlife with legal protections under the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA), California Fish and Game Code (CFGC), or local plans, policies, and ordinances or that are otherwise considered sensitive by federal, state, or local conservation agencies. The FESA requires agencies to determine whether a project would result in “take” of federally listed species; the term “take” under FESA means to harass, harm (including habitat modification or degradation),

pursue, hunt, shoot, wound, trap, capture, or collect, or to attempt to engage in any such conduct (16 U.S.C. Section 1532[19]). CESA similarly regulates activities that could affect state-listed endangered and threatened plants, fish, and wildlife. Under CESA, "take" means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (CFGC Section 86). Both FESA and CESA authorize take that is incidental to an otherwise lawful activity through consultation and permitting issued by the USFWS and CDFW, respectively. On October 11, 2025, the California Legislature passed Assembly Bill 1319, which gives CDFW the authority to extend CESA protections to native California species listed, proposed, or candidate for listing under the FESA in the event that the federal government decreases protections for the species.

For the purposes of this document, special-status is defined as:

- Listed as endangered, threatened, proposed for listing, or candidates for listing under the FESA;
- Listed as endangered, threatened, proposed for, or candidates for listing under the CESA;
- Designated as fully protected, pursuant to CFGC;
- Animals classified as species of special concern (SSC) by CDFW;
- Plants considered by CDFW to be "rare, threatened or endangered in California" and assigned California Rare Plant Ranks of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; 2A, presumed extinct in California but more common elsewhere; and 2B, considered rare or endangered in California but more common elsewhere;
- Species considered locally significant are not rare from a statewide perspective but are rare or uncommon in a local context, such as in a county or region (CEQA Section 15125[c]), or that are so designated in local or regional plans, policies, or ordinances (State CEQA Guidelines Appendix G); and
- Taxa (i.e., taxonomic categories or groups) that meet the criteria for listing even if they are not currently included on any list, as described in California Code of Regulations Section 15380 of the State CEQA Guidelines.

A review of USFWS, CNPS, NMFS, and CDFW's CNDDB species lists and SMUD HCP modeled habitat identified 14 special-status plant species and 31 special-status wildlife species with the potential to occur within the project vicinity (Appendix B). No critical habitat determined by the USFWS overlaps with the project area. Critical habitat for California Central Valley steelhead (*Oncorhynchus mykiss irideus pop. 11*) and Essential Fish Habitat for Chinook salmon (*Oncorhynchus tshawytscha*) is found within the *Carmichael* U.S. Geological Survey (USGS) 7.5-minute quadrangle, in which the project area lies.

Special-status Plants

After completing protocol-level plant surveys at the proposed substation site, the 14 plant species with the potential to occur were determined to be absent from the proposed substation site. During the March, April, June, and July 2025 surveys at the substation site, none of the identified special-status plants were observed. Special-status plants may be present along the overhead line corridor. Of the 14 special-status plant species with the potential to occur within the overhead line corridor, 11 plant species have a low, moderate, or high potential to occur within the overhead line corridor. See Appendix B for the potential to occur determination and rationale for each species.

Special-status Wildlife

Of the 31 special-status wildlife species with the potential to occur within the substation site and overhead line corridor, 15 species have a moderate or high potential to occur in or immediately adjacent to the substation site and overhead line corridor due to suitable habitat conditions or observations within the substation site. Two of the 15 species with a moderate or high potential to occur at the proposed substation site, Swainson's hawk and tricolored blackbird, were observed at the proposed substation site during biological surveys. The remaining 16 species have a low likelihood or are unlikely to be present within the project area due to lack of suitable habitat, or the project area is outside of the known geographical range for the species. The rationale for the potential to occur determination can be found in Appendix B.

The species with potential to occur are listed below:

- Crotch's bumblebee (*Bombus crotchii*)– State Candidate Endangered
- Vernal pool fairy shrimp (*Branchinecta lynchi*) – Federally Threatened
- Monarch butterfly (*Danaus plexippus*) – Proposed Federally Threatened
- Vernal pool tadpole shrimp (*Lepidurus packardi*) – Federally Endangered
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) – Federally Threatened
- Western spadefoot (*Spea hammondii*) – Proposed Federally Threatened and CDFW SSC
- Northwestern pond turtle (*Actinemys marmorata*) – Proposed Federally Threatened and CDFW SSC
- Tricolored blackbird (*Agelaius tricolor*) – State Threatened
- Burrowing owl (*Athene cunicularia*) – Candidate State Endangered
- Swainson's hawk (*Buteo swainsoni*) – State Threatened
- Northern harrier (*Circus cyaneus*) – CDFW SSC

- White-tailed kite (*Elanus leucurus*) – CDFW Fully Protected
- Loggerhead shrike (*Lanius ludovicianus*) – CDFW SSC
- Pallid bat (*Antrozous pallidus*) – CDFW SSC
- American badger (*Taxidea taxus*) – CDFW SSC

3.4.2 Impacts and Mitigation Measures

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 CDFW or USFWS?

Construction of the proposed substation would require grading a majority of the proposed substation site, with the exception of wetlands located in the southeast corner of the proposed substation site (Figure 3.4-2). Proposed grading throughout the substation site would result in habitat removal. Table 3.4-2 and Figure 3.4-2 summarize the impacts to all land cover within the substation site.

Table 3.4-2. Land Cover Impacts at the Proposed Substation Site

Land Cover	Permanent Impact (acre)
Grasses and Forbs	37.601
Open Water/Fringe	2.300
Urban	1.772
Seasonal Wetland/Seasonal Swale and Vernal Pool	
Seasonal Swale	0.172
Seasonal Wetland	1.172
Vernal Pool	0.645
Vernal Swale	0.004
Total	*43.666*

The location of the new and replaced poles, along the line corridors have not been finalized. Along Jackson Road and Excelsior Road, pole replacements will be located within 10 feet of the existing pole location.

The work area for each pole replacement or new pole is anticipated to be 100 feet by 100 feet and a pole replacement would temporarily disturb approximately 3.14 square feet and a new pole would permanently disturb approximately 3.14 square feet per the SMUD HCP (SMUD 2024a).

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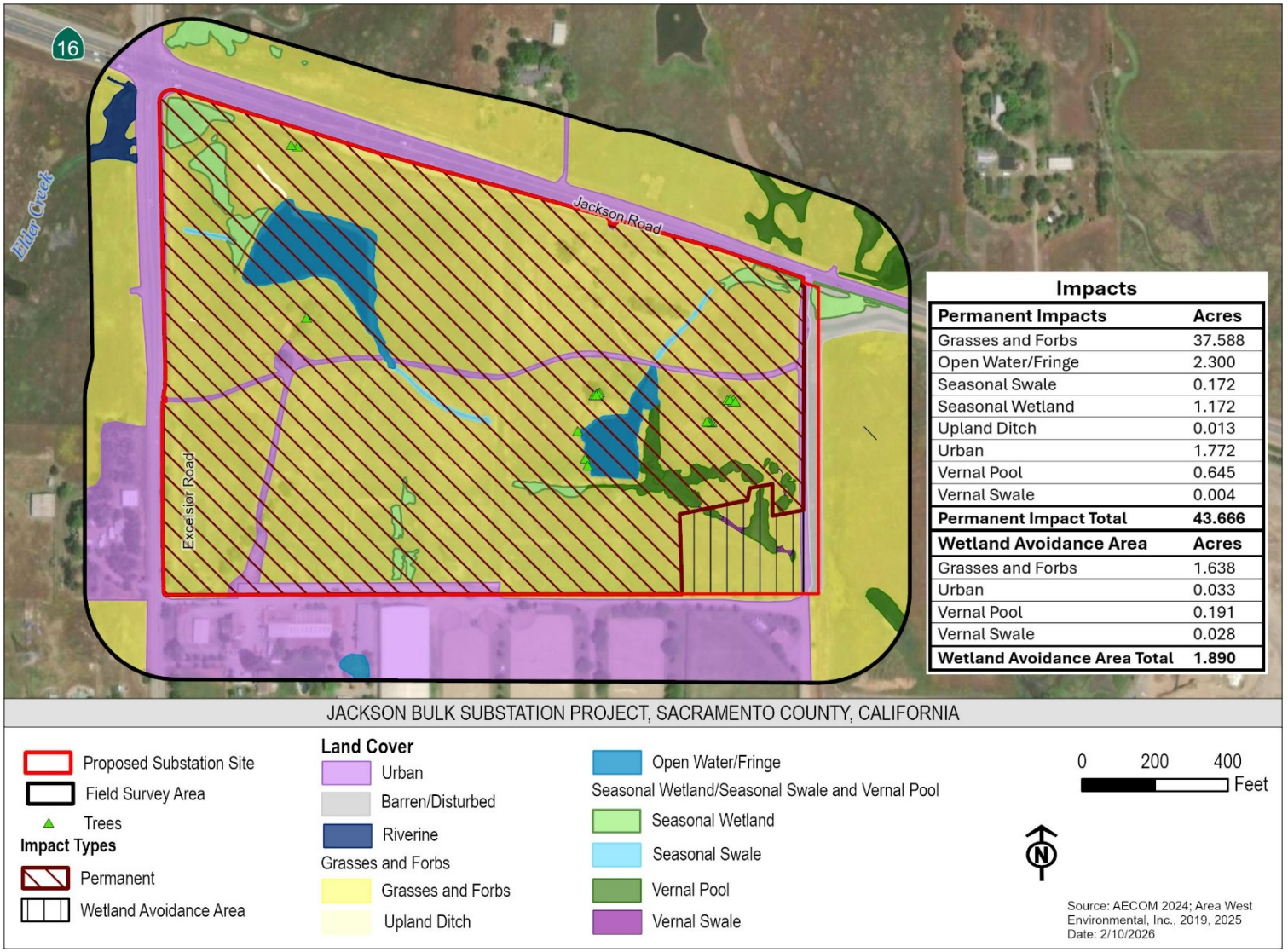


Figure 3.4-2 Land Cover Impacts

SMUD intends to avoid riverine, riparian and wetland habitats during pole placement; however, spatial restrictions may prevent installation of poles outside of these sensitive land cover types. Additionally, special-status species may inhabit upland land cover types (grasses and forbs). Therefore, the pole installation and replacement could result in the permanent loss of potential special-status species habitat. Permanent project features would avoid sensitive habitats to the extent feasible, construction access to new pole locations would occur primarily within the roadside and limited overland travel is required. This impact assessment conservatively assumes that land cover that have potential to support sensitive plant and wildlife species may be permanently or temporarily affected by new and replacement pole installation parallel to Jackson Road and Excelsior Road

Special-status Wildlife

The project has the potential to adversely affect vernal pool fairy shrimp, vernal pool tadpole shrimp, monarch butterfly, Crotch's bumblebee, valley elderberry longhorn beetle, western spadefoot, northwestern pond turtle, pallid bat, American badger, and special-status birds, raptors, and other nesting birds. An impact discussion for these species is provided below.

Vernal Pool Branchiopods

No vernal pool fairy shrimp or vernal pool tadpole shrimp were observed within the substation site during the 2025 visual surveys, though targeted aquatic sampling was not conducted. The seasonal wetlands, vernal pools, vernal swales, and seasonal swales scattered throughout the substation site and similar aquatic features along the overhead line corridor provide suitable habitat for these species (Appendix B). At the substation site, grading and construction of substation elements would permanently impact 1.993 acre of suitable habitat for vernal pool branchiopods. Construction vehicles and heavy machinery driven through wetland features could cause compaction of soil and disturb branchiopod cysts. Work activities adjacent to wetland features may also result in temporary impact to habitat through sediment runoff or spilling of oil or other pollutants. Pole replacement activities along the overhead line corridor could result in impacts to suitable habitat for vernal pool branchiopods through vehicle movement, ground disturbance, dust generation (from construction activities), spread of invasive or non-native plants, and hazardous materials exposure. The project would have a ***potentially significant impact***, and mitigation measures are required.

The project would result in disturbance to more than an acre of land, which would require compliance with National Pollutant Discharge Elimination System (NPDES) permit program and would be subject to authorization under the Construction General Permit. The Construction General Permit involves the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would include best management practices to prevent water pollution and erosion (further discussed in Section 3.10, "Hydrology and Water Quality"). The SWPPP, SMUD HCP general and species-specific avoidance and minimization measures (AMMs), and mitigation measures described below would reduce potential impacts on vernal pool branchiopod species.

G-AMM2 Minimize Impacts of Work Area. To the extent possible, SMUD field crews and contractors will reduce the work area footprint and the duration of work at a work area to reduce the potential for take of Covered Species.

G-AMM3 Work Area Access. SMUD field crews and contractors will use existing paved and unpaved roads to access the work area where available. Vehicles and equipment will be parked on pavement, existing roads, or previously disturbed areas to the maximum extent feasible. When this is not feasible, SMUD will implement G-AMM4: Off Road Speed Limit, VP-AMM1: Avoid Driving through Vernal Pools, and VP-AMM2: Minimize Vehicle Impacts on Vernal Pools.

G-AMM4 Off Road Speed Limit. When driving off of paved roads in Covered Species habitat, vehicles will not exceed a speed limit of 15 miles per hour.

G-AMM5 Work Area General Guidelines. Trash dumping, littering, open fires (such as barbecues), hunting, and pets will be prohibited in Covered Activity work areas. All garbage will be removed from the project site at the end of each workday.

G-AMM6 Erosion Control Measures. SMUD field crews will utilize standard erosion and sediment control best management practices (BMPs) (pursuant to the most current version of the California Stormwater Best Management Practices Handbook) to prevent construction site runoff into SMUD HCP Riverine; Open Water/Fringe; Other Depressional Wetland; and Vernal Pool, Seasonal Wetland, and Swale land cover types when Covered Activities are the source of potential erosion. Soil will be stockpiled within established work area boundaries, and stockpiles will be located so as not to enter water bodies, stormwater inlets, or other standing bodies of water. Stockpiled soil will be covered prior to precipitation events. Erosion control materials will be removed once the site has been stabilized.

G-AMM7 Equipment Refueling. SMUD field crews will not refuel or conduct equipment maintenance activities within 250 feet of SMUD HCP Vernal Pool, Seasonal Wetland, and Swale, and within 100 feet of any Riverine, Open Water/Fringe, or Other Depressional Wetlands land cover types. If refueling must be conducted closer to wetlands, SMUD field crews will construct a secondary containment area subject to review by an environmental specialist and/or biologist. SMUD field crews will maintain spill prevention and cleanup equipment in refueling areas.

G-AMM8 Hazardous Materials Clean Up. SMUD field crews will clean up any spilled oil, fuel, or other automotive fluids. SMUD field crews will ensure that all construction areas have proper spill clean-up materials (absorbent pads, sealed containers, booms, etc.) to contain the movement of any spilled substances.

G-AMM11 Stabilization of Disturbed Areas. SMUD field crews will remove any temporary fill or construction debris and will backfill all excavation sites with native soil, and with crushed gravel around the bases of poles for compaction, following completion of Covered Activities. Disturbed areas will be stabilized by compacting soils and returning to pre-project contours so that the areas are commensurate with the topography of the surrounding soil, or qualified stormwater personnel will prescribe BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the site during construction. SMUD field crews will not move weed-infested gravel, rock, and other fill materials to undisturbed areas that are relatively free of weeds, but will focus fill in areas that have previously been disturbed.

G-AMM12 Excess Soil. When excess soil is spread out following an excavation activity, SMUD will not place soil in SMUD HCP Riverine; Open Water/Fringe; Other Depressional Wetlands; or

Vernal Pool, Seasonal Wetland, and Swale land cover types or in Covered Species Modeled Habitat that contains burrows.

G-AMM13 Soil Management. SMUD field crews will stockpile soil within established work area boundaries and position stockpiles so as not to enter SMUD HCP Riverine; Open Water/Fringe; Other Depressional Wetlands; or Vernal Pool, Seasonal Wetland, and Swale land cover types or in Modeled Habitat with burrows. SMUD field crews will cover stockpiled soil with visquen or tarps prior to precipitation events.

G-AMM14 Revegetation of Work Areas. If a Covered Activity temporarily disturbs 0.1 acre or more of Modeled Habitat for a Covered Species that contains herbaceous vegetation, SMUD field crews will revegetate the area with a native weed free seed mix within 6 months of disturbance.

G-AMM15 Temporary Vehicle Access to Work Areas. SMUD field crews will minimize clearing vegetation and grading for temporary vehicle access to the maximum extent feasible. Any temporary road will be returned to pre-project contours and the soil compacted for stabilization, or qualified stormwater personnel will prescribe BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the site during construction.

G-AMM17 Night Lighting. For Covered Activities that occur at night, SMUD field crews will position any temporary lights needed away from any Covered Species habitat. For lighting at permanent facilities, such as substations, all lighting will be oriented downward towards major equipment to minimize glare onto surrounding property.

G-AMM18 Unanticipated Covered or ESA and CESA-Listed Species. SMUD field crews will stop work and contact SMUD Environmental Services if a species listed under the FESA and CESA or a Covered Species is found within the work area or within 100 feet of a work area. SMUD Environmental Services will have authority to stop activities, and will do so, until appropriate corrective measures have been completed or it is determined that the individual FESA and CESA-listed or Covered Species will not be taken (including harmed). If the FESA and CESA-listed or Covered Species is in immediate danger, only a qualified biologist can capture and relocate the Covered Species. The Service must be contacted if the species is FESA and CESA-listed, but is not a Covered Species.

VP-AMM1 Avoid Driving through Vernal Pools. SMUD field crews will avoid driving through SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover to the maximum extent feasible. When this is not feasible, SMUD will implement VP-AMM2: Minimize Vehicle Impacts on Vernal Pools.

VP-AMM2 Minimize Vehicle Impacts on Vernal Pools. If a Covered Activity work area or access to the work area is located on SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover, SMUD field crews will evaluate site conditions and determine if soil moisture is present. If soil moisture is present, the field crew will coordinate with the Environmental Services team to identify alternative measures to minimize disturbance of Covered Species Modeled Habitat. Alternative measures may include laying down rubber matting, creating temporary bridges over swales, or using alternate access routes as prescribed by SMUD Environmental Services to minimize impacts. If it is not feasible for SMUD to avoid driving through Vernal Pool,

Seasonal Wetland, and Swale land cover while moisture is present, SMUD will track the acres of disturbance, and those acres will count toward take limits.

VP-AMM3 Vernal Pool Covered Species Soil Stockpile. For Covered Activities in SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover, SMUD field crews will stockpile the upper 4 inches of topsoil from within the ordinary high-water mark of any aquatic features separately during excavations. This topsoil will be replaced within the aquatic feature and manipulated so as to restore the original contours within the aquatic feature. Soil compaction will be minimized to the extent consistent with utility standards. Erosion control measures such as straw wattles, coconut fiber rolls/blankets, silt fencing, and as determined by the qualified biologist, will be implemented where necessary to protect topsoil stockpiles and keep the seed bank and/or cysts in the stockpiled soil viable.

VP-AMM4 Avoid Occupied Orcutt Grass Habitat. SMUD Environmental Services will review design plans to ensure that no new poles or other facilities are placed in vernal pools that are known (as noted in an up to date [current at time of project implementation] California Natural Diversity Database query) to support slender Orcutt grass or Sacramento Orcutt grass.

VP-AMM6 Covered Vernal Pool Invertebrate Work Window. When Vernal Pool Invertebrate Covered Species Modeled Habitat is present within 250 feet of Covered Activities, Environmental Services will schedule the Covered Activity to occur in the dry season (approximately April 15 through October 15) and prior to the first significant rain (0.25 inch in 24 hours) to the maximum extent feasible. If the Covered Activity cannot be performed in the dry season, the field crew will implement additional measures as prescribed by SMUD Environmental Services to avoid or minimize impacts. Additional measures could include, but are not limited to, directing crews on access, use of erosion/sediment fencing, use of access mats or other techniques to avoid direct or indirect effects, requiring foot access, or requiring a biological monitor during the activity. If additional measures do not result in total avoidance, SMUD will mitigate at a 0.5:1 ratio for temporary and/or 3:1 for permanent direct habitat disturbance or loss.

VP-AMM7 Vernal Pool Biological Monitor. If Covered Activities will directly impact SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover (modeled habitat), a qualified biologist will be present onsite and monitor the Covered Activity to ensure that all applicable AMMs are implemented correctly and that no unnecessary ground disturbance or take of species occurs. The qualified biologist will have the authority to stop all activities that could result in such take or destruction, and will do so, until appropriate corrective measures have been completed. SMUD will report any unauthorized take to USFWS and/or CDFW within 24 hours.

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel. All construction personnel will be given environmental awareness training before the start of construction. As part of the training, an environmental awareness handout will be provided to all personnel that describes and illustrates sensitive resources (i.e., waters of the U.S. and state, special-status species and habitat, nesting birds/raptors) to be avoided during construction and lists applicable permit conditions identified by state and federal agencies to protect these resources.

Mitigation Measure BIO-2: Compensate for Impacts to Wetlands and Aquatic Species Habitat. Mitigation for both temporary and permanent vernal pool tadpole shrimp and vernal pool fairy shrimp habitat disturbance will be provided as part of SMUD's HCP. Temporary impacts would be mitigated at a 0.5:1 ratio and permanent impacts would be mitigated at a 3:1 ratio through a combination of preservation and restoration, and indirect impacts within 250 feet of the substation would be mitigated at a 1:1 ratio. SMUD will use vernal pool restoration or creation credits at a 1:1 ratio (i.e., 2:1 preservation, 1:1 restoration/creation). If required, additional compensation for impacts to aquatic resources (wetlands and other waters) would be determined during Clean Water Act Section 401 and 404 and CFGC Section 1600 permitting.

Significance after Mitigation

Implementation of BMPs for water quality and Mitigation Measures G-AMM 1-8, G-AMM 11-18, VP-AMM 1-4, VP-AMM 6-7, BIO-1 and BIO-2 would reduce the impacts to vernal pool branchiopods to a ***less-than-significant*** level.

Monarch Butterfly

Although no monarch adults, eggs, or larvae were observed on the substation site, suitable habitat in the form of narrowleaf milkweed (*Asclepias fascicularis*) was observed within the substation site. Milkweed may also be present along the overhead line corridor. Ground-disturbing activities and vehicles or heavy machinery activity could cause impacts on monarch eggs or larvae that may be present within or adjacent to the substation site or along the overhead line corridor. As a result, this impact is ***potentially significant***, and mitigation is required.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM18 Unanticipated Covered or ESA and CESA -Listed Species (described above)

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-3: Conduct a Pre-construction Survey for Monarch Butterfly. A biologist would conduct a pre-construction clearance survey for milkweed within 48 hours prior to the initiation of ground disturbance within the project work limits at the substation site and overhead line corridor pole locations. If there is a lapse in ground disturbing activities for more than 6 months, an additional clearance survey would be completed in undisturbed areas. This survey would consist of walking transects while conducting visual encounter surveys within areas that would be subject to clearing, staging, or other ground disturbing activities. If milkweed is identified within the construction work area, the biologist would determine an appropriate no-

disturbance buffer to ensure avoidance of the milkweed. Fencing or flagging would be used to maintain the buffer around milkweed areas during project activities.

If botanical surveys completed for overhead lines/pole work rule out presence of milkweed, a pre-construction survey is not required.

If milkweed plants are observed within the project work limits and no eggs or larvae are observed on the plant(s), the plant(s) should be removed in a manner that allows them to be re-planted outside of the project work limits and fencing should be installed around the placement area to ensure avoidance during construction activities. If the monarch butterfly larvae or eggs are observed on milkweed plants or other vegetation, then the biologist will establish a fenced 5-foot no disturbance buffer around the plant(s). This buffer will remain in place until the egg or larvae have metamorphosed. Once the metamorphosis has occurred, the plant(s) may be removed and replanted.

Significance after Mitigation

The impact to monarch butterfly would be reduced to a ***less-than-significant level*** with the implementation of Mitigation Measures G-AMM 2, 3, 5, 11, 14, 18, BIO-1, and BIO-3.

Crotch's Bumblebee

Although no Crotch's bumblebees were observed in the substation site during the 2025 surveys, the grasses and forbs land cover and seasonal floral resources growing in the seasonal wetland and vernal pools within the substation site and the grasses and forbs land cover along the overhead line corridor offer suitable habitat for the species. Ground-disturbing activities and vehicles or heavy machinery activity could cause impacts on Crotch's bumblebee individuals that may be present within or adjacent to the substation site and along the overhead line corridor. As a result, the project impact would be ***potentially significant***, and mitigation is required.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM18 Unanticipated Covered or ESA and CESA-Listed Species (described above)

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-4: Implement Crotch's Bumblebee Avoidance Measures. A qualified biologist will conduct at least 3 focused foraging and nesting surveys within suitable habitat, between April and August the year prior to the initiation of ground disturbance, within

the project work limits at the substation site and overhead line corridor pole locations. If there is a lapse in ground disturbing activities for more than 6 months, an additional clearance survey would be completed in undisturbed areas. Surveys will follow CDFW's "Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species" dated June 6, 2023 (CDFW 2023) or the most recent guidance. If Crotch's bumblebee is observed, the qualified biologist may propose site-specific measures to avoid take or SMUD would consult with CDFW to obtain an Incidental Take Permit if take of Crotch's bumblebee may occur during project activities.

Significance after Mitigation

Implementation of Mitigation Measures G-AMM 2, 3, 5, 11, 14, 18, BIO-1, and BIO-4 would reduce the impact to Crotch's bumblebee to a ***less-than-significant*** level.

Valley Elderberry Longhorn Beetle

No elderberry shrubs (*Sambucus* spp.), the host plant for the valley elderberry longhorn beetle, were identified within the substation site during the various field surveys. The SMUD HCP models the valley foothill riparian land cover along Morrison Creek within the overhead line corridor as potential habitat for this species. However, the existing overhead line poles along Jackson Road are more than 30 feet from the Morrison Creek riparian land cover, so replacement of these poles would not affect valley elderberry longhorn beetles or their host plants. During construction, the generation of dust would be minimized in compliance with the SWPPP prepared for the project. Therefore, the project impact would be ***less than significant***, and no mitigation would be required.

Western Spadefoot

No western spadefoot were identified on the substation site during the various field surveys, but there is suitable upland, dispersal, and breeding habitat within the substation site and along the overhead line corridor. Suitable habitat for western spadefoot within the substation site includes grasses and forbs, seasonal swale, seasonal wetlands, and open water (stockpond) land cover. Suitable land cover for this species within the overhead line corridor includes grasses and forbs, other depressional wetland, and seasonal wetland/seasonal swale or vernal pool. Project activities may cause impacts to individuals within or near the aquatic features or burrows within the substation site. Temporary impacts may include sediment runoff into aquatic features within the substation site. Pole replacement and installation activities along the overhead line corridor could result in impacts through vehicle movement, ground disturbance, dust generation (from construction activities), spread of invasive or non-native plants, and hazardous materials exposure. The project impact would be ***potentially significant***, and mitigation is required.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM4 Off Road Speed Limit (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM6 Erosion Control Measures (described above)

G-AMM7 Equipment Refueling (described above)

G-AMM8 Hazardous Materials Clean Up (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM12 Excess Soil (described above)

G-AMM13 Soil Management (described above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM15 Temporary Vehicle Access to Work Areas (described above)

G-AMM17 Night Lighting (described above)

G-AMM18 Unanticipated Covered or ESA and CESA -Listed Species (described above)

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-2: Compensate for Impacts to Wetlands and Aquatic Species Habitat (described above)

Mitigation Measure BIO-5: Environmentally Sensitive Area Exclusion Fencing. Prior to the start of construction at the substation site, environmentally sensitive area (ESA) exclusion fencing will be installed along the wetland avoidance area boundary. The fencing material shall consist of silt fence or equivalent barrier and will be of a height and material suitable for wildlife exclusion. The fencing shall be checked regularly and maintained until all construction is complete.

Mitigation Measure BIO-6: Biological Monitor. A biological monitor shall be present within the substation site during initial ground disturbance (including wildlife exclusion fencing installation and vegetation clearing), dewatering activities in stockponds, and during all pole work along the overhead line corridor within 10 feet of suitable water features.

Mitigation Measure BIO-7: Special-status Species Encounter. Consistent with G-AMM-18, if a special-status wildlife species, including species of special concern, is found within the construction area during project activities, work will immediately stop within a 50-foot radius of the individual. The individual will be allowed to leave the project work limits on their own and construction may resume once it is determined that the individual has moved away safely from the construction zone. If the individual is unable to leave the project work limits on their own, the individual may be moved, unless it is state or federally listed. If it is a state or federally listed wildlife species or SMUD HCP Covered species, procedures described in G-AMM-18 above will be implemented.

Mitigation Measure BIO-8: Conduct Pre-construction Survey for Western Spadefoot. A qualified biologist will conduct a pre-construction clearance survey for western spadefoot within the substation site and overhead line corridor work limits within 48 hours prior to the initiation of ground disturbance. If there is a lapse in ground disturbing activities for more than 6 months, an additional clearance survey would be completed in undisturbed areas. The pre-construction clearance survey will be limited to suitable water features, surrounding hydrologic or geographic features that support inundation during rain events, and associated upland habitat (e.g. grasslands and burrows). Crevices and burrows will be searched and avoided to the maximum extent practicable.

If western spadefoot are present within the project work limits (including egg masses or tadpoles), then CDFW will be notified and additional avoidance and minimization measures will be implemented.

Significance after Mitigation

With the implementation of G-AMM 2 through 8, 11 through 15, 17, 18, BIO-1, 2, and 5 through 8, as well as BMPs to protect water quality, the impact to western spadefoot would be minimized to a ***less-than-significant*** level.

Northwestern Pond Turtle

No northwestern pond turtles were observed within the substation site during the 2025 surveys, but there is suitable aquatic and upland habitat within the substation site and along the overhead line corridor, including within and adjacent to Morrison Creek, Elder Creek, tributaries of those streams, and ponds adjacent to the project work limits (Appendix B). Project activities may cause impacts to individuals within or near the aquatic features and upland habitat within the substation site and along the overhead line corridor. Impacts may also include sediment runoff into aquatic features within the substation site or overhead line corridor. As a result, the project impact would be ***potentially significant***, and mitigation is required.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM4 Off Road Speed Limit (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM6 Erosion Control Measures (described above)

G-AMM7 Equipment Refueling (described above)

G-AMM8 Hazardous Materials Clean Up (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM12 Excess Soil (described above)

G-AMM13 Soil Management (described above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM15 Temporary Vehicle Access to Work Areas (described above)

G-AMM17 Night Lighting (described above)

G-AMM18 Unanticipated Covered or ESA and CESA -Listed Species (described above)

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-2: Compensate for Impacts to Wetlands and Aquatic Species Habitat (described above)

Mitigation Measure BIO-5: Wildlife Exclusion Fencing (described above)

Mitigation Measure BIO-6: Biological Monitor (described above)

Mitigation Measure BIO-7: Special-status Species Encounter (described above)

Mitigation Measure BIO-9: Conduct Pre-construction Survey for Northwestern Pond Turtle. A qualified biologist will conduct a pre-construction clearance survey for northwestern pond turtle within 48 hours prior to the initiation of ground disturbance within the project work limits at the substation site and overhead line corridor pole locations. If there is a lapse in ground disturbing activities for more than 6 months, an additional clearance survey would be completed in undisturbed areas. Pre-construction clearance surveys will be limited to suitable water features, surrounding hydrologic or geographic features that support inundation during rain events, and associated upland habitat (grasslands and other areas with seasonally friable soils that support burrows).

If an adult northwestern pond turtle is located within upland habitat in the construction work area, the turtle will be allowed to voluntarily move outside of the work area on its own volition. If the species does not move on its own and is in the immediate vicinity of construction activities, a qualified biologist will relocate the turtle. If an active pond turtle nest containing either pond turtle hatchlings or eggs is found, appropriate avoidance measures would be implemented, which may include a “no-disturbance” buffer around the nest site until the hatchlings have moved to a nearby aquatic site.

Significance after Mitigation

With the implementation of G-AMM 2 through 8, 11 through 15, 17, 18, BIO-1, 2, 5 through 7, and 9, as well as BMPs to protect water quality, the impact to northwestern pond turtle would be minimized to a ***less-than-significant*** level.

Special-status Raptors and Nesting Birds

Wetlands provide suitable nesting habitat for tricolored blackbird, while mature trees within the substation site provide suitable nesting habitat for Swainson's hawk. Tricolored blackbird and Swainson's hawk were present within the substation site, and burrows present within the substation site offer suitable nesting habitat for burrowing owl. Two adult Swainson's hawks were observed nesting within the substation site in a large eucalyptus tree during April, May, and June 2025 surveys and successfully fledged three chicks in July 2025. Grasses and forbs land cover within the substation site provides suitable foraging habitat for tricolored blackbird, Swainson's hawk, northern harrier, burrowing owl, white-tailed kite, and loggerhead shrike. The grasses and forbs and pasture land cover within the overhead line corridor also provides suitable foraging habitat for the species.

Project construction would remove trees and shrubs within the substation site, which has the potential to directly remove bird nests. Driving vehicles and equipment through the annual grassland (grasses and forbs) may also result in destruction of bird nests. Additionally, if active bird nests are present, construction activities occurring during the nesting season (between February 1 and August 31), such as demolition, ground disturbance, and presence of construction equipment and crews, could generate noise and visual stimuli that may result in disturbance to active bird nests, and potentially resulting in nest abandonment. Nest abandonment may result in death of chicks or loss of eggs if the adult bird does not return to the nest. Nest abandonment would be considered a significant impact. The removal of aquatic vegetation and shrubs, and ground-disturbing activities within the substation site and overhead line work limits could also affect foraging efforts of tricolored blackbird, burrowing owl, Swainson's hawk, northern harrier, and other nesting migratory birds and raptors. As a result, the project would be ***potentially significant***, and mitigation is required.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM4 Off Road Speed Limit (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM15 Temporary Vehicle Access to Work Areas (described above)

G-AMM18 Unanticipated Covered or ESA and CESA -Listed Species (described above)

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-6: Biological Monitor (described above)

Mitigation Measure BIO-7: Special-status Species Encounter (described above)

Mitigation Measure BIO-10: Conduct Pre-construction Survey for Migratory Birds and Raptors, Including Special-status Species. For any construction activities that will occur between February 1 and August 31 within the substation site and overhead line corridor work limits, a qualified biologist shall conduct a pre-construction survey in suitable nesting habitat within 300 feet for passerine nests (including for tricolored blackbird and loggerhead shrike), within 500 feet for raptor nests and ground nests (including for northern harrier and burrowing owl), and within 0.5 mile for Swainson's hawk and white-tailed kite nests. If construction activities occur during bird nesting season (between February 1 and August 31), including equipment staging and construction, surveys shall be conducted within 7 days prior to commencement of construction activities.

If no active nests are found during the pre-construction survey, no additional mitigation measures are required.

If an active bird or raptor nest is identified within the construction work area or an active raptor nest is identified within the appropriate survey buffers from the construction work area, a no-disturbance buffer shall be established around the nest to avoid disturbance of the nesting birds or raptors until a qualified biologist determines that the young have fledged and are foraging on their own or the nest has failed. The extent of these buffers shall be determined by the biologist and shall depend on the species identified, level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographic or artificial barriers. In addition to the establishment of buffers, other avoidance measures may include monitoring the nest during construction and restricting the type of work that can be conducted near the nest site. If a lapse in construction activities for one week or longer occurs during the avian breeding season, another pre-construction survey shall be performed prior to work re-initiation.

Mitigation Measure BIO-11: Conduct Preconstruction Survey for Burrowing Owl and Implement Avoidance Measures.

1. Burrowing Owl Surveys. SMUD shall conduct a BUOW survey over all suitable habitat present within the project site. BUOW surveys shall be conducted by a qualified biologist in accordance with the protocol described in the Staff Report on Burrowing Owl Mitigation (CDFW, March 7, 2012). If possible, surveys should be conducted during both the breeding (February 1 – August 31) and non-breeding seasons (September 1 – January 31) immediately preceding the planned start of construction activities to ascertain the seasonal residency status of any owls occupying the site. The presence of BUOW or their sign anywhere on the site or within a 500-foot accessible radius around the project site shall be recorded and mapped. Surveys shall disclose all burrows and occurrence of sign of BUOW on the project site and within the 500-foot buffer.

2. Burrowing Owl Take Avoidance. During the breeding season (February 1 to August 31), surveys shall document whether BUOW are nesting in or within 500 feet of the Project area. During the non-breeding season (September 1 to January 31), surveys shall document whether BUOW are using habitat in or directly adjacent to any area to be disturbed. Survey results shall only be valid for the season (breeding or non-breeding) during which the survey was conducted. If a lapse in Project-related work of fifteen (15) calendar days or longer occurs, another focused survey and consultation with SMUD and CDFW shall be required before Project work can be reinitiated. If a BUOW or evidence of

presence at or near a burrow entrance is found to occur within 500 feet of the Project site, the following measures shall be implemented:

a. If BUOW are found during the non-breeding season (approximately September 1 to January 31), SMUD shall establish a minimum 160-foot (50-meter) buffer zone around active burrows. The buffer zone shall be flagged or otherwise clearly marked. Measures such as visual screens may be used to further reduce the buffer with CDFW approval and provided a qualified biologist confirms that such measures do not cause agitated behavior.

b. If BUOW are found during the breeding season (approximately February 1 to August 31), SMUD shall:

   i. Avoid all nest sites that could be disturbed by Project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging).

   ii. Establish a minimum 500-foot non-disturbance buffer zone around nests, unless otherwise approved by SMUD in writing, in consultation with CDFW. The buffer zone shall be flagged or otherwise clearly marked. Should construction activities cause the nesting bird to vocalize, make defensive flights at intruders, or otherwise display agitated behavior, then the exclusionary buffer will be increased such that activities are far enough from the nest so that the bird(s) no longer display this agitated behavior. Construction shall only occur within the 500-foot buffer zone during the breeding season if a qualified biologist monitors the nest and determines that the activities do not disturb nesting behavior, or the birds have not begun egg-laying and incubation, or that the juveniles from the occupied burrows have fledged and moved off site. Any modifications to this buffer shall be approved by SMUD, in consultation with CDFW prior to its implementation. The buffer reduction request shall include relevant information and/or propose new measures to justify the buffer reduction. The buffer area must be clearly marked to prevent Project-related activities from occurring within the buffer zone.

3. Eviction of Burrowing Owls. If after all applicable avoidance and minimization measures are implemented and SMUD needs to evict BUOW, an ITP shall be obtained for the activity and a BUOW eviction plan shall be developed by a qualified biologist for SMUD's review and approval, in consultation with CDFW. This plan, including its proposed mitigation, shall be consistent with the most recent available guidelines (e.g., 2012 Staff Report on Burrowing Owl Mitigation). Burrow eviction shall only be conducted during the non-breeding season for burrows located in the Project footprint, and in limited instances within a buffer zone around the Project site, as determined by SMUD in consultation with CDFW after all avoidance and minimization measures have been exhausted.

Mitigation Measure BIO-12: Raptor Nest Relocation or Removal and Mitigation for Loss of Swainson's Hawk Foraging Habitat.

1. Prior to the relocation (preferred) or removal of raptor nests within the project site, the SMUD Avian Protection Program (APP) Coordinator will be contacted. The APP

Coordinator will document the status of the nest to determine when it is unoccupied and coordinate with CDFW regarding the plan for relocation or removal. Removal or relocation will occur during the non-nesting season and when the nest is unoccupied. Once the nest is removed or relocated, the nesting tree will be removed.

2. To offset net impacts on foraging habitat for breeding Swainson's hawks SMUD shall mitigate the loss of Swainson's hawk foraging habitat in accordance with CDFW recommendations (CDFG 1994) by providing mitigation lands or securing Swainson's hawk mitigation bank credits. Mitigation shall be provided for impacts to suitable foraging habitat occurring within 10 miles of an active Swainson's hawk nest, as determined by a qualified biologist and in consultation with CDFW. All mitigation lands protected under this mitigation measure shall be protected in a form acceptable to CDFW (e.g., through fee title acquisition or conservation easement) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawk.

Significance after Mitigation

Mitigation Measures G-AMM 2 through 5, 11, 14, 15, 18, BIO-1,6, 7, and 10 through 12 would minimize the disturbance to or loss of nesting birds. As a result, the Project impact to tricolored blackbird, burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, loggerhead shrike, and other nesting migratory birds would be reduced to a ***less-than-significant*** level.

Pallid Bat

No pallid bats were identified within the substation site during the survey, but suitable foraging and roosting habitat are present throughout the substation site. Tree removal within the substation site and impacts to grasses and forbs land cover within the substation site and overhead line corridor may result in a temporary and permanent loss of roosting and foraging habitat for bats. Temporary impacts may also result from project-related disturbances such as noise or vibration from use of heavy machinery used near roost sites. This may result in a ***potentially significant*** impact; therefore, mitigation is required.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM4 Off Road Speed Limit (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM15 Temporary Vehicle Access to Work Areas (described above)

G-AMM17 Night Lighting (described above)

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-13: Conduct a Pre-construction Roosting Bat Survey Prior to Tree Removal or Trimming. A qualified biologist shall conduct a pre-construction survey of all trees proposed for removal or trimming within the substation site for the presence of bat roosts. Surveys will be conducted between February 16 to September 30. Surveys will entail direct inspection of trees, including around the base within piles of leaf litter, or nocturnal surveys. The survey shall occur no more than 2 weeks prior to the removal or trimming of trees within the substation site. If roosting habitat is present and occupied, then a qualified biologist shall determine the type of roost. If roosting bats are found within the substation site outside of the inactive season (November 1 to February 15) and the maternity season (April 1 to September 30), the bats may be excluded from the roost using methods developed by a qualified biologist experienced in developing and implementing bat mitigation and exclusion plans in coordination with CDFW. If bats are found to be roosting within the substation site during the inactive season or the maternity season, the roost must be avoided or relocated in consultation with CDFW. Removal of bat roost trees would be conducted in two phases: the tree will be limbed on day 1 and the tree will be removed on day 2.

Significance after Mitigation

With the implementation of Mitigation Measure G-AMM 2 through 5, 11, 14, 15, 17, BIO-1, and BIO-13, potential impacts to roosting bats will be reduced to a ***less-than-significant*** level.

American Badger

No American badgers were identified within the substation site during the 2025 biological surveys, but suitable habitat is present throughout the Project area. Project activities may have impacts to individuals or dens located within the substation and/or overhead line corridor. Impacts to grasses and forbs land cover within the substation site and overhead line corridor may result in a temporary and permanent loss of habitat for American badgers. Temporary impacts may also result from Project-related disturbances such as noise or vibration from use of heavy machinery used near den sites. If active American badger dens are present, construction activities occurring during the natal season (between March 15 and June 15), such as ground disturbance and presence of construction equipment and crews, could generate noise and visual stimuli that may result in disturbance to active dens, and potentially resulting in den abandonment. Den abandonment may result in death of cubs if the adult badger does not return to the den. This may result in a ***potentially significant*** impact; therefore, mitigation is required.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM4 Off Road Speed Limit (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM15 Temporary Vehicle Access to Work Areas (described above)

G-AMM17 Night Lighting (described above)

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-7: Special-status Species Encounter (described above)

Mitigation Measure BIO-14: Conduct a Pre-construction American Badger Survey Prior to Ground Disturbance. A qualified biologist shall conduct a pre-construction survey of suitable habitat at the substation site and overhead line corridor work limits within 7 days prior to the initiation of construction. The goal of the survey is to search for potentially active badger dens. If potential dens for American badger are detected during the pre-construction survey, the biologist will determine if the den is active. If the den is deemed inactive or unoccupied, no additional measures are needed. If an American badger is denning on or within 50 feet of the project work limits, SMUD shall avoid the den by a minimum 50-foot buffer. If an active den cannot be avoided, an avoidance or eviction plan must be developed and implemented in coordination with CDFW.

Significance after Mitigation

With the implementation of Mitigation Measure G-AMM 2 through 5, 11, 14, 15, 17, BIO-1, BIO-7, and BIO-14, potential impacts to American badgers will be reduced to a ***less-than-significant*** level.

Special-status Plants

As discussed above, no special-status plant species are expected to occur within the proposed substation site. However, special-status plants could be present along the overhead line corridor. The new and upgraded overhead line poles have the potential to adversely affect special-status plants (Appendix B). The avoidance and minimization measures described below would reduce potential impacts to special-status plants.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM4 Off Road Speed Limit (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM6 Erosion Control Measures (described above)

G-AMM7 Equipment Refueling (described above)

G-AMM8 Hazardous Materials Clean Up (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM12 Excess Soil (described above)

G-AMM13 Soil Management (described above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM15 Temporary Vehicle Access to Work Areas (described above)

G-AMM18 Unanticipated Covered or ESA and CESA-Listed Species (described above)

VP-AMM4 Avoid Occupied Orcutt Grass Habitat.

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-7: Special-status Species Encounter (described above)

Mitigation Measure BIO-15: Conduct Preconstruction Plant Surveys within Overhead Line Corridor Work Limits and Implement Avoidance Measures. A qualified botanist/biologist will conduct a botanical survey of the pole replacement and installation work limits prior to the initiation of construction activities within suitable land cover for special-status plants along the overhead line corridor. The survey will follow the CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018) along with the CNPS and USFWS survey protocols. The survey(s) would occur during the appropriate blooming period for the special-status plant species with potential to occur within the overhead line corridor.

If no special-status plant species are found, no further avoidance measures are required.

If special-status plant species are found during botanical surveys, the following measures would be implemented:

- If a federally listed plant species (slender Orcutt grass or Sacramento Orcutt grass) is found, the SMUD HCP avoidance and minimization measures identified in the covered plant conservation strategy would be implemented. This includes the implementation of VP-AMM4 Avoid Occupied Orcutt Grass Habitat as described above.

- If a state-listed plant is found within the overhead line corridor work limits, the botanist will map the extant boundaries of the population and record the number of individuals present. An avoidance buffer along with exclusion fencing will be placed around the area to avoid disturbance to the plants to the greatest extent possible. If avoidance is not possible, SMUD will consult with CDFW to develop mitigation and/or compensation measures necessary to avoid adverse effects to the population.

- If a CNPS-listed plant is found within the overhead line corridor work limits, the botanist will map the extant boundaries of the population and record the number of individuals present. An avoidance buffer along with exclusion fencing will be placed around the area

to avoid disturbance to the plants to the greatest extent possible. Where it is not feasible to avoid special-status plants locations within the construction areas, seed collection and transplanting shall be performed for annual plant species in affected areas. Prior to excavation work in areas that support occupied special-status plant habitat, the topsoil (roughly the first 3-4 inches of soil where dormant seeds would be present) will be removed and stockpiled onsite. After finished grades generally have been achieved, the stockpiled topsoil will be redistributed within disturbed areas in the project area. In particular, the soil should be redistributed into areas that provide appropriate/suitable habitat for the species. Stockpiled topsoil will be protected from wind and water erosion and from compaction. In areas where topsoil has been spread, equipment traffic will be limited, to the extent practicable, to minimize compaction. Post construction, areas where topsoil was spread will be protected from wind and water erosion until after the next growing season (spring/summer) using typical stabilization methods. If hydroseeding is used, hydroseed will be comprised of a native seed mix.

Significance after Mitigation

With the implementation of Mitigation Measure G-AMM 2 through 8, 11 through 15, 18, VP-AMM4, BIO-1, BIO-7, and BIO-15, potential impacts to special-status plant species will be reduced to a ***less-than-significant*** level.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?

Riparian habitat is not present within the substation site. Elder Creek, an intermittent stream, flows under Jackson Road at its intersection with Excelsior Road, immediately west and north of the substation site. Sensitive natural communities within the substation site and overhead line corridor include wetlands, which are discussed further in question c. Elder Creek is classified as Riverine Intermittent Streambed (R4SB) using the *Classification of Wetlands and Deepwater Habitats of the United States* (FGDC 2013). Table 3.4-2 summarizes impacts to land cover types within the substation site and Figure 3.4-2 identifies impacts to all land cover types within the substation site. Construction of the proposed project would avoid impacts to Elder Creek, and implementation of the SWPPP would minimize impacts to water quality.

The SMUD HCP identified valley foothill riparian land cover along Morrison Creek southeast of Jackson Road and Bradshaw Road. The existing overhead line poles along Jackson Road are more than 30 feet from the Morrison Creek riparian land cover, so replacement of these poles would not affect this riparian habitat. During construction, implementation of the SWPPP would minimize impacts to water quality. Upgrades to the overhead line poles would avoid riparian and stream habitat.

The proposed project would have ***a less than significant*** impact on sensitive natural communities, and no mitigation is required. Mitigation measures to further reduce impacts on sensitive natural communities are discussed under question c, below.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means?

An aquatic resources delineation was conducted at the substation site to delineate aquatic resources and wetlands in accordance with U.S. Army Corps of Engineers guidelines (AWE 2025). Several aquatic features were identified within the substation site, including seasonal wetlands, vernal pools, seasonal swales, and open water, which may be regulated under Section 401 and 404 of the Clean Water Act (CWA), California Fish and Game Code Section 1602, or Porter-Cologne Water Quality Control Act. Temporary and permanent impacts to all land cover types at the substation site are summarized in Table 3.4-2.

Additionally, there are streams, creeks, seasonal swales, vernal pools, and seasonal wetlands along or adjacent to the overhead line corridor. Design for the new and replacement poles is ongoing; however, the pole replacements would be designed to avoid these sensitive natural communities to the extent practicable. Temporary impacts to wetlands may occur through construction site access and staging.

The project would result in 1.99 acres of permanent impacts to potentially jurisdictional wetlands (seasonal swale, seasonal wetland, vernal pool, and vernal swale) and 2.30 acres of permanent impact to other waters (open water) within the substation site from site preparation and grading; installation of concrete foundations for the control building, transformers, circuit breakers, and other equipment; and the installation of paved access roads. Work activities adjacent to wetland features within the substation site and overhead line corridor may also result in temporary impact through sediment runoff into the features. Therefore, the project would have a ***potentially significant*** impact on wetlands, and mitigation is required.

G-AMM2 Minimize Impacts of Work Area (described above)

G-AMM3 Work Area Access (described above)

G-AMM4 Off Road Speed Limit (described above)

G-AMM5 Work Area General Guidelines (described above)

G-AMM6 Erosion Control Measures (described above)

G-AMM7 Equipment Refueling (described above)

G-AMM8 Hazardous Materials Clean Up (described above)

G-AMM11 Stabilization of Disturbed Areas (described above)

G-AMM12 Excess Soil (describe above)

G-AMM14 Revegetation of Work Areas (described above)

G-AMM15 Temporary Vehicle Access to Work Areas (described above)

Mitigation Measure BIO-1: Environmental Awareness Training for Construction Personnel (described above)

Mitigation Measure BIO-2: Compensate for Impacts to Wetlands and Aquatic Species Habitat (described above)

Significance after Mitigation

The proposed project will require the implementation of the SWPPP which includes the incorporation of project-specific BMPs to reduce impacts to water quality. With the SWPPP and Mitigation Measures G-AMM 2 through 8, 11, 12, 14, 15, BIO-1, and BIO-2, the proposed project would minimize impacts to wetlands and compensate for the loss of wetlands and waters of the U.S. and State. As a result, the project impact to wetlands would be reduced to a ***less-than-significant*** level.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites?

The project area falls within a Terrestrial Connectivity – ACE layer. The Terrestrial Connectivity layer was developed to show a comprehensive overview of essential corridors and linkages in California at a finer scale. The purpose of the Terrestrial Connectivity – ACE layer is to 1) provide a broad overview of statewide connectivity based on the most up-to-date information; 2) assess potential connectivity importance in every hexagon (2.5 square miles) across the state; and 3) serve as a spatial library of existing connectivity studies (CDFW 2019). This layer uses a scoring system that was designed to bring together connectivity information at multiple scales, giving each hexagon a Connectivity Rank of 1-5 (with 1 being low and 5 being high connectivity) based on the conservation importance of connectivity based on the best available data (CDFW 2019). According to this layer, the project vicinity falls within a hexagon ranked 4 (Conservation Planning Linkages). This means the substation site and overhead line corridor is an area where habitat connectivity linkages have been previously mapped. Habitat connectivity linkages are often based on species-specific models and represent the best connections between core natural areas to maintain habitat connectivity (CDFW 2019).

The California Fish Passage Assessment Database is an inventory of known and potential barriers to anadromous fish within California. A total barrier is present between Elder Creek and the Sacramento River and between Morrison Creek and the Sacramento River, according to the Passage Assessment Database, preventing anadromous fish from the Sacramento River from reaching Elder Creek or Morrison Creek and the project vicinity (CDFW 2025ab).

Construction and operation of the proposed project would not prevent or substantially interfere with the movement of wildlife through migratory corridors, and no wildlife nursey sites are located within the project area; therefore, this impact is ***less than significant***, and no mitigation is required.

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

The construction of the substation would require the removal of 21 trees, including one interior live oak tree with a diameter at breast height (dbh) of 20 inches. Due to the species and size of the interior live oak tree, the tree qualifies as a protected native oak tree under the Sacramento County Tree Preservation Ordinance.

The County Tree Ordinance §19.12.040 defines protected trees and §19.12.0460 requires a tree permit as follows:

> *Native Oak Tree: Shall include any of the following: valley oak (Quercus lobata), interior live oak (Quercus wislizenii), blue oak (Quercus douglasii), or oracle oak (Quercus morehus).*
>
> *Tree: As used in this chapter, a "tree" shall mean any living native oak tree having at least one trunk of six inches or more in diameter measured four and one-half feet above the ground, or a multi-trunked native oak tree having an aggregate diameter of ten inches or more, measured four and one-half feet above the ground (dbh).*
>
> *Tree Permit: No person shall trench, grade or fill within the dripline of any tree or destroy, kill or remove any tree as defined, in the designated urban area of the unincorporated area of Sacramento County, on any property, public or private, without a tree permit, or unless authorized as a condition of a discretionary project approval by the Board of Supervisors, County Planning Commission, Zoning Board of Appeals, the Zoning Administrator or the Subdivision Review Committee.*

The proposed project shall comply with Sacramento County's Tree Preservation Ordinance by obtaining a tree permit to alter or remove the native oak onsite. Therefore, this impact is ***less than significant***, and no mitigation is required.

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?

The proposed project would not conflict with the implementation of the SMUD HCP. Per the SMUD HCP, impacts to SMUD HCP covered species (slender Orcutt grass, Sacramento Orcutt grass, vernal pool fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, California tiger salamander, and giant garter snake) would be avoided and minimized to the maximum extent feasible and all remaining impacts would be mitigated according to the approved mitigation ratios with equal or higher value habitat. Incidental take coverage of vernal pool fairy shrimp and vernal pool tadpole shrimp for the project would be obtained by the SMUD HCP.

The proposed project also would be located within the SSHCP. The SSHCP identifies eight Preserve Planning Units (PPUs). The substation site is within PPU 3, which was acquired to maintain landscape functions of the remaining vernal pool ecosystem, capture known occurrences of rare plants, and maintain north-south wildlife movement between Jackson Road, Laguna Creek, and Calvine Road. The project is not located in an existing preserve, proposed

conservation area, or mapped critical habitat for SSHCP covered species. SMUD is not a participating entity of the SSHCP and would not seek coverage under the SSHCP, rather coverage would be obtained by the SMUD HCP.

The proposed project has been designed to minimize impacts to sensitive biological resources protected under the SMUD HCP to the extent practical. SMUD has integrated avoidance and minimization measures from the SMUD HCP into the mitigation measures to reduce impacts associated with the project to plants, wildlife, and aquatic resources to less-than significant levels. As such, the proposed project would not conflict with the provisions of the SMUD HCP or SSHCP. This impact is ***less than significant***, and no mitigation would be required.

3.5 Cultural Resources

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☒
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

3.5.1 Environmental Setting

Ethnographic and archaeological research in the region by western academics has led to the development of a cultural chronology and context that can be used to interpret the archaeological record. Early ethnographers wrote that the Plains Miwok and Nisenan Tribal groups lived in the project area during European contact, and American archaeologists have attributed archaeological sites and artifacts in this area to those ancestral groups. California's Central Valley has long held the attention of archaeologists, and was a focus of early research in California. Archaeological work through the twentieth century established, reiterated, and refined a general cultural chronology for the Sacramento Valley, identifying three overarching archaeological cultures and time periods, named Early, Transitional, and Late. These periods were associated with three cultural patterns, defined to reflect the general sharing of lifeways within groups in a specific area. The Windmiller pattern of the Early Horizon included cultural patterns dating from 5,000 to 3,000 BP; the Berkeley Pattern of the Middle Horizon (also known as the Cosumnes cultural pattern after Ragir 1972), included cultural patterns dating from 3,000 BP to AD 500; and the Augustine Pattern of the Late Horizon included the cultural patterns from AD 500 to the historic period (Beardsley 1948, 1954; Fredrickson 1973, 1974, and 1994; Heizer 1949; and Lillard et al. 1939).

In the early twenty-first century, Rosenthal, White, and Sutton (2007) recalibrated the sequence to be divided into three broad periods: The Paleoindian Period (11,550 to 8,550 cal. BC); the three-staged Archaic period, consisting of the Lower Archaic (8,550 to 5,550 cal. BC), Middle Archaic (5,550 to 550 cal. BC), and Upper Archaic (550 cal. BC to cal. AD 1100); and the Emergent Period (cal. AD 1100 to Historic) (Rosenthal et al. 2007). The three divisions of the Archaic Period correspond to climate changes. The aforementioned periods are characterized by the following:

Paleo-Indian Period: This period began when the first people began to inhabit what is now known as the California culture area. It was commonly believed these first people subsisted on big game and minimally processed foods, (i.e., hunters and gatherers), presumably with no trade networks. More recent research indicates these people may have been more sedentary,

relied on some processed foods, and traded (Rosenthal et al. 2007). Populations likely consisted of small groups traveling frequently to gather food and resources.

Archaic Period: This period was characterized by evidence of increased plant use, more elaborate burial accoutrements, and increase in trade network complexity (Bennyhoff and Fredrickson 1994). The three divisions that correspond to precontact climate change are characterized by the following aspects (Rosenthal et al. 2007):

Lower Archaic Period—characterized by cycles of widespread floodplain and alluvial fan deposition. Artifact assemblages from this period include chipped stone crescents and early wide-stemmed points, marine shell beads, eastern Nevada obsidian, and obsidian from the north Coast Ranges. These types of artifacts found on sites dating to this period indicate trade was occurring in multiple directions. A variety of plant and animal species were also utilized, including acorns, wild cucumber, and manzanita berries.

Middle Archaic Period—this period is characterized by a drier climate period. Rosenthal et al. (2007:153) identified two distinct settlement/subsistence patterns in this period: the Foothill Tradition and the Valley Tradition. Functional artifact assemblages, consisting primarily of locally sourced flaked-stone and groundstone cobbles, characterize the foothills tradition, while the Valley Tradition was generally characterized by diverse subsistence practices and extended periods of sedentism.

Upper Archaic Period—this period is characterized by abrupt change to wetter and cooler environmental climate conditions. Much greater cultural diversity is evident from this period. More specialized artifacts, such as bone tools, ceremonial blades, polished and groundstone plummets, saucer and saddle *Olivella* shell beads, *Haliotis* shell ornaments, and a variety of groundstone implements are characteristic of this period.

Emergent Period: This period is most notably marked by the introduction of the bow and arrow, the emergence of social stratification linked to wealth, and more expansive trade networks signified by the presence of clam disk beads that were used as currency (Moratto 1984). It is characterized by the appearance of small projectile points (largely obsidian), rimmed display mortars, flanged steatite pipes, flanged pestles, and chevron-designed bird-bone tubes. Large mammals and small seeded resources appear to have made up a larger part of the diet during this period (Fredrickson 1968; Meyer and Rosenthal 1997).

Historical Setting

Sacramento County History

Highway 16, also called Jackson Road, was initially developed in the late 1840s as a route from Sacramento to the mining trading center of Jackson in Amador County, and to foothill gold camps. Rural farmsteads developed along this “Sacramento and Jackson Road” within Brighton Township beginning in the 1850s. Historically, land ownership in Brighton Township ranged from 160 to 500 acres with stock raising, hay, and grain as the primary focus of the agriculture in the area, and into the twentieth century, small acreages of vineyards and orchards were planted with limited success when compared to other parts of Sacramento County. The Sacramento and Jackson Road was paved in 1907, which spurred additional development in the region with an improved transportation route; however, the roadway was not brought into the

state highway system until the 1950s when adopted by the Department of Transportation as State Route 16. Beginning in the 1920s and continuing into the post-World War II period, smaller farms with rural residential homes sprang up along Jackson Road as the historically larger parcels were sold off and divided (Britton & Rey 1885; USGS 1911; JRP 1996:2-6; UCSB 1937).

In the post-World War II period, the character of Jackson Road corridor in the area has shifted from primarily scattered farmsteads engaged in agriculture to a mixture of light industrial, surface mining, cemeteries, large church/community centers, small acreage rural residential development, and equestrian properties. The route continues as a heavily trafficked transportation corridor connecting smaller communities in rural Sacramento and Amador Counties to the City of Sacramento (Nationwide Environmental Title Search 2019; UCSB 1961; UCSB 1952; UCSB 1981).

3.5.2 Literature Review

The following discussion is based, in part, on a cultural resources report and subsequent addendum prepared for the substation site and overhead line corridor (AECOM 2019, 2026; Appendix C).

Around the time SMUD purchased the substation site parcels, a cultural resources report was prepared, which included a records search at the NCIC (AECOM 2019). SMUD then refined the proposed substation project in April 2024 but had yet to add the proposed overhead line corridors. Due to the passage of time, a new records search of the substation parcels and a 0.25-mile radius was conducted on April 30, 2024, at the NCIC. The results of the records search identified the same two previously recorded cultural resources from the 2019 records search results, P-34-002106 and P-34-004822, and a newly identified resource within the substation site property boundary of 6037 Excelsior Road, P-34-005324 (NCIC File No. SAC-24-66). The newly identified resource (P-34-005324) is a pair of black locust trees that were recorded in 2017 as remnants of a planned landscape from a now demolished, historic-era residence that was at this location. It is unknown why this recordation was not included as part of the 2019 search results.

After the April 2024 NCIC records search and subsequent January 2025 pedestrian survey by AECOM, SMUD revised the proposed project to include the overhead line corridors extending east, west, and south of the proposed substation. A supplemental NCIC records search was completed in September 2025 that included these project elements. SMUD also shared the three previously recorded cultural resources records (P-34-002106, P-34-004822, and P-34-005324), as well as five additional resources that intersect the newly proposed transmission lines (P-34-001627, P-34-002474, P-34-005303, P-34-005339, and P-34-005400) with AECOM (NCIC File No. SAC-25-36).

3.5.3 Field Inventory and Findings

January 2025 Survey Results

Based on the project description and April 2024 NCIC records search and the Assembly Bill (AB) 52 Notification letters sent by SMUD in February 2024, AECOM Archaeologist Zenzi Moore-Dawes accompanied by Wilton Rancheria Tribal Monitor Tacante Thomas, conducted a

pedestrian survey on the proposed substation parcels APN 067-0050-039 and 067-0050-040 on January 6, 2025. Fifteen-meter parallel transects were utilized to cover the proposed substation site. Overall surface visibility was low due to dense grass and pools of water. No cultural materials were observed during this survey.

December 2025 Survey Results

Following the addition of the overhead line corridor improvements and receipt of the updated records search results, AECOM archaeologists Kenny Robertson and Katie Sage conducted a pedestrian archaeological survey on December 5, 2025 of the proposed substation site and overhead line corridors, and re-located the previously recorded cultural resources within the project area. No new cultural resources were observed or required recordation. Likewise, all of the previously recorded resources were revisited by AECOM archaeologists, but none of the site records were updated as part of the survey effort.

Findings

Based on a review of records search results from the NCIC and two pedestrian surveys in 2025 of the proposed substation site and overhead line corridors, there are eight previously recorded cultural resources that are within the project area. No new cultural resources were observed during the two pedestrian surveys in 2025.

None of the previously recorded cultural resources have been evaluated for eligibility for listing in the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP). There is no indication that any of these resources would rise to the level of significance required for eligibility in either register, and would not be considered historical resources for the purposes of CEQA.

3.5.4 Impacts and Mitigation Measures

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

As described above, no historical resources were identified on the proposed substation site or overhead line corridors. Therefore, construction and operation of the proposed project would have **no impact** on historical resources.

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

The records search results from the NCIC and two pedestrian surveys in 2025 revealed eight previously recorded historic-age cultural resources in the project area. The previously identified sites do not appear to be eligible; therefore, they are not considered unique archaeological resources. However, project-related ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. These activities could damage or destroy previously undiscovered archaeological resources. This impact would be ***potentially significant***.

Mitigation Measures

Mitigation Measure CUL-1a: Worker Awareness Training

A cultural resources awareness and respect training program will be provided to all construction personnel active on the project site prior to implementation of earth moving activities. A representative or representatives from culturally affiliated Native American Tribe(s) will be invited to participate in the development and delivery of the cultural resources training in coordination with a qualified archaeologist meeting the United States Secretary of Interior guidelines for professional archaeologists. The program will include relevant information regarding sensitive Tribal cultural resources, including protocols for resource avoidance, applicable laws regulations, and the consequences of violating them. The program will also underscore the requirement for confidentiality and culturally appropriate treatment of any find of significance to Native Americans and protocols, consistent, to the extent feasible, with Native American Tribal values.

Mitigation Measure CUL-1b: Unanticipated Cultural Resources Discovery

In the event of an inadvertent discovery of cultural resources (excluding human remains or Tribal Cultural Resources [TCRs]) during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for precontact and historic archaeology, shall be retained to assess the significance of the find. If the find is determined to be significant by the qualified archaeologist (i.e., because it is determined to constitute either a historical resource, unique archaeological resource, or tribal cultural resource), the archaeologist shall develop appropriate procedures to protect the integrity of the resource and ensure that no additional resources are affected. Procedures could include, but would not necessarily be limited to, preservation in place (which shall be the preferred manner of mitigating impacts to archaeological sites), archival research, subsurface testing, or contiguous block unit excavation and data recovery (when it is the only feasible mitigation, and pursuant to a data recovery plan). If the discovery constitutes a TCR, any data recovery shall be in coordination with Tribes. Curation of resources is not recommended under Tribal protocol and reburying of resources where, or in close proximity to where they were excavated, is preferred.

Significance after Mitigation

Mitigation Measure CUL-1a provides Tribes an opportunity to be involved in awareness training of construction personnel, protocols for resource avoidance and notification in the event of an inadvertent discovery, and applicable laws and regulations relating to the protection of cultural resources. Mitigation Measure CUL-1b provides appropriate actions for inadvertent discovery of cultural resources (excluding human remains, which are addressed below). Implementation of Mitigation Measures CUL-1a and CUL-1b would reduce potential impacts on previously undiscovered cultural resources to a less-than-significant level because compliance with the above-listed procedures would address concerns about loss of, or substantial adverse changes to, significant cultural resources. If an inadvertent discovery of cultural materials is made during project-related construction activities, disturbances in the area of the find must be halted and appropriate treatment and protection measures must be implemented, all in consultation with a

professional archaeologist and/or Native American monitor. As a result, this impact would be ***less than significant with mitigation*.**

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

Project construction would involve grading, trenching, excavation, and potentially other earthmoving activities. There has been no indication or evidence that the area has been used for human burials in the recent or distant past; therefore, human remains are unlikely to be encountered. However, in the unlikely event that human remains are discovered during subsurface activities, they could be inadvertently disturbed and damaged. Therefore, this impact would be ***potentially significant***.

Mitigation Measure CUL-2: Unanticipated Human Remains

Pursuant to Sections 5097.97 and 5097.98 of the State Public Resources Code, and Section 7050.5 of the State Health and Safety Code, if a human bone or bone of unknown origin is found during construction, all work is to stop and the County Coroner and the District shall be immediately notified. If the remains are determined to be Native American, the coroner shall notify the Native American Heritage Commission within 24 hours, and the Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent from the deceased Native American. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposition of, with appropriate dignity, the human remains and any associated grave goods.

Significance after Mitigation

Mitigation Measure CUL-2 provides appropriate actions for inadvertent discovery of human remains. If remains are encountered, the above-described mitigation measure would require compliance with the procedures in the California Section 7050.5 of the Health and Safety Code and Public Resources Code 5097.98. Public Resources Code Section 5097.94 identifies the responsibilities for acting upon notification of a discovery of Native American human remains. These procedures are specifically designed to reduce the potential adverse impacts of project implementation related to human remains by requiring that the human remains are treated in an appropriate and respectful manner and in accordance with applicable laws and regulations. As a result, this impact would be ***less than significant with mitigation***.

3.6 Energy

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Result in potentially significant environmental 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?	☐	☐	☐	☒

3.6.1 Environmental Setting

The energy production landscape in California is built on regional power systems composed of a diverse mix of natural gas, petroleum, hydroelectric, nuclear and renewable generation resources. All electric services in the project area are provided by SMUD. SMUD delivers electricity to an approximately 900-square-mile area within Sacramento County, serving 1.5 million people. SMUD's primary power sources for its general mix include renewables (i.e., biomass, geothermal, solar, wind, eligible hydroelectric) (40 percent), natural gas (38 percent), and large hydroelectric (22 percent) (SMUD 2024b). In addition, SMUD offers voluntary clean energy programs to its customers, such as Greenergy, which supply electricity from renewable resources, including wind and solar.

3.6.2 Impacts and Mitigation Measures

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

Project-related energy consumption is largely associated with construction activities, which would consume energy in the form of diesel and gasoline fuels to power construction-related equipment and on-road vehicles. Project operational energy requirements would be limited to transportation energy for routine operations and maintenance personnel traveling to and from the site.

Construction energy use (i.e., fuel consumption due to equipment and vehicle use) was estimated using the CalEEMod carbon dioxide (CO_2) emissions calculations for the proposed construction activities and application of the U.S. Energy Information Administration's CO_2 emissions coefficients (EIA 2024) to estimate fuel consumption for construction activities. For additional details related to the methodology used to estimate the construction-related CO_2 emissions, refer to Section 3.3, "Air Quality," and Section 3.8, "Greenhouse Gas Emissions." See Appendix A for a detailed summary of energy calculations and assumptions.

Table 3.6-1 summarizes the total diesel and gasoline fuel consumptions required during the project's construction activities.

Table 3.6-1. Construction-Related Energy Consumption

Fuel Type	Total Energy Requirement (gallons)
Diesel	100,327
Gasoline	23,552

Source: Estimated by AECOM in 2026. See Appendix A for detailed modeling assumptions, outputs, and results.

Based on the anticipated phasing of the proposed project construction activities, the anticipated equipment and construction work staff, the temporary nature of construction, and the project type, the proposed project would not include unusual characteristics that would necessitate the use of construction equipment that is less energy-efficient than the equipment used at comparable construction sites.

After construction, operation and maintenance of the substation would require a negligible amount of on-site electricity for integration of the substation elements, such as security lighting. Fuel consumption associated with the occasional maintenance and inspection activities would occur periodically; it is anticipated that routine maintenance and inspections would require up to two roundtrips per day. These maintenance trips would be essential to ensuring resiliency of the proposed substation in supplying energy to customers within the SMUD service area. Furthermore, the objective of the proposed project is to provide safe and reliable electrical service to existing and proposed development along the Jackson Corridor. Therefore, the proposed project would not result in inefficient, wasteful, or unnecessary consumption of energy resources. This impact would be ***less than significant***.

In addition, construction contractors are required, in accordance with Mitigation Measure AQ-1a (see Section 3.3.2) and the CARB Airborne Toxic Control Measure for Diesel-Fueled Commercial Motor Vehicle Idling, to minimize the idling time of construction equipment by shutting equipment off when it is not in use or reducing the idling time to 5 minutes. Per Mitigation Measure AQ-1a, construction contractors would also be required to maintain and properly tune all construction equipment in accordance with the manufacturer's specifications. These required practices would further reduce energy consumption and increase efficiency.

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

As discussed above, the proposed project would not result in the inefficient, wasteful, or unnecessary consumption of energy resources. Furthermore, the proposed project would not involve the construction or installation of any new significant energy-consuming buildings, structures, or equipment.

The proposed project is not using land that is otherwise slated for renewable energy production and does not otherwise conflict with any state or local renewable energy plans. Construction waste, including vegetation and soils from land clearing, would be appropriately reused, recycled, or diverted from disposal, as required by the 2025 CALGreen code, or whatever the most current code is at the time of construction. The purpose of the proposed project is to meet SMUD's goals of ensuring electrical service reliability to existing and proposed development along the Jackson Corridor. Maintaining electrical service reliability is one of the elements in SMUD's overall 2030 Clean Energy Vision and Zero Carbon Plan. The proposed project would also not impede progress toward the state's Renewable Portfolio Standards (RPS) or SMUD's

clean energy goals, or implementation of energy efficiency programs. Thus, the proposed project would not conflict with any energy-related strategies or obstruct any state or local plans for renewable energy or energy efficiency, and there would be ***no impact***.

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3.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause 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 California Geological Survey Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

3.7.1 Environmental Setting

Seismicity

The project area is situated near the southeastern edge of the Sacramento Valley; this area historically has not been seismically active (Jennings and Bryant 2010). The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was created to help reduce the loss of life and property from an earthquake by prohibiting the construction of structures designed for human occupancy across the traces of active faults. The project area is not located within or

near a fault designated under the Alquist-Priolo Act, or any other known active or potentially active fault (California Geological Survey [CGS] 2024, Jennings and Bryant 2010). Ground shaking—motion that occurs as a result of energy released during faulting—could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the distance to the epicenter, and site soil conditions. Calculations of earthquake shaking hazard for California are part of a cooperative project between the USGS and CGS, and are part of the National Seismic Hazard Mapping program. Earthquake shaking hazards are calculated by projecting earthquake rates based on earthquake history and fault slip rates, the same data used for calculating earthquake probabilities. Fault parameters are developed for these calculations by the Working Group on California Earthquake Probabilities. The 2016 map showing the probabilistic Earthquake Shaking Potential for California (Branum et al. 2016) indicates that the project area is rated with a very low potential shaking hazard intensity (i.e., 0.25g), which is calculated as the level of ground motion that has a 2% chance of being exceeded in 50 years. Regions in the low intensity categories are distant from known, active faults and are projected to experience lower levels of shaking less frequently.

The groundwater table is relatively deep, approximately 120 feet below the ground surface (California Department of Water Resources 2024); the project area is composed of stable, Pliocene-age deposits (Gutierrez 2011); and the project area and the surroundings range from flat to gently sloping. Therefore, liquefaction and landslides would not represent hazards in the project area.

Soils

A review of U.S. Natural Resources Conservation Service (NRCS) soil survey data indicates that nearly the entire substation site is composed of the Red Bluff-Redding complex, 0 to 5 percent slopes; all of the proposed on-site facilities would be constructed in this soil type (NRCS 2024). The primary soil types associated with the proposed project (both within the substation site and overhead line corridor), along with relevant soil characteristics, are presented in Table 3.7-1.

Table 3.7-1. Soil Types and Characteristics[1]

Soil Name	Wind Erosion Hazard[2]	Water Erosion Hazard[3]	Shrink-Swell Potential[4]	Stormwater Runoff[5]
Substation Site				
Red Bluff-Redding complex, 0 to 5 percent slopes	Low	Moderate	Moderate	High
Overhead Line Corridor Along Jackson Road				
Hedge loam, 0 to 2 percent slopes	Moderate	Moderate	Low	Very High
Red bluff loam, 0 to 2 percent slopes	Low	Moderate	Moderate	High
San Joaquin silt loam, 0 to 3 percent slopes	Low	Moderate	Low	High
San Joaquin silt loam leveled, 0 to 1 percent slopes	Low	Moderate	Low	High
Red Bluff-Redding complex, 0 to 5 percent slopes	Low	Moderate	Moderate	High
Redding gravelly loam, 0 to 8 percent slopes	Low	Moderate	Low	Very High
Overhead Line Corridor South of Substation Site				
Red Bluff-Redding complex, 0 to 5 percent slopes	Low	Moderate	Moderate	High
Redding gravelly loam, 0 to 8 percent slopes	Low	Moderate	Low	Very High

Notes
[1] Table includes only the primary soil types; minor amounts of other soil types are not listed.
[2] Based on the Wind Erodibility Group.
[3] Based on the erosion factor "Kw Whole Soil," which is a measurement of relative soil susceptibility to sheet and rill erosion by water.
[4] Based on the Plasticity Index.
[5] Based on the Hydrologic Group. Group "C" and "D" soils have a slow to very slow infiltration rate and thus a high to very high potential for stormwater runoff. For dual classes (i.e., C/D), the more severe rating was used.
Source: NRCS 2025

Soil Suitability for Septic Systems

For a septic system to function properly, soils must percolate (or "perc") properly—that is, a certain volume of wastewater must flow through the soil in a certain time period, as determined by a licensed geotechnical engineer. Wastewater is "treated" as soil bacteria feed on the waste material and in the process, breaking down the material into more basic elements that are dispersed into the lower layers of the soil horizon. If wastewater percolates through the soil too quickly, there is insufficient time for the bacteria to digest this material. Conversely, if wastewater percolates through the soil too slowly, the bacteria die from oxygen deprivation.

Based on a review of NRCS (2024) soil survey data, the substation site soils are rated as "very limited" for septic tank absorption fields due to a shallow depth to a water saturated zone, potential for flooding, slow water movement, and a shallow depth to a cemented hardpan. The NRCS ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. It should be noted that these are standard ratings that may not reflect site-specific geotechnical or hydrological conditions.

Paleontological Resources

The project area is located in the southeastern Sacramento Valley. The Sacramento Valley is part of the Great Valley Geomorphic Province, which is a forearc basin composed of thousands of feet of sedimentary deposits that has undergone periods of subsidence and uplift over millions of years. Alluvial deposits outcrop at the surface and extend to a depth of over 1,000 feet, overlying the deeply buried bedrock units in the mid-basin areas of the valley. In the project area, the alluvial deposits are primarily composed of sediments from the Sierra Nevada to the east, which were carried by water and deposited on the valley floor.

Based on a review of geologic mapping prepared by Gutierrez (2011), the substation site, the overhead line corridor immediately to the southeast and southwest, and the overhead line corridor along Jackson Road southeast of the substation site, are composed of the Laguna Formation. The overhead line corridor along Jackson Road northwest of the substation site is composed of the Laguna Formation for the first mile, and the Riverbank Formation thereafter to the end of the northwestern alignment. These formations are discussed separately below.

The Riverbank Formation is of late Pleistocene age (approximately 130,000 to 450,000 years Before Present). The Riverbank Formation is composed of weathered reddish gravel, sand, and silt comprising older alluvial fans and terraces of major rivers and streams in the Sacramento Valley (Helley and Harwood 1985).

The Laguna Formation, which is of Pliocene age (approximately 5 million years Before Present), consists of interbedded alluvial gravel, sand, and silt. Pebbles and cobbles of quartz and metamorphic rock fragments generally dominate the gravels. It was deposited by ancestral west-flowing rivers such as the Feather, Yuba, Bear, and American (Helley and Harwood 1985). Olmsted and Davis (1961) indicated that the Laguna Formation probably extends downward approximately 500 feet in the eastern portion of the Sacramento Valley but may be more than 1,000 feet thick near the axis (in the center) of the valley.

Paleontological Sensitivity Assessment Criteria

A paleontologically sensitive geologic formation is one that is rated high for potential paleontological productivity (i.e., the recorded abundance and types of fossil specimens, and the number of previously recorded fossil sites) and is known to have produced unique, scientifically important fossils. Exposures of a specific geologic formation at any given project site are most likely to yield fossil remains representing particular species or quantities similar to those previously recorded from that geologic formation in other locations. Therefore, the paleontological sensitivity determination of a rock formation is based primarily on the types and numbers of fossils that have been previously recorded from that formation.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society of Vertebrate Paleontology (SVP 2010) established four categories of sensitivity for paleontological resources: high, low, no, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas consisting of high-grade metamorphic rocks (e.g., gneisses and schists) and plutonic igneous rocks (e.g., granites and diorites) are considered to have no sensitivity. Areas that have not had any

previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys are performed. After reconnaissance surveys, a qualified paleontologist can determine whether the area of undetermined sensitivity should be categorized as having high, low, or no sensitivity. In keeping with the SVP significance criteria, all vertebrate fossils are generally categorized as being of potentially significant scientific value.

Paleontological Sensitivity Assessment

A records search of the U.C. Berkeley Museum of Paleontology (UCMP) was performed by AECOM in January 2026; there are no recorded fossil localities within the project area (UCMP 2026).

There are eight recorded vertebrate fossil localities in the Sacramento area that have yielded remains of mammoth, bison, camel, coyote, horse, Harlan's ground sloth, mammoth, antelope, deer, rabbit, woodrat, fish, mole, mice, squirrel, snake, and gophers, dire wolf, frog, Pacific pond turtle, and the family Anatidae (ducks, geese, and swans) in Rancholabrean-age sediments referable to the Riverbank Formation (UCMP 2026; Hilton, et al. 2000; Jefferson 1991a and 1991b). This includes two fossil localities from a Teichert "gravel pit" along Jackson Road approximately 2.5 miles northwest of the western end of the overhead line corridor (UCMP 2026). Remains of a Columbian mammoth were discovered in Elk Grove from the Riverbank Formation during trenching activities for a SMUD natural gas line (Kolber 2004). There are numerous additional vertebrate fossil localities from the Riverbank Formation and from similar unnamed Rancholabrean-age alluvial sediments in Yolo, San Joaquin, Merced, Stanislaus, Fresno, and Madera Counties (UCMP 2026; Jefferson 1991a and 1991b). Because of the large number of vertebrate fossils that have been recovered from the Riverbank Formation, it is considered to be of high paleontological sensitivity.

There are no fossil localities recorded with UCMP in California within the Laguna Formation (UCMP 2026). There is only one published reference in the scientific literature to a Pliocene-age vertebrate fossil specimen from the Laguna Formation: Stirton (1939) refers to a Pliocene-age fossil specimen of a horse tooth found in clayey silt, probably of the Laguna Formation although not definitely identified as such, in a well near the town of Galt, in Sacramento County. Therefore, this rock formation is considered to be of low paleontological sensitivity.

3.7.2 Impacts and Mitigation Measures

a) Directly or indirectly cause 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 California Geological Survey Special Publication 42.)

The nearest active faults, including those that are classified under the Alquist-Priolo Earthquake Fault Zone Act, are the Cordelia and Green Valley Faults approximately 48 miles west in the Coast Ranges (Jennings and Bryant 2010, CGS 2024). The nearest known fault is the Bear Mountain Fault Zone, approximately 25 miles east of the project area, which is not classified as

"active" (Jennings and Bryant 2010). Therefore, hazards from surface fault rupture are unlikely, and there would be ***no impact***.

ii) Strong seismic ground shaking?

As described above, the nearest known fault is the Bear Mountain Fault Zone, approximately 25 miles east of the project area, which is not classified as "active" (Jennings and Bryant 2010). The project area has a low potential for strong seismic ground shaking (Branum et al. 2016).

Development of the proposed project is required by law to comply with seismic safety standards of the California Building Code (CBC). The CBC philosophy focuses on “collapse prevention,” meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. Based on the seismic design category, the CBC requires an analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also requires that measures to reduce damage from seismic effects be incorporated in structural design. Measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures.

A site-specific geotechnical report would be prepared according to CBC and County requirements, which is required to contain appropriate engineering and design recommendations related to seismic, soils, and other geologic considerations for the project area (including County Municipal Code Chapter 16.44 related to grading). The geotechnical report would be submitted to the County for review. SMUD is required by law to design and construct all buildings in compliance with the CBC (CCR Title 24), which includes implementing the recommendations contained in the geotechnical report to comply with CBC provisions that are specifically designed to prevent the collapse of structures during seismic ground shaking. Therefore, impacts from strong seismic ground shaking would be ***less than significant***.

iii) Seismic-related ground failure, including liquefaction?

Since active seismic sources are a relatively long distance away; the project area is composed of a stable, Pleistocene- and Pliocene-age rock formation; and the depth to groundwater is approximately 120 feet below the ground surface, seismically-induced liquefaction or other seismic-related ground failure in the project area is unlikely. Therefore, ***no impact*** would occur.

iv) Landslides?

The substation site overall slopes gently in elevation from north to south, ranging from approximately 90 to 120 feet above mean sea level. The project area and the surroundings are characterized by flat to gently rolling topography, and there are no on-site or off-site areas of steep slopes that could affect the proposed project. Therefore, landslides would not represent a hazard and there would be ***no impact***.

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

Construction of the proposed project would require a variety of earthmoving activities, including excavating, trenching, grading, and compacting. Nearly the entire substation site consists of the Red Bluff–Redding soil complex, 0 to 5 percent slopes. This soil has a moderate water erosion hazard and a low wind erosion hazard (NRCS 2024). This soil is rated as Hydrologic Group C, which means it has a slow rate of water infiltration and therefore a high potential for stormwater runoff (NRCS 2024). As also shown in Table 3.7-1, the soils in the overhead line corridor generally have a moderate water erosion hazard, a low wind erosion hazard, and have high to very high stormwater runoff potentials (Hydrologic Groups C and D) (NRCS 2025).

Construction-related earthmoving activities would expose soils to potential erosion. Earthmoving activities during the winter months would expose soils to rain events, which could mobilize loose soil and result in soil erosion. Subsequent soil transport during storm events could result in sedimentation within and downstream of the substation site.

Furthermore, SMUD is required by law to comply with the provisions of the SWRCB's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order WQ 2022-0057-DWQ) (Construction General Permit). The Construction General Permit regulates stormwater discharges for construction activities under the federal Clean Water Act and applies to all land-disturbing construction activities that would disturb 1 acre or more. SMUD must submit a notice of intent to discharge to the Central Valley Regional Water Quality Control Board (RWQCB) and must prepare and implement a SWPPP that includes site-specific BMPs to minimize construction-related soil erosion. Construction techniques that could be implemented to reduce the potential for stormwater runoff and sediment transport may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. BMPs that could be implemented to reduce erosion may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers and re-seeding and mulching to revegetate disturbed areas. All NPDES permits also have inspection, monitoring, and reporting requirements.

Compliance with existing laws, regulations, and ordinances would ensure that the short-term, temporary construction impacts from soil erosion would be **less than significant**. (Impacts from project construction and operation on water quality are evaluated in Section 3.10, "Hydrology and Water Quality.")

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?

As described previously in Impact Thresholds a) iii) and a) iv), landslides and liquefaction do not represent hazards for the proposed project. As noted previously, the project area contains Pleistocene-age Riverbank Formation and the Pliocene-age Laguna Formation, which are relatively cohesive and stable rock formations. There are no known hazards related to unstable soils.

A site-specific geotechnical report would be prepared according to CBC and County requirements, which is required to contain appropriate engineering and design

recommendations related to geologic considerations for the project area, including unstable soils if any are present. SMUD is required by law to design and construct all buildings in compliance with the CBC (CCR Title 24), which includes implementing the recommendations contained in the geotechnical report to comply with CBC provisions that are specifically designed to address unstable soils (if any are present). Therefore, impacts from unstable soils would be **less than significant**.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating direct or indirect substantial risks to life or property?

Expansive soils shrink and swell as a result of moisture change. These volume changes can result in damage to building foundations and exterior concrete flatwork (such as sidewalks and roads) if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. As shown in Table 3.7-1, soils in the substation site have a moderate expansion potential. Furthermore, several of the soil types in the overhead line corridor also have a moderate expansion potential.

The CBC includes engineering practices that require special design and construction methods to reduce or eliminate hazards from construction in expansive soil. SMUD is required by law to comply with the CBC, which ensures appropriate design and construction of building foundations to resist soil movement would be implemented. In addition, the CBC also contains drainage-related requirements to reduce seasonal fluctuations in soil moisture content. Construction in soils of low strength is also addressed in the CBC through implementation of soil engineering tests and amending and compacting soils.

As required by the CBC, and County Municipal Code Chapter 16.44 (related to grading for Improvement Plans), a geotechnical report would be prepared that includes a determination as to the potential for soil expansion based on soil testing, and appropriate recommendations for soil treatment to reduce any expansion potential that may be present. These recommendations could include construction techniques such as soil treatment with lime, or excavation of expansive soil and replacement with engineered fill material. Therefore, the impact from construction and operation in expansive soils is considered ***less than significant***.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

During the proposed project's construction phase, temporary portable restrooms would be used at the substation site. The construction contractor would contract with a portable restroom supplier to provide facilities and to pump wastewater for off-site disposal. The proposed project would include construction of restrooms for use by employees during the project's operational phase. These restroom facilities would require installation of a small, on-site septic system. Based on the NRCS (2024) ratings, the substation site soils are rated with limitations for a conventional septic system. However, in most instances, a licensed engineer can design an alternative septic system (if needed) that is suitable for use even where soil conditions are not optimal. The on-site septic system must meet the engineering and design requirements that are specified in County Municipal Code Title 6, Chapter 6.32 (On-Site Management of Wastewater), and the County Department of Environmental Management's (2025) septic system permitting

process, which, at the substation site, will require a site-specific soils investigation, the results of which will be used to inform an engineered septic design that meets County requirements to protect human health and the environment. Therefore, this impact would be ***less than significant***.

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

Unique Geologic Features

A unique geologic feature consists of a major natural element that stands out in the landscape, such as a large and scenic river, gorge, waterfall, volcanic cinder cone, lava field, or glacier. These features are considered outstanding examples that are regarded as the best of their kind. The project area and the immediately adjacent land are flat to gently rolling and generally consist of agricultural land, aggregate mining, and scattered rural residences. There are no unique geologic features in the project area or within the project viewshed. Thus, there would be ***no impact*** related to destruction of a unique geologic feature.

Paleontological Resources

The entire substation site, the overhead line corridor to the southeast and southwest of the substation site, and the overhead line corridor for the first mile northwest of the substation site would be constructed in the Laguna Formation. The Laguna Formation is considered to be of low paleontological sensitivity, and thus construction activities that occur in this rock formation (which includes most of the proposed project) would have ***no impact*** on unique paleontological resources.

The proposed overhead line corridor along Jackson Road, beginning approximately 1 mile northwest of the substation site and continuing to the northwestern end of the alignment, would be constructed within the Riverbank Formation. The Riverbank Formation is of high paleontological sensitivity, and thus construction activities that occur in this rock formation would have the potential to accidentally damage or destroy any previously unknown unique paleontological resources that may be present. Therefore, construction of this portion of the overhead line improvements would result in a **potentially significant** impact.

Mitigation Measure GEO-1: Avoid Impacts to Unique Paleontological Resources

- Prior to the start of earthmoving activities associated with the overhead line corridor along Jackson Road northwest of the substation site, SMUD shall retain a qualified archaeologist or paleontologist to present construction worker personnel training. The training shall inform all construction personnel involved with earthmoving activities regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered.

- If paleontological resources are discovered during earthmoving activities, the construction crew shall immediately cease work in the vicinity of the find and notify SMUD.

- In the event of a paleontological discovery, SMUD shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan if necessary. The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum curation for any specimen recovered, and a report of findings. Recommendations in the recovery plan shall be implemented by SMUD before construction activities can resume at the site where the paleontological resource or resources were discovered.

Significance after Mitigation

Implementation of Mitigation Measure GEO-1 would reduce project-related off-site impacts (northwest of the substation site along Jackson Road) on unique paleontological resources to a **less-than-significant** level because construction workers would be alerted to the possibility of encountering paleontological resources and, in the event that resources were discovered, fossil specimens would be recovered and recorded and would undergo appropriate curation.

3.8 Greenhouse Gas Emissions

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.8.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space through the atmosphere. However, infrared radiation is selectively absorbed by GHGs in the atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on earth. Anthropogenic emissions of GHGs in excess of natural ambient concentrations are generally considered responsible for intensifying the greenhouse effect and having led to a trend of unnatural warming of the earth's climate, known as global climate change (Intergovernmental Panel on Climate Change [IPCC] 2021).The principal GHGs contributing to climate change are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. GHGs are emitted by natural processes and as a result of human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with: (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, and manufacturing; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

GHGs are not monitored at local air pollution monitoring stations and do not represent a direct impact to human health. Rather, GHGs generated locally contribute to global concentrations of GHGs, which changes the climate and environment. Methods have been developed to describe emissions of GHGs in terms of a single metric to simplify reporting and analysis. The most commonly applied method to compare GHG emissions is the global warming potential (GWP) methodology. GWP represents the relative ability of a given GHG to trap heat in the atmosphere compared to other GHGs. GWP is based on several factors, including the relative ability of a gas to absorb infrared radiation and the length of time the gas remains in the atmosphere (its "atmospheric lifetime"). The GWP of each gas is measured relative to CO_2. Therefore, CO_2 has a GWP of 1. GHGs with lower emissions rates than CO_2 may still contribute disproportionately to climate change because they are more effective at absorbing outgoing infrared radiation and/or remain in the atmosphere for longer periods than CO_2 (i.e., they have a higher GWP). For example, sulfur hexafluoride (SF_6) has a GWP of 22,800, meaning that 1 ton of SF_6 has the same contribution to the greenhouse effect as approximately 22,800 tons of CO_2 (CARB 2025).

The concept of CO_2 equivalence (CO_2e) is used to account for the different GWP potentials of individual GHGs. GHG emissions are typically measured in terms of pounds or tons of CO_2e and are often expressed in metric tons (MT) CO_2e.

3.8.2 Impacts and Mitigation Measures

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

Implementation of the proposed project would generate GHG emissions during short-term construction and throughout long-term operations. Construction-related GHG emissions would cease following construction of the project. However, operational emissions are considered long-term and assumed to occur for the lifetime of the project.

Given the relatively small levels of emissions generated by a typical development in relationship to the total amount of GHG emissions generated on a national or global basis, individual development projects are unlikely to contribute to climate change significantly by themselves. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could result in significant, cumulative impacts with respect to climate change. Therefore, this impact is assessed within the cumulative context of the project's potential contribution to the significant impacts of global climate change.

Addressing the potential impacts from GHG emissions generated as a result of a project requires an agency to make a determination as to what constitutes a significant impact. As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied on to support determinations of significance. In April 2020, the Sacramento Metropolitan Air Quality Management District (SMAQMD) Board of Directors adopted updated thresholds of significance for GHG emissions designed to analyze a project's consistency with the State's near- and longer-term climate targets, including Assembly Bill (AB) 32, which required reduction of statewide GHG emissions to 1990 levels by 2020; Senate Bill (SB) 32, which established a reduction mandate of 40 percent below 1990 statewide emissions levels by 2030; Executive Order (EO) S-3-05 which established a State goal for the reduction of GHG emissions generation by 80 percent compared to 1990 levels by 2050; and EO B-55-18, which established a statewide emissions goal to achieve carbon neutrality no later than 2045 (SMAQMD 2021). The SMAQMD developed the thresholds for Sacramento County by determining Sacramento County's share of statewide 2030 GHG emissions by sector, determining the share of Sacramento County 2030 emissions from existing development versus new development, allocating 2030 GHG emissions from new development among land uses and place types to set numeric thresholds, and setting BMPs by land use and place types that achieve those numeric thresholds.

Specifically, the SMAQMD adopted a mass emissions-based threshold for the construction phase of all project types of 1,100 MT CO_2e per year. For operational emissions, the SMAQMD has developed an operational screening table, which shows sizes of development projects at which 1,100 MT CO_2e per year would not be exceeded, including implementation of Tier 1

BMPs[3]. Tier 1 BMPs require that projects be designed and constructed without natural gas infrastructure (BMP 1) and that projects meet the current CALGreen Tier 2 standards for electric vehicle (EV) parking spaces, except that such EV capable spaces shall instead be EV ready. Since the proposed project's land use development type is not included in the SMAQMD operational screening level table, this analysis estimated the proposed project's annual GHG emissions in the first year of operation in order to compare to the operational bright-line threshold of 1,100 MT CO_2e per year.

Construction

During construction of the proposed project, the use of off-road equipment and on-site vehicles, as well as vehicle trips (e.g., construction worker commutes and haul truck trips) to and from the project area, would generate GHG emissions. Construction-related sources (both off-road and on-road) of GHG emissions were modeled using CalEEMod based on project-specific details regarding construction schedule, equipment, and import/export quantities, as detailed in Chapter 3.3, "Air Quality," of this IS/MND. Unlike the maximum daily emissions presented in the air quality analysis that are based on the maximum potential overlapping emissions in any given day of construction, annual construction-related GHG emissions were estimated based on anticipated equipment usage by phase, including consideration of the number of days within the overall duration of each construction phase that a piece of equipment would operate based on varying construction intensity levels throughout each phase. For example, within a phase that may be 100 days in duration, a given piece of equipment may only operate for 50 days of that phase and the annual emissions were modeled to reflect such. Appendix A provides detailed calculation inputs, assumptions, and outputs related to construction emissions estimates.

As shown in Table 3.8-1, construction-related GHG emissions would be below the SMAQMD-recommended threshold of 1,100 MT CO_2e per year. Therefore, this impact with respect to construction emissions would be less than cumulatively considerable, and construction-related GHG impacts would be ***less than significant***.

Table 3.8-1. Construction-Related GHG Emissions

Year/Description	MT CO_2e per year
2030	937
2031	215
2032	68
SMAQMD Threshold	1,100
Exceeds Threshold?	No

Notes: CO_2e = carbon dioxide equivalents; GHG = greenhouse gas; MT = metric tons; SMAQMD = Sacramento Metropolitan Air Quality Management District.

Source: See Appendix A for detailed modeling inputs and results.

[3] 1,100 MT CO_2e/year is the current SMAQMD de minimis threshold. By complying with Best Management Practices 1 and 2 (removing natural gas, EV-ready), small projects would reduce emissions to be consistent with State goals (SMAQMD 2020).

Operation

Operational GHG emissions would be generated by staff vehicle trips associated with periodic inspection and maintenance activities and potential leakage of the GHG sulfur hexafluoride (SF_6) from substation equipment such as circuit breakers. Operational mobile source GHG emissions were modeled using CalEEMod, assuming the maximum daily vehicle and equipment activity would occur year-round, which is a conservative estimate of such activity, which may only occur for periods of days to weeks throughout the year. Potential GHG emissions associated with SF_6 leakage that could result from project operations were estimated based on the proposed project's anticipated SF_6 usage, a maximum fugitive emissions rate of one percent[4], and a GWP of 22,800 for SF_6 compared to CO_2 (CARB 2025).

Table 3.8-2 shows that emissions from operational activities associated with the proposed project would generate approximately 243 MT CO_2e per year.

Table 3.8-2. Greenhouse Gas Emissions Summary for the Proposed project

Description	MT CO_2e
Mobile	1
Area (includes SF_6 leakage)	242
Total Annual Operational GHG Emissions	243
SMAQMD Threshold	1,100
Exceeds Threshold?	No

Notes: CO_2e = carbon dioxide equivalents; GHG = greenhouse gas; MT = metric tons; SMAQMD = Sacramento Metropolitan Air Quality Management District.

The SF_6 emissions reduction regulation sets a maximum leakage rate for each year, with stricter requirements for future years. The GHG emissions presented for the proposed substation represent compliance with the year 2023 gas loss rate of 1 percent. Major maintenance activities would occur about once every three years, and would vary in activity and required equipment based on the maintenance activities required. Operational emissions associated with major maintenance activities would be minimal, as activities would occur infrequently and intermittently. Therefore, such activities would not contribute substantially to long-term annual operational emissions.

Project operational GHG emissions would be less than the SMAQMD de minimis screening level and would not be considered to have a cumulatively considerable contribution to the significant impact of global climate change. In addition, the proposed project would not include any natural gas infrastructure and would, therefore, be consistent with SMAQMD BMP 1. Furthermore, the proposed project is not a typical land use development that would be required to comply with CALGreen requirements, such as commercial and residential land use developments, and SMAQMD BMP 2 would not be applicable. For these reasons, operational GHG impacts would be ***less than significant***.

[4] California Code of Regulations, Title 17, § 95353(g), Table 4

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

In response to AB 32, SB 32, and AB 1279, CARB has approved a series of Climate Change Scoping Plans and Scoping Plan updates. The 2022 Scoping Plan (CARB 2022) is the applicable GHG reduction plan because it is the only relevant plan that considers the relatively recently adopted legislation of AB 1279, which calls for accelerated GHG reduction targets and statewide carbon neutrality. It provides the framework, based on extensive modeling and scenario evaluation, of what is required to achieve the state's 2045 carbon neutrality target, and what specifically is required of new development to contribute to the achievement of the target.

The 2022 Scoping Plan identifies transportation electrification, VMT reduction, and building decarbonization as the priority strategies for local government climate action. Table 2-1 of the 2022 Scoping Plan outlines actions by sector that were identified to meet the state's GHG emissions reduction goals. While many actions would indirectly address GHG emissions associated with construction activities, including the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and Low Carbon Fuel Standard, successful implementation of these measures predominantly depends on the development of laws and policies at the State level. One 2022 Scoping Plan action targeted at construction activities calls for 25 percent of construction equipment energy demand to be electrified by 2030, and 75 percent by 2045. Although this calls for the electrification of construction equipment to reduce demand for fossil fuel energy and GHGs would be, this is achieved at a fleetwide level and not as a percentage applied to individual projects and, therefore, is not directly applicable to the proposed project. Successful implementation of the 2022 Scoping Plan measures predominantly depends on long-term emissions reductions associated with land use operations and other reductions achieved through the development of laws and policies at the state level; therefore, the 2022 Scoping Plan measures are not directly applicable to the proposed project. The proposed project would comply with any applicable rules and regulations for the purposes of reducing construction-related GHG emissions.

In addition, as shown in Table 3.8-1 and Table 3.8-2, the proposed project would not generate construction-related or operational GHG emissions that would have a cumulatively significant impact on the environment. SF_6 emissions associated with the proposed substation would be regulated under the Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Equipment[5] and would be required to be monitored and reported. This regulation was originally enacted as an early action measure pursuant to AB 32 to reduce SF_6 emissions from the electricity sector's transmission and distribution system and was amended in 2022 to expand the scope of the regulation to cover emissions of all insulating gases with a GWP greater than one and to establish a timeline for phasing out acquisition of SF_6 gas-insulated equipment. Proposed gas-insulating equipment at the substation would be subject to the requirements of this regulation, thereby reducing potential GHG emissions associated with leaking equipment.

Furthermore, the objectives of the proposed project are to provide safe and reliable electrical service to existing and proposed development in the Jackson Corridor and meet SMUD's goals of ensuring electrical service reliability in the area. These objectives are consistent with the

[5] California Code of Regulations Title 17, Section 95350

goals and commitments in SMUD's 2030 Zero Carbon Plan, which states that service reliability is one of the fundamental elements in their vision to deliver clean energy.

Therefore, the proposed project would be consistent with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions. This impact would be ***less than significant***.

3.9 Hazards and Hazardous Materials

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or to the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h)	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

3.9.1 Environmental Setting

SMUD performed Phase I and Phase II Environmental Site Assessments of the two parcels comprising the proposed substation site. The Phase I and Phase II assessments did not include the overhead line corridor on Jackson Road and Excelsior Road. Publicly accessible databases and reports were used to identify hazardous waste sites within and near the overhead line corridor. Some of these sites report existing or former groundwater contamination. In the project vicinity, regional groundwater flow is predominantly directed toward the Sacramento River Delta to the southwest, although local groundwater flow is influenced by production well pumping. Based on surface topography, the surface water flows generally from the northeast to the southwest direction throughout the project area.

Environmental Site Assessments for 6037 Excelsior Road

SMUD performed a Phase I for 6037 Excelsior Road, the western portion of the proposed substation site, in 2019 (AECOM 2019a, U.S. EPA 2026b). The Phase I indicated historical use of this parcel was mostly undeveloped or grazing land. Review of historical aerial photographs suggests an on-site shop building was used as a commercial automobile and equipment repair facility from about 2000 to at least 2012. The Phase I identified no evidence of pesticides, herbicides, or significant quantities of other potentially hazardous materials being stored or used on the site and no evidence of past or present use of underground storage tanks (USTs). The assessment identified light to moderate oil staining in various locations on the dirt floor inside the shop building. Fluorescent light fixtures in the shop and house were identified as possibly containing polychlorinated biphenyls (PCBs) in the ballasts. The Sacramento County Master List of Facilities identified 6037 Excelsior Road with potentially hazardous materials for oil changed by an outside company; however, the facility was listed as out of business and inactive. The Sacramento County Master List was a registry of businesses with onsite hazardous materials, such as hazardous material storage sites, USTs, and waste generators; however, the list is no longer updated by the county.

SMUD performed a Phase II for the western portion of the proposed substation site in 2019 (AECOM 2019b). Soil sampling was conducted to provide surface soil characterization to a depth of 3 feet below ground surface. Arsenic was the only analyte that was detected above the commercial/industrial screening criteria; however, all samples were reported within the background range for arsenic in California. Stained soil from inside the shop structure identified lead, thallium, and benzo(a)pyrene above residential screening criteria, however no analytes were detected in the stained soil that exceeded commercial/industrial screening criteria. The Phase II concluded that development of the property for industrial/commercial use does not pose an unacceptable risk. Analysis of one discrete sample collected from within the shop structure (the highest total lead concentration) yielded a soluble lead concentration above the threshold for designation as hazardous waste. As a conservative measure, the Phase II report recommended excavation and off-site disposal of an estimated 100 cubic yards of soil to protect and preserve future worker and environmental health. However, prior to structure demolition, a four-point composite sample was collected in April 2020 from the same area as the previous elevated lead result. Soluble lead above the threshold for designation as hazardous waste was not detected in the composite sample. Based on the composite soil sampling results combined with the Phase II conclusion that development of the property for industrial/commercial use does not pose an unacceptable risk, the recommended soil excavation was not completed.

Environmental Site Assessments for 10590 Jackson Road

SMUD performed a Phase I for 10590 Jackson Road, the eastern portion of the proposed substation site, in 2019 (AECOM 2019c). Similar to the western portion of the substation site, historical use of this parcel was mostly undeveloped or grazing land. The Phase I identified no evidence of pesticides, herbicides, or significant quantities of other potentially hazardous materials being stored or used on the site and no evidence of past or present use of USTs. The Phase I noted light to moderate and heavily oil-stained soils in areas where vehicle maintenance was performed, as well as heavy staining due to uncontrolled washing of paint equipment. There were also fuel tanks and miscellaneous pieces of equipment containing potentially hazardous materials such fuel, oil, or hydraulic fluid. Additionally, the site accepted fill dirt from various unknown locations without proper testing.

SMUD performed a Phase II for the eastern portion of the proposed substation site in 2019 (AECOM 2019d). Soil sampling was conducted to provide surface soil characterization to a depth of 4 feet below ground surface. Arsenic was the only analyte that was detected above the commercial/industrial screening criteria; however, all samples were reported within the background range for arsenic in California. The Phase II concluded that development of the property for industrial/commercial use does not pose an unacceptable risk but recommended excavation and off-site disposal of an estimated 50 cubic yards of stained soil to protect and preserve future worker and environmental health. The report also recommended further investigation to segregate and characterize soils from imported fill material with chlordane and dieldrin detections, prior to onsite reuse or offsite disposal. None of the analytical results indicated that the soils contain hazardous constituents in concentrations requiring handling as hazardous waste for the purpose of disposal; therefore, proper disposal would likely take place at a Class II or Class III disposal facility. Follow-up testing completed in April 2020 did not identify analytes above concentrations requiring excavation and therefore, no excavation was completed.

Two houses, two shop buildings, and a lean-to shed were demolished and removed from the proposed substation site in 2020. Two septic systems associated with the houses were properly removed during structure demolition in accordance with Sacramento County Codes. Two inactive groundwater wells associated with the houses remain on the proposed substation site and are permitted until 2030. Heavy oil-staining that was originally reported in front of the eastern house in the Phase I and II assessments, was no longer present following tenant vacation from the site. Light to moderate oil-staining, reported in the western shop building in the Phase I and II assessments did not warrant excavation and was no longer present following demolition of the shop building.

Hazardous Waste and Substances Sites

The Department of Toxic Substances Control (DTSC) maintains the EnviroStor database of facilities that have known or potential contamination, as well as facilities permitted to treat, store, dispose, or transfer hazardous waste. The database contains current and historical information relating to permitted and corrective action facilities, including Federal Superfund sites (National Priority List), State Response sites (including military facilities and State Superfund sites), voluntary cleanup sites, and Corrective Action sites. Review of the EnviroStor database to identify hazardous materials sites in the project vicinity identified two facilities within 1 mile of the project area (Figure 3.9-1). One facility is identified with a cleanup status of No Further Action as of 2000. The other facility is Sacramento Surplus Sales, formerly located at 4801 Hedge Avenue, nearly 1 mile west of the westernmost overhead line corridor, and review of local topography suggests groundwater in the vicinity of this abandoned facility flows in a northwesterly direction away from the project area (DTSC 2025).

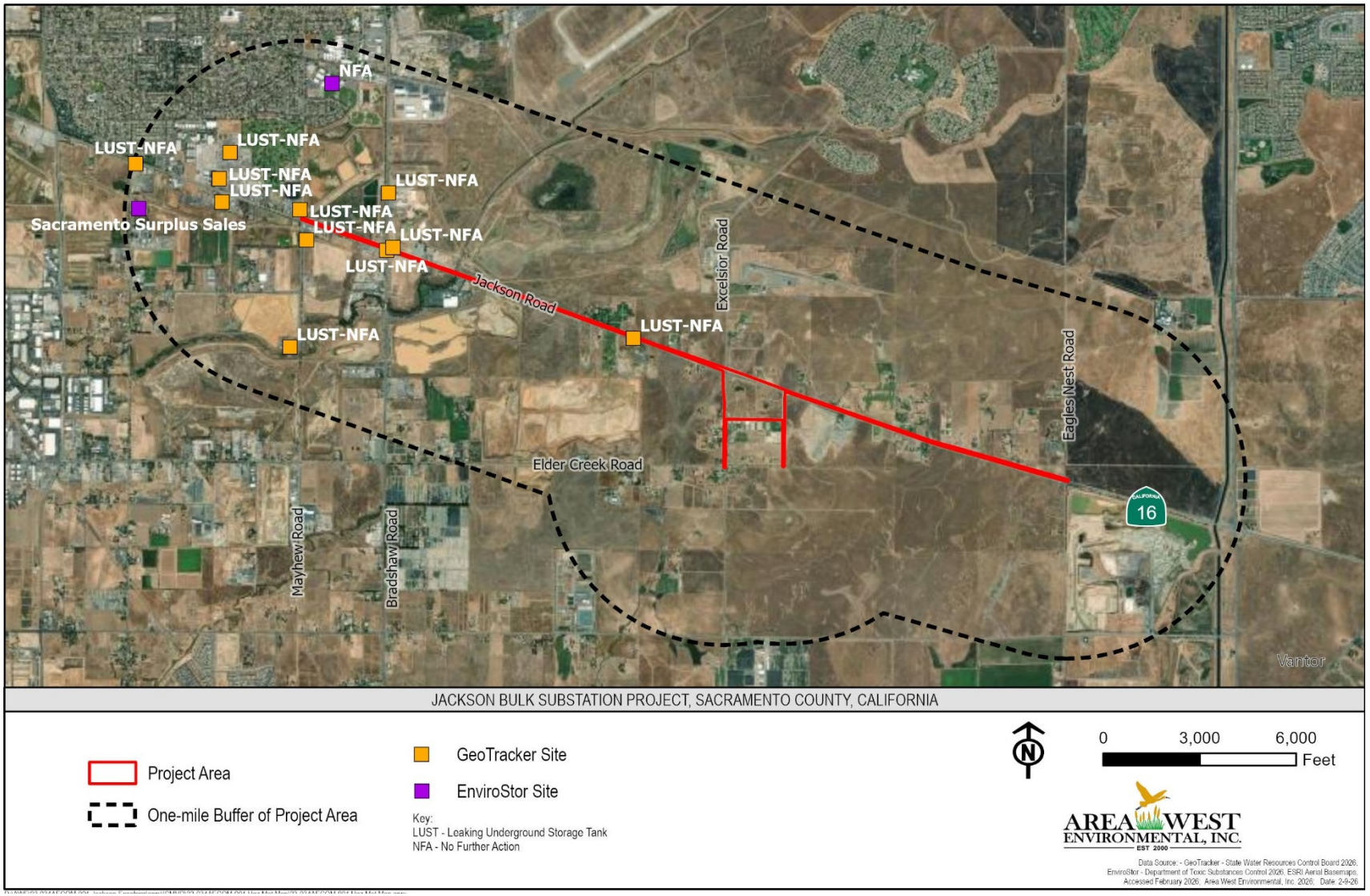


Figure 3.9-1. DTSC EnviroStor and SWRCB GeoTracker Results

The State Water Resources Control Board (SWRCB) maintains the GeoTracker database of sites that require groundwater cleanup (Leaking UST [LUST] sites, Department of Defense, and Site Cleanup Program), as well as permitted facilities that have the potential to impact groundwater (Irrigated Lands, Oil and Gas Production, permitted operating USTs, and Land Disposal sites). Review of the GeoTracker database to identify hazardous materials sites in the project area identified 5 LUST sites along Jackson Road, and 6 additional LUST sites within 1 mile of the project area (Figure 3.9-1). The 11 LUST cleanup sites are identified with completed-case closed status, indicating that investigation and cleanup of the petroleum release is complete and the sites do not pose a significant threat to human health or the environment. There are no open cases within 1 mile of the project area (SWRCB 2025).

The Cortese List is a planning document used by the State, local agencies, and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. The California Environmental Protection Agency (CalEPA) website provides data resources that provide information regarding facilities or sites identified as meeting Cortese List requirements. Data resources include: the DTSC Hazardous Waste and Substances Site List (Cortese), SWRCB list of LUST Sites, list of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit, SWRCB list of "active" Cease and Desist Orders and Cleanup and Abatement Orders that do not concern the discharge of wastes that are hazardous materials, and the DTSC list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety code. The project area is not identified on a list of hazardous waste and substance sites pursuant to Government Code Section 65962.5, including the Cortese List. (CalEPA 2025a)

Mather Air Force Base

The former Mather Air Force Base (Mather AFB), now known as Mather Air Park, is located approximately 1.2 miles north of the project area. Mather AFB was an active military facility, operated as a pilot and navigator training post, from 1918 until it was decommissioned in 1993 under the Base Realignment and Closure Act. Typical for military operations, a wide range of toxic and hazardous chemicals and substances were used onsite in the operation and maintenance of aircraft, including industrial chemicals (e.g., chlorinated solvents), protective coatings, aviation fuels, oils, and lubricants. Environmental investigations began in 1982 and in 1989, the U.S. Air Force, U.S. EPA, and DTSC entered into a Federal Facilities Agreement (FFA) to ensure that environmental impacts from AFB operations were thoroughly investigated and cleaned up. Later the same year, the entire AFB was listed as a federal Superfund site (U.S. EPA 2026b). A total of 89 sites were identified with significant soil and groundwater contamination. Immediate actions to protect human health included soil excavation, bioventing, and air sparging, as well as providing alternative drinking water to residents along the western boundary whose domestic wells had been contaminated. Ongoing treatment to protect human health and the environment include the following:

- Soil Sites - Some contaminated soils have been capped to prevent human exposure and others have been excavated and either bioremediated or disposed of offsite. Ongoing treatment of contaminated soils involves soil vapor extraction systems and bioventing.

- Groundwater – Ongoing treatment of groundwater plumes involves a groundwater extraction and treatment system using air stripping, and the treated water is reinjected into the groundwater system. Groundwater monitoring is also ongoing.

- Landfills – Landfills received low-permeability caps, which eliminated the potential for human contact and reduced infiltrations. The capped landfills are monitored for potential releases to groundwater and air.

Significant progress has been made to remediate environmental conditions. Most of the AFB's 5,845 acres have been transferred or leased to Sacramento County and other entities for reuse. Reuse includes a cargo airport, Mather Regional Park, housing, a business park, Veterans Medical Center, and a Federal Aviation Administration facility. Some parcels with institutional controls are under land use restrictions. Potential exposure to contaminated soils and groundwater has been eliminated at Mather AFB. Soil vapor extraction will continue to operate at several areas with residual soil contamination until cleanup levels are achieved. Vapor intrusion at the site remains a concern for human health. (U.S. EPA 2026)

Although Mather AFB was located north of Kiefer Boulevard, more than 1.2 miles north of the project area, contamination migrated from the AFB property. A chlorinated hydrocarbon plume underlies the Site 7 area and extends off-base to the southwest, approximately 3,400 feet north of the overhead line corridor. Another chlorinated hydrocarbon plume underlies the Main Base/Strategic Air Command (MB/SAC) Unit B area and extends off-base to the west and southwest, approximately 4,000 feet north of the overhead line corridor. The groundwater institutional control applies to the portion of the groundwater plume underlying the former AFB property. Groundwater is extracted at these locations and passes through an air stripper with off-gas treatment as needed. Groundwater at these plumes is approximately 60 feet below ground surface (Cape Environmental Management, Inc. 2020). The plumes do not extend into the project area and excavation during project construction is not anticipated to encounter contaminated groundwater; therefore, no further discussion of Mather AFB is required.

Schools

No existing or proposed schools are located within one-quarter mile of the project area. The project area is within the Elk Grove Unified School District. The schools closest to the proposed substation site, Mather Heights Elementary School, located at 4370 School Road, and Folsom Cordova Community Charter School, located at 4420 Monhegan Way; are nearly 2 miles to the north in Mather. The schools closest to the overhead line corridor, Rosemont High School, located at 9594 Kiefer Boulevard, and Sierra Enterprise Elementary, located at 9115 Fruitridge Road, are more than three-quarters mile to the north and southwest, respectively, of the western limit of the overhead line corridor. The Elk Grove Unified School District anticipates the need for two new elementary schools and one new middle/high school within the next ten years in the Elder Creek neighborhood of the Vineyard census-designated place, more than 2 miles southwest of the substation site (Elk Grove Unified School District 2024). Additionally, future build-out of specific plans in the project vicinity along Jackson Road may require development of up to 12 new schools; see Section 3.11, "Land Use and Planning" regarding planned development in the area.

Airports

Mather Airport is located at 10425 Norden Avenue, more than 1.5 miles to the north of the proposed substation site and overhead line corridor, with runways situated in a northeast-southwest direction. The project area is within the Airport Influence Area (AIA) of the Mather Airport, and, therefore, is within the Mather Airport Land Use Compatibility Plan (ALUCP) area (SACOG 2022). The ALUCP includes land use policies and compatibility criteria for safety, noise, airspace protection, and overflight notification to ensure future development is compatible with airport operations. The project area is within the Airport Traffic Pattern Zone and the Outer Approach/Departure Zone of the airport's safety zones.

Fire Hazards

Wildland fires represent a substantial threat in California, particularly during the hot, dry summer months. The California Department of Forestry and Fire Protection (CAL FIRE) has established a fire hazard severity classification system (Moderate, High, and Very High) that accounts for fuel availability, topography, and climate (e.g., temperature and the potential for strong winds). The project area is within a rural area of unincorporated Sacramento under the local jurisdiction of the Sacramento Metropolitan Fire District. The substation site is within a local responsibility area designated as Moderate fire hazard severity zone by CAL FIRE (CAL FIRE 2025).

The threat of wildfire in Sacramento County is generally low because of its relatively flat topography and policies which limit urbanization of wildland areas. Most of the unincorporated county, including the project area, is designated as wildland urban interface (WUI) area. WUI is a general term that applies to development that is adjacent to, or in close proximity to, significant open space, where the natural forested landscape and urban-built environment meet or intermix. Wildland fires pose a threat in more rural areas of Sacramento County and grass fires are an annual threat in the unincorporated areas of the county, particularly in the eastern foothills. (Sacramento County 1993)

Emergency Response Plan/Emergency Evacuation Plan

The Sacramento Office of Emergency Services has prepared evacuation zone maps (Sacramento County OES 2025). The project area is within the North Vineyard evacuation zone and adjacent to the Mather Field and Riviera/Rosemont evacuation zones. Major east and west evacuation routes in these zones include Highway 16 (Jackson Road); and major north and south evacuation routes include Excelsior Road. Maximum flood depth maps developed for the county do not indicate inundation for the substation site based on hypothetical levee failure on the American River for a 200-year flood event (Sacramento County 2015).

3.9.2 Impacts and Mitigation Measures

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

Construction

Construction materials would be delivered to the substation site and stored on the proposed substation site or in the designated staging and laydown area. Deliveries would be made by

concrete trucks, flatbed trucks, and tractor-trailer rigs. Hazardous materials, including paint, grease, epoxies, and oil would be delivered to the site, and stored in either storage lockers or covered containers, in accordance with local, state, and federal requirements. Once the electrical equipment has been installed, transformer oil and sealed batteries would be delivered and stored in approved containers. Additionally, construction of the proposed project would disturb greater than 1 acre of land; therefore, it would be subject to the requirements of the Construction General Permit. As described in Section 3.10, “Hydrology and Water Quality”, this permit requires preparation and implementation of a SWPPP, which includes protocols for proper storage, capture, and disposal of hazardous materials.

Installation and replacement of overhead line poles would generate various wastes, including power poles, finishing materials, various metals, and other recyclable and non-recyclable construction-related wastes. Poles removed would be disposed of in accordance with federal, state, and local hazardous waste disposal requirements, as applicable.

The California Highway Patrol and California Department of Transportation (Caltrans) are responsible for enforcing regulations related to the transportation of hazardous materials on local roadways, and the use of these materials is regulated by DTSC, as outlined in CCR Title 22. SMUD and its construction contractors would be required to comply with CalEPA’s Unified Program, which protects Californians from hazardous waste and hazardous materials by ensuring consistency throughout the state regarding the implementation of administrative requirements, permits, inspections, and enforcement at the local regulatory level. Regulated activities would be managed by the Sacramento County Environmental Management Department, which is the designated Certified Unified Program Agency, and in accordance with the regulations included in the Unified Program (e.g., hazardous materials release response plans and inventories, California Uniform Fire Code hazardous material management plans and inventories). Such compliance would reduce the potential for accidental release of hazardous materials during project construction.

Operation

The proposed substation would initially include one 224 mega-volt ampere (MVA) transformer and would include a second 224 MVA transformer at full build out. Each power transformer contains approximately 25,000 to 30,000 gallons of a highly refined insulating mineral oil and would be located on a concrete pad near the center of the substation site. While the oil is not toxic, each transformer would have a secondary containment system to collect and hold any oil leaks from the transformer. After the substation has been in operation for an extended period of time, the transformer oil would require filtering. Impurities in the filtrate would either be removed and recycled or disposed of in accordance with federal, state, and local hazardous waste disposal requirements.

The substation would include up to thirteen 230kV power circuit breakers. Each 230 kilovolt (kV) circuit breaker contains approximately 30 to 180 pounds of sulfur hexafluoride (SF6) as an insulating medium. SMUD would use limited amounts of SF6, a common insulating gas for high-voltage electrical systems, at the project site. Use of the proposed switchgear equipment would comply with recordkeeping, reporting, and leakage emission limit requirements in CARB regulations for reduction of SF6 emissions. As part of substation operations and maintenance activities, SMUD would monitor existing substation equipment to accurately identify any SF6 leaks and immediately repair leaks that are discovered. SMUD is also an active member of the

SF6 Emission Reduction Partnership, which focuses on reducing emissions of SF6 from transmission and distribution sources. See Section 3.8, “Greenhouse Gas Emissions” for more information regarding CARB phase out of SF6 and SF6-containing equipment.

The proposed substation may also include up to two 69kV and one 230 kV capacitor banks. The capacitor bank consists of individual capacitors, each of which contains approximately two gallons of insulating non-hazardous synthetic mineral oil. The substation would include 230kV and 69kV instrument transformers for remote supervisory control and data acquisition (SCADA), metering, and protection purposes. Each instrument transformer contains approximately 10 to 20 gallons of insulating mineral oil. The substation would also include up to three 12kV/480V station service pad-mounted transformers. Each pad-mounted transformer contains approximately 85 gallons of insulating oil, which is typically natural ester fluid type oil, a non-toxic and biodegradable oil. The substation would also include battery systems using lead acid, located inside the control building or in an enclosure in the substation.

Due to the battery system which would be located inside the control building or in an enclosure in the substation, and the amount of SF6 that would be on-site, a Hazardous Materials Business Plan (HMBP) would be required. While there are exceptions, a HMBP is generally required if operation of the project includes the handling or storage of hazardous materials equal to or greater than the minimum reportable quantities. These quantities are 55 gallons for liquids, 500 pounds for solids and 200 cubic feet (at standard temperature and pressure) for compressed gases (CalEPA 2025b). The proposed project also will be subject to the EPA Spill Prevention, Control, and. Countermeasure (SPCC) rule, which requires preparation and implementation of an SPCC plan, including identification and implementation of appropriate secondary containment structures designed to contain the oil volume of the transformers and other oil filled electrical equipment that contains 55 gallons or more of oil. A SPCC Plan is required for facilities that store greater than 1,320 gallons of oil and have a reasonable expectation of a discharge to waters of the US (EPA 2022).

Project operations would comply with CalEPA’s CUPA programs and are subject to Occupational Safety and Health Administration (OSHA) and California Division of Occupational Safety and Health (Cal/OSHA) regulations, which include requirements for the protection of worker health and safety. Compliance with these programs would include procedures that identify methods and techniques to minimize the exposure of the public and workers to potential hazardous materials during all phases of project construction and operation.

To maintain site security and public safety, the perimeter of the new substation would be fenced with either ten-foot security fencing consisting of chain link topped by barbed wire, ten-foot block retaining walls and/or two eight-to-ten-foot earthen berms topped with a ten-foot block retaining walls along the south and east perimeters of the substation.

The proposed project would be required to comply with existing laws and regulations regarding the transportation, use, and disposal of hazardous materials. These regulations are specifically designed to protect the public health and the environment and must be adhered to during project construction and operation. Compliance with applicable regulations would ensure that this impact would be ***less than significant***, and no mitigation would be required.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Construction of the project would involve use, transport, storage, and disposal of hazardous materials, including, but not limited to, diesel fuel, gasoline, and lubrication oil. These materials would primarily be contained within construction equipment, but may also be stored on-site and transported to and from the site. Use of these materials could potentially result in accidental spills that could release hazardous materials into the environment. However, a SWPPP would be prepared in compliance with the Construction General Permit that would include good site housekeeping measures for proper storage and management of hazardous materials, as well as spill prevention, control, and counter-measures. Implementation of the SWPPP would reduce the potential for construction activities to result in accidental releases of hazardous materials.

The proposed substation would be constructed in a rural area on property historically used primarily for agriculture (grazing) with some vehicle maintenance activities and acceptance of fill material. Hazardous materials contamination in rural areas is more typically associated with activities such as agricultural processing and domestic disposal. SMUD completed environmental assessments and follow-up soil sampling (SMUD 2019a, 2019b, 2019c, 2019d) that identified no materials requiring disposal as hazardous materials. Arsenic was detected above the commercial/industrial screening criteria; however, all samples were reported within the background range for arsenic in California. One sample yielded a soluble lead concentration above the threshold for designation as hazardous waste; however, a follow-up composite sample collected from the same area for waste characterization yielded a lead concentration below the threshold for designation as hazardous waste. Pesticides and total petroleum hydrocarbons were detected below commercial/industrial screening criteria. None of the analytical results indicated that the soils contain hazardous constituents in concentrations requiring handling as hazardous waste for the purpose of reuse or disposal; therefore, onsite soils can be reused or disposed of in a Class II landfill.

An estimated 59,000 cubic yards of imported fill would be required to meet the necessary finished grades for the proposed substation. As such, it is anticipated that construction of the substation would not require excavated soil to be taken off-site for disposal and existing soil would be re-used on site as much as possible. Imported fill materials are anticipated to consist of virgin aggregate materials and/or soil imported to the site from SMUD-owned or operated facilities having no evidence of disposal or releases of hazardous substances. Imported soil would be tested prior to being brought to the site to ensure the soil is not contaminated; contaminated soils would not be brought to the site. If excess construction spoils are generated, the soil would be staged within SMUD's legal right of way until testing of the spoils has determined a location for final disposal. Any hazardous waste generated during construction (e.g., diesel fuel, oil, solvents) would be disposed of or recycled off-site in accordance with all applicable laws pertaining to the handling and disposal of hazardous waste.

Ground disturbing activities associated with the substation and overhead line corridor could encounter known or unidentified environmentally contaminated soil or groundwater. This could potentially expose workers, the public, and the environment to hazardous materials. Contaminated soil or groundwater encountered during construction and considered to be hazardous by the State would be handled, stored, transported, and disposed of according to applicable federal, state, and local regulations. This impact is ***less than significant***.

Although mitigation is not required, implementation of Mitigation Measure HAZ-1 would further reduce risks related to encountering unidentified soil or groundwater contamination and the potential for adverse effects to workers, the public, or the environment through handling, storage, or disposal of contaminated soil or groundwater.

Mitigation Measures

Mitigation Measure HAZ-1: Manage Accidental Discovery of Hazardous Materials.

If contaminated soils or potentially hazardous items are discovered during earth moving activities, all ground-disturbing activities within 25 feet shall be halted until a qualified SMUD employee or SMUD representative can assess the conditions on the site. SMUD will notify and coordinate with the appropriate agency regarding findings of hazardous materials, as necessary. If it is determined that the material cannot be re-incorporated into the project site, it shall be hauled by a qualified hauler to an appropriate waste disposal facility.

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

There are no existing or proposed schools within one-quarter mile of the project area. The schools closest to the proposed substation site, Mather Heights Elementary School and Folsom Cordova Community Charter School, are located nearly 2 miles away. The schools closest to the overhead line corridor, Rosemont High School and Sierra Enterprise Elementary, are located more than three-quarters mile away. Haul routes to and from the project area are not anticipated to pass existing schools. Compliance with existing laws and regulations regarding the transportation, use, and disposal of hazardous materials would protect the public health and the environment during construction of the project and use of the haul routes. Construction and operation of the proposed project would not emit hazardous emissions within one-quarter mile of a school. There would be ***no impact***, and no mitigation would be required.

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?

The project area is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.6, including the Cortese List. There would be ***no impact***, and no mitigation would be required

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

Mather Airport is a public airport located within 2 miles of the project area and has adopted an ALUCP. The proposed overhead line corridor west of Excelsior Road would be located within the 60 decibels (dB) noise exposure levels contour and within the airport's safety zones. The ALUCP identifies prohibited uses within the various safety zones. While installing power lines are not specifically listed in the table of compatibility guidelines, the list of allowed and prohibited uses generally center around limiting large gatherings of people, structures that might interfere

with aircraft navigation, and prohibiting flammable or explosive features to be located aboveground. The proposed overhead line corridor within Mather's airspace protection area would be designed to meet height restrictions. The proposed project would comply with Public Utilities Code regarding construction of utility poles and overhead lines in the vicinity of an aircraft landing area. Code 21658 indicates that no public utility shall construct a pole, pole line, distribution or transmission tower, or tower line, or substation structure at a height so as to constitute an obstruction to air navigation, as defined in accordance with Part 77 of the Federal Aviation Regulations, Federal Aviation Administration (Caltrans 2011).

The proposed substation site is located east of Excelsior Road, where all land uses are considered compatible with the ALUCP noise compatibility and safety policies (SACOG 2022). The proposed project would not conflict with the requirements of the ALUCP for ground and airspace safety and is compatible with safety and noise compatibility criteria established in the ALUCP. While the project area includes land within the ALUCP for Mather Airport, the proposed project would not result in a safety hazard for people residing or working in the project area. Therefore, this impact would be ***less than significant***, and no mitigation would be required.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

There are no private airstrips or helipads within the vicinity of the project area that would result in a safety hazard for people residing or working in the project area. There would be ***no impact***, and no mitigation would be required.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The Sacramento County Evacuation Plan identifies Jackson Road and Excelsior Road as potential evacuation routes in the event of an emergency that would require evacuation. Access to the substation site is provided by Jackson Road and Excelsior Road. The proposed substation would be developed on a private parcel with staging located away from public roads. No lane closures are anticipated during construction of the substation. The proposed construction of new or upgraded overhead lines may require one-way traffic control for the safety of crews working adjacent to the travel lanes on Jackson Road and Excelsior Road. Flagging and signs would be utilized to direct traffic. The proposed project would not substantially affect emergency vehicle access or implementation of an emergency evacuation plan because construction truck traffic would be spread over a period of many weeks and closure of local roadways are not anticipated. Once the proposed project is complete, project operations will not interfere with emergency response or evacuation plans. Therefore, construction and operation of the proposed project would not impair implementation or physically interfere with emergency response or evacuation plans, and the impact would be ***less than significant.***

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The proposed project is located in a rural area of unincorporated Sacramento County, within a WUI zone and where the fire hazard is Moderate. The proposed project would involve use of

combustion-engine construction equipment, as well as storage of potentially flammable materials, such as fuel or lubricating oil. Construction activities could potentially provide a spark or ignition source, or introduce materials that could combust or burn at high intensity if exposed to a heat source. Heat or sparks from a vehicle or hot work activities could ignite dry vegetation and cause fires. As such, construction activities could increase the risk of initiating a wildland fire.

Other than initial vegetation clearing, construction activities at the proposed substation site would be confined to areas that have been cleared of vegetation. Vehicles and equipment would use existing developed roads to access work areas, all of which would be cleared of vegetation to reduce fire potential. Vegetation would be removed or trimmed within the overhead line corridor work limits, as needed, so that construction activities do not increase risks associated with wildfires. Additionally, construction equipment would be stored away from vegetation that could provide fire fuel if ignited.

While the use of fuels and construction equipment could pose a short-term risk to fire ignition, the potential to result in a wildland fire is low because of the location and condition of the project area. Therefore, the impact would be ***less than significant.*** Potential impacts related to wildfire risk are discussed in more detail in Section 3.20, “Wildfire”.

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3.10 Hydrology and Water Quality

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
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 through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i)	Result in substantial on- or offsite erosion or siltation;	☐	☐	☒	☐
ii)	Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
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	☐	☐	☒	☐
iv)	Impede or redirect flood flows?	☐	☐	☒	☐
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

3.10.1 Environmental Setting

Climate and Precipitation

The Sacramento Valley has a Mediterranean climate with warm, dry summers and cool, wet winters. Data from the Sacramento 5 ESE weather station, the closest Wetlands Climate Table station to the project area with sufficient data to generate a report, reports the 20-year (2004-2024) average high temperatures range from 95.7°F in July to 54.0°F in January, and the average low temperatures range from 41.3°F in January to 62.4°F in July. The total average annual precipitation is 18.11 inches, with precipitation falling as rain. (NRCS 2025)

Surface Water

The project area is in the Lower Sacramento subbasin (Hydrologic Unit Code [HUC] 18020163), Morrison Creek watershed (HUC 1802016304) and the Elder Creek subwatershed (HUC 180201630404) (USGS 2025). Elder Creek is an intermittent stream that flows through the northwest corner of the project site and under both Jackson Road and Excelsior Road. Elder Creek originates northeast of the substation site and flows south and east before converging with Morrison Creek, which flows into the Sacramento River. At the substation site, Elder Creek averages 55 feet wide and its banks are dominated by rushes (*Juncus* sp.). The creek flows seasonally. Generally, on-site stormwater drains to the west and converges with Elder Creek via an existing drainage swale located at the northwestern corner of the project site.

The USFWS National Wetlands Inventory (NWI) identified seven freshwater emergent wetlands, two freshwater ponds, and four riverine wetlands within the project area (Figure 3.10-1). As described in Section 3.4, “Biological Resources”, there are wetlands in the project vicinity that are not mapped by the NWI. Aquatic resources on the substation site include Elder Creek, seasonal swale, vernal swale, seasonal wetland, vernal pool, and stockpond habitats (Figure 3.4-1).

Groundwater

The project area is within the Sacramento River Hydrologic Region, Sacramento Valley - South American Subbasin (California Department of Water Resources [DWR] 2025a). The South American Subbasin is bounded by the American River to the north, the Sacramento River to the west, the Consumnes and Mokelumne Rivers to the south, and the Sierra foothills to the east. Depth to groundwater is highly variable in the Sacramento Valley Groundwater Basin. According to the Phase I Environmental Site Assessments conducted for the substation site parcels, depth-to-groundwater was measured between 105 and 110 feet below ground surface at nearby sites, and the calculated flow direction was to the west (AECOM 2019). The actual groundwater flow direction and depth in the vicinity of the project area cannot be assessed without site-specific groundwater monitoring well data. Groundwater quality in the subbasin is generally of good quality and meets local needs for municipal, domestic, and agricultural uses (South American Subbasin 2021).

Water Quality

Section 303(d) of the Clean Water Act (CWA) requires states to assess surface waters to determine if pollutants exceed water quality standards. Water bodies that exceed standards are placed on the state’s 303(d) List. Impaired water bodies on the list require the development of a Total Maximum Daily Load (TMDL), such as a water quality improvement plan.

Elder Creek, Morrison Creek, and the Sacramento River (Sacramento City Marina to Suisun Marsh Wetlands) are listed as impaired waterbodies. The beneficial use of Elder Creek is warm freshwater habitat, and it is listed as impaired for pyrethroids pesticides. The Central Valley Regional Water Quality Control Board adopted Resolution R5-2017-0057 which included the *Phase 2 (Pyrethroids) Sacramento and San Joaquin Pesticides Basin Plan Amendment and TMDLs* and was approved by the U.S. Environmental Protection Agency on April 22, 2019. Morrison Creek has a beneficial use of cold freshwater habitat and is listed as impaired for benthic community effects. The expected TMDL completion date for Morrison Creek is 2034.

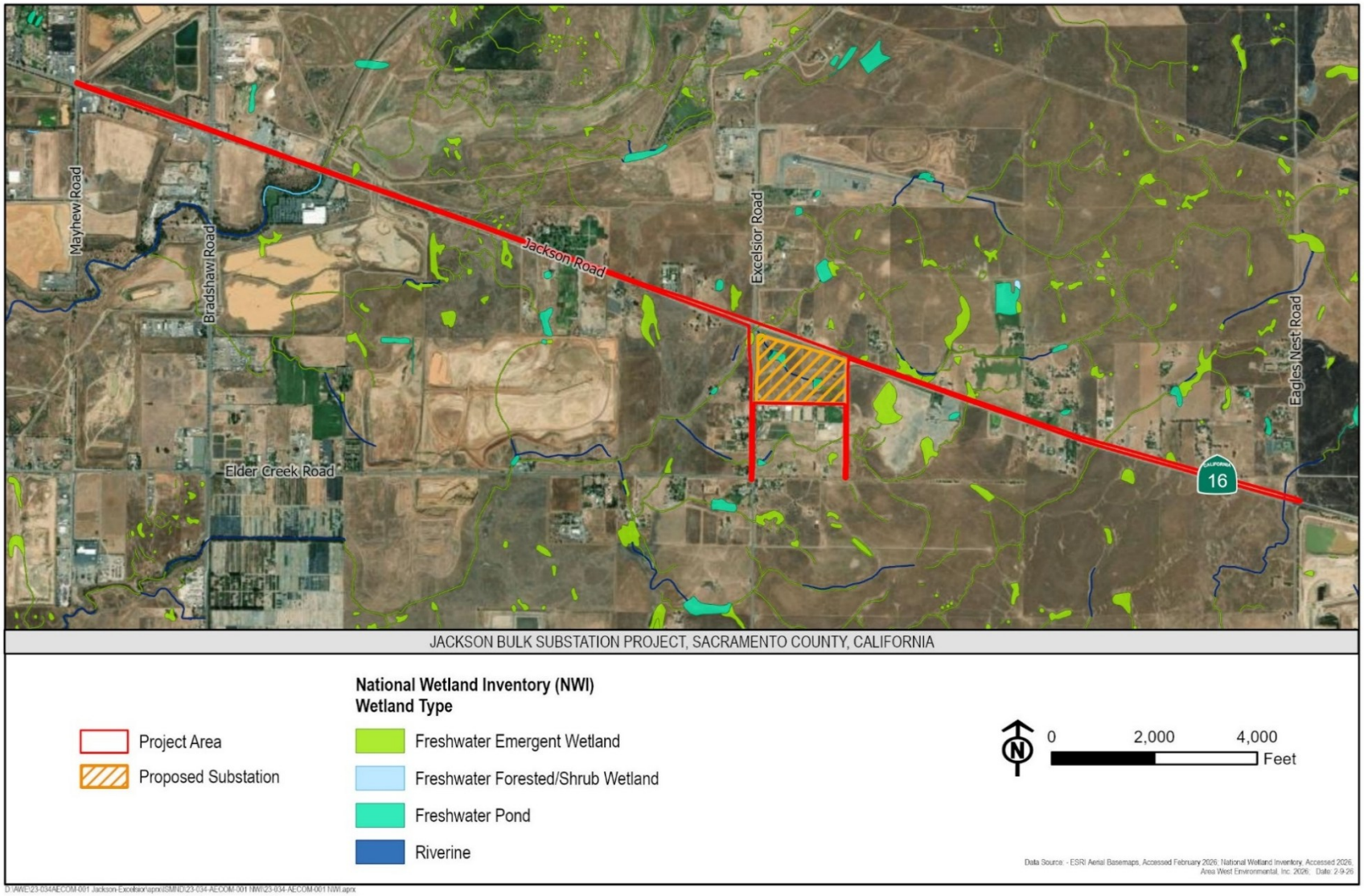


Figure 3.10-1. National Wetland Inventory Map

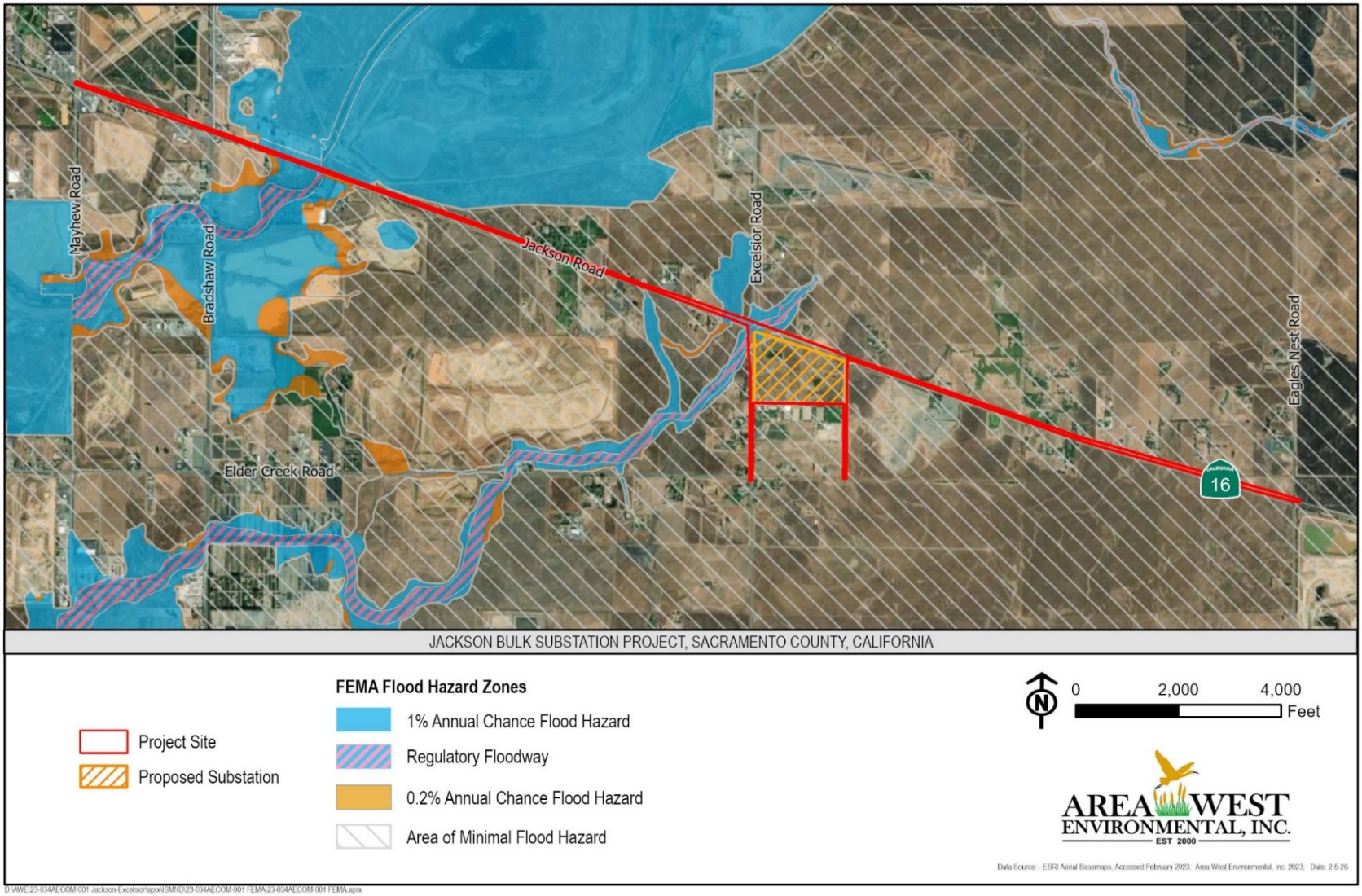


Figure 3.10-2. FEMA Flood Hazard Map

The Sacramento River (Sacramento City Marina to Suisun Marsh Wetlands) has a beneficial use of fish spawning and is impaired for water temperature. The TMDL completion date is expected in 2035. (State Water Resources Control Board 2024)

Flooding

According to the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) (Map Panel 06067C0218H), most of the substation site is located in an Area of Minimal Flood Hazard. In the southwest corner of Jackson Road and Excelsior Road, Elder Creek crosses the substation site and is located within a Regulatory Floodway, 1-percent annual chance flood hazard (100-year flood plain), and 0.2 percent annual chance flood hazard (500-year floodplain). East of Bradshaw Road, the overhead line corridor crosses over Morrison Creek and is located within a Regulatory Floodway, 1 percent annual chance flood hazard (100-year flood plain), and 0.2 percent annual chance flood hazard (500-year floodplain) (Figure 3.10-2). (FEMA 2025).

3.10.2 Impacts and Mitigation Measures

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Construction of the proposed project would require ground disturbing activities such as grading for substation equipment, drainage, and access roads and excavation for the stormwater detention basin. These activities would result in the disturbance of more than one acre; therefore, the project would be subject to the National Pollutant Discharge Elimination System (NPDES) permit program and would require authorization under the Construction General Permit.

A component of the Construction General Permit is the development of a SWPPP. The SWPPP is a site-specific plan that includes the implementation of BMPs and identifies pollutants, their sources, and control mechanisms to prevent water pollution and erosion. The SWPPP would be approved by SMUD and comply with the terms in the Construction General Permit. Implementation of the SWPPP would reduce potential impacts of construction on surface water quality.

Operation of the substation would not degrade surface or groundwater quality. Stormwater runoff would be captured by an underground storm drain/pipe system and conveyed to an existing drainage swale at the northwestern corner of the substation site along Jackson Road. An on-site detention basin is proposed to filter pollutants using vegetation and enable the stormwater outflows to be discharged at a controlled rate consistent with the existing drainage pattern. Potential downstream impacts would be reduced due to the slower rate and lower volume of water that would be subsequently discharged into the drainage swale.

The control building for the substation would include a restroom, and water service would be provided through the installation of a water well or use of an onsite permitted inactive well. Sewer service for the restroom would require the installation of a sanitary sewer septic system. All infiltration and setback requirements for the septic system would be met.

Project construction and operation would comply with regulatory requirements for surface and groundwater quality and implement a SWPPP; therefore, this impact would be ***less than significant***, and no mitigation would be required.

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

During construction, water would generally be used for dust control and sanitation (i.e., hand washing). The contractor will provide water using a licensed water carrier during the duration of construction and/or construction water would be provided by using one of the on-site inactive wells. Demand for groundwater for the construction process would be temporary and would not substantially decrease supplies.

Operation of the substation would occur remotely; routine on-site interior maintenance is expected two to four times a month and perimeter maintenance is expected four times a year. Restroom facilities would be constructed with low flow technology to conserve water and may be used while employees are onsite. The use of facilities would result in a negligible demand on water resources and would not have a significant impact on groundwater supply.

Impervious surfaces that replace existing pervious surfaces could potentially alter the natural hydrology of the site due to the increase of stormwater runoff and reduce groundwater recharge. The proposed substation would result in an increase in the amount of impervious surfaces within the site from soil compaction and addition of gravel and paved surfaces. However, the substation site would be designed to maintain existing drainage patterns and convey runoff into the drainage swale, where it would then reach Elder Creek, percolate into the soil, and recharge groundwater.

Implementation of the proposed project would not have a considerable demand for groundwater supply, nor would it substantially interfere with groundwater recharge. Therefore, the impact would be ***less than significant***, and no mitigation is required.

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 through the addition of impervious surfaces, in a manner which would:

i) Result in substantial on- or offsite erosion or siltation?

The proposed substation would not result in a considerable alteration of the existing drainage pattern within the substation site. The proposed detention basin will capture stormwater runoff and enable outflow at a rate similar to the existing drainage pattern, which then carries runoff to the existing drainage swale along Jackson Road and ultimately outfalls into Elder Creek. Elder Creek crosses the substation site in the northwest corner of Jackson Road and Excelsior Road. Due to the planned 200-foot setback from the roadway, the proposed substation would not disturb the stream. Elder Creek would not be altered by construction or operation of the proposed project. BMPs would be implemented during and after construction, in accordance with the SWPPP and regulatory permit processes, to minimize on- and off-site erosion and sedimentation.

The overhead line corridor crosses Elder Creek and Morrison Creek, as well as unnamed tributaries to Elder Creek. Replacement of existing overhead line poles and construction of new poles would not affect drainage patterns. Pole placement for overhead lines would be designed to avoid creeks and associated riparian habitat to the extent practicable.

The proposed project would not result in substantial alterations to drainage patterns that would result in on- or off-site siltation or erosion, therefore the impact would be ***less than significant*** and no mitigation is required.

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

The proposed substation and associated components would be located within an area of minimal flood risk and would not encroach on the Elder Creek and Morrison Creek regulatory floodways, as identified on the FEMA flood maps (FEMA 2025; Figure 3.10-2). The substation would not be prone to significant flood hazards. Some pole replacements along Jackson Road and Excelsior Road would be located within the regulatory floodplain of Morrison and Elder Creeks; however, replacing existing poles with new poles of approximately the same size and in the same general location would not alter existing floodway conditions. The proposed project would not result in a substantial increase to the rate or amount of runoff leading to on- or off-site flooding; therefore, this impact would be ***less than significant*** and no mitigation is required.

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?

The proposed project would not substantially affect existing hydrology or increase runoff to the extent that would exceed the capacity of existing or planned stormwater drainage systems. The proposed project includes a detention basin and landscaping to help slow stormwater runoff and filter pollutants. Thus, the proposed substation would not exceed the capacity of the stormwater drainage system or create a substantial source of polluted runoff. This impact is ***less than significant*** and no mitigation is required.

iv) Impede or redirect flood flows?

No new structures are proposed within a 100-year flood hazard area, and the substation will be constructed within an area of minimal flood hazard risk (FEMA 2025). The substation would not increase impervious surfaces to the extent which would substantially impede or redirect flood flows. Replacement of existing poles within the Morrison and Elder Creek flood hazard areas would not adversely affect existing floodway conditions. Therefore, this impact is ***less than significant*** and no mitigation is required.

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

The project area is not located within a Tsunami Hazard Area (California Department of Conservation 2021) or area of special flood hazard (FEMA 2025), and no large lakes susceptible to seiches are in the vicinity. The project area is not vulnerable to inundation by

tsunami, seiche, or other natural flood hazards due to its distance from the ocean; therefore, there is ***no impact*** and no mitigation is required.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project area is located within the South American Subbasin, which is subject to an adopted Groundwater Sustainability Plan (GSP) pursuant to the Sustainable Groundwater Management Act (SGMA). The GSP is overseen and implemented by multiple Groundwater Sustainability Agencies. Due to the minimal amount of operational water usage that would occur under the proposed project during intermittent site visits from SMUD staff and routine maintenance, it would not conflict with or obstruct implementation of the GSP for the South American Subbasin. The impact would be ***less than significant***, and no mitigation is required.

3.11 Land Use and Planning

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☒	☐

3.11.1 Environmental Setting

Existing Land Uses

The proposed substation would be located on approximately 44 acres of currently undeveloped land in unincorporated Sacramento County at the southeast corner of Excelsior Road and Jackson Road. The project area also includes linear corridors extending from the substation site northwest and southeast along Jackson Road and south along Excelsior Road for the new and upgraded overhead lines. Surrounding land uses include rural residences, ranch and grazing lands, and scattered commercial and industrial uses. Vernal pool/annual grassland complexes are adjacent to and north, east, and west of the substation site. These areas are used for cattle grazing and single-family residences are present within most of these parcels. An equine facility with jumping courses, pavilions, and stables is to the immediate south of the substation site. East and west of the substation site along Jackson Road, there are rural residences and grazing lands, intermixed with small-scale agriculture and commercial/industrial uses. Similar land uses are present to the north and south of the site on Excelsior Road.

Regional Land Use Plans, Policies, and Regulations

The proposed project is within the Sacramento Area Council of Governments (SACOG) planning area as identified in the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS, referred to as the 2025 Blueprint) (SACOG 2025). The 2025 Blueprint indicates the SACOG six-county region (including Sacramento County) is anticipated to grow by approximately 580,000 people, and will add just over 260,000 new jobs, and 278,000 new homes. The Blueprint encourages growth within existing communities and acknowledges the Jackson Highway Corridor as an appropriate and logical area to urbanize.

The project area is within the SMUD HCP boundaries. The SMUD HCP is a 30-year plan designed to avoid, minimize and mitigate impacts to HCP Covered Species that may be affected by SMUD's various operation, maintenance and new construction activities. The HCP covers activities within SMUD's service territory and in portions of Placer, Yolo, Amador and San Joaquin Counties where SMUD's facilities are present. The HCP Covered Species includes 7 state and federally endangered and threatened species — slender Orcutt grass, Sacramento Orcutt grass, vernal pool fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn

beetle, vernal pool tadpole shrimp, California tiger salamander and giant garter snake. The proposed project is a covered activity under the SMUD HCP and will adhere to the SMUD HCP procedures for ITP issuance.

The project area is also within the South Sacramento Habitat Conservation Plan (SSHCP, Sacramento County, et al. 2018) area, which is designed to ensure preservation of species, natural communities, and aquatic resources, while streamlining the environmental permitting process for covered activity projects with potential to impact special-status species, their habitats, or aquatic resources. The project area is inside the SSHCP Urban Development Area (UDA), where all proposed urbanization and some limited habitat preservation will occur, with a focus on vernal pools and streams; most habitat conservation will occur outside the UDA. The proposed substation site is within an area identified by the Sacramento Valley Conservancy (SVC) as the Sacramento Prairie Vernal Pool Preserve region. SVC has permanently protected over 7,000 acres of sensitive vernal pool and upland habitat, located on 23 properties, in the region, with over 1,000 acres located in the area south of Jackson Road and east of Excelsior Road.

The project area is within the Mather Airport Land Use Compatibility Plan area. Discussion of the project's compatibility with the ALUCP is included in Section 3.9, "Hazards and Hazardous Materials".

Local Land Use Plans, Policies, and Regulations

The Sacramento County General Plan of 2005-2030 (Sacramento County 2011) includes goals and policies to help ensure future population growth in the county will have adequate housing, employment, public services, and other necessities. The County general plan did not include new growth areas, but instead included policies to allow growth following a master planning process. The County adopted two growth boundaries to promote orderly growth and the efficient extension of infrastructure and the provision of urban services, as well as to preserve agriculture and rangelands, critical habitats and natural resources. The two boundaries are the Urban Services Boundary (USB), which is the ultimate boundary for urban development in the unincorporated county, and the Urban Policy Area (UPA), which defines the area within the USB expected to receive urban levels of public infrastructure and services within the general plan's 25-year planning period. USB and UPA boundaries, as well as zoning and land use designations, are available on the Sacramento County Online Map viewer (Sacramento County 2025a). The substation site is within the USB and adjacent to the UPA.

General Plan land use designations identify general type of use (e.g., agricultural, residential, industrial) and the intensity of the use (e.g., minimum parcel size, dwelling units per acre, floor area ratio) and guide future development patterns by providing a long-term vision for growth that separates incompatible uses. The General Plan land use designation of the proposed substation site is General Agriculture and land use designation of the proposed overhead line corridor is Commercial & Offices, Low Density Residential, General Agriculture, Mixed Use, Recreation, Camellia Memorial Lawn (Cemetery, Public & Quasi-Public), Medium Density Residential, and Extensive Industrial. Some of the overhead line corridor is also designated Resource Conservation Area-Protected and Aggregate Resource Area. (Figure 3.11-1) (Sacramento County 2025a).

The County zoning designation of the proposed substation site and eastern end of the proposed overhead line corridor is General Agricultural. The western end of the proposed overhead line corridor, around Bradshaw Road, is zoned Industrial and Interim Agricultural Reserve. A large portion of the project area also has a Surface Mining zoning overlay (Figure 3.11-2).

The project area is located in the Vineyard Community Plan Area, which reflects the goals and policies of the Vineyard community while remaining consistent with policies found in the county general plan (Sacramento County 1985). The proposed substation site is identified as Permanent Agricultural and the proposed overhead line corridor is identified as Permanent Agricultural, Business & Professional, and Heavy Industrial in the Vineyard Community Plan (Sacramento County 2025a).

There are four major planning applications currently in process for future urban growth areas located along the Jackson Highway (also known as Jackson Road) corridor. The West Jackson Highway Master Plan (State Clearinghouse Number [SCH] No. 2013092021, Sacramento County 2025b), will develop approximately 5,900 acres on both the north and south sides of Jackson Road, west of Excelsior Road. The Jackson Township Specific Plan (SCH No. 2013082017, Sacramento County 2021) is immediately east of the West Jackson Highway plan area and will develop approximately 1,400 acres on the north side of Jackson Road, east of Excelsior Road. The NewBridge Specific Plan (SCH No. 2013012028, Sacramento County 2020a) is immediately east of the Jackson Township plan area and will develop approximately 1,100 acres on the north side of Jackson Road. The Mather South Community Master Plan (SCH No. 2014062087, Sacramento County 2020b) is immediately north of the NewBridge plan area and will develop approximately 885 acres. The four master plans cover almost 9,300 acres and would include: development of more than 27,000 new housing units of varying densities; nearly 6.8 million square feet of commercial space, employment-generating uses, and mixed-use space; 12 schools; more than 300 acres of developed parkland; and approximately 2,400 acres of designated open space. The four master/specific plan areas do not include the proposed substation site; however, the new substation will be needed to provide electricity to the plan areas and accommodate planned growth in the region (Figure 3.11-3).

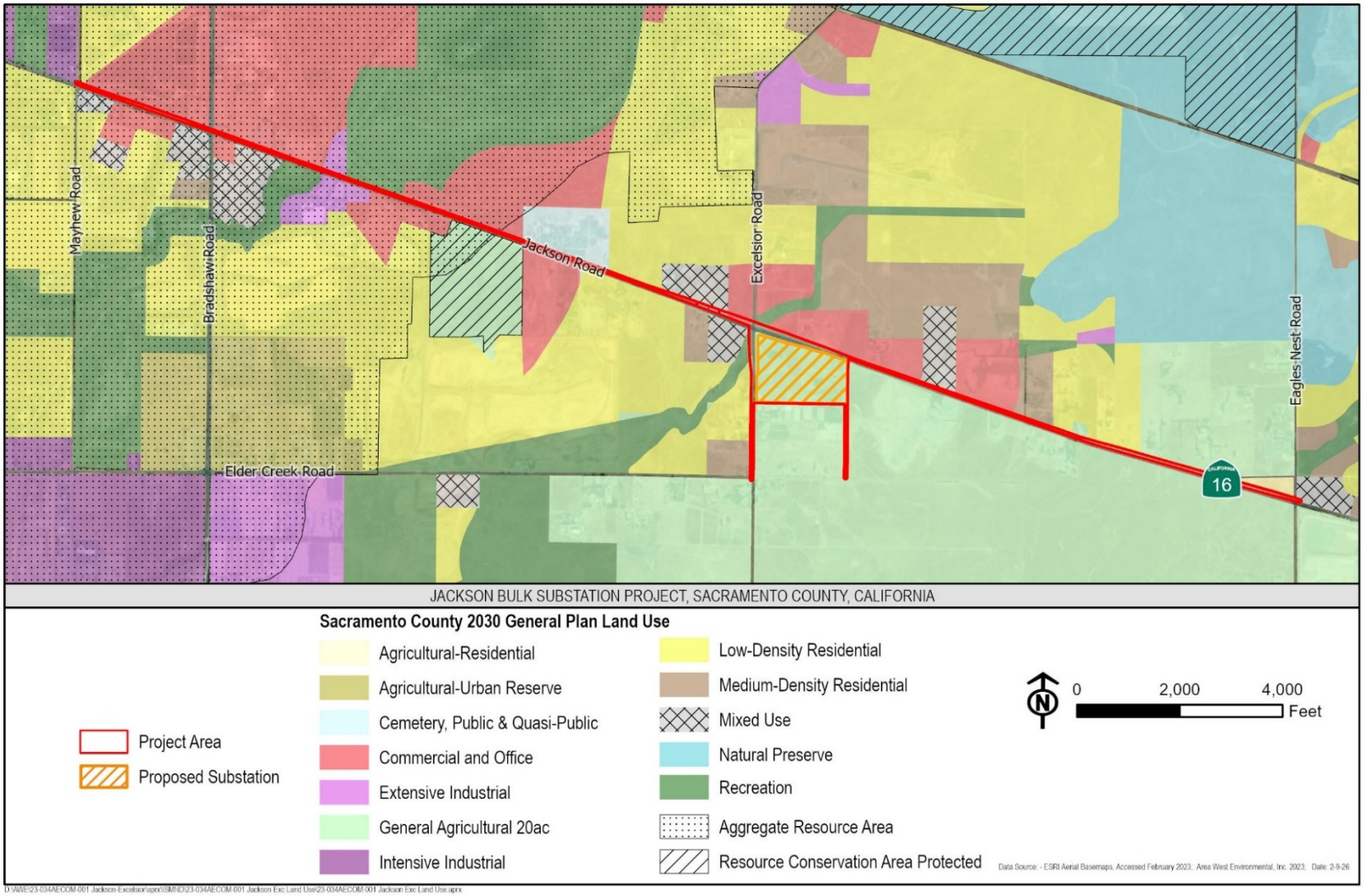


Figure 3.11-1. Sacramento County General Plan Land Use Designations

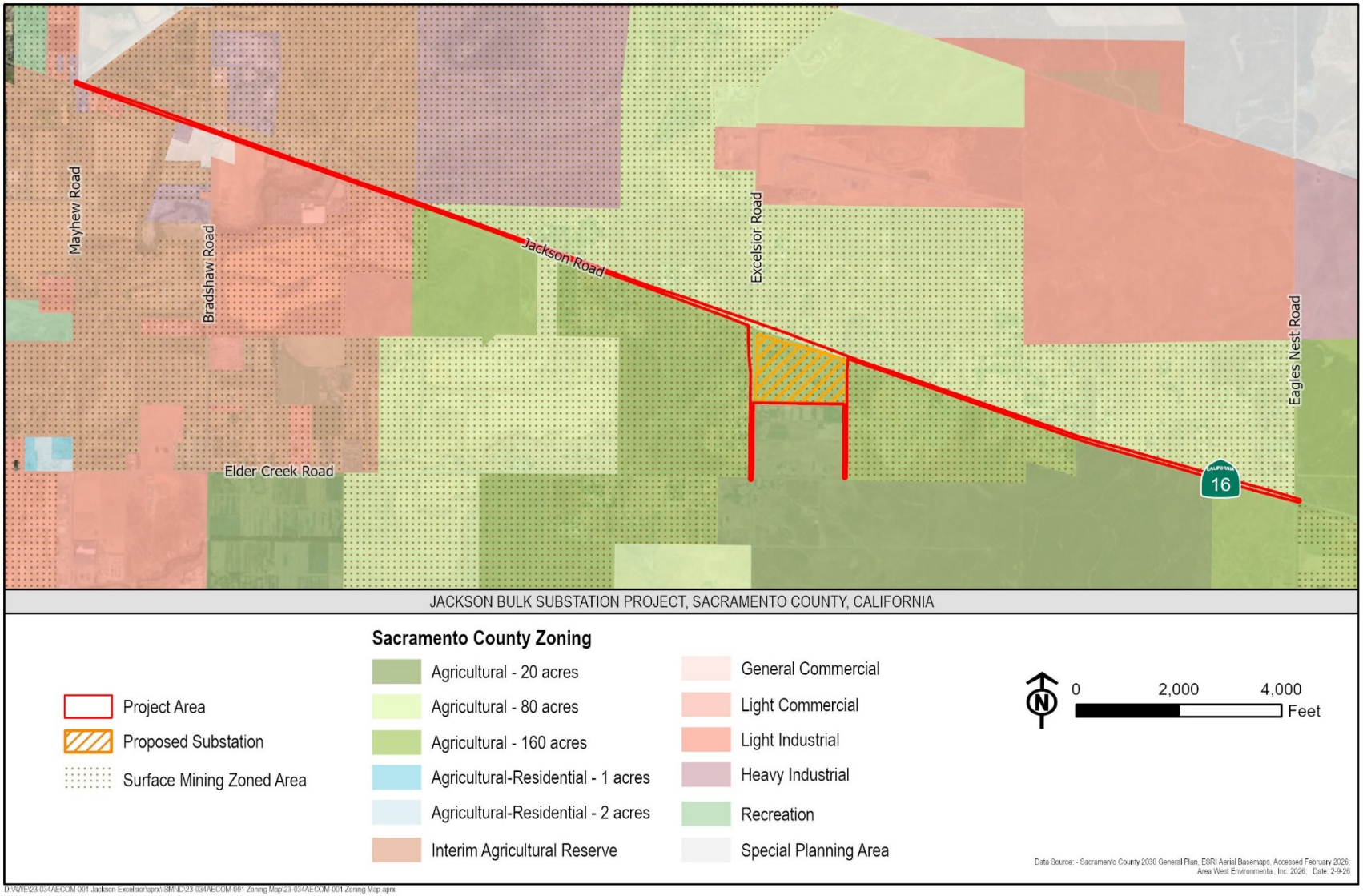


Figure 3.11-2. Sacramento County Zoning

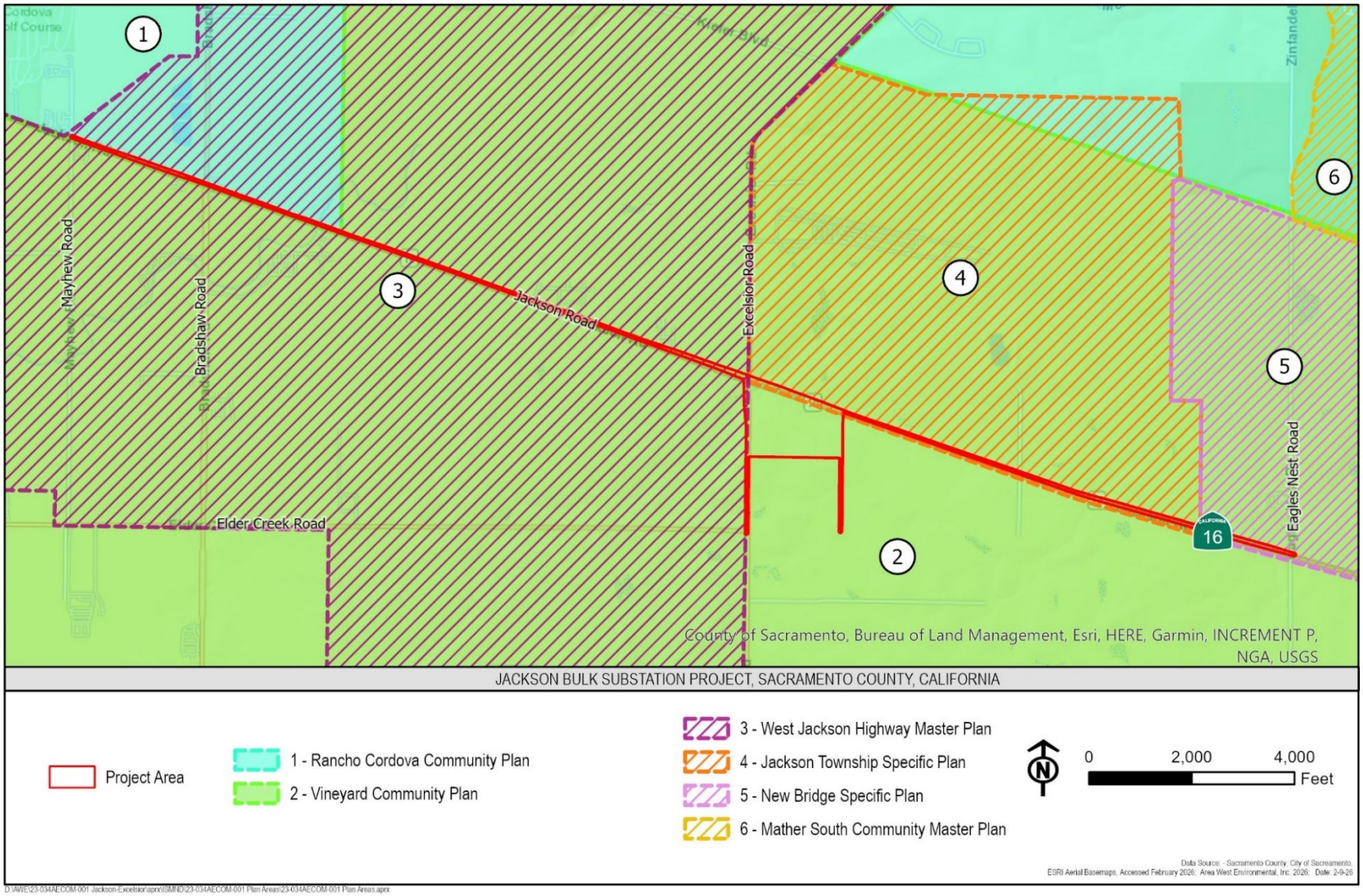


Figure 3.11-3. Community, Master and Specific Plan Areas

3.11.2 Impacts and Mitigation Measures

a) Physically divide an established community?

The proposed project would involve constructing a new substation on undeveloped disturbed land that was previously partially developed for residential and grazing use. East and west of the substation site on Jackson Road and north and south of the substation site on Excelsior Road, there are rural residences and grazing lands, intermixed with small-scale agriculture and commercial/industrial uses. The area is generally undeveloped due to a long history of mining and rural agricultural activity (Sacramento County 2011). The proposed bulk substation would step down transmission line voltage of 230kV to subtransmission voltage of 69kV for distribution to future distribution substations located within the following master/specific planned future development areas: West Jackson Highway Master Plan, Jackson Township Specific Plan, NewBridge Specific Plan, and Mather South Community Plan. The proposed project is not located near an existing community, but in an area planned for future development.

There are existing SMUD overhead power lines on the north side of Jackson Road, the west side of Excelsior Road, and extending east to west through the southern portion of the substation site. The proposed project would upgrade existing distribution lines and construct new overhead lines along Jackson Road and Excelsior Road where new connections to existing lines are necessary. New transmission lines within the substation will tie into existing lines south of the proposed substation and continue off-site within SMUD's easement. The proposed project would not isolate or divide a community or block an existing means of access for an existing community. The proposed project is planned to meet future electricity demands for anticipated growth in the region and would not physically divide an established community. Therefore, the proposed project would have ***no impact*** and no mitigation would be required.

b) Cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The Sacramento County 2005-2030 General Plan Public Facilities Element Section VIII: Energy Facilities includes several policies with the goal of appropriately siting energy facilities that efficiently and safely produce and distribute energy to Sacramento County residents without compromising environmental quality or human health. Public Facility (PF) policies applicable to the proposed project are presented in Table 3.11-1 (Sacramento County 2011).

Table 3.11-1. Sacramento County Public Facility Policies

Policy Number	Sacramento County Public Facility Element Policy
PF-67	Cooperate with the serving utility in the location and design of production and distribution facilities so as to minimize visual intrusion problems in urban areas and areas of scenic and/or cultural value including the following: • Recreation and historic areas. • Scenic highways. • Landscape corridors. • State or federal designated wild and scenic rivers. • Visually prominent locations such as ridges, designated scenic corridors, and open viewsheds. • Native American sacred sites.
PF-68	Cooperate with the serving utility in the location and design of energy production and distribution facilities in a manner that is compatible with surrounding land uses by employing the following methods when appropriate to the site: • Visually screen facilities with topography and existing vegetation and install site-appropriate landscaping consistent with surrounding land use zone development standards where appropriate, except where it would adversely affect access to utility facilities, photovoltaic performance or interfere with power generating capability. • Provide site-compatible landscaping. • Minimize glare through siting, facility design, nonreflective coatings, etc. except for the use of overhead conductors. • Site facilities in a manner to equitably distribute their visual impacts in the immediate vicinity.
PF-69	Cooperate with the serving utility to minimize the potential adverse impacts of energy production and distribution facilities to environmentally sensitive areas by, when possible, avoiding siting in the following areas: • Wetlands. • Permanent marshes. • Riparian habitat. • Vernal pools. • Oak woodlands. • Historic and/or archaeological sites and/or districts
PF-70	Cooperate with the serving utility so that energy production and distribution facilities shall be designed and sited in a manner so as to protect the residents of Sacramento County from the effects of a hazardous materials incident.
PF-85	To minimize visual impacts and protect the county's visual and aesthetic resources new bulk substations should be located in industrial and non-retail commercial areas when possible. To further minimize visual intrusion and potential land use conflicts, substations shall be enclosed with site-appropriate security fence in concert with a landscaped setback along all public street frontage
PF-86	Proposals to locate all new bulk substations and all other large scale energy transmission facilities equal to or greater than 100kV shall be submitted to Planning for review and comment in the form of a General Plan Conformity request.
PF-88	In order to avoid interference with take-off and landing procedures, locate new transmission towers at a distance from airport runways consistent with Code of Federal Regulations, Part 77.

Policy Number	Sacramento County Public Facility Element Policy
PF-89	Wherever feasible, utilize existing transmission poles to accommodate new overhead transmission lines. If practical, existing and future transmission corridors should be shared by more than one utility company subject to the Northern California Joint Pole Agreement
PF-91	Careful consideration shall be taken when transmission lines cross farmland. The crossing of prime or statewide importance farmland with transmission lines should be avoided whenever possible. In those cases when crossing farmland in these categories is unavoidable, the County should recommend routing of the lines along the periphery of the site as the preferred alternative.
PF-92	Transmission lines should avoid, to the greatest extent possible, cultural resources and biological resources such as wetlands, permanent marshes, riparian habitats, vernal pools, and oak woodlands. When routed through such areas, transmission lines should have maximum line spans and cross at the narrowest points which involve minimal cutting and cropping of vegetation, maintaining the drainage regime of wetland basins. Additionally, when feasible, such routes should be maintained to serve as biological dispersion corridors between areas of high biodiversity.
PF-93	Protect native and non-native bird populations by incorporating electrocution prevention measures into the design of transmission towers.
PF-96	Locate transmission facilities in a manner that maximizes the screening potential of topography and vegetation
PF-97	Utilize monopole construction, where practicable, to reduce the visual impact on a corridor's middle and distant views.

The proposed substation would comply with the PF policies and, therefore, would constitute an appropriately sited energy facility that efficiently and safely produces and distributes energy to Sacramento County residents. The project would not result in potentially significant impacts to human health or the quality of the environment.

The proposed substation would be constructed on disturbed, currently undeveloped land, on parcels zoned Agricultural, which is discussed in more detail in Section 3.2, “Agriculture and Forestry Resources”. Substations may be located in all zoning districts, provided mitigation measures to minimize off-site visual and noise impacts are instituted as provided in Section 3.6.6.A.1.c of the Sacramento County Zoning Code (Sacramento County 2015). SMUD would also comply with Section 3.6.6.A.1.a, which authorizes the County to review and approve the location of the new substation. The substation design includes setbacks and landscaping consistent with Sacramento County’s design standards and is discussed in more detail in Section 3.1, “Aesthetics” and Section 3.13, “Noise.” Additionally, the proposed overhead lines would occur along existing roadways, rights of way, and utility easements.

The proposed project would not affect land uses outside of the proposed substation site and would not include other changes in the existing environment that could result in inconsistencies with applicable County General Plan and Zoning policies. The proposed project would not result in the creation of a new land use that is inconsistent with current zoning, and would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be ***less than significant***, and no mitigation would be required.

Refer to Section 3.4, “Biological Resources” for a discussion of consistency with the applicable provisions of the SMUD HCP and SSHCP.

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3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

3.12.1 Environmental Setting

The loss of access to regionally important mineral deposits as a result of land uses that preclude mining is one of the issues that the California Surface Mining and Reclamation Act of 1975 (SMARA) was framed to address. SMARA mandates a two-phased mineral resource conservation process called classification–designation. Under SMARA, the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The Board's decision to designate an area is based on a classification report prepared by the California Geological Survey (CGS) and on input from agencies and the public. CGS' priority for mineral land classification studies is based on areas that are most likely to urbanize in the future, with the goal of establishing an awareness of the availability of important resources by communicating with the appropriate lead agencies regarding the presence, location, and significance of mineral deposits within a particular region.

The project area is situated within the designated Greater Sacramento Area Production-Consumption Region for Portland cement concrete-grade (PCC) aggregate, which includes all designated lands within the marketing area of the active aggregate operations supplying the Greater Sacramento urban centers (Dupras 1999, O'Neal and Gius 2018). In compliance with SMARA, CGS has established the classification system shown in Table 3.12-1 to denote both the location and significance of key extractive resources.

The proposed substation site and overhead line corridor are situated in an area that comprises ancient channels of the American River. As a result, several areas along Jackson Highway east and west of the project site are classified as MRZ-2 (i.e., regionally significant mineral deposits) for PCC grade aggregate, and there are active aggregate mining operations within these areas (O'Neal and Gius 2018). A portion of the proposed overhead line corridor to the northwest of the substation site would be located within an area classified as MRZ-2, in the vicinity of Walsh Station and Morrison Creek. There are two designated mineral resource sectors (Nos. 72 and 60) on the north and south sides, respectively, of Jackson Highway in this area (O'Neal and Gius 2018). These sectors are known to contain regionally significant concrete aggregate resources. There are active aggregate mining operations in both of these sectors—Aspen VI and Aspen V South, respectively—both of which are situated in the Pleistocene-age Riverbank Formation (O'Neal and Gius 2018).

Table 3.12-1. California Division of Mines and Geology Mineral Land Classification System

Classification	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.
MRZ-3	Areas containing inferred mineral occurrences of undetermined mineral resource significance.
MRZ-4	Areas where available data is inadequate for assignment to any other mineral resource zone category.

Note: MRZ = Mineral Resource Zone
Source: Dupras 1999

The substation site and overhead line corridor to the south and southeast are within areas classified as MRZ-4 (i.e., areas where available data is inadequate for assignment to any other mineral resource zone category) (O'Neal and Gius 2018).

3.12.2 Impacts and Mitigation Measures

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?

Regionally important known mineral resource deposits are classified by CGS as MRZ-2. The substation site and overhead line corridor to the south and southeast are classified by CGS as MRZ-4 (areas where available data is inadequate for assignment to any other mineral resource zone category) (O'Neal and Gius 2018). No known economically valuable mineral resources are present in these areas. Therefore, construction of project-related improvements in these areas would not result in the loss of known regionally important mineral resources, and there would be ***no impact***.

A portion of the proposed overhead line corridor northwest of the substation site would be located within an area classified as MRZ-2 and would cross through either mineral resource Sector 72 or 60 (depending on whether the overhead line is installed on the north or south side of Jackson Road). Both of these mineral resource sectors are known to contain regionally significant deposits of construction aggregate; however, the proposed overhead line and pole improvements would be installed in approximately the same locations as the existing facilities, and would be constructed within the existing overhead line corridor within SMUD's right-of-way, which is immediately adjacent to the roadway. Therefore, the proposed overhead line improvements along Jackson Road northwest of the substation site would not result in the loss of known regionally important mineral resources, and the impact on these facilities would be ***less than significant***.

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?

The Conservation Element of the Sacramento County General Plan (Sacramento County 2017b) indicates that the County's locally important mineral resource recovery sites are the same as the regionally important mineral sites designated by CGS. Therefore, for the same reasons explained in criterion (a) above, the proposed project would not result in the loss of availability of any known locally important mineral resources. The impact would be ***less than significant***.

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3.13 Noise

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Generate 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 in other applicable local, state, or federal standards?	☐	☐	☒	☐
b)	Generate excessive groundborne vibration or groundborne noise 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?	☐	☐	☒	☐

3.13.1 Environmental Setting

Acoustic Fundamentals

Acoustics evaluates perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy, transmitted by a pressure wave through a solid, liquid, or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise; consequently, the perception of sound is subjective in nature and can vary substantially from person to person. Common environmental noise sources and noise levels are presented in Figure 3.13-1.

A sound wave is initiated in a medium by a vibrating object (e.g., vocal cords, the string of a guitar, the diaphragm of a radio speaker). The wave is comprised of minute variations in pressure, oscillating above and below the ambient atmospheric pressure. The number of pressure variations occurring per second is referred to as the frequency of the sound wave and is expressed in hertz, which is equivalent to one complete cycle per second.

Directly measuring sound pressure fluctuations at different frequencies would require the use of a very large and cumbersome range of numbers. To avoid this and have a more useable measurement system, the dB scale was introduced. The use of the decibel is a convenient way to handle the millionfold range of sound pressures to which the human ear is sensitive. A decibel is logarithmic.[6] As such, it does not follow normal algebraic methods and cannot be directly added. For example, a 65 dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to

[6] A sound level expressed in decibels is the logarithmic ratio of two like pressure quantities, with one pressure quantity being a reference sound pressure. For sound pressure in air, the standard reference quantity is generally considered to be 20 micropascals, which directly corresponds to the threshold of human hearing.

10 times the acoustical energy, and an increase of 20 dB equates to a 100-fold increase in acoustical energy.

Outdoor Noise Source	Noise Level (dBA)	Indoor Noise Source
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: Caltrans 2013.
dBA = A-weighted decibel(s)

Figure 3.13-1. Typical Noise Levels

The loudness of sound perceived by the human ear depends primarily on the overall sound pressure level and frequency content of the sound source. The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed. The standard weighting networks are identified as A through E. A strong correlation exists between the way humans perceive sound and A-weighted sound levels (dBA). For this reason, the dBA can be used to predict community response to noise. Sound levels expressed as dB in this section are A-weighted sound levels, unless noted otherwise.

Noise can be generated by a number of sources, including mobile sources (automobiles, trucks, and airplanes), and stationary sources (construction sites, machinery, commercial and industrial operations). As acoustic energy spreads through the atmosphere from the source to the receptor, noise levels attenuate (reduce) depending on ground absorption characteristics, atmospheric conditions, and the presence of physical barriers (walls, building façades, berms). Noise generated from mobile sources generally attenuates at a rate of 4.5 dB per doubling of distance. Stationary noise sources spread with more spherical dispersion patterns, which attenuate at a rate of 6 dB to 7.5 dB per doubling of distance.

Atmospheric conditions such as wind speed, turbulence, temperature gradients, and humidity may additionally alter the propagation of noise and affect levels at a receptor. Furthermore, the presence of a large object (barrier) between the source and the receptor can provide significant attenuation of noise levels at the receptor. The amount of noise level reduction or "shielding" provided by a barrier primarily depends on the size (height) of the barrier, the location of the barrier in relation to the source and receptors, and the frequency spectra of the noise. Natural barriers such as berms, hills, or dense woods, and human-made features such as buildings and walls may be used as noise barriers.

Noise Descriptors

The intensity of environmental noise changes over time. This section uses several different descriptors of time-averaged noise levels. The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of both the noise source and the environment. The noise descriptors most often used to describe environmental noise are defined below:

- L_{max} (Maximum Noise Level): The highest A/B/C-weighted, integrated noise level occurring during a specific period of time.

- L_{eq} (Equivalent Noise Level): The energy mean (average) noise level, the steady state sound level in a specified period of time that contains the same acoustical energy as a varying sound level over the same time period.

- L_{dn} (Day-Night Noise Level): The 24-hour L_{eq} with a 10 dB "penalty" applied during nighttime noise-sensitive hours between 10:00 p.m. and 7:00 a.m. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.

Noise Effects on Humans

Excessive and chronic exposure to elevated noise levels can result in auditory and nonauditory effects in humans. Auditory effects of noise on people are those relating to temporary or permanent noise-induced hearing loss. Nonauditory effects of exposure to elevated noise levels are those relating to behavioral and physiological effects. The nonauditory behavioral effects of noise on humans are primarily associated with the subjective effects of annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communications, sleep and learning.[7]

The degree to which noise results in annoyance and interference with activities is highly subjective and may be influenced by a number of nonacoustic factors. The number and effect of these nonacoustic environmental and physical factors vary depending on the individual characteristics of the noise environment, including sensitivity, level of activity, location, time of day, and length of exposure. One key aspect in the prediction of human response to new noise environments is the individual level of adaptation to an existing noise environment. The greater

[7] The nonauditory physiological health effects of noise on humans have been the subject of considerable research efforts attempting to discover correlations between exposure to elevated noise levels and health problems, such as hypertension and cardiovascular disease. Most research infers that noise-related health issues are predominantly the result of behavioral stressors (physiological) and not a direct noise-induced response.

the change in noise levels caused by a new noise source, relative to the environment an individual has become accustomed to, the less tolerant the individual will be to the new noise source.

With regard to the human perception of increases in sound levels expressed in dB, a change of 1 dB is generally not perceivable, excluding controlled conditions and pure tones. Outside of controlled laboratory conditions, the average human ear barely perceives a change of 3 dB. A change of 5 dB generally fosters a noticeable change in human response, and an increase of 10 dB is subjectively heard as a doubling of loudness.

Vibration

The human body responds to the vibration velocity's average amplitude. A vibration decibel notation is commonly used to describe vibration. The vibration velocity level (VdB) is reported in decibels relative to a level of $1x10^{-6}$ inches per second.[8]

In contrast to airborne noise, ground-borne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 VdB or lower, well below the threshold of human perception (around 65 VdB).

Existing Noise Conditions

Sensitive Land Uses

Noise-sensitive land uses are those uses where quiet is essential to the purpose of the land use. Land uses that are sensitive to noise generally include those uses where exposure to noise would result in adverse effects, and where quiet is an essential element of the intended purpose. Noise-sensitive land uses include residences and buildings where people normally sleep (including hospitals and hotels), as well as uses where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material, such as schools, libraries, theaters, and houses of worship.

The closest noise-sensitive receptors to the project area are residential uses located at the southwest corner of Jackson Road and Excelsior Road, as well as scattered rural residences in the surrounding area. These receptors could be exposed to noise associated with construction activities, increased traffic along local roadways, and operational sources associated with the proposed facility (e.g., transformers, fans, and other mechanical or electrical equipment). Residences are of primary concern, as occupants could experience increased and prolonged exterior and interior noise levels during both construction and operation. The closest structures to the substation site that could be susceptible to structural damage from vibration would be the JH Sporthorses Property to the south of the site, approximately 100 feet from the primary project construction areas.

[8] Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. Because the motion is oscillatory, no net movement of the vibration element occurs, and the average of any of the motion descriptors is zero. For vibration, velocity represents the instantaneous speed of the motion and acceleration is the speed's rate of change.

Existing Noise Sources

The existing noise environment near the project area is influenced by ambient noise sources in the vicinity, including vehicles on local roads, aircraft noise from Sacramento Mather Airport, train noise from the distant Union Pacific Railroad, industrial activities in the area, and mechanical equipment on buildings in the vicinity. The existing noise environment near the project area also is influenced by natural sources (e.g., wind and birds).

Ambient Noise Level Surveys

AECOM measured ambient noise levels near existing noise-sensitive uses at various locations within the project area. Table 3.13-1 summarizes the results of the ambient noise-level measurements. Two long-term (LT-01 and LT-02) and three short-term (ST-01 through ST-03) measurements were conducted on October 29–30, 2025, to characterize existing conditions in the project vicinity, as shown in Figure 3.13-2. The noise environment was primarily influenced by traffic along Jackson Road and Excelsior Road, as well as intermittent aircraft, distant rail travel, and natural sounds such as wind and birds.

Long-term measurements indicated that daytime noise levels ranged from 67.0 to 70.8 dBA L_{eq}, and nighttime noise levels ranged from 59.5 to 67.0 dBA L_{eq}, with corresponding day–night average levels (L_{dn}) between 68.1 and 74.2 dBA. Short-term measurements recorded instantaneous daytime L_{eq} levels ranging from 66.1 to 73.3 dBA, consistent with the long-term data and representative of existing ambient noise in the project area. Overall, measured ambient noise levels at noise-sensitive land uses closest to the project area ranged from approximately 66 to 74 dBA L_{eq}/L_{dn}.

Table 3.13-1. Ambient Noise Levels in the Project Area

	Measurement Site	From	To	Start Time	Duration	Daytime (7 a.m.–	10 p.m.) L_{eq}/L_{max}	Nighttime (10 p.m.–	7 a.m.) L_{eq}/L_{max}	L_{dn}
LT-01	Near 6213 Excelsior Road	29-Oct	30-Oct	19:00	24 Hour	67.0	81.5	59.5	77.2	68.1
LT-02	Near 10591 Jackson Road	29-Oct	30-Oct	19:00	24 Hour	70.8	86.0	67.0	82.6	74.2
ST-01	Near 10868 Jackson Road	30-Oct-25	30-Oct-25	16:00	15 Minutes	72.0	81.1	--	--	--
ST-02	Near 11147 Jackson Road	30-Oct-25	30-Oct-25	16:21	15 Minutes	73.3	90.6	--	--	--
ST-03	Near 10221 Jackson Road	30-Oct-25	30-Oct-25	16:45	15 Minutes	66.1	76.2	--	--	--

Notes: dB = decibels; L_{eq} = equivalent sound level (the sound energy averaged over a continuous 15-minute to 1-hour period); L_{max} = maximum noise level.

Noise-level measurements were conducted using a Larson Davis Laboratories Models 820 and 824 sound-level meters calibrated using an LDL Model CAL200 acoustical calibrator and programmed to record A-weighted sound levels using a "slow" response.

The equipment complied with all pertinent requirements of the American National Standards Institute for Class 1 sound-level meters.

Source: Data compiled by AECOM in 2025

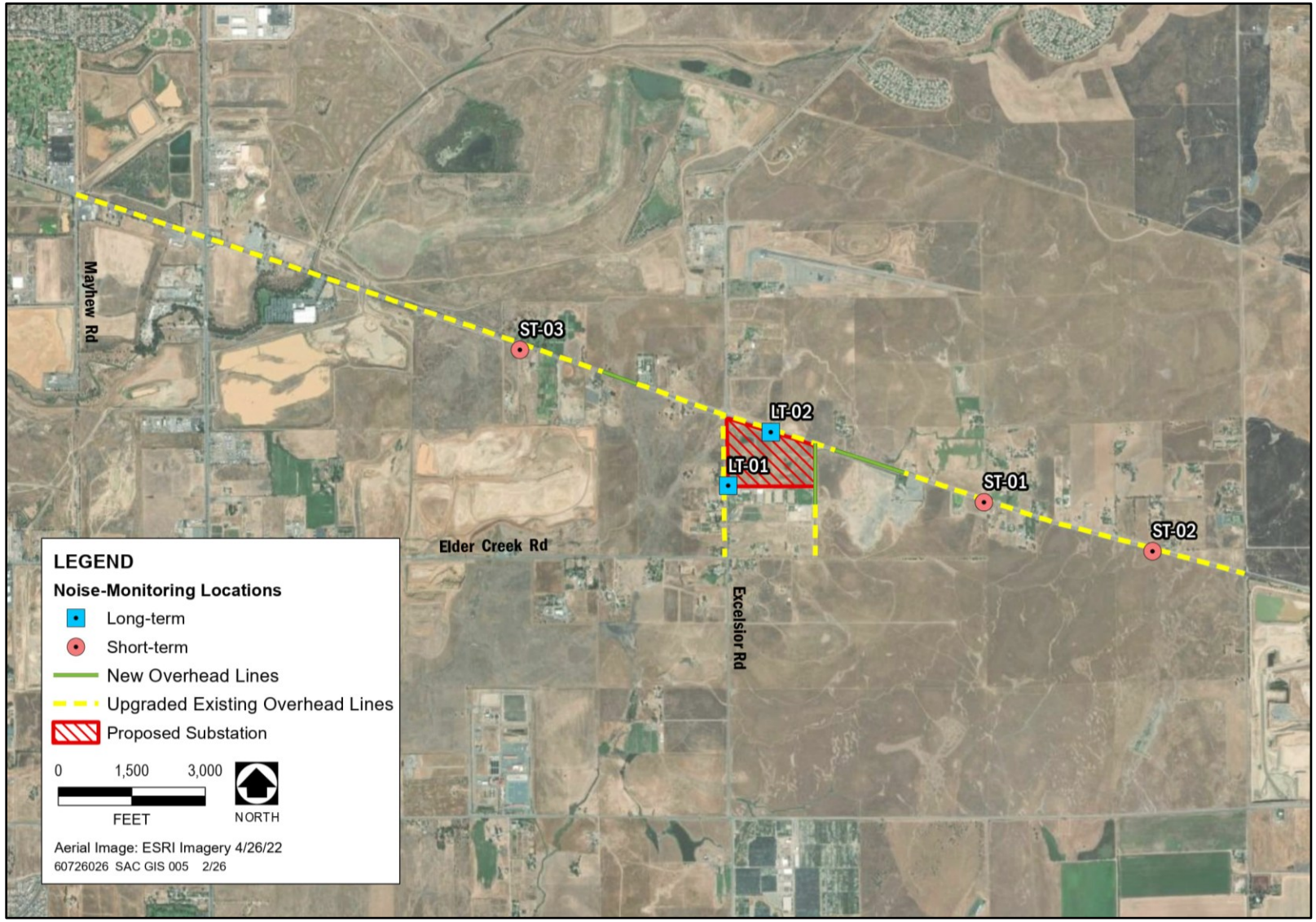


Figure 3.13-2. Noise Monitoring Locations

3.13.2 Impacts and Mitigation Measures

Methods and Assumptions

For the proposed project, the evaluation of potential noise impacts is based on a comparison between predicted noise levels and the criteria defined by Sacramento County. For this project, noise impacts are considered significant if existing or proposed noise-sensitive land uses would be exposed to noise levels in excess of the thresholds established in the County General Plan and Sacramento County Noise Control Ordinance, as described below.

County of Sacramento General Plan Noise Element

According to the Sacramento County General Plan, impacts to adjacent land uses from stationary sources of noise in the County are limited to 55 dB L_{eq} in daylight hours (Sacramento County 2017a). Policy NO-8 of the County's General Plan Noise Element requires that noise associated with construction activities shall adhere to the County Code requirements. Specifically, Section 6.68.090(e) addresses construction noise within the County.

County of Sacramento Noise Control Ordinance

The County's noise ordinance establishes maximum allowable exterior and interior noise levels for affected land uses. The ordinance generally limits exterior noise levels (measured at residential land and agricultural land uses) to a maximum of 55 dBA during any cumulative 30-minute period during the daytime hours (7 a.m.–10 p.m.), and 50 dBA during any cumulative 30-minute period during the nighttime hours (10 p.m.–7 a.m.). The ordinance sets somewhat higher noise limits for noise of shorter duration; however, noise shall not exceed 75 dBA during the day and 70 dBA at night. Activities generally considered to be exempt from the noise standards include construction activities (provided that they occur between the daytime hours of 6 a.m.–8 p.m., on weekdays, and 7 a.m.–8 p.m. on Saturday and Sunday), school athletic and entertainment events, activities conducted on public parks and playgrounds, and transportation noise.

The vibration assessment was based on the criteria established by the Federal Transit Administration and U.S. Environmental Protection Agency (U.S. EPA), as described below.

U.S. Department of Transportation, Federal Transit Administration and U.S. EPA Vibration Guidelines

To address the human response to groundborne vibration, the Federal Transit Administration (FTA) of the U.S. Department of Transportation has set forth guidelines for maximum-acceptable-vibration criteria for different types of land uses. These include 65 vibration decibels (VdB) referenced to 1 microinch per second (µin/sec) and based on root mean square (RMS) velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2018).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of the U.S. Environmental Protection Agency (FTA 2018). For fragile structures, CHABA recommends a maximum limit of 0.25 inches per second (in/sec) peak particle velocity (PPV) (FTA 2018).

Information included in Chapter 2, “Project Description,” and data obtained during on-site noise monitoring were used to determine potential locations of noise-sensitive receptors and potential noise-generating activities and land uses in the vicinity of the project area. Noise-sensitive land uses and noise sources near the project area were identified based on existing documentation (e.g., aerial images) and site reconnaissance.

To assess the potential short-term noise impacts from demolition and construction, sensitive receptors and their relative exposure were identified. Construction noise was predicted using the Federal Transit Noise and Vibration Impact Assessment methodology for construction noise prediction (FTA 2018). Reference equipment noise levels and use factors are based on the Federal Highway Administration Roadway Construction Noise Model (FHWA 2006). Noise levels of specific construction equipment that would be operated and the resultant noise levels at sensitive receptor locations were calculated.

The project’s contribution to the existing traffic noise levels along area roadways was determined by comparing the predicted noise levels at a reference distance of 100 feet from the roadway centerline, with and without project-generated traffic.

Potential long-term (operation-related) noise impacts from stationary sources were assessed based on existing documentation and site reconnaissance data (e.g., distances to receptors). This analysis also evaluates the proposed on-site noise-generating uses (i.e., operational noise generating equipment at the proposed substation) that could affect off-site noise-sensitive receptors near the proposed project.

Issues Not Discussed Further

Generation of excessive groundborne vibration or groundborne noise levels. Project operation (daily use of the substation) would not result in excessive groundborne vibration or groundborne noise levels; therefore, this issue is not discussed further in this IS/MND.

Project Components Relevant to Noise Analysis

The proposed project would involve construction and operation of a new approximately 18-acre electrical substation and associated 69kV and 230kV overhead transmission and subtransmission lines. Construction activities and subsequent substation operations have the potential to generate both temporary construction noise and long-term operational noise affecting nearby sensitive receptors.

Construction-Related Noise Sources

Project construction would occur over approximately 36 months and would include several sequential and overlapping phases such as site preparation, grading, foundation installation, control building construction, steel erection, equipment installation, and energization. Each phase would use heavy equipment such as excavators, cranes, dozers, compactors, haul

trucks, concrete mixers, and vibratory rollers, all of which are typical sources of temporary, elevated noise levels.

Construction would generally occur between 7:00 a.m. and 6:00 p.m., Monday through Saturday, and 9:00 a.m. to 6:00 p.m. on Sundays when necessary. An average of 15 workers per day, with up to 30 workers during peak activities, would be present on site. Material deliveries and truck movements along Jackson Road and Excelsior Road would also contribute to localized, intermittent increases in traffic noise.

Other temporary sources of construction noise would include: Grading and excavation activities, including use of heavy earthmoving equipment; Installation of new transmission poles, involving auger drilling and crane operation;

- Concrete pouring and structural steel assembly, involving truck deliveries and mobile generators;
- Paving, compaction, and equipment staging within the substation footprint; and
- Operation of water trucks, compressors, and welders during various construction phases.

Noise associated with construction would be temporary and limited to the substation site and overhead line corridors extending along Jackson Road and Excelsior Road where sub-transmission lines would be installed or replaced.

Operational Noise Sources

During operations, the substation would function continuously and remotely, with periodic on-site maintenance two to four times per month and more extensive inspections approximately four times per year. Operational noise would primarily result from stationary electrical equipment within the substation, including:

- Two 224-MVA transformers, each producing an average sound level of up to 80 dBA at 6 feet;
- 230kV circuit breakers, which may generate brief, intermittent impulses of up to 140 dB at 50 feet during switching operations;
- 69kV and 230kV capacitor banks, shunt reactors, and disconnect switches, producing low-frequency tonal hums;
- Pad-mounted transformers and auxiliary control building ventilation systems; and
- Emergency maintenance equipment or occasional vehicle access during servicing.

Although equipment such as transformers and capacitor banks generate continuous hums, sound levels decrease rapidly with distance, and noise barriers, fencing, and berms proposed along the south and east boundaries of the substation would further reduce potential off-site noise exposure.

Vibration Sources

Vibration during construction could occur from heavy equipment operation, grading, and compaction, particularly near the substation foundations and pole installations. However, no pile driving or blasting is proposed, and therefore, construction vibration is expected to be well below levels that could cause structural damage at the nearest off-site buildings or be perceptible at residential receptors. During operation, the substation would contain no rotating or vibrating equipment; therefore, no perceptible vibration is anticipated.

Overall, noise sources relevant to this analysis include construction-related equipment and material transport, and operational transformer and switchgear noise. These sources will be evaluated for temporary construction noise and vibration impacts and long-term operational noise exposure at the nearest residential receptors along Jackson Road and Excelsior Road, consistent with Sacramento County Noise Ordinance standards and applicable CEQA significance thresholds.

Impact Analysis

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?

Construction Noise

The proposed project would generate temporary and short-term construction noise from equipment operating on the substation site, construction of overhead line improvements, and the transport of construction equipment, materials, and workers to and from the area. Chapter 2, “Project Description,” describes the sequencing of project construction activities.

Project construction noise was estimated using the Federal Highway Administration Roadway Construction Noise Model (Appendix D) and a list of anticipated construction equipment. As shown in Table 3.13-2, the unmitigated noise level produced by the combinations of equipment during project construction would be approximately 80 to 88 dBA at a distance of 50 feet. Assuming standard spherical spreading loss (-6 dB per doubling of distance), the noise levels were estimated to be 73 to 80 dBA L_{eq} at the nearest noise-sensitive uses that would be located approximately 100 to 350 feet from the project construction activities.

The Sacramento County Noise Ordinance (Sacramento County Code, Chapter 6.68) establishes maximum allowable exterior and interior noise levels for affected land uses. The ordinance generally limits exterior noise levels at residential and agricultural land uses to 55 dBA during the daytime hours (7 a.m. to 10 p.m.) and 50 dBA during the nighttime hours (10 p.m. to 7 a.m.), averaged over any cumulative 30-minute period. The ordinance allows somewhat higher levels for noise of shorter duration; however, noise shall not exceed 75 dBA during the day or 70 dBA at night.

Table 3.13-2. Construction Activities, Equipment, and Calculated Noise Levels

Construction Activity	Noise Level at 50 feet, dB (L_{eq})
Phase 1— Site Preparation (Clearing and Grubbing)	88
Phase 2— Grading, Drainage Facilities, and Access Road Improvements	87
Phase 3— Installation of Perimeter Fencing and Electrical Grounding	84
Phase 4— Below-Grade Civil Construction (Foundations, Utilities, and Conduits)	85
Phase 5— Control Building Construction	84
Phase 6— Erection of Structural Steel Components and Tubular Steel Poles	83
Phase 7— Installation of Substation Electrical Components and Transmission/Distribution Lines	83
Phase 8— Paving of Substation Interior Access Roads	84
Phase 9— Commissioning Phase	80

Notes: dB = decibels
Source: Data compiled by AECOM in 2025

The ordinance exempts construction activities from these standards, provided that such activities occur between 6:00 a.m. and 8:00 p.m. on weekdays and between 7:00 a.m. and 8:00 p.m. on Saturdays and Sundays. These exemptions are typical of municipal and county noise ordinances and reflect the recognition that construction noise is temporary, expected during daytime hours, and a normal component of community growth and infrastructure development.

Because project construction would occur within the County's allowable construction hours and would not extend into the nighttime period (10 p.m. to 7 a.m.), when noise sensitivity is greatest, construction activities would comply with the Sacramento County Noise Ordinance.

Sacramento County has not adopted its own construction-specific noise standards. Thus, the FTA construction noise standards are used to assess construction noise impacts. FTA has a daytime construction noise standard of 90 dB L_{eq} for residential uses and 100 dB L_{eq} for commercial/industrial uses (FTA 2018). Estimated project-related construction noise levels at the nearest noise-sensitive receptors (residences located along Jackson Road and Excelsior Road) are expected to range from approximately 73 to 80 dBA L_{eq}. Construction noise would not exceed FTA's daytime construction noise standards at these receptors. Therefore, construction noise impacts would be ***less than significant***.

Substation Operational Noise

Operational noise would be generated by transformers, cooling fans, switchgear, capacitor banks, and other supporting electrical equipment (e.g., circuit breakers, capacitors, and wiring). The transformers would be the primary continuous noise source, with a manufacturer-rated sound level of approximately 80 dBA at 3 feet. Using a standard 6 dB reduction per doubling of distance, operational noise levels from transformer operation are estimated to be approximately 50 dBA Leq at 100 feet and 39 dBA Leq at 350 feet from the source.

The closest exterior noise-sensitive receptors to the project site consist of residences along Excelsior Road, located approximately 100 feet south of the substation boundary, and additional residences north of Jackson Road, approximately 350 feet from the project site. The ambient noise levels in the project area range from approximately 66 to 74 dBA L_{eq}/L_{dn}. Therefore, the proposed project's operational noise levels (39–50 dBA L_{eq}) would be well below existing ambient conditions and below the Sacramento County daytime exterior noise threshold of 55 dBA for residential and agricultural land uses.

Accordingly, the proposed project would not increase noise levels at the nearest noise-sensitive receptors above ambient conditions, nor would it exceed the County's applicable noise limits. Therefore, operational noise impacts from the proposed substation would be ***less than significant***.

Traffic Noise Analysis

Existing traffic volumes in the project vicinity are approximately 10,478 vehicles per day on average along Jackson Road and 5,075 vehicles per day on average along Excelsior Road (Sacramento County 2024). Traffic noise along these roadways is the dominant existing source of ambient sound in the project area, contributing to measured noise levels of approximately 66 to 74 dBA L_{eq}/L_{dn}.

Construction Traffic

Project construction would generate temporary increases in traffic volumes due to worker commutes, material deliveries, and equipment hauling. Construction traffic would result in an average of approximately 15 daily worker trips and up to 30 vehicle trips during peak construction periods, with additional intermittent deliveries by heavy trucks. These temporary increases represent a small fraction of existing daily volumes along Jackson and Excelsior Roads. Because construction-related traffic would not double traffic volumes, noise levels would increase by less than 3 dB and would be imperceptible to the human ear. Therefore, construction traffic noise would not substantially increase ambient traffic noise levels.

Operational Traffic

During project operation, the proposed substation would be unmanned and remotely monitored, with only two to four vehicle trips per month for routine inspection and maintenance and periodic quarterly visits for vegetation and equipment servicing. These trips would be negligible compared to existing daily traffic volumes on Jackson and Excelsior Roads. Consequently, the proposed project's operational traffic would not measurably affect roadway noise levels.

Because both construction and operational traffic generated by the project would be minor relative to existing traffic volumes and would not result in a doubling of daily traffic along either roadway, traffic noise increases would be less than 3 dB. Such a small change would be indistinguishable from existing ambient noise fluctuations and would not cause or contribute to a violation of Sacramento County's noise standards.

Therefore, traffic noise impacts associated with project construction and operation would be ***less than significant***.

b) Generation of excessive groundborne vibration or groundborne noise levels?

The proposed project would generate construction vibration from equipment operation and the transport of construction equipment, materials, and workers to and from the project area. Project operation would not result in excessive groundborne vibration or groundborne noise levels.

Construction–related groundborne vibration would occur within the substation site and along the overhead line corridor. Vibration would occur from the use of heavy earth-moving equipment and vibratory rollers for clearing, excavation, compaction, and grading. These activities would produce a vibration level up to approximately 87 VdB (0.089 in/sec PPV) at a distance of 25 feet (which is the reference vibration level for operation of a large bulldozer (FTA 2018). The minimum distance between these activities and the closest acoustically sensitive uses would be approximately 100 feet. Assuming a standard reduction of 9 VdB per doubling of distance (FTA 2018), the vibration level at the nearest vibration-sensitive receivers (50 feet) would be approximately 69 VdB. This level of vibration is below any established threshold of significance for sensitive receptor exposure and would likely not be perceptible. Therefore, the impact would be ***less than significant***.

FTA's Transit Noise and Vibration Impact Assessment technical manual provides criteria for groundborne vibration impacts with respect to building damage during construction activities (FTA 2018). According to FTA guidelines, a vibration-damage criterion of 0.25 in/sec PPV should be considered for non-engineered timber and masonry buildings. Furthermore, structures or buildings constructed of reinforced concrete, steel, or timber have a vibration-damage criterion of 0.50 in/sec PPV, pursuant to the FTA guidelines. The temporary and short-term project construction vibration level at the nearest vibration-sensitive receivers would be at or below approximately 0.011 PPV throughout the project construction area. This level of vibration is below the established threshold of significance of 0.25 and 0.5 in/sec PPV, and 80 VdB pursuant to the FTA guidelines for building damage. Therefore, the impact would be ***less than significant***.

c) For a project within the vicinity of an airport or a private airstrip, expose people residing or working in the project area to excessive noise levels?

The project area is located approximately 1.5 miles south of Sacramento Mather Airport. According to the Airport Noise Contours provided by the Sacramento Area Council of Governments (SACOG), the project area is not situated within the 60 to 65 dB CNEL noise contour. Furthermore, the project does not propose noise sensitive uses. The impact would be ***less than significant***.

3.14 Population and Housing

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.14.1 Environmental Setting

Population

The project area is located in southeastern Sacramento County, south of the City of Rancho Cordova and north of Wilton. The mean commute time in Sacramento County is 27.8 minutes (US Census Bureau 2022). Given the location of the proposed project in proximity to many incorporated cities, this analysis considers the population of all incorporated cities within Sacramento County. These include Citrus Heights (16 miles northwest), Elk Grove (15 miles southwest), Folsom (17 miles northeast), Galt (21 miles south), Isleton (39 miles southeast), Rancho Cordova (9 miles north), Sacramento (14 miles west). Table 3.14-1 below shows the historical population growth for these cities and Sacramento County from 2005 to 2025.

Table 3.14-1. Historical Population Growth, 2005-2025.

County/City	2005	2010	2015	2020	2025
Sacramento County	1,350,523	1,417,259	1,495,130	1,580,826	1,604,745
Citrus Heights	85,153	83,382	85,608	87,613	86,280
Elk Grove	125,703	152,652	164,437	175,598	182,842
Folsom	66,362	72,139	75,929	82,281	92,577
Galt	22,485	23,654	24,388	25,400	26,092
Isleton	811	805	788	787	764
Rancho Cordova	55,476	64,024	71,389	78,872	85,451
Sacramento	442,662	466,740	487,984	518,818	527,979

Sources: CDF 2012; CDF 2021a; CDF 2021b; CDF 2025a.

Housing

Table 3.14-2 outlines housing data for Sacramento County along with the incorporated cities within the county. Vacancy rates for these jurisdictions ranged from 2.4% (Elk Grove) to 20.1% (Isleton). In 2025, Sacramento County had an estimated 612,589 housing units with a vacancy rate of 4.0%; the City of Sacramento had an estimated 211,028 housing units with a vacancy

rate of 4.8%; and the City of Elk Grove had an estimated 60,068 housing units with a vacancy rate of 2.4%.

Table 3.14-2. 2025 Housing Data Estimates

County/City	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Vacancy Rate
Sacramento County	612,589	588,296	24,293	4.0%
Citrus Heights	36,325	34,939	1,386	3.8%
Elk Grove	60,068	58,633	1,435	2.4%
Folsom	34,581	33,134	1,447	4.2%
Galt	8,882	8,616	266	3.0%
Isleton	388	310	78	20.1%
Rancho Cordova	31,914	30,886	1,028	3.2%
Sacramento	211,028	200,932	10,096	4.8%

Source: CDF 2025b.

The number of housing units is expected to increase by 29% in Sacramento County over the period from 2020 to 2050. In the cities of Sacramento and Elk Grove, the number of households are expected to increase by 41% and 31% respectively over the 30-year planning period (SACOG 2025).

3.14.2 Impacts and Mitigation Measures

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and business) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project includes the construction and operation of a new bulk substation and construction of new and modified overhead 69kV and 230kV power lines that would link the substation into SMUD's existing electrical grid. The proposed project does not include new homes or businesses. The purpose of the proposed project is to meet current and future energy demands within SMUD's existing service area by accommodating for the projected increases in future load growth expected to result from planned development outlined in the Jackson Township, New Bridge, Mather South and West Jackson Highway specific plans. Because of this, the construction and operation of the proposed project would not directly or indirectly induce substantial unplanned population growth.

The proposed project would not generate jobs that could lead to population growth. Construction would begin during the first quarter of 2029 and is anticipated to last approximately 36 months. Construction activities would require an average daily worker population of approximately 15 workers, with up to approximately 30 workers during peak construction activities. Due to the population in the surrounding areas, the construction workforce is anticipated to be hired locally. Given the temporary construction period and the relatively low number of construction workers needed, it is anticipated that the existing labor force in Sacramento County could serve the number of jobs created by the project. Once constructed, routine maintenance activities would be needed about two to four times per month for internal

substation maintenance, and four times per year for perimeter maintenance. The substation would be operated remotely and would require no new SMUD employees. Therefore, project construction and operation would not cause a substantial influx of employees that would result in unplanned population growth.

For the reasons described above, the proposed project would not directly or indirectly induce substantial population growth; rather, it would maintain the electrical service system and accommodate the electrical service needs of growth that is already expected due to planned development. Therefore, **no impact** would occur.

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

The proposed project would be built on land currently owned and used by SMUD for storage purposes. There are no homes or people living within the project site that would be displaced by the project. Because of this, there is no need to construct housing elsewhere to replace homes. Therefore, **no impact** would occur.

3.15 Public Services

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:				
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

3.15.1 Environmental Setting

Public services in the project area are provided by a variety of service districts and public agencies, as described below.

Fire Protection

The Sacramento Metropolitan Fire District (Metro Fire) provides fire protection and emergency rescue services in unincorporated Sacramento County, including the project area. The closest Metro Fire station is Station 52, located at 7776 Excelsior Road, approximately 0.5 miles south of the substation site. In addition, Station 62 is located nearby on Bradshaw Road, approximately 0.8 miles north of the substation site (Metro Fire 2025).

Police Protection

The Sacramento County Sheriff's Department is primarily responsible for providing police protection services in unincorporated Sacramento County, including the project area. Local law enforcement services include response to calls for service and trouble spots, investigations, surveillance, and routine patrol. The project area is within the East District 7 service area. The station for this district is the Kilgore Station East Division, located at 2897 Kilgore Road, approximately 5.8 miles from the substation site (Sacramento County Sheriff's Office 2025).

Schools

The project area falls within Elk Grove Unified School District. The closest schools are Sierra Enterprise Elementary School and Arnold Adreani Elementary School, which are located approximately 3.6 miles west and 3.7 miles southwest of the substation site, respectively (Elk Grove Unified School District 2024).

Parks and Other Public Facilities

Parks and recreational facilities located within a 5-mile radius of the substation site are documented in Table 3.16-1 of Section 3.16, “Recreation”. These facilities are owned and managed independently by Southgate Recreation and Park District, Cordova Recreation and Park District, the Sacramento County Department of Regional Parks, and private owners. The proposed project’s impacts on parks and recreation facilities are discussed in Section 3.16, “Recreation”.

3.15.2 Impacts and Mitigation Measures

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services (including Fire Protection, Police Protection, Schools, Parks, or Other Public Facilities)?

Fire and Police protection?

Implementation of the proposed project would not increase demand for Metro Fire protection services or Sacramento County Sheriff services. The proposed project would not generate new residents, which is the driving factor for fire and police protection services. As stated in Section 3.14, “Population and Housing,” the proposed project would not induce substantial unplanned population growth in the surrounding area that could contribute to an increase in demand for these services. Because of this, no construction of new or expansion of existing fire or police service facilities would be required. Therefore, there would be **no impact**, and no mitigation is required.

Schools, Parks, or Other Public Facilities?

As stated in Section 3.14, “Population and Housing,” the proposed project would not induce unplanned population growth. Thus, the proposed project would not result in an increase in residents or employment opportunities that could indirectly contribute new students or employees to the local school district or necessitate the need for new or expanded parks or other public facilities. Therefore, the proposed project would have **no impact** on schools, parks, or other public services and facilities, and no mitigation is required.

3.16 Recreation

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.16.1 Environmental Setting

Recreational opportunities within Sacramento County include regional parks, city parks, state parks, hiking trails, privately operated sports and amusement facilities, and other facilities. There are no recreational facilities within the project area. Table 3.16-1 provides information on the closest recreation facilities to the substation site. As seen in this table, a wide variety of recreation facilities are available in the surrounding area.

Table 3.16-1. Local Recreational Facilities

Recreational Facility	Managing Agency	Approximate Distance from the substation site
Dunmore Park Preserve	Southgate Recreation and Park District	1.75 miles S
WildHawk Golf Club	Southgate Recreation and Park District	2.55 miles S
Mather Preserve	Cordova Recreation and Park District	1.31 miles N
Veteran's Park	Cordova Recreation and Park District	2.01 miles N
Independence Park	Cordova Recreation and Park District	2.18 miles NW
Mather Golf Course	Cordova Recreation and Park District	2.71 miles NE
Mather Regional Park	Sacramento County Regional Parks	2.14 miles NE
Little Hawk Park	Southgate Recreation and Park District	3.17 miles S
Bradshaw Ranch Golf Course	Southgate Recreation and Park District	2.68 miles SW

Information sourced from Sacramento County Department of Regional Parks (2025).

3.16.2 Impacts and Mitigation Measures

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?

As discussed in Section 3.14, "Population and Housing," the proposed project would not be growth-inducing and would not cause a permanent increase in the local population. The proposed project also would not interfere with the use of existing recreational facilities;

therefore, it would not result in increased use of any particular recreational facility. Therefore, the proposed project would not result in an increased use of existing parks or recreational facilities. Therefore, there would be **no impact**, and no mitigation is required.

b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The proposed project does not include the development of recreational facilities, nor would it require the expansion of recreational facilities which could have an adverse effect on the environment. Therefore, there would be **no impact**, and no mitigation is required.

3.17 Transportation and Circulation

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

3.17.1 Environmental Setting

The proposed substation site is located on the southeast corner of Excelsior Road and Jackson Road. The site is accessed from the west via Highway 16 (Hwy-16), also known as Jackson Road, and from the north or south via Excelsior Road. Jackson Road (Hwy-16) is under California Department of Transportation (Caltrans) jurisdiction[9], while Excelsior Road is managed by Sacramento County. The substation site is located approximately 6.7 miles southeast of the Highway 50/Highway 16 interchange, which provides regional connectivity to major metropolitan areas in the Sacramento region. Jackson Road and Excelsior Road each contain two lanes (one in each direction). Sacramento County Traffic Counts on Jackson Road between Excelsior Road and Eagles Nest Road show an average daily traffic count of 10,478 vehicles, and traffic counts on Excelsior Road between Jackson and Elder Creek Road show an average daily traffic count of 5,075 vehicles (Sacramento County 2024). At the corner of Jackson Road and Excelsior Road there is a signalized intersection with a corner bulb-out and pedestrian crossing signal. There are no sidewalks or dedicated bicycle facilities on either road fronting the substation site. Access to the site is provided through two existing driveways, one on Excelsior Road and one on Jackson Road.

The substation site includes approximately 11 acres dedicated to temporary soils storage. This use includes the importing and exporting of soil, utilizing a driveway access along Excelsior

[9] Please note that according to the Jackson Township Specific Plan FEIR, Sacramento County, Caltrans, and the California Transportation Commission have been in discussions regarding relinquishment of the segment of SR-16 from Watt Avenue to Grant Line Road to the County, which includes the project frontage (Sacramento County 2022). Relinquishment is expected to take 30 to 48 months. If this process is completed prior to project implementation, right-of-way permitting for the project would occur solely with Sacramento County, and Caltrans would not be involved.

Road, which would continue following project implementation. Surrounding land uses include rural residences, ranch and grazing lands, and scattered commercial and industrial uses, accessed directly from driveways off of Jackson Road and Excelsior Road.

3.17.2 Impacts and Mitigation Measures

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

Construction of the proposed project is expected to last approximately 36 months and would require hauling equipment and materials, and worker commute trips to and from the project area along the surrounding streets. Trucks and other construction vehicles would access the proposed substation site via the existing curb cuts. All staging and materials would be stored on-site. It is anticipated that an average of 15 workers would be located on-site with 30 during peak construction phases. During construction, access to the staging area would be maintained, with primary access through the driveway on Jackson Road.

This analysis used the recommended screening criterion from the ITE for assessing the effects of construction projects that create temporary traffic increases (ITE 1988). The ITE is an international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs.

Traffic generated by project construction would be added to existing project area roadway traffic volumes. To assess the potential impact of truck trips generated by project construction, a heavy-vehicle factor known as a passenger car equivalent (PCE) value was applied to the estimated project-generated truck traffic. This heavy-vehicle factor is used to account for the additional space occupied, reduced speed, and reduced maneuverability associated with these vehicles versus standard automobiles, on the roadway. A PCE value of 2.0 was applied to the construction equipment truck trip generation estimates, as recommended by the Highway Capacity Manual 2000 (Transportation Research Board 2000).

To account for the large percentage of heavy trucks associated with typical construction projects, ITE recommends a threshold level of 50 or more new trips during the peak hour. Therefore, a project could cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system if it would result in 50 or more new truck trips during the a.m. peak hour or the p.m. peak hour (or 100 passenger vehicle trips, assuming a PCE value of 2.0).

Construction would require 30 worker trips during peak construction phases. Additionally, SMUD estimates that project construction will require approximately 32 one-way trip truck trips per day during peak construction phases to make material deliveries and haul excavated materials off-site. This analysis assumes that construction activities would occur during an 8-hour workday (from 7 a.m. to 3:00 p.m.) and that construction trucks would operate throughout the day. Therefore, hourly numbers of heavy truck trips were estimated based on even distribution of truck trips throughout the 8-hour day. Construction worker commute trips were applied only to peak trips in the morning and the afternoon, assuming that worker trips would occur once during the morning commute and once during the afternoon commute. Therefore, the proposed project would add approximately 38 peak-hour trips to project area

roadways.[10] Because the proposed project would not result in approximately 100 or more new trips during the AM or PM peak commute hours, the proposed project would not result in a substantial traffic increase in relation to the existing traffic load and capacity of the street system. It is not anticipated that lane closures or vehicle detours would be required to construct the substation, given that the existing project site is undeveloped, staging would be contained within the property, and existing driveways could provide immediate construction vehicle access. Overhead line construction would occur intermittently in the roadway shoulder and is also not expected to interfere with vehicular traffic.

As described in Chapter 2.0, "Project Description", the substation would be operated remotely and continuously. Maintenance would occur on a regular basis from two to four times per month for internal inspections to four times per year for perimeter maintenance. During operation, daily trips to the substation site would be minimal and the driveways would be used infrequently. The proposed project would include three driveway entrances: one existing gateway driveway entrance from Jackson Road, one gated driveway entrance from Excelsior Road, and one new 30-foot-wide entrance from Jackson Road. Additionally, 20-foot-wide paved access roads would be constructed within the substation site. Because one new driveway would be constructed on Jackson Road, in Caltrans jurisdiction, it is expected that an encroachment permit would be needed prior to construction. Additionally, SMUD would coordinate with Sacramento County for encroachment permits to account for work on Excelsior Road, in accordance with Sacramento County Code Section 12.08 (Sacramento County 2025c). During this permitting process, any traffic control or roadway safety measures would be identified for inclusion in construction specifications, in accordance with the respective agency standards.

There are currently no paved pedestrian or bicycle facilities on either project frontage along Excelsior Road or Jackson Road. According to the Sacramento County Pedestrian Master Plan (Sacramento County 2007), the proposed project is not located within the High Priority Pedestrian Projects area. The Sacramento County Department of Transportation (SacDOT) has published the Sacramento County Active Transportation Plan (Sacramento County 2022); this plan recommended Shared Use Paths (Class 1) or Class II Bicycle lanes along the frontage of the proposed substation on Jackson Road. The proposed project also lies adjacent to the West Jackson Highway Master Plan and Jackson Township Specific Plan areas. These plans include improvements to the circulation system surrounding the site including road widening, Class 1 and Class II bicycle routes and a regional bus line to service the area (Sacramento County 2024, 2025b). Construction of the proposed project would be coordinated with the construction and design of these roadway improvements during the right-of-way permitting process. If construction of the proposed project were to occur after the planned roadway improvements, there would be no conflict as it would not change the roadways and any construction vehicle access would be temporary.

The proposed project would not conflict with any applicable plan, ordinance or policy establishing measures for performance of the circulation system. The project area is not served by any mass transit facilities and would not conflict with any plans related to provision of transit service. Therefore, the impact would be ***less than significant***.

[10] Distributing 32 heavy duty truck trips over the 8-hour workday would result in approximately 4 truck trips (or 8 passenger vehicle trips, assuming a PCE value of 2.0) per peak hour. Adding this value to the worker trips that would also arrive during peak hour would result in a total of approximately 38 vehicle trips per peak hour.

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

SacDOT's Traffic Analysis Guidelines include screening criteria for projects expected to result in less-than significant VMT impacts based on project description, characteristics, and/or location. Small projects are defined as projects generating less than or equal to 230 average daily traffic trips. In addition, the project is located on Jackson Road, which is managed by Caltrans and subject to Caltrans' Transportation Impact Study Guidelines. Caltrans utilizes OPR's December 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018) and assumes that projects that generate or attract fewer than 110 trips per day generally would be assumed to have a less-than-significant transportation impact.

OPR's Technical Advisory allows for qualitative analyses of VMT in the absence of approved models or quantitative methodologies, and states that "for many projects, a qualitative analysis of construction traffic may be appropriate". While project construction would generate vehicle trips to and from the project site and associated VMT during the construction period (approximately 36 months), it would be temporary and cease upon completion of the project. Construction traffic would not generate permanent trips; thus, construction traffic would not result in a significant VMT impact.

Once operational, the proposed project would result in minimal vehicle trips with the operation occurring remotely aside from regular maintenance at the facility. Regular maintenance activities would not generate greater than 110 daily trips. Therefore, operational vehicle trips would be below the more conservative screening criteria, and there would be ***no impact***.

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

The proposed substation site has two driveways, one on Excelsior Road and one on Jackson Road. The proposed substation site currently serves as a soil storage location with soils being imported and exported via the driveway on Excelsior Road. This activity and use would continue under the proposed project within this 11-acre portion of the site.

Construction vehicles would access the substation site via the existing driveway on Jackson Road and all staging would occur on-site. The proposed project would add an additional 30-foot driveway along Jackson Road. The addition of this new driveway would require an encroachment permit from Caltrans during the entitlement process (or from SacDOT if this segment of Jackson Road is relinquished by Caltrans prior to project construction). SMUD would incorporate any required safety features or improvements provided by Caltrans/SacDOT to minimize hazards from driveway ingress and egress. The driveway improvements on Excelsior Road would be reviewed by SacDOT in accordance with the Sacramento County Improvement Standards (Sacramento County 2025d). These standards would ensure that driveway improvements are designed and constructed consistently with the surrounding circulation system. Project operation would result in minimal trips for substation maintenance, which would not increase hazards at the site. No incompatible uses are proposed that would increase hazards. Therefore, the impact would be ***less than significant.***

d) Result in inadequate emergency access?

Emergency responders would have adequate access to the substation site via the existing and proposed driveways. Emergency access could be slightly delayed during construction because of slower moving vehicles entering and exiting the site during construction; however, during construction the proposed project would install temporary signage alerting drivers to the potential for truck traffic entering and exiting the substation. The project does not propose traffic control to stop, reroute, or block traffic. Any construction in the public right of way would be required to obtain a Traffic Control Plan and/or Detour Plan from the County of Sacramento. Oversized vehicles would be required to obtain a Transportation Permit from Caltrans and the County for vehicles exceeding size thresholds (Sacramento County 2025e, Caltrans 2025). These oversized trucks would be required to implement specific conditions determined by the State and County, which could include restricted movement times, banners on trucks, or CHP escort requirements, that would maintain safe and adequate traffic flow for all vehicles, including emergency responders. Therefore, the proposed project would not result in inadequate emergency access, and the impact would be ***less than significant.***

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3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
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), or	☐	☐	☒	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

3.18.1 Environmental Setting

Native American Consultation

On February 27, 2024, SMUD sent AB 52 notification letters about the proposed project to four Tribes: Wilton Rancheria, Ione Band of Miwok Indians (IBMI), Shingle Springs Band of Miwok Indians (SSBMI), and United Auburn Indian Community of the Auburn Rancheria (UAIC). At the time, the proposed project did not include the overhead line corridor work. Wilton Rancheria emailed SMUD Environmental Specialist Sarah Ahmed on December 17, 2024 to inquire about a tribal member accompanying the AECOM archaeologist during the cultural survey on January 6, 2025.

After adding the overhead line corridors to the proposed project, SMUD re-sent AB 52 consultation letters to the same four Tribes on October 21, 2025. Wilton Rancheria responded via email on October 28, 2025 formally requesting AB 52 consultation. SMUD subsequently held four AB 52 project meetings with Wilton Rancheria on December 1, 2025, December 17, 2025, January 15, 2026, and February 12, 2026. The meetings included discussions of project scope and schedule, sharing locational project files with the Tribe, sending copies of previous and current cultural resources reports prepared for the project, and adding suggested ethnohistoric setting into the current cultural resources report. Consultation with Wilton Rancheria is ongoing.

No responses were received from IBMI during the 30-day consultation period. An email from UAIC was received on December 1, 2025, after the 30-day consultation period, stating that

based on their tribal geographic information system there were no identified TCRs or cultural sensitivity. Lastly, an email from SSBMI was received on December 11, 2025, after the 30-day consultation period, stating that the Tribe did not wish to consult on the project.

Ethnohistoric Setting

The project area is situated near the nexus of Plains Miwok and Nisenan (sometimes referred to as the Southern Maidu) tribal territories.

Nisenan territory includes the drainages of the Yuba, Bear, and American rivers, and the lower drainages of the Feather River, extending from the crest of the Sierra Nevada to the banks of the Sacramento River and south to the Cosumnes River. In the Nisenan territory, several political divisions, constituting tribelets, each had their own respective headmen who lived in the larger villages. However, it is not known which of these larger population centers wielded more influence than others, although they were all located in the foothill areas. In general, more substantial and permanent Nisenan villages were not established on the valley plain between the Sacramento River and the foothills, although this area was used as a rich hunting and gathering ground (Kroeber 1925; Wilson and Towne 1978).

Plains Miwok territory includes riverine fishing, hunting and resource gathering areas at the lower reaches of the Mokelumne and Cosumnes Rivers and both banks of the Sacramento River from Rio Vista to Freeport. The territory was largely a flat plain of four distinct physiographic divisions. These are alluvial plains, delta marshland, river channels, and upland ridges, and the flora and fauna of these divisions would have provided ample resources. The Plains Miwok practiced an intensive food collecting subsistence strategy based primarily on plant food, particularly the acorn. Hunting and fishing, though practiced, appeared to have been of secondary importance (Bennyhoff 1977).

The project area is within an approximately 300-square-mile Tribal Cultural Landscape (TCL), called the “Tosewin District,” described as a “landscape of survivance” where displaced Native Americans congregated during the Gold Rush period. Sited east from Sacramento, south from Folsom, and between the American and Consumnes rivers, this area served as a refuge from Rancho and mining displacement, disease, forced labor, and violence inflicted on Native Americans by colonizers. The Walltown Indian camp at the Walltown Mining District, and a larger village two miles to the south on Deer Creek were the main settlements at Tosewin and were approximately 11.5 miles and 11 miles northeast from the project area, respectively. The village on Deer Creek was abandoned by the early 1870s, followed by Walltown the next decade as tribal members continued to move further east (County of Sacramento 2025: 14-14 to 14-17; Payen 1961: 1-2, 17-18).

In addition to being a “landscape of survivance,” the Tosewin District TCL is also associated with traditional sacred origin stories and their related viewsheds. One origin tale describes how the first people came into being on top of the mountain and lived immortal and without need for resources. Coyote led them away from the mountain to creeks below the American River. They bathed in the creek and became mortals and now had to learn to make baskets and harvest acorns, and the general area is where they first did this (Burril 1988 in County of Sacramento 2025: 14-19). The Tosewin District TCL was found eligible for listing in the CRHR under Criteria 1, 2, and 4 in 2025 and is a historical resource for the purposes of CEQA. “Specifically, the landscape was vital in the maintenance of traditional tribal lifeways during a period of major

upheaval for the Sacramento Valley and foothills indigenous population and is also important in ethnic heritage and sacred origin stories. Contributing elements of the Tosewin TCL include habitation sites, resource collection and processing sites, burial sites, travel routes/paths, specific locations (e.g., Coyote Creek) related to sacred origin stories, viewsheds related to these stories (e.g., viewshed of Mount Diablo), as well as animal and plant communities (including native oak woodlands and "heritage trees") that are considered sacred and necessary for passing down indigenous traditions and customs" (County of Sacramento 2025: 14-30).

The evaluators noted that "Large portions of the Tosewin TCL do not retain sufficient integrity. Large swaths of the TCL, primarily along the American River corridor, have been altered through modern development (e.g., the communities of Carmichael, Rancho Cordova, etc.) impacting many of the traditional contributing elements described above. Despite this, the southern and eastern portions of the TCL remain relatively undeveloped (other than disparate agricultural and historic mining areas) and retain sufficient integrity of location, setting, feeling, and association, to convey the historic sense of place of this natural landscape" (County of Sacramento 2025: 14-31).

The project area is also approximately 10 miles from the community of Rancho Murieta. Near the present community of Rancho Murieta a village called 'Palamana' once existed. An isolated mound of earth is located in Rancho Murieta, which is a symbol of native California's mythic heritage. According to mythology and oral literature, this mound of earth was formed by the coils of a giant snake, 'hiiki' (Bibby 2005).

Oral tradition and stories shared by the Elders of the Wilton Rancheria indicate that the general alignment of Jackson Road/Highway 16 was used as travel route for the Native American Peoples of the area.

Contemporary Native American Setting

Today, Tribes are actively involved in defining their role as stewards of their ancestral sites and homelands including subject matter expertise on the identification of TCRs. TCRs represent areas of cultural significance that are rooted in or contribute to cultural practices, traditional stories, traditional knowledge, and cultural identity. TCRs provide the backdrop to religious understanding, traditional stories, knowledge of resources such as varying landscapes, bodies of water, animals and plants, and self-identity. Knowledge of place is central to the continuation and persistence of culture, even if former Tribal occupants live removed from their traditional homeland. Tribal groups view these interconnected sites and places as living entities; their associations and feelings persist underpinning a connection among descendant communities.

Historically, archaeologists focused on traditional Native American culture without considering the context of the ongoing Native culture. This approach ignored the set of values maintained by the current Native American community related to their history and the landscape. Tribes view themselves as contemporary stewards of their culture and the landscape, representing a continuum from time immemorial to the present. Tribes maintain their connection to their history and ongoing culture by practicing traditional ceremonies, engaging in traditional practices (e.g., basketry), and contributing to public education and interpretation. California has acknowledged the importance and contributions of Native American history, traditional knowledge and cultural practices, as well as the persistence of Tribes and the Tribal community via Executive Orders B-10-11 and N-15-19.

Of the Tribes contacted to consult on this project, Wilton Rancheria asked to consult. The following provides a summary of the Tribe's current status.

Wilton Rancheria

Members of Wilton Rancheria are descendants of the Penutian linguistic family identified as speaking the Miwok dialect. The Tribe's indigenous territory encompasses Sacramento, Contra Costa, San Joaquin, Solano, Sutter, Nevada, Placer, El Dorado, Amador, and Calaveras Counties. Between March 1851 and January 1852, three federally appointed Indian treaty commissioners hastily negotiated eighteen treaties with representatives of some of the indigenous population in California. The Treaty of the Forks of the Cosumnes River ceded to the United States the Tribal lands on which the Wilton Rancheria in Sacramento County was later established, but committed to establishing a rancheria for the Tribe on the Cosumnes River (Wilton Rancheria 2024).

The Tribe's ancestors came back from nearly being annihilated only to have their children taken to boarding schools that further stripped their indigenous language and culture. Finally, in July 1928, the United States acquired land in trust for the Miwok people who were living in Sacramento County. A 38.77-acre tract of land in Wilton was purchased from the Cosumnes Company, which formally established the Wilton Rancheria. However, under the California Rancheria Act of 1958, the federal government terminated federal recognition of the Tribe in 1964 (Wilton Rancheria 2024).

In 1991, surviving members of Wilton Rancheria reorganized their Tribal government and in 1999 requested the United States to formally restore their federal status. A United States District Court Judge restored Wilton Rancheria as a Federally Recognized Tribe in 2009. It is the only federally recognized tribe in Sacramento County, with its administrative office in the City of Elk Grove (Wilton Rancheria 2024).

In May 2024, Wilton Rancheria purchased 77-acres of their original Rancheria land that had been taken from them by the federal government in 1959 after enaction of the California Rancheria Act of 1958. The Tribe plans to use the land to establish a community and cultural center, as well as teach non-natives about their history and who they are today (Sacramento Bee 2024 May 14).

3.18.2 Regulatory Setting

Federal

National Historic Preservation Act (NHPA)

The NHPA (54 USC 300101 et seq.) establishes federal policy on historic preservation and the programs, including the National Register of Historic Places (NRHP), through which this policy is implemented. Under the NHPA, significant cultural resources, referred to as "historic properties," include any prehistoric or historic district, site, building, structure, object, or landscape included or eligible for inclusion in the NRHP. A property is considered historically significant if it meets one of the NRHP criteria and retains sufficient historic integrity to convey its significance. This act also established the Advisory Council on Historic Preservation, an independent agency that is responsible for implementing Section 106 (54 USC 306108) by

developing procedures to protect cultural resources included in, or eligible for inclusion in, the NRHP. Regulations are published in 36 CFR Parts 60, 63, and 800.

Section 106 of the NHPA requires that effects on historic properties be taken into consideration in any federal undertaking. The process contains five steps:

(1) Initiate the Section 106 process.

(2) Identify historic properties.

(3) Assess adverse effects.

(4) Resolve adverse effects.

(5) Implement stipulations in an agreement document.

Section 106 affords the Advisory Council on Historic Preservation and the SHPO, as well as other consulting parties, a reasonable opportunity to comment on any undertaking that would adversely affect historic properties listed in or eligible for listing in the NRHP. SHPOs administer the National Historic Preservation Program at the state level, review NRHP nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review.

The NRHP uses the following eligibility criteria (in accordance with 36 CFR 60.4) to evaluate the significance of properties:

(a) are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) are associated with the lives of persons significant to our past; or

(c) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master; or that possess high artistic values; or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) have yielded, or may be likely to yield, information important in prehistory or history.

Traditional Cultural Places

Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for inclusion in the NRHP. A broader range of traditional cultural properties is also considered and may be determined eligible for or listed in the NRHP.

The revised National Park Service (NPS) National Register Bulletin *Identifying, Evaluating, and Documenting Traditional Cultural Places* defines a Traditional Cultural Place (TCP) as “a building, structure, object, site, or district that may be listed or eligible for listing in the National Register for its significance to a living community because of its association with cultural beliefs,

customs, or practices that are rooted in the community's history and that are important in maintaining the community's cultural identity" (NPS 2024: 7).

To be listed or eligible for listing in the National Register, a TCP will have the following characteristics:

- The place must be associated with and valued by a living community.
- The community that values the place must have existed historically and continue to exist in the present.
- The community must share beliefs, customs, or practices that are rooted in its history and held or practiced in the present.
- These shared beliefs, customs, or practices must be important in continuing the cultural identity and values of the community.
- The community must have transmitted or passed down the shared beliefs, customs, or practices, including through spoken or written word, images, or practice.
- These shared beliefs, customs, or practices must be associated with a tangible place.
- The place must meet the criteria for listing in the National Register of Historic Places:
    - A place must have significance: it must be important in a community's history, architecture, archeology, engineering, or culture.
    - A place must have integrity: it must retain the ability to convey its significance (NPS 2024: 19).

State

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on historical resources, unique archaeological resources, and TCRs. Under Public Resources Code Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Under Public Resources Code Section 21084.2, a "project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources.

Tribal Cultural Resources

TCRs may or may not manifest as archaeological sites. In some cases, TCRs are viewsheds, plant gathering areas, or other sacred spaces or objects that are not readily identifiable to non-tribal members but that meet the statutory definition of a TCR in that it is a significant resource under Public Resources Code Section 5024.1. In many cases, TCRs also include an

archaeological component, such as artifacts, features, and sites (with or without human remains). Public Resources Code Section 21074 states the following:

(a) "Tribal cultural resources" are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1 [see below]. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "non-unique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms to the criteria of subdivision (a).

Subdivision (c) of Section 5024.1 states that a resource is eligible for inclusion in the California Register of Historical Resources (i.e., "significant"), if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(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.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

Assembly Bill (AB) 52

AB 52 (effective July 1, 2015) added Public Resources Code Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to CEQA, relating to intergovernmental consultation with California Native American tribes, consideration of TCRs, and confidentiality. AB 52 provides procedural and substantive requirements for lead agency

consultation with California Native American tribes and consideration of effects on TCRs, as well as examples of mitigation measures to avoid or minimize impacts to TCRs. AB 52 establishes that if a project may cause a substantial adverse change in the significance of a TCR, that project may have a significant effect on the environment. Lead agencies must avoid damaging effects to TCRs, when feasible, and shall keep information submitted by tribes confidential.

AB 52 requires a lead agency to consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requested the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation. Public Resources Code Section 21080.3.1(d) states that within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project location and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to requests consultation pursuant to this section.

Public Resources Code, Section 5097.98

Public Resources Code Section 5097.98 states that whenever the Native American Heritage Commission (NAHC) receives notification of Native American human remains from a county coroner, the NAHC shall immediately notify the most likely descendant (MLD). The MLD may, with permission from the owner of the land in which the human remains were found, inspect the site and recommend to the owner or the responsible party conducting the excavation work a means for treating and/or disposing of the human remains and any associated grave goods. The MLD is required to complete their site inspection and make their recommendation within 48 hours of their notification from the NAHC.

California Health and Safety Code, Section 7052 and 7050.5

Section 7052 of the California Health and Safety Code states that the disturbance, mutilation, or removal of interred human remains is a felony if the remains are within a dedicated cemetery and a misdemeanor if interred outside of a dedicated cemetery. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner examines the find and determines whether the remains are subject to various laws, including recognizing whether the remains are or may be those of a Native American. If determined to be Native American, the coroner must contact the NAHC.

California Native American Graves Protection and Repatriation Acy, Health and Safety Code Section 8010 Through 8030

In the California Health and Safety Code, Division 7, Part 2, Chapter 5 broad provisions are made for the protection of Native American cultural resources. The Act sets the state policy to ensure that all California Native American human remains, and cultural items are treated with due respect and dignity. The Act also provides the mechanism for disclosure and return of human remains and cultural items held by publicly funded agencies and museums in California.

Likewise, the Act outlines the mechanism with which California Native American tribes not recognized by the federal government may file claims to human remains and cultural items held in agencies or museums.

3.18.3 Impacts and Mitigation Measures

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

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), or

The approximately 300-square-mile Tosewin District TCL was found eligible for listing in the CRHR in 2025. The proposed project does not overlap known contributing elements of the Tosewin District TCL like habitation sites, resource collection and processing sites, burial sites, as well as animal and plant communities (including native oak woodlands and "heritage trees") that are considered sacred and necessary for passing down indigenous traditions and customs. The proposed project would introduce new above-ground features including electrical equipment (e.g., switchyard, power transformers, circuit breakers); overhead lines; a two-story, approximately 8,000-square-foot control building; and a ten-foot perimeter fence. The area of development for the proposed substation would be limited to an approximately 18-acre portion in the center of the substation site, that would be set back approximately 200 feet from the roadway and visually shielded by the perimeter fence. Additionally, the surrounding viewshed already contains utility infrastructure within SMUD's easement and along surrounding roadways in the proposed overhead line corridor. The project area is also adjacent to and along Jackson Road/Highway 16, which oral tradition and stories shared by the Elders of the Wilton Rancheria indicate that the travel route was used by the Native American Peoples of the area. Collectively, the impact of the proposed above-ground features to the 300-square-mile Tosewin District TCL would be ***less than significant***.

SMUD has made a commitment to the Wilton Rancheria through the AB 52 consultation process to commemorate the use of Jackson Road as a travel route for Native American Peoples of the area. This would be accomplished through the mural that would be painted on the substation perimeter fencing/wall designed in consultation with the Wilton Rancheria.

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Based on information shared during AB 52 consultation with Wilton Rancheria, and the positive NAHC Sacred Land Files search received on February 9, 2026, there are presumed Tribal cultural resources near the project area, in addition to the Tosewin District TCL, although, there

are no known sites, features, sacred places, or objects located in the project area. Project-related ground-disturbing activities could damage or destroy presumed tribal cultural resources. This impact would be ***potentially significant***.

Mitigation Measure TCR-1: Spot Check Monitoring During Ground-disturbing Activities

There is a potential for unidentified cultural sites, artifacts or unanticipated TCRs to be present below the surface. Therefore, a Tribal monitor from Wilton Rancheria will perform spot check monitoring, up to half-day monitoring, two (2) times per week, during ground-disturbing activities including trenching, excavating, and grading. The Tribal representative will be given 48 hours' notice before ground disturbance starts. The Tribal monitor will complete daily logs. Logs will confirm any finds, the locations of the find, time and date in accordance with SMUD's Inadvertent Discovery Plan. If Tribal cultural resources are identified that have the potential to be adversely affected by the project, SMUD will implement *Mitigation Measure TCR-2 Unanticipated Discoveries of Tribal Cultural Resources*.

Mitigation Measure TCR-2: Unanticipated Discoveries of Tribal Cultural Resources

Although surface level TCRs, including human remains, have not been identified for this project, Tribal consultation has shown that there is the potential for unidentified sites of cultural significance to be present in the subsurface context, near the Jackson Bulk Substation and associated offsite construction locations.

If any suspected TCRs or resources of Tribal cultural significance, including but not limited to features, anthropogenic/cultural soils, cultural belongings or objects (artifacts), shell, bone, shaped stones or bone, or ash/charcoal deposits are discovered by any person during construction activities including ground disturbing activities, all work shall pause immediately within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. Work shall cease in and within the immediate vicinity of the find regardless of whether the construction is being actively monitored by a Tribal Monitor, cultural resources specialist, or professional archaeologist. A Tribal Representative from Wilton Rancheria shall be immediately notified and shall determine if the find is a TCR (PRC §21074). Evaluation and treatment will be performed in coordination with Tribes in accordance with SMUD's Inadvertent Discovery Plan.

When avoidance is infeasible, preservation in place is the preferred option for mitigation of TCRs under CEQA, and every effort shall be made to preserve the resources in place, including through project redesign, if feasible. If redesign is determined to not be feasible, SMUD shall consult with Tribes to determine appropriate treatment of the find.

Culturally appropriate treatment may be, but is not limited to, processing materials for reburial, minimizing handling of cultural objects, leaving objects in place within the landscape, or returning objects to a location within the project area where they will not be subject to future impacts. Permanent curation of TCRs will not take place unless approved in writing by Wilton Rancheria.

The contractor shall implement any measures deemed by the CEQA lead agency to be necessary and feasible to preserve in place, avoid, or minimize impacts to the resource, including, but not limited to, facilitating the appropriate Tribal treatment of the find, as necessary. Treatment that preserves or restores the cultural character and integrity of a TCR may include Tribal Monitoring, culturally appropriate recovery of cultural objects and belongings, and reburial of cultural objects and belongings or cultural soil. The construction contractor(s) shall provide secure, on-site storage for culturally sensitive soils or objects that are components of TCRs that are found or recovered during construction. Only Tribal Representatives shall have access to the storage. Storage size shall be determined by the nature of the TCR and can range from a small lock box or jobsite work box to a conex box (shipping container). A secure (locked), fenced area can also provide adequate on-site storage if larger amounts of material must be stored.

The construction contractor(s) and SMUD shall facilitate the respectful reburial of the culturally sensitive soils or objects. This includes providing a reburial location that is consistent with the Tribe's preferences, excavation of the reburial location, and assisting with the reburial, upon request.

Any discoveries shall be documented on a Department of Parks and Recreation (DPR) 523 form within 2 weeks of the discovery and submitted to the appropriate CHRIS center in a timely manner.

Work at the TCR discovery location shall not resume until authorization is granted by the Lead Agency in coordination with the culturally affiliated Tribe.

If articulated or disarticulated human remains, or human remains in any state of decomposition or skeletal completeness are discovered during construction activities, the Sacramento County Coroner shall be contacted immediately. Upon determination by the Sacramento County Coroner that the find is Native American in origin, the Native American Heritage Commission will assign the Most Likely Descendent who will work with SMUD to define appropriate treatment and disposition of the burials.

For any work required to be undertaken in an area where shoring or hazardous materials would occur, including soils, all archaeologists, Tribal Representatives, and Tribal Monitors shall meet the appropriate level of safety training (e.g., confined spaces, hazardous material exposure, etc.) in compliance with California Division of Occupational Safety and Health State and federal Occupational Safety and Health Administration requirements prior to entering construction work areas.

Significance after Mitigation

Mitigation Measure TCR-1 requires Tribal monitors at the project site during ground-disturbing activities to maintain daily construction logs and identify any inadvertent discoveries of a TCR to reduce potential impacts on Tribal Cultural Resources. Mitigation Measure TCR-2 provides appropriate actions for inadvertent discovery of TCRs. These measures would reduce potential impacts on Tribal Cultural Resources to a less-than-significant level because compliance with the above-listed procedures would address concerns regarding loss of, or substantial adverse changes to, Tribal Cultural Resources. As a result, this impact would be ***less than significant with mitigation***.

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3.19 Utilities and Service Systems

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c)	Result in a determination by the waste water 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
e)	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.19.1 Environmental Setting

Water Supply, Transmission, and Treatment Facilities

Water supply to the project area is provided primarily from groundwater sources. The project area is located within the Sacramento River Hydrologic Region, Sacramento Valley - South American Subbasin (California Department of Water Resources [DWR] 2025). According to the Phase I Environmental Site Assessments conducted for the parcels, depth-to-groundwater was measured between 105 and 110 feet below ground surface at nearby sites, and the calculated flow direction was to the west (AECOM 2019). The project area is rural and does not contain central water supply, transmission, or treatment infrastructure. Most water facilities in the area consist of private wells and pipelines at the individual parcel level. The substation site currently contains two permitted, inactive wells.

The South American Subbasin is a high-priority groundwater basin, as designated by DWR, and is subject to an adopted Groundwater Sustainability Plan (GSP) pursuant to the Sustainable Groundwater Management Act (SGMA) (DWR 2022). The GSP is overseen and implemented by multiple Groundwater Sustainability Agencies (GSAs). The GSP sets minimum thresholds and measurable objectives that are the metrics used to determine sustainability in the basin.

Annual reports are prepared by the GSAs and submitted to DWR to document current conditions in the basin, including groundwater elevations, extractions, and overall progress towards meeting the GSP goals. The latest annual report for water year 2024 (October 1, 2023 – September 30, 2024) for the South American Subbasin noted that of the 43 representative monitoring wells in the basin, 93 percent remained above the minimum thresholds set in the GSP (Northern Delta Groundwater Sustainability Agency et al. 2024).

Wastewater Collection, Conveyance, and Treatment Facilities

Wastewater disposal in the area occurs via individual septic systems at the parcel level. The project area does not contain central wastewater collection, conveyance, or treatment infrastructure. According to the Phase I Environmental Site Assessments, two septic systems were previously located on the substation site (one for each parcel), which were removed following SMUD acquisition of the property (AECOM 2019).

Stormwater Drainage

An existing drainage swale is located at the northwestern corner of the substation site, near the intersection of Jackson and Excelsior Roads. Stormwater appears to generally drain topographically via sheet flow to the northwest, towards the drainage swale, then beneath Excelsior Road to the property to the west, where it converges with Elder Creek. The substation site is outside of the drainage and flood control system operated by Sacramento County Department of Water Resources, although adjacent parcels to the west of Excelsior Road are serviced by the County (Sacramento County 2025g).

Solid Waste

No solid waste is generated on the substation site. Solid waste collection services in unincorporated areas of the County, such as the project area, are provided by Sacramento County Department of Waste Management and Recycling. Solid waste collected by the County is transported to the Kiefer Landfill. According to the California Department of Resources Recycling and Recovery (CalRecycle), the Kiefer Landfill has a maximum permitted throughput of 10,815 tons per day, a total maximum permitted capacity of 147.4 million cubic yards, a remaining capacity of approximately 4.1 million cubic yards, and an anticipated closure date of January 1, 2064 (CalRecycle 2019).

Electric Power, Natural Gas, and Telecommunications

SMUD is a community-owned electric service responsible for the acquisition, generation, transmission, and distribution of electrical service to customers in Sacramento County. SMUD sources power from various sources, including hydropower; natural-gas-fired generators; renewable energy such as solar, wind, hydro, and biomass; and power purchased on the wholesale market.

The southern portion of the substation site contains SMUD and PG&E easements containing 230 kV lines and transmission towers, and existing 12 kV distribution lines are located along Jackson Road and Excelsior Road.

3.19.2 Impacts and Mitigation Measures

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

The proposed project would develop a vacant 44-acre site with a bulk substation, modify and replace existing 230kV transmission towers within the site, and install new or replacement 69kV poles and lines along the surrounding roadways. The project includes other utility improvements to accommodate substation development, such as an underground storm drain system to convey drainage to the detention basin, water well, septic system, and fiber optic network connections. The environmental effects of these improvements have been considered throughout this IS/MND as part of the proposed project.

The minimal amount of water, wastewater, and solid waste generated by the proposed project would not require the construction or relocation of additional utilities and service systems beyond what has already been analyzed as part of the project. The proposed project would result in a moderate increase in stormwater runoff within the site due to the increase in impervious surfaces; however, the proposed stormwater drainage system would be sized to accommodate the expected increase in runoff, in accordance with Sacramento County standards, and would not cause significant effects from construction or relocation of drainage facilities (see Section 3.10, “Hydrology and Water Quality”). For these reasons, the impact would be ***less than significant.***

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

During construction, a limited amount of water would be used for dust control and sanitation (i.e. hand washing). The contractor would provide water using a licensed water carrier or the existing inactive on-site wells would be used to provide water for construction. Water use would be minimal and would not substantially affect groundwater supplies in the area.

Operation of the substation would occur remotely; routine onsite interior maintenance is expected two to four times a month and perimeter maintenance is expected four times a year. Restroom facilities would be constructed with low flow technology to conserve water and would only be used while employees are onsite intermittently. A new well would be drilled, or the existing permitted but inactive wells on-site would be used, to provide water supplies for on-site uses. The use of facilities would only occur intermittently when employees are on-site and would result in a negligible demand on groundwater supply. Therefore, there would be sufficient water supplies available to serve the proposed project and foreseeable future development, and 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?

The proposed project would install a septic system that would serve the restroom in the control building; thus, no central wastewater treatment provider would be relied upon to meet the

project demands. Minimal amounts of wastewater would be generated during the construction phase of the proposed project. Operations and maintenance activities would also generate small volumes of wastewater once the project is built, as routine maintenance occurs on the substation (two to four times per month). The proposed septic system would be sized appropriately to meet the expected demands of the project and conform to all infiltration and setback requirements established by Sacramento County in County Code Chapter 6.32 (On-site Management of Wastewater) and its On-site Wastewater Treatment System Guidance Manual (Sacramento County 2013). Thus, the proposed project would have adequate capacity to meet its wastewater treatment demands, and the impact would be ***less than significant.***

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?

Construction of the proposed project would generate construction debris requiring appropriate disposal. The majority of the construction debris would go to Kiefer Landfill, which serves the project site and County unincorporated areas. Kiefer Landfill has a remaining capacity of approximately 4.1 million cubic yards, and an anticipated closure date of January 1, 2064. Treated wood poles generated from wood replacements would be disposed at a composite-lined class II/III solid waste landfill such as Hay Road Landfill in Vacaville or Republic Services landfill in Manteca.

A minimum of 65 percent of construction and demolition debris would be recycled pursuant to the California Green Building Standards Code (CALGreen). This would reduce the burden placed on solid waste disposal infrastructure and align with statewide, regional, and local solid waste reduction goals. As noted, Kiefer Landfill has a remaining capacity of approximately 4.1 million cubic yards, and an anticipated closure date of January 1, 2064.

Once operational, the proposed project would generate a negligible amount of solid waste, consisting of crew lunches, packaging materials associated with replacement parts, and old parts. Therefore, the waste generated by the proposed project would not exceed the capacity of any landfill or impair the attainment of solid waste reduction goals. This impact would be **less than significant.**

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The proposed project would result in a temporary increase in construction waste. However, this waste would be recycled in compliance with local and statewide waste reduction regulations. Operation of the proposed project would generate a negligible amount of solid waste that would not conflict with any statues or regulations related to solid waste. Therefore, this impact would be **less than significant.**

3.20 Wildfire

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.20.1 Environmental Setting

Wildland Fires

The proposed substation site is located in a rural area of unincorporated Sacramento County at the southeast corner of Excelsior Road and Jackson Road, approximately 1.5 miles south of Sacramento Mather Airport. Surrounding land uses include rural residences, ranch and grazing lands, and scattered commercial and industrial uses. An equine facility is located to the immediate south of the project site, and vernal pool/annual grasslands are adjacent to the north, east, and west of the substation site and are used for cattle grazing. The threat of major wildland fires is generally low in Sacramento County due to its relatively flat topography; however, wildland fires pose a threat in more rural areas of the County, and grass fires are an annual threat in some unincorporated areas, particularly the eastern foothills (Sacramento County 1993). The County's most recent wildland fires occurred in September 2025 and include the Rock Fire and the Brown Fire, which burned approximately 143 acres and 60 acres, respectively (CAL FIRE 2025). These fires occurred over 6 miles east of the substation site in the eastern foothill portion of the County. The County's largest recent wildland fire includes the 2020 Grant Fire, which was caused due to equipment use activity and burned 5,062 acres approximately 7.5 miles northeast of the substation site (CAL FIRE 2025).

Fire Hazard Severity Zones

The California Department of Forestry and Fire Protection (CAL FIRE) identifies State Responsibility Areas (SRAs) and Local Responsibility Areas (LRAs), which are areas in which the state or local fire agencies, respectively, are responsible for wildfire management. These areas are mapped based on fuels, terrain, weather, and other relevant factors. Further, land areas identified as SRAs and LRAs are divided into Fire Hazard Severity Zones (FHSZs), which include areas of moderate, high, and very high fire hazard risk. These hazard zones are rated based on their potential to expose structures to wildfire. The substation site is located partially within a Local Responsibility Area that is designated as a Moderate FHSZ (CAL FIRE 2025).

Sacramento Metropolitan Fire District (Metro Fire) is the agency responsible for wildland fires in unincorporated Sacramento County and provides fire protection and emergency rescue services to the project area. Metro Fire provides all-hazard fire suppression and emergency services from 41 fire stations located across its 359 square-mile service area; in 2024, Metro Fire average response time was 5 minutes and 30 seconds to reach structural fires and 6 minutes and 30 seconds to provide medical aid (Metro Fire 2024). The nearest Metro Fire stations include Station 52 and Station 62 located approximately 0.5 miles south and 0.8 miles north of the substation site, respectively (Metro Fire 2025).

3.20.2 Impacts and Mitigation Measures

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

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?

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?

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?

Appendix G of the CEQA Guidelines determines wildfire impacts based on whether a proposed project would occur within or near a SRA or on lands classified as Very High FHSZs. The proposed project would not exacerbate fire risks because the project area is not located within a SRA or on lands classified as a Very High FHSZ (CAL FIRE 2025). The nearest SRA is located approximately 7.6 miles east of the substation site, and the closest Very High FHSZ is located over 15 miles southeast (CAL FIRE 2025).

The proposed project involves the installation of electrical transmission and distribution infrastructure to provide supply reliability and serve existing uses and planned future load growth along the Jackson Road corridor. The proposed project would adhere to all safety requirements for the electrical equipment to be constructed, operated, and maintained. The

proposed substation site would be graded and covered in crushed gravel except where permanent concrete foundations for the control building, transformers, circuit breakers and other equipment, oil containment, and paved access roads would be built. The proposed project would not result in significant changes to existing drainage that could expose people or structures to fire risk. In addition, a minimum 10-foot fence would be installed around the perimeter of the substation site to maintain site security and public safety and minimize potential fire risks from electrical equipment being damaged or vandalized.

Project construction activities would involve ground-disturbing activities, including grading and vegetation clearing to enable the construction of necessary work areas, structural foundations, and access roads. Construction activities could pose a short-term risk to fire ignition from the on-site use of construction equipment and diesel fuel. SMUD and its construction contractor would comply with all laws, plans, policies, and regulations related to fire safety and wildfire suppression. For example, vehicles and equipment would use existing developed roads to access work areas, and vegetation would be removed on the substation site and along the overhead line corridor to ensure construction activities do not increase risks associated with wildfires. Impacts related to impairment of emergency response and evacuation are addressed in Section 3.9, “Hazards and Hazardous Materials.” For the reasons described above, the proposed project would not exacerbate wildfire risks, including potential for wildfires to ignite and spread within the project area, and there would be **no impact**.

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3.21 Mandatory Findings of Significance

		Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Would the project:					
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☐	☒	☐
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

3.21.1 Impacts and Mitigation Measures

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

The proposed project is located on an undeveloped, approximately 44-acre site and along surrounding roadways in Sacramento County. As discussed in Section 3.4, "Biological Resources", the approximately 18-acre substation site contains wetlands and has potential to contain several special-status wildlife species. Additionally, Swainson's hawk and tricolored blackbird were observed on the substation site during biological surveys in 2025. Grading and land disturbance for substation construction would result in temporary and permanent impacts to aquatic resources and could result in adverse effects to special-status wildlife species present within the site or with potential to occur. Construction of the new and modified overhead lines could also result in impacts. These impacts would be ***potentially significant***. Mitigation measures would be implemented to avoid, minimize, or mitigate for impacts to wetlands and special-status species. Incidental take coverage would be obtained through the SMUD HCP. Impacts would be avoided and minimized to the maximum extent feasible and all remaining impacts would be mitigated according to the approved mitigation ratios from the SMUD HCP with equal or higher value habitat. Thus, impacts on biological resources would be less than

significant with mitigation, and the project would not substantially reduce the habitat of fish or wildlife species, cause a wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number of rare of endangered plants or animals.

There is a potential for discovery of cultural, paleontological, and tribal cultural resources during ground-disturbing activities. However, as described in Section 3.5, "Cultural Resources," Section 3.7, "Geology and Soils", and Section 3.18, "Tribal Cultural Resources", the proposed project would implement mitigation measures to avoid impacts from inadvertent discovery of these resources, including Tribal monitoring during ground-disturbing activities for tribal cultural resources. Impacts on historic, archaeological, paleontological, and tribal cultural resources would be less than significant with mitigation. Thus, the proposed project would not eliminate important examples of the major periods of California history or prehistory.

b) Does the project have impacts that are individually limited, but cumulatively considerable?

CEQA requires that SMUD assess whether its proposed project's incremental effects would be significant when viewed in connection with the effects of other projects. Based on the analysis presented in the IS/MND, the proposed project would result in potentially significant impacts that would be localized to the direct project footprint and mitigated to a less than significant level. This includes biological resources, cultural and tribal cultural resources, paleontological, and noise impacts. The proposed project would directly support, and be located in proximity to, several planned future developments in Sacramento County, including the Jackson Township Specific Plan, Mather South Community Plan, Newbridge Specific Plan, and West Jackson Highway Master Plan. These cumulative projects are all large master planned communities that would result in significant environmental impacts on similar resources as the proposed project, including biological resources, air quality, and GHG emissions. A summary of these projects and identified significant impacts is shown in Table 3.21-1 below.

Table 3.21-1. Cumulative Projects and Environmental Effects

Project	Summary	Identified Significant Impacts
Jackson Township Specific Plan	A master-planned community covering approximately 1,391 acres, located south of Mather Field and north of Jackson Road (SR-16). The plan features up to 6,143 housing units, roughly 2 million square feet of commercial/office space, schools, and a large wetland preserve.	Air Quality, Biological Resources, Hydrology and Water Quality, Transportation
Mather South Community Plan	Redevelopment of 848 acres of the former Mather Air Force Base. Includes approximately 3,522 residential units, a research and development campus, an environmental education campus, and over 200 acres of open space/parks.	Biological Resources, GHGs, Noise, Transportation
Newbridge Specific Plan	Located on approximately 1,095 acres between West Jackson and Jackson Township areas. Proposes 3,075 dwelling units and 500,000 square feet of retail/mixed-use space.	Air Quality, GHGs, Transportation
West Jackson Highway Master Plan	Located on approximately 5,913 acres, the plan proposes 16,484 residential units, 988 acres of commercial/industrial land, and over 2,000 acres of parks and open space.	Agriculture, Aesthetics, Mineral Resources, Hazardous Materials, Transportation

Sources: Sacramento County. 2022. Jackson Township Specific Plan Final EIR (SCH # 2013082017).
Sacramento County. 2020a. Mather South Community Master Plan Final EIR (SCH #2014062087).
Sacramento County. 2020b. NewBridge Specific Plan Final EIR (SCH #2013012028).
Sacramento County. 2025b. West Jackson Highway Master Plan Final EIR (SCH #2013092021).

Cumulative impacts on wetlands would occur as the proposed project and these cumulative projects are built out over time and wetlands in the surrounding area are filled or hydrologically interrupted. Each individual project would be required to mitigate impacts on a project-by-project basis, in accordance with the mitigation measures prescribed in individual EIRs for each community and the required regulatory permitting processes (Sacramento County 2020, 2022a, 2022b, 2025). It is expected that by adhering to project-level mitigation measures and obtaining regulatory permits from the Army Corps of Engineers, which would require no net loss of wetland functions and values, cumulative wetland impacts would be mitigated. The proposed project would make an incremental contribution to the total cumulative wetland impacts resulting from nearby development and would compensate for project-level impacts in accordance with Mitigation Measure BIO-2. Thus, wetland impacts would not be cumulatively considerable.

Depending on the construction schedule of the proposed project and nearby projects, it is possible that some overlap may occur and associated air quality and GHG emissions from individual projects could combine. However, the impact thresholds for these resource areas already consider the potential for cumulative effects across the Sacramento Valley Air Basin, and the proposed project was determined to not exceed any relevant thresholds set forth by SMAQMD. Furthermore, cumulative projects would implement mitigation measures to reduce criteria pollutants and GHG emissions at the project level. Once operational, the proposed project would require minimal vehicle trips for operations and maintenance and would not make a substantial contribution to emissions in the Sacramento Valley Air Basin. Therefore, cumulative air quality and GHG effects of the proposed project were determined to be less than cumulatively considerable.

For all other resource areas, project-related impacts would be short-term and localized to the substation site, overhead line corridor, and immediately adjacent areas. There would be minimal potential for these impacts to combine with nearby projects and result in a cumulative impact. Thus, no cumulatively considerable impacts would occur.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project would result in a temporary increase in ambient noise levels during construction; however, construction would occur within the allowable hours under the County's Noise Ordinance and noise levels would not exceed applicable construction noise criteria establish by FTA, as outlined in Section 3.13, "Noise". Therefore, noise impacts would be ***less than significant***. No other direct or indirect impacts on human beings were identified in this IS/MND.

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4.0 ENVIRONMENTAL JUSTICE EVALUATION

4.1 Introduction

At present, there are no direct references to the evaluation of Environmental Justice (EJ) as an environmental topic in the Appendix G Environmental Checklist, CEQA statute, or State CEQA Guidelines; however, requirements to evaluate inconsistencies with general, regional, or specific plans (State CEQA Guidelines Section 15125[d]) and determine whether there is a "conflict" with a "policy" "adopted for the purpose of avoiding or mitigating an environmental effect" (Environmental Checklist Section XI[b]) can implicate EJ policies. As additional cities and counties comply with Senate Bill (SB) 1000 (2016), which requires local jurisdictions to adopt EJ policies when two or more general plan elements are amended, environmental protection policies connected to EJ will become more common.

"Environmental Justice" is defined in California law as the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code Section 30107.3[a]). "Fair treatment" can be defined as a condition under which "no group of people, including racial, ethnic, or socioeconomic group, shall bear a disproportionate share of negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies" (EPA 2011).

SMUD created the Sustainable Communities Initiative, which encompasses the framework of EJ, to help bring environmental equity and economic vitality to all communities in SMUD's service area with special attention to historically underserved neighborhoods. The initiative focuses on the development of holistically sustainable neighborhoods through partnerships and collaboration. The goal of this effort is to ensure the advancement of prosperity in the Sacramento region regardless of zip code or socioeconomic status by focusing on equitable access to mobility, a prosperous economy, a healthy environment, and social well-being. To support the initiative, SMUD teams are working internally and with community partners to improve equitable access to healthy neighborhood environments, energy efficiency programs and services, environmentally friendly transit modes (including electric vehicles), and energy-related workforce development and economic development prospects. To the extent these goals seek to avoid environmental impacts affecting vulnerable communities, the State CEQA Guidelines already require consideration of whether a proposed project may conflict with goals that support sustainable communities.

The following analysis has been provided by SMUD, as a proactive evaluation in excess of CEQA requirements, to identify any localized existing conditions to which the project, as proposed, may worsen adverse conditions and negatively impact the local community and identifies the need for implementation of additional site or local considerations, where necessary. Environmental justice issues are being considered in this CEQA document to help inform decision makers about whether the project supports SMUD's goal of helping to offset the environmental justice impacts of its programs and providing economic vitality to all communities in SMUD's service area and throughout the region with special attention to historically underserved neighborhoods.

4.2 Regulatory Context

California legislation, state agency programs, and guidance have been issued in recent years that aim to more comprehensively address EJ issues, including SB 1000 (2016), SB 535 (2012) and Assembly Bill (AB) 1550 (2016), AB 617 (2017), the California Department of Justice Bureau of Environmental Justice, the California Communities Environmental Health Screening Tool (CalEnviroScreen), and the Governor's Office of Planning and Research's (OPR's) 2020 General Plan Guidelines, Environmental Justice Element. In particular, SB 1000 has provided an impetus to more broadly address EJ; coupled with the existing requirements of CEQA, it is now time to elevate the coverage of significant environmental impacts in the context of EJ in environmental documents. These other bills have also provided the necessary policy direction to address EJ under CEQA.

4.2.1 Senate Bill 1000

SB 1000, which was enacted in 2016, amended California Government Code Section 65302 to require that general plans include an EJ element or EJ-related goals, policies, and objectives in other elements of general plans with respect to disadvantaged communities (DACs) beginning in 2018. The EJ policies are required when a city or county adopts or revises two or more general plan elements, and the city or county contains a DAC. EJ-related policies must aim to reduce the disproportionate health risks in DACs, promote civic engagement in the public decision-making process, and prioritize improvements that address the needs of DACs (California Government Code Section 65302[h]). Policies should focus on improving the health and overall well-being of vulnerable and at-risk communities through reductions in pollution exposure, increased access to healthy foods and homes, improved air quality, and increased physical activity.

4.2.2 Senate Bill 535 and Assembly Bill 1550

Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is one of several strategies that California uses to reduce greenhouse gases (GHGs) that cause climate change. The state's portion of the cap-and-trade auction proceeds are deposited in the Greenhouse Gas Reduction Fund (GGRF) and used to further the objectives of AB 32. In 2012, the California Legislature passed SB 535 (de Leon), directing that 25 percent of the proceeds from the GGRF go to projects that provide a benefit to DACs. In 2016, the legislature passed AB 1550 (Gomez), which now requires that 25 percent of proceeds from the GGRF be spent on projects located in DACs. The law requires the investment plan to allocate (1) a minimum of 25 percent of the available moneys in the fund to projects located within and benefiting individuals living in DACs; (2) an additional minimum of 5 percent to projects that benefit low-income households or to projects located within, and benefiting individuals living in, low-income communities located anywhere in the state; and (3) an additional minimum of 5 percent either to projects that benefit low-income households that are outside of, but within 0.5 mile of, DACs, or to projects located within the boundaries of, and benefiting individuals living in, low-income communities that are outside of, but within 0.5 mile of, DACs.

4.2.3 Assembly Bill 617

AB 617 of 2017 aims to help protect air quality and public health in communities around industries subject to the state's cap-and-trade program for GHG emissions. AB 617 imposes a new state-mandated local program to address nonvehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and toxic air contaminants. The bill requires the California Air Resources Board (CARB) to identify high-pollution areas and directs air districts to focus air quality improvement efforts through the adoption of community emission reduction programs in these identified areas. Currently, air districts review individual stationary sources and impose emission limits on emitters based on best available control technology, pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring communitywide air quality assessment and emission reduction planning, called a community risk reduction plan in some jurisdictions. CARB has developed a statewide blueprint that outlines the process for identifying affected communities, statewide strategies to reduce emissions of criteria air pollutants and toxic air contaminants, and criteria for developing community emissions reduction programs and community air monitoring plans.

4.2.4 California Department of Justice's Bureau of Environmental Justice

In 2012, then Attorney General Kamala Harris published a fact sheet titled, "Environmental Justice at the Local and Regional Level," highlighting existing provisions in the California Government Code and CEQA principles that provide for the consideration of EJ in local planning efforts and CEQA.

In February 2018, California Attorney General Xavier Becerra announced the establishment of a Bureau of Environmental Justice within the Environmental Section at the California Department of Justice. The purpose of the bureau is to enforce environmental laws, including CEQA, to protect communities disproportionately burdened by pollution and contamination. The bureau accomplishes this through oversight and investigation and by using the law enforcement powers of the Attorney General's Office to identify and pursue matters affecting vulnerable communities.

In 2021, Attorney General Rob Bonta expanded the Bureau of Environmental Justice to increase oversight and take on more EJ cases. The Bureau works to:

- Ensure compliance with state and federal environmental laws in all communities;
- Investigate and bring enforcement actions that hold polluters accountable for illegal contamination of air and water in communities already overburdened with pollution;
- Take actions to eliminate or reduce disproportionate exposures to lead and other toxins;
- Protect the unique rights of Native American communities; and
- Challenge the federal government's actions that inadequately protect public health and illegally roll back environmental protections for all Californians.

4.2.5 California Communities Environmental Health Screening Tool

CalEnviroScreen is a mapping tool developed by the Office of Environmental Health Hazards Assessment to help identify low-income census tracts in California that are disproportionately burdened by and vulnerable to multiple sources of pollution. It uses environmental, health, and socioeconomic information based on data sets available from state and federal government sources to produce scores for every census tract in the state. Scores are generated using 21 statewide indicators that fall into four categories: exposures, environmental effects, sensitive populations, and socioeconomic factors. The exposures and environmental effects categories characterize the pollution burden that a community faces, whereas the sensitive populations and socioeconomic factors categories define population characteristics.

CalEnviroScreen prioritizes census tracts based on their combined pollution burden and population characteristics score, from low to high. A percentile for the overall score is then calculated from the ordered values. The California Environmental Protection Agency has designated the top 25 percent of highest scoring tracts in CalEnviroScreen (i.e., those that fall in or above the 75th percentile) as DACs, which are targeted for investment proceeds under SB 535, the state's cap-and-trade program.

4.2.6 Governor's Office of Planning and Research's 2020 Updated EJ Element Guidelines

OPR published updated General Plan Guidelines in June 2020 that include revised EJ guidance in response to SB 1000. OPR has also published example policy language in an appendix document along with several case studies to highlight EJ-related policies and initiatives that can be considered by other jurisdictions. Section 4.8 of the General Plan Guidelines contains the EJ guidance. The guidelines offer recommendations for identifying vulnerable communities and reducing pollution exposure related to health conditions, air quality, project siting, water quality, and land use compatibility related to industrial and large-scale agricultural operations, childcare facilities, and schools, among other things. It provides many useful resources, including links to research, tools, reports, and sample general plans.

4.3 Sensitivity of Project Location

4.3.1 Community Description

As part of its Sustainable Communities Initiative, SMUD created and maintains the Sustainable Communities Resource Priorities Map[11], which reflects several data sets related to community attributes that SMUD uses to identify historically underserved communities. The map was launched in 2020 and was updated in February 2025. One of the key components of the map is the California Communities Environmental Health Screening Tool (CalEnviroScreen Version 4.0), which identifies communities facing socioeconomic disadvantages or health disadvantages

[11] The Sustainable Communities Resource Priorities Map is available at https://usage.smud.org/SustainableCommunities/?_ga=2.223364443.1927542179.1598288052-1197903775.1589235097.

such as multiple sources of pollution.[12] The Sustainable Communities Resource Priorities map provides an analysis of current data sets to indicate areas ranging from low to high sensitivity and can be used to describe the relevant socioeconomic characteristics and current environmental burdens of the project area. SMUD has determined that it will evaluate EJ effects for projects located in, adjacent to, or proximate to (e.g., within 500 feet of) a high-sensitivity area as shown on the Sustainable Communities Resource Priorities Map or located in a census tract with a CalEnviroScreen score of 71 percent or greater.

The project area is located in unincorporated Sacramento County and includes the 44-acre substation site located at the southeast corner of Excelsior Road and Jackson Road along with linear corridors extending east, west, and south of the proposed substation site (see Chapter 2.0, "Project Description," for more information). The project area is located in a medium to medium-high sensitivity area per the Sustainable Communities Resource Priorities Map, with the nearest high-sensitivity area located approximately 8.2 miles west in the Lemon Hill neighborhood (SMUD 2025). The project area is within a medium-to medium-high sensitivity area mainly due to its designation as a Disadvantaged Community by SB 535 and an Opportunity Zone. These are tools used for targeting economic development. The project area is within an area designated as a medically underserved area and a highly vulnerable community, which indicates a population that is highly vulnerable and susceptible to harm from exposure to a hazard[13].

The project area is located in census tract 0606700920, which includes a population of 5,101 and approximately 20 square miles of land area in unincorporated Sacramento County. This census tract has an overall CalEnviroScreen 4.0 score of 70 percent, indicating that the area is not considered to be substantially burdened by vulnerabilities due to environmental pollutants. The pollution burden of this census tract is in the 87th percentile, with the most significant indicators being cleanup sites, solid and hazardous waste, drinking water contaminants, and groundwater threats. These exposures and consequent environmental conditions caused by pollution are expected in this area due to scattered commercial and industrial land uses, proximity to Sacramento Mather Airport and surrounding grazing/agricultural land uses. The population characteristics of this census tract are in the 52nd percentile, which indicates a medium concentration of health and socioeconomic vulnerability to pollution. The population characteristics that contribute to the community's pollution burden and vulnerability include cardiovascular disease, asthma, housing burden, and unemployment.

4.4 Environmental Conditions

This discussion references the analysis conducted in the Environmental Checklist of the IS/MND and provides additional detail with respect to the current environmental conditions in the project area. The focus of this discussion is on environmental justice issues relevant to the project.

- **Aesthetics:** The project is not near a scenic vista or within a designated scenic highway. The visual character of the project area is defined by agricultural, rural residential, and

[12] The CalEnviroScreen 4.0 Map is available at https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/Draft-CalEnviroScreen-4.0/.

[13] Vulnerability is defined as the susceptibility of a population to harm from exposure to a hazard, and its ability to prepare for, respond to, and recover from hazards.

industrial uses; open spaces with ranch and grazing lands; electric transmission and distribution infrastructure; and developed roadways including Jackson Road and Excelsior Road. Viewer groups of the project area include occupants of rural residences, workers at ranch and grazing lands, and employees and customers at the scattered commercial and industrial uses (see Section 3.1, “Aesthetics” for additional information).

- **Air Quality:** The project is surrounded by rural residences, ranch and grazing lands, and scattered commercial and industrial land uses. Sensitive receptors in the project area include residences located on Jackson Road and Excelsior Road (see Section 3.3, “Air Quality” for additional information).

- **Cultural Resources:** A review of record search results from the NCIC and two pedestrian surveys conducted in 2025 indicated there were eight previously recorded historic-age cultural resources within the project area. These sites do not appear to be eligible and are therefore not considered unique archaeological resources. No new cultural resources were observed during the 2025 pedestrian surveys (see Section 3.5, “Cultural Resources” for additional information).

- **Energy:** All electrical services in the project area are provided by SMUD. SMUD’s primary power sources include renewables, natural gas and hydroelectric. SMUD offers clean energy programs to its customers such as Greenergy which sources energy from renewable sources including wind and solar (see Section 3.6, “Energy” for additional information).

- **Hazards and Hazardous Materials:** Multiple hazardous materials sites have been found within the project area, including Sacramento Surplus Sales, and 12 cleanup sites identified with a cleanup status of No Further Action or completed case closed status. In 2019, Phase II Environmental Site Assessments were performed for both the western and eastern portions of the substation site and found no hazards for development at the proposed substation site. The project is within the North Vineyard evacuation zone and adjacent to the Mather Field and Riviera/Rosemont evacuation zones where Jackson Road is utilized as a major evacuation route (see Section 3.9, “Hazards and Hazardous Materials” for additional information).

- **Hydrology and Water Quality:** The project area is within the South American Groundwater Subbasin. Phase I ESAs indicated the depth-to-groundwater was measured between 105 and 110 feet below ground surface at nearby sites, and the calculated flow direction was to the west. The project is in the Morrison Creek watershed and the Elder Creek subwatershed; Elder Creek flows seasonally through the northwest corner of the substation site before converging with Morrison Creek, which flows into the Sacramento River. Aquatic resources on the substation site include Elder Creek, seasonal swale, vernal swale, seasonal wetland, vernal pool, and stockpond habitats. The project area is located within an area of minimal flood risk (see Section 3.10, “Hydrology and Water Quality” for additional information).

- **Noise:** The existing noise environment in the project area is influenced by vehicles on local roads, aircraft noise from Sacramento Mather Airport, train noise from the distant Union Pacific Railroad, industrial activities in the area, and natural sources (e.g., wind

and birds). The closest noise-sensitive receptors include residential uses located at the southwest corner of Jackson Road and Excelsior Road, as well as scattered rural residences in the surrounding area (see Section 3.13, "Noise" for additional information).

- **Population and Housing:** The project area is in unincorporated Sacramento County and would be built on land currently zoned for agriculture. There are no homes or people living on the substation site. Some rural residences are scattered throughout the project area (see Section 3.14, "Population and Housing" for additional information).

- **Public Services:** Police, fire protection, and emergency services are available in the project area. These services are provided by the Sacramento County Sheriff's Department and the Sacramento Metropolitan Fire District (see Section 3.15, "Public Services" for additional information).

- **Recreation:** A wide variety of recreation facilities are available in the project area. The nearest parks include Veteran's Park and Mather Regional Park, located 2.1 miles north and northeast of the substation site, respectively. Other recreational facilities in the area include Mather Preserve and Bradshaw Ranch Golf Course (see Section 3.16, "Recreation" for additional information).

- **Tribal Cultural Resources:** No unique archaeological resources or TCRs have been identified on the proposed substation site and/or linear corridors. Consultation with local Native American Tribes and a site visit by Wilton Rancheria did not identify specific tribal cultural resources in the project area; however, the project was identified as being located within the larger Tosewin tribal cultural landscape (see Section 3.18, "Tribal Cultural Resources" for additional information)

- **Transportation:** The project is located approximately 6.7 miles southeast of the Highway 50/Highway 16 interchange. Primary access to the substation site would be from the west via Highway 16 (also known as Jackson Road), and from the north and south via Excelsior Road. Mather Airport is located approximately 2 miles northwest of the project. There are currently no paved pedestrian or bicycle facilities on either project frontages along Jackson Road or Excelsior Road. However, the project lies adjacent to the West Jackson Highway Master Plan and Jackson Township Specific Plan areas, which include planned improvements to the circulation system in the project area (see Section 3.17, "Transportation" for additional information).

- **Utilities and Service Systems:** The project is in a rural area that does not contain central water supply, transmission, or treatment infrastructure. Most water facilities consist of private wells and pipelines at the individual parcel level and water supply is provided primarily from groundwater sources. Wastewater disposal occurs via individual septic systems at the parcel level as well. Electricity in the project area is provided by SMUD, and the Sacramento County Department of Waste Management and Recycling provides solid waste collection services. Generally, on-site stormwater drains to the west and converges with Elder Creek via an existing drainage swale is located at the northwestern corner of the project site (see Section 3.19, "Utilities and Service Systems" for additional information).

4.5 Evaluation of the Project's Contribution to a Community's Sensitivity

The proposed project involves the construction and operation of a new approximately 18-acre electrical substation and associated new and modified 69 kV and 230 kV overhead lines to increase system capacity to meet expected electrical load growth as a result of planned development along Jackson Road. The proposed project's contributions to the community's sensitivity are as follows:

- **Aesthetics:** The proposed project would be a departure from the existing visual condition of the substation site; however, project screening and landscaping would minimize public views of the site. In addition, the project would be consistent with Sacramento County General Plan policies that are relevant to reducing visual impacts from new development and would adhere to zoning code requirements related to new substations. Impacts to aesthetics would be less than significant.

- **Air Quality:** Construction would result in temporary emissions of criteria air pollutants and ozone precursors in the form of fugitive dust from ground disturbing activities. During construction, the project would implement SMAQMD Basic Construction Emission Control Practices (Mitigation Measure AQ-1a). Project operational activities would result in the generation of criteria air pollutant emissions, including PM_{10} and $PM_{2.5;}$ therefore, the project would implement SMAQMD PM Operational Best Management Practices (Mitigation Measure AQ-1b). Impacts to air quality would be less than significant with implementation of these mitigation measures.

- **Cultural Resources:** As discussed in Section 3.5, "Cultural Resources," the project would not affect known cultural resources; however, ground-disturbing activities during construction could result in unanticipated discovery of archaeological resources as defined in State CEQA Guidelines Section 15064.5. The mitigation measures identified in Section 3.5 would be implemented to reduce potentially significant impacts related to the accidental discovery of previously unknown cultural resources to less-than-significant.

- **Energy:** The objective of the proposed project is to provide safe and reliable electrical service to existing and proposed development along Jackson Road. Project construction would not affect access to electricity because electrical service would be maintained throughout all construction phases.

- **Hazards and Hazardous Materials:** Project construction and operation would involve the use, transportation, and disposal of hazardous materials. The proposed project would be required to comply with existing laws and regulations that are specifically designed to protect the public health and the environment and must be adhered to during project construction and operation. Although mitigation is not required, implementation of Mitigation Measure HAZ-1 would further reduce risks related to encountering unidentified soil or groundwater contamination and the potential for adverse effects to workers, the public, or the environment through handling, storage, or disposal of contaminated soil or groundwater. In addition, project construction and

operation would not affect public evacuation routes and emergency access. Impacts related to hazards and hazardous materials would be less than significant.

- **Hydrology and Water Quality:** Elder Creek would not be altered by the proposed project due to a 200-foot setback requirement from the roadway. Project construction would require ground disturbing activities that may result in significant impacts to water quality; however, the project would implement a SWPPP, which would reduce potential impacts of construction on water quality. Project operation would not degrade surface or groundwater quality; the project includes an on-site detention basin and landscaping to help slow stormwater runoff, facilitate filtration of pollutants, and enable stormwater outflows to be discharged to the existing drainage swale at a controlled rate consistent with existing drainage patterns. During construction, the contractor will provide water using a licensed water carrier, and operational water use would be limited to restroom facilities designed with low flow technology to conserve water during intermittent site visits from SMUD staff. Thus, project construction and operation would not have a considerable demand for groundwater supplies, nor would it prevent groundwater recharge. The project would be in an area of minimal flood risk and would not result in a substantial increase to the rate or amount of runoff leading to on- or off-site flooding. For these reasons, impacts related to hydrology and water quality would be less than significant.

- **Noise:** The project would generate temporary and short-term construction noise from equipment operating on the substation site, from construction of overhead lines, and from the transport of construction equipment, materials, and workers to and from the site. Construction activities would comply with the Sacramento County Noise Ordinance (Sacramento County Code, Chapter 6.68) and the impact of construction noise at the nearest sensitive uses would be less than significant. Operational noise impacts from the new substation would be less than significant.

- **Population and Housing:** The project would not displace nor generate new residences. The project lies adjacent to the West Jackson Highway Master Plan and Jackson Township Specific Plan areas, which include improvements in housing and circulation development along Jackson Road. The project aims to provide electricity supply for the expected increase in future load growth from these planned developments; thus, no impact would occur.

- **Public Services:** The project would not generate new residents, which is the driving factor for fire and police protection services. The project would not interrupt or otherwise affect the provision of public services to the area.

- **Recreation:** The project would not affect any parks or recreational opportunities in the surrounding area.

- **Transportation:** The project is not served by any mass transit facilities and would not conflict with any plans related to provision or transit service. The project would not conflict with any applicable plan, ordinance or policy establishing measures for performance of the circulation system. Project construction and operation would not result in substantial changes to the local circulation system from existing conditions, and

emergency responders would have adequate access to the project site in the event of an emergency.

- **Tribal Cultural Resources:** No unique archaeological resources or TCRs have been identified in the substation site or overhead line corridor. However, given these resources may be encountered during ground disturbing activities (i.e., grading and trenching), the project will implement Mitigation Measures TCR-1 and TCR-2 to reduce potentially significant impacts to any unanticipated discoveries to less than significant.

- **Utilities and Service Systems:** The project would not adversely affect the provision of utilities to existing and future uses in the project area. The project is intended to ensure continued and reliable electrical service within the area, and no interruption or reduction in service capacity would occur as a result of the project.

As described for each environmental resource area above, the project would not contribute to the community's current sensitivity.

4.6 Summary of Environmental Justice Assessment

According to SMUD's Sustainable Communities Resource Priorities Map, which reflects several data sets related to community attributes that SMUD uses to identify historically underserved communities, the project area is designated as a medium to medium-high sensitivity area. This is due in part to the area's designation as an Opportunity Zone, a Disadvantaged Community pursuant to SB 535, a medically underserved area, and an area with a population highly vulnerable and susceptible to harm from exposure to hazard. Project construction and operation could affect previously undiscovered cultural and Tribal Cultural Resources and expose the public to potentially contaminated soils; however, mitigation measures are included to reduce these potential impacts to less-than-significant levels. The project would enhance the energy reliability of the SMUD electrical grid in the surrounding area for existing customers, and in response to planned development outlined in the West Jackson Highway Master Plan and Jackson Township Specific Plan. Therefore, no existing environmental justice conditions would be worsened as a result of the project.

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6.0 REFERENCES

AECOM. 2019a. 10590 Jackson Road – Cultural Resources Memorandum.

____. 2019b. Phase I Environmental Site Assessment. Prepared for the Proposed Jackson Bulk Substation Site, 6037 Excelsior Road (APN 067-0050-039). Prepared for SMUD. January.

____. 2019c. Phase II ESA Soil Sampling Summary Report. Prepared for the Proposed Jackson Bulk Substation Project, APN 067-0050-039-0000, 6037 Excelsior Road. Prepared for SMUD. January 18.

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____. 2019e. Phase II ESA Soil Sampling Summary Report. Prepared for the Proposed Jackson Bulk Substation Project, APN 067-0050-040-0000, 10590 Jackson Road. Prepared for SMUD. January 25.

____. 2026. Cultural Resources Memorandum Addendum.

Ahl, J.S.B. 1991. Factors affecting contributions of the tadpole shrimp, Lepidurus packardi, to its oversummering egg reserves. Hydrobiologia 212, 137–143.

Area West Environmental, Inc. 2025. Aquatic Resources Delineation Report.

Area West Environmental, Inc. 2026. Biological Resources Evaluation Report for the Jackson Bulk Substation Project. Sacramento County, California. April 2026.

Beardsley, R. K. 1948. Cultural Sequences in Central California Archaeology. American Antiquity. 14:1-28.

_____. 1954. Temporal and Areal Relationships in Central California Archaeology, Parts I & II. Berkeley, California: University of California Archaeological Survey Reports.

Bennyhoff, J. A., Fredrickson D. A. 1994. A Proposed Integrative Taxonomic System for Central California Archaeology. In: Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A Bennyhoff and David A Fredrickson Contributions of the University of California, Archaeological Research Facility 52. Hughes R. E, editor. p. 15-24. Published by Berkeley, California.

Bennyhoff, James A. 1977. Ethnogeography of the Plains Miwok, Publication Number 5. Center for Archaeological Research at Davis: Davis, California.

Bibby, Brian. 2005. Deeper Than Gold: A Guide to Indian Life in the Sierra Foothills. Heyday Books: Berkeley, CA.

Branum, D., R. Chen, M. Petersen, and C. Wills. 2016. Earthquake Shaking Potential for California. California Geological Survey and U.S. Geological Survey. Map Sheet 48. Available: https://maps.conservation.ca.gov/cgs/DataViewer/. Accessed October 6, 2025.

Britton & Rey. 1885. "Official Map of Sacramento County" [map]. Britton & Rey: San Francisco, CA.

California Air Resources Board. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April. Available: https://ww2.arb.ca.gov/sites/default/files/2023-05/Land%20Use%20Handbook_0.pdf. Accessed November 20, 2025.

_____. 2013. California Almanac of Emissions and Air Quality. Available: https://ww2.arb.ca.gov/our-work/programs/resource-center/technical-assistance/air-quality-and-emissions-data/almanac. Accessed November 20, 2025.

_____. 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Available: https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf. Accessed February 5, 2026.

_____. 2023. State Area Designations. Available: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations. Accessed November 20, 2025.

_____. 2025a. Carbon Monoxide and Health. Available: https://ww2.arb.ca.gov/resources/carbon-monoxide-and-health. Accessed January 16, 2026.

_____. 2025b. Overview: Diesel Exhaust and Health. Available: https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health. Accessed December 19, 2025.

_____. 2025c. GHG Global Warming Potentials. Available: https://ww2.arb.ca.gov/ghg-gwps. Accessed December 10, 2025.

_____. 2026a. Inhalable Particulate Matter and Health ($PM_{2.5}$ and PM_{10}). Available: https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health. Accessed February 2, 2026.

California Department of Conservation. 2020. California Important Farmland Finder. Available: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed: October 2025.

____. 2021. Tsunami Hazard Area Map, Sacramento County; produced by the California Geological Survey and the California Governor's Office of Emergency Services; displayed at multiple scales. Available: https://www.conservation.ca.gov/cgs/tsunami/maps. Accessed October 24, 2025.

California Department of Finance (CDF). 2012. E-4 Population Estimates for Cities, Counties, and the State, 2001-2010, with 2000 and 2010 Census Counts. Sacramento, California,

Revised November 9, 2012. Available: https://dof.ca.gov/forecasting/demographics/estimates/estimates-e4-2000-2010/. Accessed October 15, 2025.

_____. 2021a. E-4 Population Estimates for Cities, Counties, and the State, 2011-2020, with 2010 Census Benchmark. Sacramento, California. May 2021. Available: https://dof.ca.gov/forecasting/demographics/estimates/estimates-e4-2000-2010/. Accessed October 15, 2025.

_____. 2021b. E-2 California County Population Estimates and Components of Change by Year—July 1, 2010—2019, December 2021. Available: https://dof.ca.gov/forecasting/demographics/estimates/. Accessed October 15, 2025.

_____. 2025a. E-4 Population Estimates for Cities, Counties, and the State, January 2021-2025, with 2020 Benchmark. Available: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/. Accessed October 15, 2025.

_____. 2025b. E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2021-2025. Sacramento, California, May 2025.

California Department of Fish and Wildlife. 1990a. California Wildlife Habitat Relationships System: Burrowing Owl (*Athene cunicularia*) Life History Account. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10405. Accessed August 2025.

_____. 1990b. California Wildlife Habitat Relationships System: White-tailed Kite (*Elanus leucurus*) Life History Account. Available at: https://nrm.dfg.ca.gov/Filehandler.ashx?DocumentVersionID=18135. Accessed August 2025.

_____. 1990c. California Wildlife Habitat Relationships System: Pallid Bat (*Antrozous pallidus*) Life History Account. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2349. Accessed September 2025.

_____. 2000. California Wildlife Habitat Relationships System: Western Spadefoot (*Spea hammondii*) Life History Account. Available at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1470&inline=1. Accessed online: July 2025.

_____. 2008a. Species Account: Tricolored Blackbird. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10506. Accessed August 2025.

_____. 2008b. Species Account: Northern Harrier. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=10393. Accessed August 2025.

_____. 2008c. Species Account: Loggerhead Shrike. Available at: https://wildlife.ca.gov/Conservation/SSC/Birds. Accessed September 2025.

_____. 2012. CDFW Staff Report on Burrowing Owl Mitigation.

_____. 2019. ACE Dataset Fact Sheet- Terrestrial Connectivity (DS2734). Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=150835. Accessed March 2025.

_____. 2023. Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. Available: https://wildlife.ca.gov/Conservation/Survey-Protocols#377281281-invertebrates. Accessed November 2025.

_____. 2025b. BIOS 6 Viewer. Available at: https://apps.wildlife.ca.gov/bios6/. Accessed September 2025.

_____. 2026a. California Natural Diversity Data Base RareFind 5. Available at: https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx. Accessed September 2025 and re-accessed February 2026.

California Department of Forestry and Fire Protection (CAL FIRE). 2025a. State Responsibility Area Fire Hazard Severity Zone Maps. March 10. Available: https://experience.arcgis.com/experience/5065c998b4b0462f9ec3c6c226c610a9. Accessed: October 2025.

____. 2025b. Local Responsibility Area Fire Hazard Severity Zone Maps. March 10. Available: https://experience.arcgis.com/experience/5065c998b4b0462f9ec3c6c226c610a9. Accessed: October 2025.

____. 2025c. Fire Incidents Archive. Available: https://www.fire.ca.gov/incidents/2025. Accessed: November 2025.

California Department of Resources Recycling and Recovery. 2019. SWIS Facility/Site Activity Details: Sacramento County Landfill (Kiefer). Available: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/2070?siteID=2507. Accessed November 11, 2025.

California Department of Transportation. 2011. California Airport Land Use Planning Handbook. October. Available: https://dot.ca.gov/-/media/dot-media/programs/aeronautics/documents/californiaairportlanduseplanninghandbook-a11y.pdf. Accessed: October 2025.

____. 2018. Statewide Scenic Highway Map. Available at: https://experience.arcgis.com/experience/47e2009986264718a5a13a2c81382774. Accessed November 19, 2025.

____. 2020. Transportation and Construction Vibration Guidance Manual. Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office, Sacramento, CA.

_____. 2025. Transportation Permits (Oversize/Overweight Vehicles). Available at: https://dot.ca.gov/programs/traffic-operations/transportation-permits. Accessed November 11, 2025.

California Department of Water Resources. 2024. SGMA Data Viewer—Depth to Groundwater, Fall 2024. Available: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels. Accessed October 6, 2025.

California Department of Water Resources (DWR). 2025. Sustainable Groundwater Management Act (SGMA) portal website. Available: https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true. Accessed October 21, 2025.

California Environmental Protection Agency (CalEPA). 2025a. Cortese List Data Resources. Available: https://calepa.ca.gov/sitecleanup/corteselist/. Accessed: February 2026.

____. 2025b. Unified Program: Laws and Regulations. Available: https://calepa.ca.gov/CUPA/LawsRegs/. Accessed: February 2026.

California Geological Survey. 2024. Earthquake Zones of Required Investigation. Available: https://maps.conservation.ca.gov/cgs/informationwarehouse/eqzapp/. Accessed October 6, 2025.

California Green Building Standards Code, California Code of Regulations (CCR), Title 24, Part 11.

California Native Plant Society. 2025b. A manual of California Vegetation Online. California Native Plant Society. Sacramento, CA. Available at: https://vegetation.cnps.org/. Accessed September 2025.

_____. 2026a. Inventory of Rare and Endangered Plants (online edition, v9-01 1.0). Available at: http://www.rareplants.cnps.org/. Accessed September 2025 and re-accessed February 2026.

California Office of Environmental Health Hazard Assessment (OEHHA). 2021. CalEnviroScreen 4.0 Results Map. Available at: https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40. Accessed November 2025. Accessed December 2025.

Caltrans Vehicle Miles Traveled-Focused Transportation Impact Study Guide. Available at: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf. Accessed November 11, 2025.

Cape Environmental Management, Inc. 2020. Final Fifth Five-Year Review Report, Former Mather Air Force Base. September. Prepared for Air Force Civil Engineer Center. Available: https://semspub.epa.gov/work/09/100021670.pdf. Accessed: February 2026.

Central Valley Regional Water Quality Control Board. 2017. Resolution R5-2017-0057 Amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Pyrethroid Pesticide Discharges. Adopted June 8, 2017. Available:

https://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/pyrethroid_control_program/. Accessed October 2025.

Coulombe, J. N. 1971. Behavior and population ecology of the burrowing owl (*Speotyto cunicularia*) in the Imperial Valley of California. Condor 73:162-176.

County of Sacramento. 2025. "Chapter 14 – Tribal Cultural Resources" in Coyote Creek Agrovoltaic Ranch Project Draft Environmental Impact Report. Available at: https://planning.saccounty.gov/Documents/Coyote%20Creek%20Agrivoltaic%20Ranch/DEIR/14_Coyote%20Creek_Tribal%20Cultural%20Resources_DEIR_FINAL.pdf. Accessed February 2026.

Department of Toxic Substances Control (DTSC). 2025. Envirostor Database. Available: https://www.envirostor.dtsc.ca.gov/public/. Accessed: February 2026.

Department of Water Resources. 2022. GSP 2022: 5-021.65 South American Subbasin. Available at: https://sgma.water.ca.gov/portal/gsp/preview/111. Accessed November 7, 2025.

Dupras, D. 1999. Mineral Land Classification: Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources in Sacramento County, California. DMG Open-File Report 99-09. California Department of Mines and Geology. Sacramento, CA.

Elk Grove Unified School District. 2024. 2025-2035 Facilities Master Plan. Prepared by PBK Architects, Inc. July 16. Available: https://pbkarchitects-my.sharepoint.com/personal/alexandra_diklich_pbk_com/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Falexandra%5Fdiklich%5Fpbk%5Fcom%2FDocuments%2FFor%20Josh%2FEGUSD%20FMP%20Website%2F%5FEGUSD%20FMP%5F2024%2E07%2E16%5Freduced%2Epdf&paren. Accessed: October 2025.

____. 2025. Information about EGUSD. URL: https://www.egusd.net/District/About-EGUSD/Our-Schools/index.html. Accessed November 11, 2025.

Federal Emergency Management Agency (FEMA). 2025. National Flood Hazard Layer Viewer. Available: https://www.fema.gov/flood-maps. Accessed October 17, 2025.

Federal Geographic Data Committee (FGDC), 2013. Classification of Wetlands and Deepwater Habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington DC.

Federal Highway Administration. 2006 (January). Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054. Washington, DC.

Federal Transit Administration. 2018 (September). Transit Noise and Vibration Impact Assessment. FTA Report No. 0123. Washington, DC: Office of Planning and Environment.

Fredrickson, D. A. 1968. Archaeological Investigations at CCO-30 near Alamo, Contra Costa County, California. Davis, California: Center for Archaeological Research at Davis Publication No. 1.

_____. 1973. Early Cultures of the North Coast and North Coast Ranges, California. [Davis, California]: University of California, Davis.

_____. 1974. Cultural Diversity in Early Central California: A View from the North Coast Ranges. The Journal of California Anthropology UC Merced. 1:41-54.

_____. 1994. Spatial and Cultural Units in Central California Archaeology. In: Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A Bennyhoff and David A Fredrickson. Hughes R.E., editor. p. 25-48. Published by Contributions to the University of California Archaeological Research Facility No. 52.

Gutierrez, C.I. 2011. Preliminary Geologic Map of the Sacramento 30' x 60' Quadrangle, California. California Geological Survey. Sacramento, CA.

Heizer, R. F. 1949. The Archaeology of Central California, I: The Early Horizon. University of California Anthropological Records, Berkeley, California. 12(1):1-84.

Helm, B. P. 1998. Biogeography of eight large branchiopods endemic to California. Pages 124-139 in Witham, C. W., E. T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff. (eds.). Ecology, conservation, and management of vernal pool ecosystems – proceeding from a 1996 conference. California Native Plant Society, Sacramento, California. 285 pp. Available at https://sitesreservoirproject.riptideweb.com/references/REF23/Volume%201/Ch10_Wildlife/Helm_1998_branchiopods_biogeography1.pdf. Accessed: July 2025.

Helm, B. P, and J.E. Vollmar. 2002. Chapter 4: vernal pool large branchiopods. Pages 151-190 in J.E. Vollmar (Editor), Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands. Vollmar Consulting, Berkeley, CA. Accessed: August 2025.

iNaturalist. 2025. Observations from 5-mile radius of 38.5164379739244, 121.29464680849661. Available at: https://www.inaturalist.org/observations?lat=38.5164379739244&lng=-121.29464680849661&radius=5&subview=map. Accessed September 2025.

Intergovernmental Panel on Climate Change (IPCC). 2021. AR6 Climate Change 2021: The Physical Science Basis. Available: https://www.ipcc.ch/report/ar6/wg1/. Accessed November 1, 2025.

Jennings, C.W. and W.A. Bryant. 2010. 2010 Fault Activity Map of California. Available: https://maps.conservation.ca.gov/cgs/fam/App/index.html. Accessed October 6, 2025.

Jennings, M. and Hayes, M. 1994. Amphibian and Reptile Species of Special Concern in California.

JRP Historical Consulting Services. 1996. Historic Architectural Survey Report: Eight Groups of Buildings and Structures Located Within the Project Area for Morrison Creek Mining

Reach, Downstream (South of Jackson Highway, Sacramento County, California). Prepared for Garcia and Associates.

Kroeber, Alfred L. 1925. Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Washington.

Lillard, J. B., Heizer R. F., Fenenga F. 1939. An Introduction to the Archaeology of Central California. Sacramento, California: Sacramento Junior College, Department of Anthropology.

Moratto, M. J. 1984. California Archaeology. Orlando, Florida: Academic Press, Inc. (Harcourt, Brace, Jovanovich, Publishers).

National Oceanic and Atmospheric Administration. 2025. National ESA Critical Habitat Mapper. Available: https://www.fisheries.noaa.gov/resource/map/national-esa-critical-habitat-mapper. Accessed October 2025.

National Parks Service (NPS). 2024. National Register Bulletin: Identifying, Evaluating, and Documenting Traditional Cultural Places. Available at: https://irma.nps.gov/DataStore/DownloadFile/713283. Accessed December 2025.

Natural Resources Conservation Service. 2024. Web Soil Survey—Sacramento County Soil Survey Data. Accessed: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed October 31, 2024.

____. 2025. Regional Climate Centers AgACIS for Sacramento County, WETS Station SACRAMENTO 5 ESE, California. Available: AgACIS (rcc-acis.org). Accessed October 17, 2025.

____. 2026. Web Soil Survey, Sacramento County. Available at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed February 2026.

Northern Delta Groundwater Sustainability Agency; Omochumne-Hartnell Water District; Reclamation District 551; Sacramento Central Groundwater Authority; Sacramento County; Sloughhouse Resource Conservation District. 2024. South American Subbasin Groundwater Sustainability Plan. Draft Fourth Annual Report, Water Year 2024. Available at: https://www.sloughhousercd.org/files/8da048023/DRAFT_5-021.65_WY2024_2025_01_31.pdf. Accessed November 7, 2025.

Office of Environmental Health Hazard Assessment. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments. California Environmental Protection Agency. https://oehha.ca.gov/sites/default/files/media/downloads/crnr/2015guidancemanual.pdf.

Office of Planning and Research. 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. Available at: https://lci.ca.gov/docs/20180416-743_Technical_Advisory_4.16.18.pdf. Accessed November 14, 2025.

Olmsted, F.H. and Davis, G.H. 1961. Geologic Features and Ground-Water Storage Capacity of the Sacramento Valley, California. Geological Survey Water-Supply Paper 1497. U.S. Geological Survey. Washington, D.C.

O'Neal, M.D. and F.W. Gius. 2018. Mineral Land Classification: Concrete Aggregate in the Greater Sacramento Area Production-Consumption Region. Special Report 245. California Geological Survey. Sacramento, CA.

Payen, Louis A. 1961. "The Walltown Nisenan." Manuscript on file at the Department of Anthropology, California State University, Sacramento.

Robertson, J. M. 1929. Some observations on the feeding habits of the burrowing owl. Condor 31:38-39.

Rosenthal, J. S., White G. G., Sutton M. Q. 2007. The Central Valley: A View from the Catbird's Seat. In: California Prehistory: Colonization, Culture, and Complexity. T.L. Jones, Klar K.A., editors. p. 147-163. Published by Altamira Press, Lanham, Maryland.

Sacramento Area Council of Governments (SACOG). 2019 (November). 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy, Appendix C: 2020 MTP/SCS Land Use Forecast. Available at: https://www.sacog.org/home/showpublisheddocument/38/638212803200970000. Accessed October 24, 2025.

____. 2022. Mather Airport, Airport Land Use Compatibility Plan. Prepared by ESA. August. Available: https://www.sacog.org/home/showpublisheddocument/2728/638715078803870000. Accessed: October 2025.

____. Airport Noise Contours. SACOG Administrator.

Sacramento Area Council of Governments. 2025. Metropolitan Transportation Plan/Sustainable Communities Strategy 2020-2050. Released June. Available: https://www.sacog.org/home/showpublisheddocument/3009/638845527474630000. Accessed: October 2025.

Sacramento Bee. 2024 May 14. "Wilton Rancheria Reclaims 77 Acres Near Sacramento From Federal Government. Here's What's Next." Available at: https://www.sacbee.com/news/local/article288482087.html. Accessed December 2025.

Sacramento County. 1985. Vineyard Community Plan. Available at: https://planning.saccounty.gov/LandUseRegulationDocuments/Documents/CommunityPlans/cp_vineyard.pdf. Accessed: October 2025.

____. 1993a. General Plan, Safety Element Background. Amended May 25, 2022. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Safety.pdf. Accessed: November 2025.

____. 1993b. Public Facilities Element (2019 Amended). Available at: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/General%20Plan%20Amendments/Public%20Facilities%20Element%20-%20Amended%2012-17-19.pdf. Accessed November 19, 2025.

____. 2011. General Plan of 2005-2030. Amended November 9, 2011. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/pages/generalplan.aspx. Accessed: October 2025.

____. 2013. Onsite Wastewater Treatment System Guidance Manual. Available at: https://emd.saccounty.gov/EC/Documents/OWTSMANUAL.pdf. Accessed November 13, 2025.

____. 2015a. Flood Emergency Evacuation Plan Maximum Flood Depth Map. December. Available: https://waterresources.saccounty.gov/stormready/Pages/American-River-South-Breach-1-Map.aspx. Accessed: October 2025.

____. 2015b. Zoning Code. Effective September 25. Available: https://planning.saccounty.gov/LandUseRegulationDocuments/Documents/Zoning-Code/SZC_Full.pdf. Accessed: October 2025.

____. 2017a. General Plan Noise Element. Sacramento County Department of Planning and Environmental Review.

____. 2017b. Sacramento County General Plan, Open Space Element. URL: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/General%20Plan%202030/Open%20Space%20Background.pdf.

____. 2019a. General Plan Agricultural Element. Amended December 17, 2019. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Agricultural%20Element%20-%20Amended%2012-17-2019.pdf. Accessed: October 2025.

____. 2019b. Sacramento County General Plan Public Facilities Element. URL: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/General%20Plan%20Amendments/Public%20Facilities%20Element%20-%20Amended%2012-17-19.pdf. Accessed November 11, 2025.

____. 2020a. Revised Final Environmental Impact Report for the NewBridge Specific Plan. September 25. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Growth%20Area%20Plans/Newbridge/NewBridge_Revised_Final_EIR_Vol_1_9.25.20.pdf. Accessed: October 2025.

____. 2020b. Final Environmental Impact Report for the Mather South Community Master Plan project. January. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Growth%20Area%20Plans/Mather%20South/FEIR/FEIR%20complete%20no%20appendices.pdf?csf=1&e=Cve0YP. Accessed: October 2025.

____. 2021. Recirculated Draft Environmental Impact Report for the Jackson Township Specific Plan. May. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Recirculated%20Draft%20Environmental%20Impact%20Report_DEIR%2005.13.21.pdf. Accessed: October 2025.

____. 2022. Jackson Township Specific Plan Final EIR. Available at: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Pages/JacksonTownshipSpecificPlan.aspx. Accessed November 19, 2025.

____. 2024. West Jackson Highway Master Plan, Local Traffic Study, 2024. Available at: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/Jackson%20Highway%20Area%20Master%20Plans/Updated%20Documents_7.23.24/PLNP2008-00240%20Final%20LTA.pdf. Accessed November 11, 2025.

____. 2025a. Sacramento County Online Map Website. Available: https://generalmap.gis.saccounty.gov/JSViewer/county_portal.html#. Accessed: October 2025.

____. 2025b. West Jackson Highway Master Plan. April. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Pages/WestJacksonHighwayMasterPlan.aspx. Accessed: October 2025.

____. 2025c. Encroachment Permits. Available at: https://engineering.saccounty.gov/sips/Pages/EncroachmentPermits.aspx. Accessed November 14, 2025.

____. 2025d. Driveways, New or Proposed. Available at: https://sacdot.saccounty.net/Pages/Driveways-NewOrProposed.aspx. Accessed November 11, 2025.

____. 2025e. Oversized Trucking (Transportation) Permit. Available at: https://sacdot.saccounty.net/Pages/OversizedTruckingPermit.aspx. Accessed November 11, 2025.

____. 2025f. Stormwater Utility (Drainage). Available at: https://waterresources.saccounty.gov/Pages/StormwaterUtility(Drainage).aspx. Accessed November 13, 2025.

Sacramento County, Active Transportation Plan, 2022. Available at: https://sacdot.saccounty.net/Documents/A to Z Folder/Active Transportation/Sac ATP Plan + Appendices_June Final.pdf. Accessed November 14, 2025.

Sacramento County Complete Transportation Analysis Guidelines, 2025. Available at: https://sacdot.saccounty.net/Documents/A%20to%20Z%20Folder/Traffic%20Analysis/Complete%20Transportation%20Analysis%20Guidelines.pdf. Accessed November 11, 2025.

Sacramento County Department of Environmental Management. 2025. Septic Permit Process. Available: https://emd.saccounty.gov/EC/Pages/SepticPermitProcess.aspx. Accessed November 13, 2025.

Sacramento County Department of Regional Parks. 2025. Your Sacramento Area Parks. URL: https://sacramentocounty.maps.arcgis.com/apps/webappviewer/index.html?id=473d8a66b49243e1aa3732a4bdbd6936. Accessed February 11, 2025.

Sacramento County, City of Rancho Cordova, City of Galt, Sacramento County Water Agency, Southeast Connector Joint Powers Authority. 2018. South Sacramento Habitat Conservation Plan. February. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Documents/SSHCP/SSHCP_.pdf. Accessed: October 2025.

Sacramento County, Office of Emergency Services. 2025. Evacuation Zone Maps. Available: https://sacramentoready.saccounty.gov/Prepare/Pages/Zone%2073%20-%20North%20Vineyard.aspx. Accessed: October 2025.

Sacramento County Office of Planning and Environmental Review. 2017a. Sacramento County General Plan of 2005–2030, Conservation and Safety Elements. Adopted 2011, last updated 2017. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Pages/GeneralPlan.aspx. Accessed October 31, 2024.

____. 2017b. Sacramento County General Plan of 2005–2030, Conservation Element. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Pages/GeneralPlan.aspx. Accessed October 17, 2024.

Sacramento County Pedestrian Master Plan. 2007. Available at: Microsoft Word - Sacto Ped Plan PublicFinalDraft-1.doc. Accessed November 14, 2025.

Sacramento County Sheriff's Office. 2025. Sacramento County Sheriff's Office, Central Division. URL: https://www.sacsheriff.com/pages/central_division.php. Accessed November 11, 2025.

Sacramento Metropolitan Air Quality Management District. 2015. California Environmental Quality Act Guidelines Update: Proposed Particulate Matter CEQA Thresholds of Significance. March. Available: https://www.airquality.org/LandUseTransportation/Documents/ParticulateMatterThresholdsUpdateMay2015AgendaItemAttachment.pdf. Accessed March 2025.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2020a. Greenhouse Gas Thresholds for Sacramento County. June 1. Available: https://www.airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020a-03-04v2.pdf. Accessed January 29, 2026.

_____. 2020b. SMAQMD Thresholds of Significance Table. Revised April. Available: https://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf. Accessed November 20, 2025.

_____. 2020c. Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District. Available: https://www.airquality.org/LandUseTransportation/Documents/SMAQMDFriantRanchFinalOct2020.pdf. Accessed: December 13, 2024.

_____. 2021. Guide to Air Quality Assessment in Sacramento County. Available: https://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools. Accessed November 20, 2025.

Sacramento Metropolitan Fire (Metro Fire). 2024. Metro Fire Community Annual Report for the Fiscal Year Ended June 30, 2024. Available: https://metrofire.ca.gov/community-annual-reports. Accessed: November 2025.

____. 2025. Metro Fire Station Locations. Available: https://metrofire.ca.gov/station-locations. Accessed: November 2025.

Sacramento Municipal Utility District (SMUD). 2024a. Sacramento Municipal Utility District Operations, Maintenance, and New Construction Habitat Conservation Plan. July 2024.

____. 2024b. 2024 Power Content Label. Available: https://www.smud.org/SMUDPCL. Accessed December 10, 2025.

____. 2025. Sustainable Communities Resource Priorities Map. Available: https://smud.maps.arcgis.com/apps/MapJournal/index.html?appid=a0db9b3495e24223a454a74992b77a6e. Accessed December 2025.

Society of Vertebrate Paleontology. 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Society of Vertebrate Paleontology Impact Mitigation Guidelines Revision Committee.

South American Subbasin. 2021. South American Subbasin Groundwater Sustainability Plan. Available: https://sasbgroundwater.org/groundwater-plan. Accessed October 20, 2025.

South Coast Air Quality Management District. 2015. Brief of Amicus Curiae in Sierra Club, Revive the San Joaquin and League of Women Voters of Fresno v. County of Fresno and Friant Ranch. Available: https://www4.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf. Accessed: December 13, 2024.

State Water Resources Control Board. 2024. 2024 California Integrated Report. Available: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2024-integrated-report.html. Accessed October 17, 2025.

State Water Resources Control Board (SWRCB). 2025. GeoTracker Database. Available: https://geotracker.waterboards.ca.gov/. Accessed: February 2026.

Stebbins, R. C., McGinnis, S. M. 2018. Field Guide to Amphibians and Reptiles of California: Fourth Edition. Boston: University of California Press.

Stirton, R.A. 1939. Cenozoic Mammal Remains from the San Francisco Bay Region. University of California Publications, Bulletin of the Department of Geological Sciences. Volume 24, No. 13, pp. 339–410.

United States Census Bureau. 2022a. Commuting Characteristics by Sex, American Community Survey 5-year Estimates Subject Tables, Table S0801, Sacramento County, California. Available: https://data.census.gov/table/ACSST5Y2022.S0801?q=mean%20commute%20time&t=Commuting&g=050XX00US06067. Accessed October 15, 2025.

United States Energy Information Administration (EIA). 2024. Carbon Dioxide Emissions Coefficients. Available: https://www.eia.gov/environment/emissions/co2_vol_mass.php. Accessed January 29, 2026.

University of California Museum of Paleontology. 2025. Paleontological Collections Database. Available: https://ucmp.berkeley.edu/collections/databases/. Accessed October 6, 2025.

University of California, Santa Barbara (UCSB), Aerial Photography Special Collection. 1937. Flight ABC-46, Frame 23. August 17.

_____. 1952. Flight PAI-ABC-Y8, Frame 114.

_____. 1961. Flight CAS-SAC-1, Frame 241. July 13.

_____. 1981. Flight CAS-81081-5, Frame 144. April 9.

U.S. Census Bureau. 2022. 2020 Census Urban Areas (2022 Update). Available at: https://cacensus.maps.arcgis.com/apps/webappviewer/index.html?id=67f7e4aa0bc6450e8a052176a12d86b9. Accessed November 13, 2025.

U.S. Environmental Protection Agency. 2011. Plan EJ 2014. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100DFCQ.PDF?Dockey=P100DFCQ.PDF. Accessed January 2026.

____. 2025a. Ozone Pollution and Your Patients' Health: Patient Exposure and the Air Quality Index. Available: https://www.epa.gov/ozone-pollution-and-your-patients-health/patient-exposure-and-air-quality-index. Accessed January 29, 2026.

_____. 2025b. Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution. Available: https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution. Accessed January 29, 2026.

_____. 2025c. Basic Information About NO2. Available: https://www.epa.gov/no2-pollution/basic-information-about-no2. Accessed January 29, 2026.

_____. 2025d. Learn about Lead. Available: https://www.epa.gov/lead/learn-about-lead. Accessed January 29, 2026.

_____. 2025e. Green Book Summary Nonattainment Area Population Exposure Report. Available: https://www.epa.gov/green-book/green-book-national-area-and-county-level-multi-pollutant-information. Accessed November 20, 2025.

_____. 2026a. Sulfur Dioxide Basics. Available: https://www.epa.gov/so2-pollution/sulfur-dioxide-basics. Accessed January 29, 2026.

____. 2026b. Superfund Site: Mather Air Force Base Cleanup Activities. Available: https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0902793#bkground. Accessed: February 2026.

U.S. Fish and Wildlife Service. 2004. 12-month Finding for a Petition to List the Midvalley Fairy Shrimp as Endangered. Federal Register Vol 69 No 16. January 26, 2004.

_____. 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland: U.S. Fish and Wildlife Service. Available at https://sitesproject.org/wp-content/uploads/references/REF21/Appx_10B_WildlifeHabitatModelsMethods/USFWS_2005a_VP_RecoveryPlan_partial%20(1).pdf. Accessed August 2025.

_____. 2025. Vernal Pool Fairy Shrimp. Available at: https://www.fws.gov/species/vernal-pool-fairy-shrimp-branchinecta-lynchi. Accessed March 2025.

_____. 2026a. IPaC: Information for Planning Consultation. Web application. Available at: https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77. Accessed September 2025 and re-accessed February 2026.

_____. 2026b. National Wetlands Inventory Wetlands Mapper. Available at: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed September 2024 and re-accessed February 2026.

U.S. Geological Survey. 2011. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. Available: https://www.conservation.ca.gov/cgs/Documents/Publications/Map-Sheets/MS_059_Plate.pdf. Accessed November 20, 2025.

____. 2025. National Map Viewer- National Hydrography Dataset. Available at: https://apps.nationalmap.gov/viewer/. Accessed March 2025 and re-accessed February 2026.

Western Regional Climate Center. 2025. Sacramento 5 ESE, California (047633), Period of Record Monthly Climate Summary. Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca8914. Accessed March 2025.

Wilson, Norman L., and Arlean H. Towne. 1978. “Nisenan” in Handbook of North American Indians, Volume 8, California. Edited by R. F. Heizer, pp. 387-397. Smithsonian Institution: Washington, D.C.

Wilton Rancheria. 2024. “Wilton Rancheria Tribal History.” Available at: https://wiltonrancheria-nsn.gov/Home/TribalHistory/tabid/305/Default.aspx. Accessed via Wayback Machine, December 2025.

World Health Organization. 2024. Ambient (outdoor) air pollution. Available: https://www.who.int/en/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health. Accessed January 16, 2026.

Xerces Society. 2025. Crotch's Bumble Bee. Available at: https://xerces.org/endangered-species/species-profiles/at-risk-bumble-bees/crotchs-bumble-bee. Accessed March 2025.

Zarn, M. 1974. Burrowing owl, Speotyto cunicularia hypugaea. U.S. Dep. Inter., Bur. Land Manage., Wash. DC. Tech. Note No. 250. 25pp.

Zeiner, D.C., W.H. Laudenslayer, K.E. Mayer, and M. White. 1990. California's Wildlife, volumes 1, 2, and 3. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Wildlife, Sacramento, California. Available at: https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range. Accessed September 2025.

Zhu, Yifang; William C. Hinds, Seongheon Kim & Constantinos Sioutas. 2002. Concentration and Size Distribution of Ultrafine Particles Near a Major Highway, Journal of the Air & Waste Management Association, 52:9, 1032-1042, DOI: 10.1080/10473289.2002.10470842.

APPENDIX A

Air Quality Model Calculations

SMUD Jackson Substation

Criteria Air Pollutant Emissions

Construction Emissions

Description	ROG lb/day	NOX lb/day	PM10 lb/day	PM2.5 lb/day	PM10 ton/year	PM2.5 ton/year
Construction Equipment and Vehicles	7	54	9	5	0.38	0.15
SMAQMD Threshold	N/A	85	80	82	14.6	15
Threshold Exceeded?	No	No	No	No	No	No

Operational Emissions

Description	ROG lb/day	NOX lb/day	PM10 lb/day	PM2.5 lb/day	PM10 ton/year	PM2.5 ton/year
Operations (Mobile)	0.4	0.1	0.04	0.01	0.0006	0.0002
SMAQMD Threshold	N/A	85	80	82	14.6	15
Threshold Exceeded?	No	No	No	No	No	No

Greenhouse Gas Emissions

Construction

Year	MT CO2e
2030	937.3
2031	214.5
2032	67.7

Operation

Emissions Source	MT CO2e per year
Mobile	0.81
Area (includes SF6 leakage)	242.16
Total	**242.97**

CalEEMod Assumptions and Inputs - Maximum Daily Emissions

Project Name	Jackson Bulk Substation
Project Location	Excelsior Road and Jackson Road (Unincorporated Sac County)
CEC EDFZ	13
Land Use Setting	Suburban
Construction Start Date	1-Jan-30
Operational Year	2032
Utility	SMUD

acre	sq ft
1	43560

Land Use

Project Component	CalEEMod Land Use Type	Unit	Size	Acres	Building Square Footage	Notes
Control Building	Industrial (General Light Industry)	1000 sf	4	0.09	8,000	
Asphalt surfaces	Parking (Other Asphalt Surfaces)	1000 sf	125	2.86	0	
Non-Asphalt surfaces	Parking (Other Nonasphalt surfaces)	1000 sf	655	15.05	0	RFI noted to double what was assumed for Station J, which resulted in overestimate (ie total acreage > 18 acres). Assumed net of total site acreage and control building + asphalt areas
Detention Basin	User Defined Recreational	1000 sf	44	1.00	0	Measured in Google Earth based on site layout
Transmission Lines	User Defined Industrial	miles	5.65	4.11	0	Assume 6ft width similar to Station J.

Note:

Construction Schedule

Phase Name	CalEEMod Phase Type	Weeks	Start	End	CalEEMod Workdays	Workers
Clearing and Grubbing	Site Preparation	4	1/1/2030	1/28/2030	20	CalEEMod Defaults
Grading, Drainage and Access Road	Grading	20	1/29/2030	6/18/2030	101.00	30
Fencing/Wall Installation	Building Construction	12	4/1/2030	10/1/2030	132.00	30
Below-Grade Civil Construction	Building Construction	26	4/1/2030	10/1/2030	132.00	30
Control Building Construction	Building Construction	52	6/18/2030	6/17/2031	261.00	CalEEMod Defaults
Integration of the Control Building with Switchyard	Building Construction	40	4/1/2031	1/6/2032	201.00	CalEEMod Defaults
Paving of Interior Access Roads	Paving	3	6/17/2031	7/8/2031	16.00	CalEEMod Defaults
Steel Erection	Building Construction	12	7/8/2031	9/30/2031	61.00	30
Linear Construction	Building Construction	40	9/30/2031	7/6/2032	201.00	30

Construction Equipment - Maximum Daily

Phase Name	CalEEMod Phase Type	Equipment	CalEEMod Equipment	Quantity	Hrs/Day	Notes
Clearing and Grubbing	Site Preparation	Rubber Tired Dozer	Rubber Tired Dozer	3	8	Assume CalEEMod defaults
		Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	4	8	
		Water Truck	*Vendor Truck*	*1*	*NA*	Assume water truck for fugitive dust control
Grading, Drainage and Access Road	Grading	Grader	Grader	2	8	Assume same equipment as Station J
		Scraper	Scraper	2	8	
		Excavator	Excavators	2	8	172 HP (Cat 320)
		Dozer	Crawler Tractor	2	8	363 HP (Cat D8)
		Sheeps Foot Compactor	Plate Compactor	2	8	
		1 Ton Service Truck	Off-Highway Truck	2	4	
		Front Loader	Tractors/Loaders/Backhoes	1	6	
		Street sweeper	Sweepers/Scrubbers	1	4	
		Water Truck	*Vendor Truck*	*1*	*NA*	
		20 Ton Tandem Haul Truck (import material)	*Haul Truck*	*NA*	*NA*	
		Casing Delivery - Flat Bed Truck	*Vendor Truck*	*1*	*NA*	
		Semi-End Dump	*Dumpers/Tenders*	*1*	*NA - captured as haul trucks for this phase.*	
Fencing/Wall Installation	Building Construction	Skid Steer w/Drill	Skid Steer Loaders	3	8	
		Backhoe	Tractors/Loaders/Backhoes	1	8	107 HP (Cat 430)
		30 ton Crane	Cranes	1	7	
		Semi-flatbed truck	*Vendor Truck*	*2*	*NA*	
		Concrete truck	*Vendor Truck*	*3*	*NA*	
Below-Grade Civil Construction	Building Construction	Truck-mounted drill rig	Bore/Drill Rigs	2	8	Assume same equipment as Station J
		1 Ton Service Truck	Off-Highway Truck	3	4	
		Front loader	Tractors/Loaders/Backhoes	2	8	
		Excavator	Excavators	1	8	172 HP (Cat 320)
		Generator	Generator Set	2	8	20 hp
		Street sweeper	Sweepers/Scrubbers	1	4	
		3-5 Ton Roller/Compactor	Roller	2	8	
		Material Delivery	*Vendor Truck*	*2*	*NA*	
		Concrete Delivery	*Vendor Truck*	*1*	*NA*	
		Conduit Delivery - Flat Bed	*Vendor Truck*	*6*	*NA*	
		Concrete truck	*Vendor Truck*	*1*	*NA*	
Control Building Construction	Building Construction	Cranes	Cranes	1	7	Equipment based on CalEEMod defaults for 8,000 sf light industrial building
		Forklift	Forklift	3	6	
		Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	3	7	
		Generator Sets	Generator Sets	1	8	20 HP (assume same as other phases)
		Welders	Welders	1	8	
Integration of the Control Building with Switchyard	Building Construction	Manlift	Aerial Lifts	2	8	Equipment indicated in RFI, Workers based on CalEEMod defaults (1.25 worker trips per piece of equipment)
		Generator	Generator Set	2	8	20 HP (assume same as other phases)
Paving of Interior Access Roads	Paving	Pavers	Pavers	2	8	Equipment based on CalEEMod defaults
		Paving Equipment	Paving Equipment	2	8	
		Rollers	Rollers	2	8	
Steel Erection	Building Construction	290 Ton Crane	Crane	1	8	Assume same equipment as Station J
		Manlift	Aerial Lifts	2	8	
		10000 lb Reach Forklift	Forklift	1	8	
		1 Ton Service Truck	Off-Highway Truck	2	2	
		Generator	Generator Set	1	8	
		Welder	Welder	1	8	20 hp
		Street sweeper	Sweepers/Scrubbers	1	8	
		Equipment Delivery - Semi-flatbed truck	*Vendor Truck*	*10*	*NA*	
Linear Construction	Building Construction	290 Ton Crane	Crane	1	8	Assume same equipment as Station J
		Telescoping handler	Other Construction Equipment	1	6	101 HP (Cat TH406)
		Generator	Generator Set	2	8	Phase includes the offsite linear pole installation and excavation
		Street Sweeper	Sweepers/Scrubbers	1	4	20 hp
		Semi-flatbed truck	*Vendor Truck*	*1*	*NA*	

Grading Quantities

Material	Phases	Cubic Yards Import	Export
Engineered Fill	Grading, Drainage and Access Road	59,000	-

Construction Worker & Vendor Trips

Phase	Worker One-Way Trips Per Day	Vendor One-Way Truck Trips/Day	Haul One-Way Truck Trips per Day
Clearing and Grubbing	CalEEMod Defaults	2	Default (0)
Grading, Drainage and Access Road	60	2	Default (73)
Fencing/Wall Installation	0 - included above	10	Default (0)
Below-Grade Civil Construction	60	20	Default (0)
Control Building Construction	60	Default (1.3)	Default (0)
Integration of the Control Building with Switchyard	CalEEMod Defaults	Default (0)	Default (0)
Paving of Interior Access Roads	CalEEMod Defaults	Default (0)	Default (0)
Steel Erection	60	20	Default
Linear Construction	60	2	Default (0)

CalEEMod Assumptions and Inputs - Annual Emissions

Project Name	Jackson Bulk Substation
Project Location	Excelsior Road and Jackson Road (Unincorporated Sac County)
CEC EDFZ	13
Land Use Setting	Suburban
Construction Start Date	1-Jan-30
Utility	SMUD

acre	sq ft
1	43560

Land Use

Project Component	CalEEMod Land Use Type	Unit	Size	Acres	Building Square			Notes
Control Building	Industrial (General Light Industry)	1000 sf	4	0.09	8,000			
Asphalt surfaces	Parking (Other Asphalt Surfaces)	1000 sf	125	2.86	0			
Non-Asphalt surfaces	Parking (Other Nonasphalt surfaces)	1000 sf	655	15.05	0			RFI noted to double what was assumed for Station J, which resulted in overestimate (ie total acreage > 18 acres). Assumed net of total site acreage and control building + asphalt areas
Detention Basin	User Defined Recreational	1000 sf	44	1.00	0			Measured in Google Earth based on site layout
Transmission Lines	User Defined Industrial	miles	5.65	4.11	0			Assume 6ft width similar to Station J.

Note:

Construction Schedule

Phase Name	CalEEMod Phase Type	Weeks	Start	End	CalEEMod Workdays	Workers
Clearing and Grubbing	Site Preparation	4	1/1/2030	1/28/2030	20	CalEEMod Defaults
Grading, Drainage and Access Road	Grading	20	1/29/2030	6/18/2030	101.00	30
Fencing/Wall Installation	Building Construction	12	4/1/2030	10/1/2030	132.00	30
Below-Grade Civil Construction	Building Construction	26	4/1/2030	10/1/2030	132.00	30
Control Building Construction	Building Construction	52	6/18/2030	6/17/2031	261.00	CalEEMod Defaults
Integration of the Control Building with Switchyard	Building Construction	40	4/1/2031	1/6/2032	201.00	CalEEMod Defaults
Paving of Interior Access Roads	Paving	3	6/17/2031	7/8/2031	16.00	CalEEMod Defaults
Steel Erection	Building Construction	12	7/8/2031	9/30/2031	61.00	30
Linear Construction	Building Construction	40	9/30/2031	7/6/2032	201.00	30

Construction Equipment - Annual

Phase Name	CalEEMod Phase Type	Equipment	CalEEMod Equipment	Quantity	Hrs/Day	Days of Use	Average Hours per Day	Notes
Clearing and Grubbing	Site Preparation	Rubber Tired Dozer	Rubber Tired Dozer	3	8	20	8	Assume CalEEMod defaults
		Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	4	8	20	8	
		Water Truck	*Vendor Truck*	*1*	*NA*	*N/A*	*N/A*	Assume water truck for fugitive dust control
Grading, Drainage and Access Road	Grading	Grader	Grader	2	8	50	4.0	Assume same equipment as Station J
		Scraper	Scraper	2	8	50	4.0	
		Excavator	Excavators	2	8	50	4.0	172 HP (Cat 320)
		Dozer	Crawler Tractor	2	8	50	4.0	363 HP (Cat D8)
		Sheeps Foot Compactor	Plate Compactor	2	8	50	4.0	
		1 Ton Service Truck	Off-Highway Truck	2	4	101	4.0	
		Front Loader	Tractors/Loaders/Backhoes	1	6	20	1.2	
		Street sweeper	Sweepers/Scrubbers	1	4	20	0.8	
		Water Truck	*Vendor Truck*	*1*	*NA*	*N/A*	*N/A*	
		20 Ton Tandem Haul Truck (import material)	*Haul Truck*	*NA*	*NA*	*N/A*	*N/A*	
		Casing Delivery - Flat Bed Truck	*Vendor Truck*	*1*	*NA*	*N/A*	*N/A*	
		Semi-End Dump	*Dumpers/Tenders*	*1*	*NA - captured as haul trucks for this phase.*	*N/A*	*N/A*	
Fencing/Wall Installation	Building Construction	Skid Steer w/Drill	Skid Steer Loaders	3	8	30	1.8	
		Backhoe	Tractors/Loaders/Backhoes	1	8	20	1.2	107 HP (Cat 430)
		30 ton Crane	Cranes	1	7	20	1.1	
		Semi-flatbed truck	*Vendor Truck*	*2*	*NA*	*N/A*	*N/A*	
		Concrete truck	*Vendor Truck*	*3*	*NA*	*N/A*	*N/A*	
Below-Grade Civil Construction	Building Construction	Truck-mounted drill rig	Bore/Drill Rigs	2	8	60	3.6	Assume same equipment as Station J
		1 Ton Service Truck	Off-Highway Truck	3	4	132	4.0	
		Front loader	Tractors/Loaders/Backhoes	2	8	20	1.2	
		Excavator	Excavators	1	8	40	2.4	172 HP (Cat 320)
		Generator	Generator Set	2	8	40	2.4	20 hp
		Street sweeper	Sweepers/Scrubbers	1	4	44	1.3	
		3-5 Ton Roller/Compactor	Roller	2	8	40	2.4	
		Material Delivery	*Vendor Truck*	*2*	*NA*	*NA*	*NA*	
		Concrete Delivery	*Vendor Truck*	*1*	*NA*	*NA*	*NA*	
		Conduit Delivery - Flat Bed	*Vendor Truck*	*6*	*NA*	*NA*	*NA*	
		Concrete truck	*Vendor Truck*	*1*	*NA*	*NA*	*NA*	
Control Building Construction	Building Construction	Cranes	Cranes	1	7	20	0.5	Equipment based on CalEEMod defaults for 8,000 sf light industrial building
		Forklift	Forklift	3	6	200	4.6	
		Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	3	7	100	2.7	
		Generator Sets	Generator Sets	1	8	200	6.1	20 HP (assume same as other phases)
		Welders	Welders	1	8	160	4.9	
Integration of the Control Building with Switchyard	Building Construction	Manlift	Aerial Lifts	2	8	100	4.0	Equipment indicated in RFI, Workers based on CalEEMod defaults (1.25 worker trips per piece of equipment)
		Generator	Generator Set	2	8	50	2.0	20 HP (assume same as other phases)
Paving of Interior Access Roads	Paving	Pavers	Pavers	2	8	16	8	Assumes CalEEMod defaults
		Paving Equipment	Paving Equipment	2	8	16	8	
		Rollers	Rollers	2	8	16	8	
Steel Erection	Building Construction	290 Ton Crane	Crane	1	8	10	1.3	Assume same equipment as Station J
		Manlift	Aerial Lifts	2	8	50	6.6	
		10000 lb Reach Forklift	Forklift	1	8	50	6.6	
		1 Ton Service Truck	Off-Highway Truck	2	2	61	2.0	
		Generator	Generator Set	1	8	40	5.2	
		Welder	Welder	1	8	10	1.3	20 hp
		Street sweeper	Sweepers/Scrubbers	1	8	10	1.3	
		Equipment Delivery - Semi-flatbed truck	*Vendor Truck*	*10*	*NA*	*N/A*	*N/A*	
Linear Construction	Building Construction	290 Ton Crane	Crane	1	8	10	0.4	Assume same equipment as Station J
		Telescoping handler	Other Construction Equipment	1	6	100	3.0	101 HP (Cat TH406)
		Generator	Generator Set	2	8	201	8.0	Phase includes the offsite linear pole installation and excavation
		Street Sweeper	Sweepers/Scrubbers	1	4	20	0.4	20 hp
		Semi-flatbed truck	*Vendor Truck*	*1*	*NA*	*N/A*	*N/A*	

Notes:
1. Construction Schedule based on Project Description; equipment based on Station J construction and refined for project-specific details.
2. The number of days of use is the duration of use for each piece of equipment within the respective subphases. The CalEEMod Workdays is the number of working days for the overall subphase.
The number of days of use per each piece of equipment is divided by the overall phase duration (CalEEMod workdays) to determine the proportionate duration of use compared to the overall phase duration.

Grading Quantities

Material	Phases	Cubic Yards Import	Export
Engineered Fill	Grading, Drainage and Access Road	59,000	-

Construction Worker & Vendor Trips

Phase	Workers	Vendor One-Way Truck Trips/Day	Haul One-Way Truck Trips per Day
Clearing and Grubbing	CalEEMod Defaults	2	Default (0)
Grading, Drainage and Access Road	60	2	Default (73)
Fencing/Wall Installation	0 - included above	10	Default (0)
Below-Grade Civil Construction	60	20	Default (0)
Control Building Construction	60	Default (1.3)	Default (0)
Integration of the Control Building with Switchyard	CalEEMod Defaults	Default (0)	Default (0)
Paving of Interior Access Roads	CalEEMod Defaults	Default (0)	Default (0)
Steel Erection	60	20	Default
Linear Construction	60	2	Default (0)

Operations Trips

Operational Activity	Peak Weekday Trips (one-way)	Annual Trips (one-way)	VMT/trip	Weekday VMT	Annual VMT
Internal Inspections	2	96	11.08	22.16	1063.68
Perimeter Maintenance	2	8	11.08	22.16	88.64
Total	**4**	**104**	-	**44.32**	**1152.32**

Notes:

1. Peak weekday trips assume 1 staff vehicle each for internal inspections and perimeter maintenance overlap on same weekday.
2. Internal inspection annual trips assume 4x per month. Perimeter maintenance annual trips assume 4x per year.
3. Trip length based on residential home-work trip length for Sacramento County from CalEEMod Appendix G, Table G-15.
4. Operational fleet mix assumes 50% LHD1 and 50% LHD2 (light-heavy-duty trucks).

SF6 Use

Source	Pounds (lbs)	Total SF6 Use (Metric Tons)	% Leakage, Per CARB Regulation	Total Annual SF6 Emissions (Metric Tons)	Total Annual CO2e Emissions from SF6 Use (MT CO2e)
New Substation	2340	1.06	0.01	0.01	242.00
Transformers	0	0.00	0	0.00	0.00

Note:

1. Substation SF6 use assume thirteen (13) 230kV power circuit breakers each with up to 180 pounds of SF6.
2. Transformers use insulating oil, not SF6.

Constants	
lb	grams
1	453.592
ton	lb
1	2000
metric ton	lb
1	2204.62
GWP CO2	SF6
1	22800

Construction Energy Summary

Source	MT CO_2 [a]	Fuel Type	Emission Factor (lb CO_2/gallon) [b]	Gallons
Off-Road	727.21	Diesel	22.45	72,559
Hauling	216.58	Diesel	22.45	21,610
Vendor	61.72	Diesel	22.45	6,158
Worker	196.93	Gas	18.73	23,552
		Total Demand	**Diesel**	**100,327**
			Gasoline	**23,552**

Sources:

[a] Modeled by AECOM in 2026.

[b] U.S. Energy Information Administration released September 18, 2024 (https://www.eia.gov/environment/emissions/co2_vol_mass.php)

SMUD Jackson Substation Max Daily Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SMUD Jackson Substation Max Daily
Construction Start Date	4/2/2030
Operational Year	2032
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70000
Precipitation (days)	37.8000
Location	38.5164035153617, -121.29661252992364
County	Sacramento
City	Unincorporated
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	708
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.37

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
General Light Industry	4.00000	1000sqft	0.09183	8,000.00	0.00000	—	—	Control Building

Other Asphalt Surfaces	125.000	1000sqft	2.86961	0.00000	0.00000	—	—	Asphalt areas
Other Non-Asphalt Surfaces	655.000	1000sqft	15.0367	0.00000	0.00000	—	—	Concrete areas
User Defined Recreational	1.000000	User Defined Unit	1.000000	0.00000	0.00000	—	—	Detention basin
User Defined Industrial	1.000000	User Defined Unit	4.11000	0.00000	0.00000	—	—	Transmission lines

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.70050	6.99648	53.9978	82.7876	0.20516	1.80020	5.04886	6.84907	1.65754	1.02511	2.68265	—	24,879.9	24,879.9	1.13042	1.03209	13.0746	25,220.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.67772	4.46799	38.5608	52.9134	0.15410	1.31790	7.85820	8.92526	1.21418	3.98548	4.96685	—	18,305.0	18,305.0	0.89690	0.93228	0.24591	18,605.5
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.03903	2.46044	19.4667	29.0572	0.06944	0.65012	1.94797	2.59809	0.59789	0.53080	1.12869	—	8,314.40	8,314.40	0.37249	0.30329	1.76858	8,415.86
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.55462	0.44903	3.55267	5.30293	0.01267	0.11865	0.35550	0.47415	0.10912	0.09687	0.20599	—	1,376.54	1,376.54	0.06167	0.05021	0.29281	1,393.34

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	8.70050	6.99648	53.9978	82.7876	0.20516	1.80020	5.04886	6.84907	1.65754	1.02511	2.68265	—	24,879.9	24,879.9	1.13042	1.03209	13.0746	25,220.8
2031	3.20192	2.76601	19.5074	28.5262	0.05373	0.61309	1.40876	2.02185	0.56438	0.33701	0.90140	—	6,682.54	6,682.54	0.24447	0.12856	3.64642	6,730.61
2032	1.08415	0.92950	6.02680	9.28091	0.01720	0.24028	0.62097	0.86125	0.22108	0.14617	0.36726	—	2,315.96	2,315.96	0.07681	0.02445	1.28367	2,326.45
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	5.67772	4.46799	38.5608	52.9134	0.15410	1.31790	7.85820	8.92526	1.21418	3.98548	4.96685	—	18,305.0	18,305.0	0.89690	0.93228	0.24591	18,605.5
2031	1.53591	1.30279	9.99069	14.1707	0.02407	0.35190	0.65492	1.00682	0.32378	0.15413	0.47791	—	2,900.92	2,900.92	0.10691	0.04984	0.03985	2,917.51
2032	1.50305	1.27321	9.73992	11.7551	0.02407	0.33474	0.65492	0.98966	0.30799	0.15413	0.46212	—	2,871.01	2,871.01	0.10398	0.02948	0.03501	2,882.43
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	3.03903	2.46044	19.4667	29.0572	0.06944	0.65012	1.94797	2.59809	0.59789	0.53080	1.12869	—	8,314.40	8,314.40	0.37249	0.30329	1.76858	8,415.86
2031	1.15499	0.97979	7.70541	10.5817	0.02003	0.23102	0.45519	0.68622	0.21261	0.10780	0.32041	—	2,394.03	2,394.03	0.08956	0.03339	0.49591	2,406.72
2032	0.39859	0.34035	2.26949	3.23257	0.00641	0.08951	0.22332	0.31283	0.08236	0.05249	0.13485	—	839.925	839.925	0.02903	0.00906	0.20410	843.553
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.55462	0.44903	3.55267	5.30293	0.01267	0.11865	0.35550	0.47415	0.10912	0.09687	0.20599	—	1,376.54	1,376.54	0.06167	0.05021	0.29281	1,393.34
2031	0.21079	0.17881	1.40624	1.93115	0.00366	0.04216	0.08307	0.12523	0.03880	0.01967	0.05847	—	396.359	396.359	0.01483	0.00553	0.08210	398.459
2032	0.07274	0.06211	0.41418	0.58994	0.00117	0.01634	0.04076	0.05709	0.01503	0.00958	0.02461	—	139.059	139.059	0.00481	0.00150	0.03379	139.660

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.38021	0.37413	0.05346	0.40880	0.00067	0.00217	0.03812	0.04030	0.00195	0.01031	0.01226	0.00000	67.9617	67.9617	0.00065	0.00553	0.30975	69.9367
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.31793	0.31664	0.05550	0.06119	0.00064	0.00156	0.03812	0.03968	0.00149	0.01031	0.01180	0.00000	66.5315	66.5315	0.00059	0.00558	0.00804	68.2171
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.35044	0.34708	0.00586	0.24265	0.00006	0.00053	0.00266	0.00320	0.00043	0.00072	0.00115	0.00000	5.71918	5.71918	0.00008	0.00040	0.00953	5.85122
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06396	0.06334	0.00107	0.04428	0.00001	0.00010	0.00049	0.00058	0.00008	0.00013	0.00021	0.00000	0.94687	0.94687	0.00001	0.00007	0.00158	0.96874

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01101	0.00971	0.05053	0.06086	0.00064	0.00156	0.03812	0.03968	0.00149	0.01031	0.01180	—	66.5309	66.5309	0.00059	0.00552	0.30975	68.5008
Area	0.36920	0.36442	0.00293	0.34794	0.00002	0.00062	—	0.00062	0.00047	—	0.00047	—	1.43077	1.43077	0.00006	0.00001	—	1.43593
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.38021	0.37413	0.05346	0.40880	0.00067	0.00217	0.03812	0.04030	0.00195	0.01031	0.01226	0.00000	67.9617	67.9617	0.00065	0.00553	0.30975	69.9367
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.01070	0.00940	0.05550	0.06119	0.00064	0.00156	0.03812	0.03968	0.00149	0.01031	0.01180	—	66.5315	66.5315	0.00059	0.00558	0.00804	68.2171

Area	0.30724	0.30724	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.31793	0.31664	0.05550	0.06119	0.00064	0.00156	0.03812	0.03968	0.00149	0.01031	0.01180	0.00000	66.5315	66.5315	0.00059	0.00558	0.00804	68.2171
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00077	0.00067	0.00385	0.00434	0.00005	0.00011	0.00266	0.00277	0.00011	0.00072	0.00083	—	4.73919	4.73919	0.00004	0.00040	0.00953	4.86771
Area	0.34967	0.34640	0.00201	0.23832	0.00001	0.00042	—	0.00042	0.00032	—	0.00032	—	0.97998	0.97998	0.00004	0.00001	—	0.98352
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.35044	0.34708	0.00586	0.24265	0.00006	0.00053	0.00266	0.00320	0.00043	0.00072	0.00115	0.00000	5.71918	5.71918	0.00008	0.00040	0.00953	5.85122
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00014	0.00012	0.00070	0.00079	0.00001	0.00002	0.00049	0.00051	0.00002	0.00013	0.00015	—	0.78463	0.78463	0.00001	0.00007	0.00158	0.80590
Area	0.06382	0.06322	0.00037	0.04349	< 0.000005	0.00008	—	0.00008	0.00006	—	0.00006	—	0.16225	0.16225	0.00001	< 0.000005	—	0.16283
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Waste	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.06396	0.06334	0.00107	0.04428	0.00001	0.00010	0.00049	0.00058	0.00008	0.00013	0.00021	0.00000	0.94687	0.94687	0.00001	0.00007	0.00158	0.96874

3. Construction Emissions Details

3.1. Clearing and Grubbing (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.47350	2.91871	25.2092	28.4319	0.04889	1.06629	—	1.06629	0.98098	—	0.98098	—	5,295.67	5,295.67	0.21482	0.04296	—	5,313.84
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19033	0.15993	1.38132	1.55791	0.00268	0.05843	—	0.05843	0.05375	—	0.05375	—	290.174	290.174	0.01177	0.00235	—	291.169
Dust From Material Movement	—	—	—	—	—	—	0.42007	0.42007	—	0.21589	0.21589	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03474	0.02919	0.25209	0.28432	0.00049	0.01066	—	0.01066	0.00981	—	0.00981	—	48.0415	48.0415	0.00195	0.00039	—	48.2064
Dust From Material Movement	—	—	—	—	—	—	0.07666	0.07666	—	0.03940	0.03940	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05066	0.04911	0.04468	0.57196	0.00000	0.00000	0.17681	0.17681	0.00000	0.04144	0.04144	—	160.674	160.674	0.00309	0.00667	0.01183	162.752
Vendor	0.00456	0.00157	0.08047	0.03312	0.00039	0.00078	0.01515	0.01593	0.00039	0.00408	0.00447	—	50.5855	50.5855	0.00295	0.00772	0.00215	52.9633
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00308	0.00271	0.00208	0.03200	0.00000	0.00000	0.00945	0.00945	0.00000	0.00221	0.00221	—	9.03357	9.03357	0.00015	0.00006	0.01081	9.06698
Vendor	0.00025	0.00009	0.00432	0.00179	0.00002	0.00004	0.00081	0.00086	0.00002	0.00022	0.00024	—	2.77161	2.77161	0.00016	0.00042	0.00196	2.90374
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00056	0.00049	0.00038	0.00584	0.00000	0.00000	0.00173	0.00173	0.00000	0.00040	0.00040	—	1.49561	1.49561	0.00002	0.00001	0.00179	1.50114
Vendor	0.00005	0.00002	0.00079	0.00033	< 0.000005	0.00001	0.00015	0.00016	< 0.000005	0.00004	0.00004	—	0.45887	0.45887	0.00003	0.00007	0.00032	0.48075
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Grading, Drainage and Access Road (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	4.32071	3.62948	24.8146	38.1673	0.09977	1.06779	—	1.06779	0.98236	—	0.98236	—	10,753.9	10,753.9	0.43623	0.08725	—	10,790.8
Dust From Material Movement	—	—	—	—	—	—	1.66766	1.66766	—	0.18064	0.18064	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.32071	3.62948	24.8146	38.1673	0.09977	1.06779	—	1.06779	0.98236	—	0.98236	—	10,753.9	10,753.9	0.43623	0.08725	—	10,790.8
Dust From Material Movement	—	—	—	—	—	—	1.66766	1.66766	—	0.18064	0.18064	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19559	1.00432	6.86651	10.5614	0.02761	0.29547	—	0.29547	0.27183	—	0.27183	—	2,975.74	2,975.74	0.12071	0.02414	—	2,985.95
Dust From Material Movement	—	—	—	—	—	—	0.46146	0.46146	—	0.04999	0.04999	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.21820	0.18329	1.25314	1.92745	0.00504	0.05392	—	0.05392	0.04961	—	0.04961	—	492.668	492.668	0.01998	0.00400	—	494.358
Dust From Material Movement	—	—	—	—	—	—	0.08422	0.08422	—	0.00912	0.00912	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21111	0.18823	0.10873	2.66354	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	619.913	619.913	0.00794	0.00397	1.56616	622.860
Vendor	0.00469	0.00166	0.07515	0.03220	0.00039	0.00078	0.01515	0.01593	0.00039	0.00408	0.00447	—	50.5792	50.5792	0.00295	0.00772	0.08267	53.0376
Hauling	0.49904	0.10947	7.32142	3.23733	0.03381	0.06439	1.38598	1.45038	0.06439	0.37064	0.43504	—	4,727.32	4,727.32	0.35416	0.75983	7.41254	4,970.01
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17368	0.16839	0.15318	1.96101	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	550.882	550.882	0.01058	0.02288	0.04057	558.007
Vendor	0.00456	0.00157	0.08047	0.03312	0.00039	0.00078	0.01515	0.01593	0.00039	0.00408	0.00447	—	50.5855	50.5855	0.00295	0.00772	0.00215	52.9633
Hauling	0.49421	0.10464	7.90256	3.26631	0.03381	0.06600	1.38598	1.45198	0.06439	0.37064	0.43504	—	4,727.60	4,727.60	0.35255	0.75983	0.19245	4,963.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05329	0.04696	0.03605	0.55413	0.00000	0.00000	0.16367	0.16367	0.00000	0.03830	0.03830	—	156.410	156.410	0.00256	0.00110	0.18712	156.988
Vendor	0.00127	0.00045	0.02183	0.00902	0.00011	0.00021	0.00411	0.00432	0.00011	0.00111	0.00122	—	13.9966	13.9966	0.00082	0.00214	0.00989	14.6639
Hauling	0.13765	0.02940	2.14575	0.89893	0.00935	0.01782	0.37659	0.39441	0.01782	0.10083	0.11865	—	1,308.14	1,308.14	0.09800	0.21025	0.88543	1,374.13
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00973	0.00857	0.00658	0.10113	0.00000	0.00000	0.02987	0.02987	0.00000	0.00699	0.00699	—	25.8954	25.8954	0.00042	0.00018	0.03098	25.9912
Vendor	0.00023	0.00008	0.00398	0.00165	0.00002	0.00004	0.00075	0.00079	0.00002	0.00020	0.00022	—	2.31730	2.31730	0.00013	0.00035	0.00164	2.42777
Hauling	0.02512	0.00537	0.39160	0.16405	0.00171	0.00325	0.06873	0.07198	0.00325	0.01840	0.02165	—	216.578	216.578	0.01623	0.03481	0.14659	227.503

3.5. Fencing/Wall (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66176	0.55607	5.20761	9.31996	0.01819	0.17946	—	0.17946	0.16510	—	0.16510	—	1,969.08	1,969.08	0.07987	0.01597	—	1,975.84
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66176	0.55607	5.20761	9.31996	0.01819	0.17946	—	0.17946	0.16510	—	0.16510	—	1,969.08	1,969.08	0.07987	0.01597	—	1,975.84
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11060	0.09293	0.87031	1.55758	0.00304	0.02999	—	0.02999	0.02759	—	0.02759	—	329.079	329.079	0.01335	0.00267	—	330.209
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02018	0.01696	0.15883	0.28426	0.00055	0.00547	—	0.00547	0.00504	—	0.00504	—	54.4828	54.4828	0.00221	0.00044	—	54.6698

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.02346	0.00829	0.37576	0.16098	0.00194	0.00388	0.07576	0.07964	0.00194	0.02039	0.02233	—	252.896	252.896	0.01473	0.03862	0.41337	265.188
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.02280	0.00785	0.40234	0.16561	0.00194	0.00388	0.07576	0.07964	0.00194	0.02039	0.02233	—	252.927	252.927	0.01473	0.03862	0.01074	264.816
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00385	0.00135	0.06594	0.02724	0.00032	0.00065	0.01241	0.01306	0.00032	0.00335	0.00367	—	42.2670	42.2670	0.00246	0.00646	0.02986	44.2820
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00070	0.00025	0.01203	0.00497	0.00006	0.00012	0.00226	0.00238	0.00006	0.00061	0.00067	—	6.99778	6.99778	0.00041	0.00107	0.00494	7.33139
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Below-Grade Civil (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07089	1.73546	12.3478	20.6833	0.04410	0.39977	—	0.39977	0.36779	—	0.36779	—	4,622.37	4,622.37	0.18750	0.03750	—	4,638.23
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07089	1.73546	12.3478	20.6833	0.04410	0.39977	—	0.39977	0.36779	—	0.36779	—	4,622.37	4,622.37	0.18750	0.03750	—	4,638.23
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74892	0.62762	4.46552	7.48000	0.01595	0.14457	—	0.14457	0.13301	—	0.13301	—	1,671.65	1,671.65	0.06781	0.01356	—	1,677.39
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13668	0.11454	0.81496	1.36510	0.00291	0.02638	—	0.02638	0.02427	—	0.02427	—	276.761	276.761	0.01123	0.00225	—	277.711
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.21111	0.18823	0.10873	2.66354	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	619.913	619.913	0.00794	0.00397	1.56616	622.860
Vendor	0.04691	0.01658	0.75151	0.32196	0.00388	0.00776	0.15151	0.15927	0.00388	0.04079	0.04467	—	505.792	505.792	0.02945	0.07725	0.82674	530.376
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17368	0.16839	0.15318	1.96101	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	550.882	550.882	0.01058	0.02288	0.04057	558.007
Vendor	0.04559	0.01570	0.80469	0.33122	0.00388	0.00776	0.15151	0.15927	0.00388	0.04079	0.04467	—	505.855	505.855	0.02945	0.07725	0.02147	529.633
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06965	0.06138	0.04712	0.72421	0.00000	0.00000	0.21391	0.21391	0.00000	0.05006	0.05006	—	204.417	204.417	0.00335	0.00144	0.24456	205.173
Vendor	0.01665	0.00584	0.28537	0.11787	0.00140	0.00281	0.05370	0.05651	0.00140	0.01448	0.01588	—	182.926	182.926	0.01065	0.02794	0.12923	191.647
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01271	0.01120	0.00860	0.13217	0.00000	0.00000	0.03904	0.03904	0.00000	0.00914	0.00914	—	33.8435	33.8435	0.00055	0.00024	0.04049	33.9687
Vendor	0.00304	0.00107	0.05208	0.02151	0.00026	0.00051	0.00980	0.01031	0.00026	0.00264	0.00290	—	30.2855	30.2855	0.00176	0.00463	0.02139	31.7293
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9. Control Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12184	0.93806	8.31185	12.3337	0.02296	0.25921	—	0.25921	0.23847	—	0.23847	—	2,327.00	2,327.00	0.09439	0.01888	—	2,334.98

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.12184	0.93806	8.31185	12.3337	0.02296	0.25921	—	0.25921	0.23847	—	0.23847	—	2,327.00	2,327.00	0.09439	0.01888	—	2,334.98
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43249	0.36164	3.20437	4.75486	0.00885	0.09993	—	0.09993	0.09194	—	0.09194	—	897.100	897.100	0.03639	0.00728	—	900.179
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07893	0.06600	0.58480	0.86776	0.00162	0.01824	—	0.01824	0.01678	—	0.01678	—	148.525	148.525	0.00602	0.00120	—	149.035
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21111	0.18823	0.10873	2.66354	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	619.913	619.913	0.00794	0.00397	1.56616	622.860
Vendor	0.00308	0.00109	0.04927	0.02111	0.00025	0.00051	0.00993	0.01044	0.00025	0.00267	0.00293	—	33.1598	33.1598	0.00193	0.00506	0.05420	34.7715
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.17368	0.16839	0.15318	1.96101	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	550.882	550.882	0.01058	0.02288	0.04057	558.007
Vendor	0.00299	0.00103	0.05276	0.02171	0.00025	0.00051	0.00993	0.01044	0.00025	0.00267	0.00293	—	33.1638	33.1638	0.00193	0.00506	0.00141	34.7227
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07425	0.06543	0.05023	0.77202	0.00000	0.00000	0.22803	0.22803	0.00000	0.05336	0.05336	—	217.912	217.912	0.00357	0.00153	0.26070	218.718
Vendor	0.00116	0.00041	0.01994	0.00824	0.00010	0.00020	0.00375	0.00395	0.00010	0.00101	0.00111	—	12.7843	12.7843	0.00074	0.00195	0.00903	13.3938
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01355	0.01194	0.00917	0.14089	0.00000	0.00000	0.04162	0.04162	0.00000	0.00974	0.00974	—	36.0778	36.0778	0.00059	0.00025	0.04316	36.2112
Vendor	0.00021	0.00007	0.00364	0.00150	0.00002	0.00004	0.00068	0.00072	0.00002	0.00018	0.00020	—	2.11659	2.11659	0.00012	0.00032	0.00150	2.21750
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11. Control Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.09736	0.91757	8.05481	12.2949	0.02296	0.24372	—	0.24372	0.22422	—	0.22422	—	2,326.99	2,326.99	0.09439	0.01888	—	2,334.98
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.09736	0.91757	8.05481	12.2949	0.02296	0.24372	—	0.24372	0.22422	—	0.22422	—	2,326.99	2,326.99	0.09439	0.01888	—	2,334.98
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.36078	0.30167	2.64816	4.04216	0.00755	0.08013	—	0.08013	0.07372	—	0.07372	—	765.039	765.039	0.03103	0.00621	—	767.664
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06584	0.05505	0.48329	0.73769	0.00138	0.01462	—	0.01462	0.01345	—	0.01345	—	126.661	126.661	0.00514	0.00103	—	127.096
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18294	0.17897	0.10741	2.52888	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	609.825	609.825	0.00661	0.00397	1.38763	612.561
Vendor	0.00305	0.00103	0.04587	0.02034	0.00025	0.00025	0.00968	0.00993	0.00025	0.00267	0.00293	—	31.9397	31.9397	0.00193	0.00481	0.04729	33.4687
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16574	0.16178	0.13294	1.85493	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	541.984	541.984	0.01058	0.02288	0.03598	549.104
Vendor	0.00299	0.00103	0.04910	0.02089	0.00025	0.00025	0.00968	0.00993	0.00025	0.00267	0.00293	—	31.9474	31.9474	0.00193	0.00481	0.00122	33.4303
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05493	0.05362	0.04240	0.62523	0.00000	0.00000	0.19446	0.19446	0.00000	0.04551	0.04551	—	182.831	182.831	0.00304	0.00130	0.19742	183.494
Vendor	0.00099	0.00034	0.01589	0.00677	0.00008	0.00008	0.00312	0.00320	0.00008	0.00086	0.00095	—	10.5018	10.5018	0.00063	0.00158	0.00669	10.9956
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01002	0.00979	0.00774	0.11411	0.00000	0.00000	0.03549	0.03549	0.00000	0.00830	0.00830	—	30.2698	30.2698	0.00050	0.00022	0.03269	30.3795
Vendor	0.00018	0.00006	0.00290	0.00124	0.00002	0.00002	0.00057	0.00058	0.00002	0.00016	0.00017	—	1.73869	1.73869	0.00011	0.00026	0.00111	1.82045
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.13. Integration of Building with Switchyard (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42491	0.35239	3.65983	3.02490	0.00687	0.09525	—	0.09525	0.08763	—	0.08763	—	591.901	591.901	0.02401	0.00480	—	593.932
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42491	0.35239	3.65983	3.02490	0.00687	0.09525	—	0.09525	0.08763	—	0.08763	—	591.901	591.901	0.02401	0.00480	—	593.932
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22867	0.18964	1.96958	1.62788	0.00370	0.05126	—	0.05126	0.04716	—	0.04716	—	318.537	318.537	0.01292	0.00258	—	319.631
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04173	0.03461	0.35945	0.29709	0.00067	0.00935	—	0.00935	0.00861	—	0.00861	—	52.7375	52.7375	0.00214	0.00043	—	52.9185
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01024	0.01002	0.00601	0.14162	0.00000	0.00000	0.03395	0.03395	0.00000	0.00796	0.00796	—	34.1502	34.1502	0.00037	0.00022	0.07771	34.3034
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00928	0.00906	0.00744	0.10388	0.00000	0.00000	0.03395	0.03395	0.00000	0.00796	0.00796	—	30.3511	30.3511	0.00059	0.00128	0.00201	30.7498
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00503	0.00492	0.00389	0.05731	0.00000	0.00000	0.01783	0.01783	0.00000	0.00417	0.00417	—	16.7596	16.7596	0.00028	0.00012	0.01810	16.8203
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00092	0.00090	0.00071	0.01046	0.00000	0.00000	0.00325	0.00325	0.00000	0.00076	0.00076	—	2.77473	2.77473	0.00005	0.00002	0.00300	2.78479
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.15. Integration of Building with Switchyard (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42319	0.35095	3.65667	3.02345	0.00687	0.09447	—	0.09447	0.08691	—	0.08691	—	591.900	591.900	0.02401	0.00480	—	593.931
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00497	0.00412	0.04294	0.03550	0.00008	0.00111	—	0.00111	0.00102	—	0.00102	—	6.94990	6.94990	0.00028	0.00006	—	6.97375
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00091	0.00075	0.00784	0.00648	0.00001	0.00020	—	0.00020	0.00019	—	0.00019	—	1.15064	1.15064	0.00005	0.00001	—	1.15458

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00899	0.00869	0.00737	0.09801	0.00000	0.00000	0.03395	0.03395	0.00000	0.00796	0.00796	—	29.8928	29.8928	0.00052	0.00022	0.00177	29.9738
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00010	0.00010	0.00007	0.00119	0.00000	0.00000	0.00039	0.00039	0.00000	0.00009	0.00009	—	0.36014	0.36014	0.00001	< 0.000005	0.00035	0.36139
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00002	0.00002	0.00001	0.00022	0.00000	0.00000	0.00007	0.00007	0.00000	0.00002	0.00002	—	0.05963	0.05963	< 0.000005	< 0.000005	0.00006	0.05983
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.17. Steel Erection (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	1.27483	1.06669	8.74155	10.6925	0.02578	0.25731	—	0.25731	0.23672	—	0.23672	—	2,632.45	2,632.45	0.10678	0.02136	—	2,641.48
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21305	0.17827	1.46092	1.78697	0.00431	0.04300	—	0.04300	0.03956	—	0.03956	—	439.944	439.944	0.01785	0.00357	—	441.454
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03888	0.03253	0.26662	0.32612	0.00079	0.00785	—	0.00785	0.00722	—	0.00722	—	72.8377	72.8377	0.00295	0.00059	—	73.0877
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18294	0.17897	0.10741	2.52888	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	609.825	609.825	0.00661	0.00397	1.38763	612.561
Vendor	0.04647	0.01570	0.69966	0.31032	0.00388	0.00388	0.14763	0.15151	0.00388	0.04079	0.04467	—	487.183	487.183	0.02945	0.07337	0.72132	510.505
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02792	0.02726	0.02155	0.31783	0.00000	0.00000	0.09885	0.09885	0.00000	0.02313	0.02313	—	92.9393	92.9393	0.00155	0.00066	0.10036	93.2760

Vendor	0.00769	0.00262	0.12321	0.05253	0.00065	0.00065	0.02417	0.02482	0.00065	0.00669	0.00734	—	81.4278	81.4278	0.00492	0.01226	0.05184	85.2567
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00510	0.00497	0.00393	0.05800	0.00000	0.00000	0.01804	0.01804	0.00000	0.00422	0.00422	—	15.3872	15.3872	0.00026	0.00011	0.01662	15.4429
Vendor	0.00140	0.00048	0.02249	0.00959	0.00012	0.00012	0.00441	0.00453	0.00012	0.00122	0.00134	—	13.4813	13.4813	0.00081	0.00203	0.00858	14.1152
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.19. Linear Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93141	0.77799	6.11558	6.91807	0.01681	0.25627	—	0.25627	0.23577	—	0.23577	—	1,668.49	1,668.49	0.06768	0.01354	—	1,674.21
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93141	0.77799	6.11558	6.91807	0.01681	0.25627	—	0.25627	0.23577	—	0.23577	—	1,668.49	1,668.49	0.06768	0.01354	—	1,674.21
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.16951	0.14159	1.11301	1.25906	0.00306	0.04664	—	0.04664	0.04291	—	0.04291	—	303.658	303.658	0.01232	0.00246	—	304.700
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03094	0.02584	0.20312	0.22978	0.00056	0.00851	—	0.00851	0.00783	—	0.00783	—	50.2741	50.2741	0.00204	0.00041	—	50.4466
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18294	0.17897	0.10741	2.52888	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	609.825	609.825	0.00661	0.00397	1.38763	612.561
Vendor	0.00465	0.00157	0.06997	0.03103	0.00039	0.00039	0.01476	0.01515	0.00039	0.00408	0.00447	—	48.7183	48.7183	0.00295	0.00734	0.07213	51.0505
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16574	0.16178	0.13294	1.85493	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	541.984	541.984	0.01058	0.02288	0.03598	549.104
Vendor	0.00456	0.00157	0.07490	0.03187	0.00039	0.00039	0.01476	0.01515	0.00039	0.00408	0.00447	—	48.7300	48.7300	0.00295	0.00734	0.00186	50.9919
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03041	0.02968	0.02347	0.34611	0.00000	0.00000	0.10765	0.10765	0.00000	0.02519	0.02519	—	101.210	101.210	0.00169	0.00072	0.10929	101.577
Vendor	0.00084	0.00029	0.01342	0.00572	0.00007	0.00007	0.00263	0.00270	0.00007	0.00073	0.00080	—	8.86743	8.86743	0.00054	0.00134	0.00564	9.28439
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00555	0.00542	0.00428	0.06317	0.00000	0.00000	0.01965	0.01965	0.00000	0.00460	0.00460	—	16.7565	16.7565	0.00028	0.00012	0.01809	16.8172

Vendor	0.00015	0.00005	0.00245	0.00104	0.00001	0.00001	0.00048	0.00049	0.00001	0.00013	0.00015	—	1.46810	1.46810	0.00009	0.00022	0.00093	1.53714
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.21. Linear Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90630	0.75689	5.87412	6.85285	0.01681	0.23989	—	0.23989	0.22070	—	0.22070	—	1,668.49	1,668.49	0.06768	0.01354	—	1,674.21
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90630	0.75689	5.87412	6.85285	0.01681	0.23989	—	0.23989	0.22070	—	0.22070	—	1,668.49	1,668.49	0.06768	0.01354	—	1,674.21
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33343	0.27847	2.16112	2.52121	0.00619	0.08826	—	0.08826	0.08120	—	0.08120	—	613.847	613.847	0.02490	0.00498	—	615.953
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.06085	0.05082	0.39441	0.46012	0.00113	0.01611	—	0.01611	0.01482	—	0.01482	—	101.629	101.629	0.00412	0.00082	—	101.978
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17368	0.17103	0.08717	2.39819	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	600.564	600.564	0.00661	0.00397	1.22263	603.134
Vendor	0.00417	0.00157	0.06551	0.02987	0.00039	0.00039	0.01476	0.01515	0.00039	0.00408	0.00447	—	46.9104	46.9104	0.00251	0.00695	0.06103	49.1051
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16045	0.15516	0.13162	1.75016	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	533.800	533.800	0.00926	0.00397	0.03165	535.246
Vendor	0.00413	0.00153	0.07014	0.03066	0.00039	0.00039	0.01476	0.01515	0.00039	0.00408	0.00447	—	46.9265	46.9265	0.00251	0.00695	0.00159	49.0617
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05854	0.05708	0.04000	0.66356	0.00000	0.00000	0.21761	0.21761	0.00000	0.05092	0.05092	—	201.507	201.507	0.00292	0.00146	0.19406	202.209
Vendor	0.00153	0.00058	0.02536	0.01112	0.00014	0.00014	0.00532	0.00546	0.00014	0.00147	0.00162	—	17.2612	17.2612	0.00092	0.00256	0.00970	18.0558
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01068	0.01042	0.00730	0.12110	0.00000	0.00000	0.03971	0.03971	0.00000	0.00929	0.00929	—	33.3617	33.3617	0.00048	0.00024	0.03213	33.4780
Vendor	0.00028	0.00011	0.00463	0.00203	0.00003	0.00003	0.00097	0.00100	0.00003	0.00027	0.00029	—	2.85778	2.85778	0.00015	0.00042	0.00161	2.98935
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.23. Paving (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74689	0.62759	6.12541	9.88333	0.01395	0.20981	—	0.20981	0.19303	—	0.19303	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.46990	0.46990	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03274	0.02751	0.26851	0.43324	0.00061	0.00920	—	0.00920	0.00846	—	0.00846	—	66.2194	66.2194	0.00269	0.00054	—	66.4466
Paving	0.02060	0.02060	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00598	0.00502	0.04900	0.07907	0.00011	0.00168	—	0.00168	0.00154	—	0.00154	—	10.9634	10.9634	0.00044	0.00009	—	11.0010
Paving	0.00376	0.00376	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04573	0.04474	0.02685	0.63222	0.00000	0.00000	0.15155	0.15155	0.00000	0.03552	0.03552	—	152.456	152.456	0.00165	0.00099	0.34691	153.140

Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00183	0.00179	0.00141	0.02084	0.00000	0.00000	0.00648	0.00648	0.00000	0.00152	0.00152	—	6.09438	6.09438	0.00010	0.00004	0.00658	6.11646
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00033	0.00033	0.00026	0.00380	0.00000	0.00000	0.00118	0.00118	0.00000	0.00028	0.00028	—	1.00899	1.00899	0.00002	0.00001	0.00109	1.01265
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

User Defined Industrial	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

User Defined Industrial	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.23255	0.23255	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07469	0.07469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06196	0.05718	0.00293	0.34794	0.00002	0.00062	—	0.00062	0.00047	—	0.00047	—	1.43077	1.43077	0.00006	0.00001	—	1.43593
Total	0.36920	0.36442	0.00293	0.34794	0.00002	0.00062	—	0.00062	0.00047	—	0.00047	—	1.43077	1.43077	0.00006	0.00001	—	1.43593
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.23255	0.23255	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.07469	0.07469	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.30724	0.30724	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.04244	0.04244	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01363	0.01363	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00775	0.00715	0.00037	0.04349	< 0.000005	0.00008	—	0.00008	0.00006	—	0.00006	—	0.16225	0.16225	0.00001	< 0.000005	—	0.16283
Total	0.06382	0.06322	0.00037	0.04349	< 0.000005	0.00008	—	0.00008	0.00006	—	0.00006	—	0.16225	0.16225	0.00001	< 0.000005	—	0.16283

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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
Clearing and Grubbing	Site Preparation	1/1/2030	1/28/2030	5.00000	20.0000	—
Grading, Drainage and Access Road	Grading	1/29/2030	6/18/2030	5.00000	101.000	—
Fencing/Wall	Building Construction	2/19/2030	5/14/2030	5.00000	61.0000	—
Below-Grade Civil	Building Construction	4/1/2030	10/1/2030	5.00000	132.000	—
Control Building Construction	Building Construction	6/18/2030	6/17/2031	5.00000	261.000	—
Integration of Building with Switchyard	Building Construction	4/1/2031	1/6/2032	5.00000	201.000	—
Steel Erection	Building Construction	7/8/2031	9/30/2031	5.00000	61.0000	—
Linear Construction	Building Construction	9/30/2031	7/6/2032	5.00000	201.000	—
Paving	Paving	6/17/2031	7/8/2031	5.00000	16.0000	—

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
Clearing and Grubbing	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Clearing and Grubbing	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading, Drainage and Access Road	Graders	Diesel	Average	2.00000	8.00000	148.000	0.41000
Grading, Drainage and Access Road	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Grading, Drainage and Access Road	Plate Compactors	Diesel	Average	2.00000	8.00000	8.00000	0.43000
Grading, Drainage and Access Road	Off-Highway Trucks	Diesel	Average	2.00000	4.00000	376.000	0.38000
Grading, Drainage and Access Road	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	6.00000	84.0000	0.37000
Grading, Drainage and Access Road	Sweepers/Scrubbers	Diesel	Average	1.000000	4.00000	36.0000	0.46000
Grading, Drainage and Access Road	Excavators	Diesel	Average	2.00000	8.00000	172.000	0.38000
Grading, Drainage and Access Road	Crawler Tractors	Diesel	Average	2.00000	8.00000	363.000	0.43000
Fencing/Wall	Skid Steer Loaders	Diesel	Average	3.00000	8.00000	71.0000	0.37000
Fencing/Wall	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	8.00000	107.000	0.37000
Fencing/Wall	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Below-Grade Civil	Bore/Drill Rigs	Diesel	Average	2.00000	8.00000	83.0000	0.50000
Below-Grade Civil	Off-Highway Trucks	Diesel	Average	3.00000	4.00000	376.000	0.38000
Below-Grade Civil	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Below-Grade Civil	Generator Sets	Diesel	Average	2.00000	8.00000	20.0000	0.74000

Below-Grade Civil	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Below-Grade Civil	Sweepers/Scrubbers	Diesel	Average	1.000000	4.00000	36.0000	0.46000
Below-Grade Civil	Excavators	Diesel	Average	1.000000	8.00000	172.000	0.38000
Control Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Control Building Construction	Forklifts	Diesel	Average	3.00000	6.00000	82.0000	0.20000
Control Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	20.0000	0.74000
Control Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Control Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Integration of Building with Switchyard	Aerial Lifts	Diesel	Average	2.00000	8.00000	46.0000	0.31000
Integration of Building with Switchyard	Generator Sets	Diesel	Average	2.00000	8.00000	20.0000	0.74000
Steel Erection	Cranes	Diesel	Average	1.000000	8.00000	367.000	0.29000
Steel Erection	Aerial Lifts	Diesel	Average	2.00000	8.00000	46.0000	0.31000
Steel Erection	Forklifts	Diesel	Average	1.000000	8.00000	82.0000	0.20000
Steel Erection	Off-Highway Trucks	Diesel	Average	2.00000	2.00000	376.000	0.38000
Steel Erection	Generator Sets	Diesel	Average	1.000000	8.00000	20.0000	0.74000
Steel Erection	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Steel Erection	Sweepers/Scrubbers	Diesel	Average	1.000000	8.00000	36.0000	0.46000
Linear Construction	Cranes	Diesel	Average	1.000000	8.00000	367.000	0.29000
Linear Construction	Generator Sets	Diesel	Average	2.00000	8.00000	20.0000	0.74000
Linear Construction	Sweepers/Scrubbers	Diesel	Average	1.000000	4.00000	36.0000	0.46000
Linear Construction	Other Construction Equipment	Diesel	Average	1.000000	6.00000	101.000	0.42000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000

Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Clearing and Grubbing	Worker	17.5000	14.3000	LDA,LDT1,LDT2
Clearing and Grubbing	Vendor	2.00000	8.80000	HHDT,MHDT
Clearing and Grubbing	Hauling	0.00000	20.0000	HHDT
Clearing and Grubbing	Onsite truck	—	—	HHDT
Grading, Drainage and Access Road	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Grading, Drainage and Access Road	Vendor	2.00000	8.80000	HHDT,MHDT
Grading, Drainage and Access Road	Hauling	73.0198	20.0000	HHDT
Grading, Drainage and Access Road	Onsite truck	—	—	HHDT
Fencing/Wall	Worker	0.00000	14.3000	LDA,LDT1,LDT2
Fencing/Wall	Vendor	10.00000	8.80000	HHDT,MHDT
Fencing/Wall	Hauling	0.00000	20.0000	HHDT
Fencing/Wall	Onsite truck	—	—	HHDT
Below-Grade Civil	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Below-Grade Civil	Vendor	20.0000	8.80000	HHDT,MHDT
Below-Grade Civil	Hauling	0.00000	20.0000	HHDT
Below-Grade Civil	Onsite truck	—	—	HHDT
Control Building Construction	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Control Building Construction	Vendor	1.31120	8.80000	HHDT,MHDT
Control Building Construction	Hauling	0.00000	20.0000	HHDT
Control Building Construction	Onsite truck	—	—	HHDT
Integration of Building with Switchyard	Worker	3.36000	14.3000	LDA,LDT1,LDT2

Integration of Building with Switchyard	Vendor	0.00000	8.80000	HHDT,MHDT
Integration of Building with Switchyard	Hauling	0.00000	20.0000	HHDT
Integration of Building with Switchyard	Onsite truck	—	—	HHDT
Steel Erection	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Steel Erection	Vendor	20.0000	8.80000	HHDT,MHDT
Steel Erection	Hauling	0.00000	20.0000	HHDT
Steel Erection	Onsite truck	—	—	HHDT
Linear Construction	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Linear Construction	Vendor	2.00000	8.80000	HHDT,MHDT
Linear Construction	Hauling	0.00000	20.0000	HHDT
Linear Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	14.3000	LDA,LDT1,LDT2
Paving	Vendor	—	8.80000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

Clearing and Grubbing	—	—	30.0000	0.00000	0.00000
Grading, Drainage and Access Road	59,000.0	—	303.000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	17.9063

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	General Light Industry	0.00000	0%
Paving	Other Asphalt Surfaces	2.86961	100%
Paving	Other Non-Asphalt Surfaces	15.0367	0%
Paving	User Defined Recreational	0.00000	0%
Paving	User Defined Industrial	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2030	0.00000	374.840	0.01290	0.00170
2031	0.00000	374.840	0.01290	0.00170
2032	0.00000	374.840	0.01290	0.00170

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	4.00000	0.00000	0.00000	104.000	44.3200	0.00000	0.00000	1,152.32

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
Other Asphalt Surfaces	Wood Fireplaces	0	0
Other Asphalt Surfaces	Gas Fireplaces	0	0
Other Asphalt Surfaces	Propane Fireplaces	0	0
Other Asphalt Surfaces	Electric Fireplaces	0	0
Other Asphalt Surfaces	No Fireplaces	0	0
Other Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Asphalt Surfaces	Pellet Wood Stoves	0	0
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0
Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0

Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0
User Defined Recreational	Wood Fireplaces	0	0
User Defined Recreational	Gas Fireplaces	0	0
User Defined Recreational	Propane Fireplaces	0	0
User Defined Recreational	Electric Fireplaces	0	0
User Defined Recreational	No Fireplaces	0	0
User Defined Recreational	Conventional Wood Stoves	0	0
User Defined Recreational	Catalytic Wood Stoves	0	0
User Defined Recreational	Non-Catalytic Wood Stoves	0	0
User Defined Recreational	Pellet Wood Stoves	0	0
User Defined Industrial	Wood Fireplaces	0	0
User Defined Industrial	Gas Fireplaces	0	0
User Defined Industrial	Propane Fireplaces	0	0
User Defined Industrial	Electric Fireplaces	0	0
User Defined Industrial	No Fireplaces	0	0
User Defined Industrial	Conventional Wood Stoves	0	0
User Defined Industrial	Catalytic Wood Stoves	0	0
User Defined Industrial	Non-Catalytic Wood Stoves	0	0
User Defined Industrial	Pellet Wood Stoves	0	0

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)

0.00000	0.00000	12,000.0	4,000.00	46,800.0

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

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)
General Light Industry	0.00000	374.840	0.0129	0.0017	0.00000
Other Asphalt Surfaces	0.00000	374.840	0.0129	0.0017	0.00000
Other Non-Asphalt Surfaces	0.00000	374.840	0.0129	0.0017	0.00000
User Defined Recreational	0.00000	374.840	0.0129	0.0017	0.00000
User Defined Industrial	0.00000	374.840	0.0129	0.0017	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
User Defined Recreational	0.00000	0.00000
User Defined Industrial	0.00000	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
User Defined Recreational	0.00000	0.00000
User Defined Industrial	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

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	21.7600	annual days of extreme heat
Extreme Precipitation	5.50000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	3.74000	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	1	0	0	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	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	1	1	1	2
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
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	48.5999
AQ-PM	23.6839
AQ-DPM	22.3149
Drinking Water	78.7811
Lead Risk Housing	41.1720
Pesticides	73.7931
Toxic Releases	30.3326
Traffic	28.4750
Effect Indicators	—
CleanUp Sites	86.5435
Groundwater	88.8594
Haz Waste Facilities/Generators	99.8015
Impaired Water Bodies	51.2180
Solid Waste	99.9084
Sensitive Population	—
Asthma	50.1994

Cardio-vascular	53.9008
Low Birth Weights	36.4126
Socioeconomic Factor Indicators	—
Education	47.5070
Housing	61.9392
Linguistic	43.8760
Poverty	58.5050
Unemployment	62.4024

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	36.84075452
Employed	20.45425382
Median HI	23.26446811
Education	—
Bachelor's or higher	39.34300013
High school enrollment	100
Preschool enrollment	18.64493776
Transportation	—
Auto Access	37.4566919
Active commuting	70.79430258
Social	—
2-parent households	14.75683306
Voting	58.51405107
Neighborhood	—
Alcohol availability	64.62209675

Park access	12.70370846
Retail density	22.81534711
Supermarket access	13.65327858
Tree canopy	2.065956628
Housing	—
Homeownership	60.60567176
Housing habitability	41.69126139
Low-inc homeowner severe housing cost burden	38.58591043
Low-inc renter severe housing cost burden	7.737713332
Uncrowded housing	46.38778391
Health Outcomes	—
Insured adults	43.96253048
Arthritis	0.0
Asthma ER Admissions	49.9
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	16.0
Cognitively Disabled	21.0
Physically Disabled	7.2
Heart Attack ER Admissions	53.7
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	98.4

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	0.0
SLR Inundation Area	0.0
Children	59.5
Elderly	21.1
English Speaking	31.0
Foreign-born	59.3
Outdoor Workers	28.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	91.1
Traffic Density	37.8
Traffic Access	23.0
Other Indices	—
Hardship	62.5
Other Decision Support	—
2016 Voting	63.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	70.0000
Healthy Places Index Score for Project Location (b)	29.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes

Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
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

8.1. Justifications

Screen	Justification
Land Use	Land use inputs from RFI.
Construction: Construction Phases	Project-specific construction schedule.
Construction: Off-Road Equipment	Project-specific equipment list.
Construction: Dust From Material Movement	All excavated material reused onsite, import only during grading phase.
Construction: Trips and VMT	Maximum 30 workers, vendor trucks for water trucks and equipment delivery. Haul trucks based on material quantities.
Operations: Fleet Mix	Assume operational trips split 50/50 LHD1 and LHD2.
Operations: Energy Use	Assume negligible energy use associated with lighting for facility. Site would be operated remotely.
Operations: Water and Waste Water	Site would be operated remotely. Assume no water use.
Operations: Solid Waste	Site would be operated remotely. Assume no waste generated.
Operations: Refrigerants	Site would be operated remotely. Assume no refrigerant use.

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Building Area	sq. ft	4,000.00	8,000.00
Landscape Area	sq. ft	—	0.00000
Lot Area	acre	0.00000	1.000000
Landscape Area	sq. ft	—	0.00000
Lot Area	acre	0.00000	4.11000
Landscape Area	sq. ft	—	0.00000

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Paving	Paving	Start Date	12/6/2031	6/17/2031
Paving	Paving	End Date	1/3/2032	7/8/2031
Paving	Paving	Work Days per Phase	20.0000	16.0000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Grading, Drainage and Access Road	Graders	Number per Day	1.000000	2.00000
Grading, Drainage and Access Road	Off-Highway Trucks	Hours Per Day	8.00000	4.00000
Grading, Drainage and Access Road	Tractors/Loaders/Backhoes	Hours Per Day	8.00000	6.00000
Below-Grade Civil	Off-Highway Trucks	Hours Per Day	8.00000	4.00000
Control Building Construction	Forklifts	Hours Per Day	8.00000	6.00000
Control Building Construction	Generator Sets	Horsepower	14.0000	20.0000
Integration of Building with Switchyard	Aerial Lifts	Number per Day	3.00000	2.00000

Integration of Building with Switchyard	Aerial Lifts	Horsepower	82.0000	46.0000
Integration of Building with Switchyard	Aerial Lifts	Load Factor	0.20000	0.31000
Steel Erection	Cranes	Hours Per Day	7.00000	8.00000
Steel Erection	Off-Highway Trucks	Hours Per Day	8.00000	2.00000
Linear Construction	Cranes	Hours Per Day	7.00000	8.00000
Linear Construction	Generator Sets	Number per Day	1.000000	2.00000
Linear Construction	Generator Sets	Horsepower	14.0000	20.0000
Linear Construction	Sweepers/Scrubbers	Hours Per Day	8.00000	4.00000

8.4.4. Dust from Material Movement

Phase Name	Model Parameter	Units	Default Value	New Value
Grading, Drainage and Access Road	Material Imported	Cubic Yards	—	59,000.0
Grading, Drainage and Access Road	Total Acres Graded	acres	404.000	303.000

8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Grading, Drainage and Access Road	Worker	One-Way Trips per Day	35.0000	60.0000
Fencing/Wall	Worker	One-Way Trips per Day	3.36000	0.00000
Fencing/Wall	Vendor	One-Way Trips per Day	1.31120	10.00000
Below-Grade Civil	Worker	One-Way Trips per Day	3.36000	60.0000
Below-Grade Civil	Vendor	One-Way Trips per Day	1.31120	20.0000
Control Building Construction	Worker	One-Way Trips per Day	3.36000	60.0000
Integration of Building with Switchyard	Vendor	One-Way Trips per Day	1.31120	0.00000
Steel Erection	Worker	One-Way Trips per Day	3.36000	60.0000
Steel Erection	Vendor	One-Way Trips per Day	1.31120	20.0000
Linear Construction	Worker	One-Way Trips per Day	3.36000	60.0000

Linear Construction	Vendor	One-Way Trips per Day	1.31120	2.00000

8.5. Operations

8.5.3. Energy Usage

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Electricity	kWh/yr	71,927.6	0.00000
General Light Industry	Electricity (Subject to Title 24)	kWh/yr	31,325.8	0.00000
General Light Industry	Electricity (Not Subject to Title 24)	kWh/yr	40,601.8	0.00000
General Light Industry	Natural Gas	kBTU/yr	316,367	0.00000
General Light Industry	Natural Gas (Subject to Title 24)	kBTU/yr	132,640	0.00000
General Light Industry	Natural Gas (Not Subject to Title 24)	kBTU/yr	183,727	0.00000

8.5.4. Water and Waste Water

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Indoor Water	gal/year	925,000	0.00000

8.5.5. Solid Waste

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Solid Waste Generation Rate	ton/1000sqft/yr	1.24000	0.00000

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	SMUD Jackson Substation Annual Construction
Construction Start Date	4/2/2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70000
Precipitation (days)	37.8000
Location	38.5164035153617, -121.29661252992364
County	Sacramento
City	Unincorporated
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	708
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.37

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
General Light Industry	4.00000	1000sqft	0.09183	8,000.00	0.00000	—	—	Control Building

Other Asphalt Surfaces	125.000	1000sqft	2.86961	0.00000	0.00000	—	—	Asphalt areas
Other Non-Asphalt Surfaces	655.000	1000sqft	15.0367	0.00000	0.00000	—	—	Concrete areas
User Defined Recreational	1.000000	User Defined Unit	1.000000	0.00000	0.00000	—	—	Detention basin
User Defined Industrial	1.000000	User Defined Unit	4.11000	0.00000	0.00000	—	—	Transmission lines

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.38029	4.21183	32.1980	47.7431	0.13075	0.97335	4.22167	5.19502	0.89683	0.93579	1.83262	—	17,004.7	17,004.7	0.81097	0.96703	13.0746	17,318.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.52872	2.96939	25.3343	29.0370	0.09464	1.06706	7.85820	8.92526	0.98137	3.98548	4.96685	—	11,891.8	11,891.8	0.63676	0.88026	0.24591	12,170.3
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.89807	1.50360	11.7643	16.5067	0.04349	0.36583	1.71908	2.08491	0.33635	0.50608	0.84243	—	5,569.60	5,569.60	0.26115	0.28102	1.76858	5,661.64
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.34640	0.27441	2.14698	3.01247	0.00794	0.06676	0.31373	0.38050	0.06138	0.09236	0.15374	—	922.111	922.111	0.04324	0.04653	0.29281	937.350

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	5.38029	4.21183	32.1980	47.7431	0.13075	0.97335	4.22167	5.19502	0.89683	0.93579	1.83262	—	17,004.7	17,004.7	0.81097	0.96703	13.0746	17,318.6
2031	2.23333	1.95827	12.2750	19.7954	0.03333	0.34880	1.40876	1.66391	0.32121	0.33701	0.57209	—	4,371.45	4,371.45	0.16335	0.10574	3.64642	4,408.94
2032	0.60224	0.52456	2.93366	5.01119	0.00643	0.11362	0.62097	0.73459	0.10456	0.14617	0.25073	—	1,150.11	1,150.11	0.02952	0.01500	1.28367	1,156.60
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	3.52872	2.96939	25.3343	29.0370	0.09464	1.06706	7.85820	8.92526	0.98137	3.98548	4.96685	—	11,891.8	11,891.8	0.63676	0.88026	0.24591	12,170.3
2031	0.73638	0.63445	4.31463	7.32297	0.00919	0.14224	0.65492	0.79716	0.13089	0.15413	0.28502	—	1,432.75	1,432.75	0.04735	0.03738	0.03985	1,444.30
2032	0.72551	0.62335	4.26299	5.60313	0.00883	0.13943	0.65492	0.79434	0.12830	0.15413	0.28243	—	1,335.03	1,335.03	0.04168	0.01702	0.03501	1,341.18
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	1.89807	1.50360	11.7643	16.5067	0.04349	0.36583	1.71908	2.08491	0.33635	0.50608	0.84243	—	5,569.60	5,569.60	0.26115	0.28102	1.76858	5,661.64
2031	0.58642	0.50482	3.55604	5.58037	0.00893	0.09534	0.45519	0.55053	0.08777	0.10780	0.19557	—	1,286.56	1,286.56	0.04463	0.02441	0.49591	1,295.44
2032	0.21782	0.18849	1.10352	1.63961	0.00239	0.04210	0.22332	0.26543	0.03875	0.05249	0.09123	—	406.654	406.654	0.01146	0.00554	0.20410	408.796
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.34640	0.27441	2.14698	3.01247	0.00794	0.06676	0.31373	0.38050	0.06138	0.09236	0.15374	—	922.111	922.111	0.04324	0.04653	0.29281	937.350
2031	0.10702	0.09213	0.64898	1.01842	0.00163	0.01740	0.08307	0.10047	0.01602	0.01967	0.03569	—	213.004	213.004	0.00739	0.00404	0.08210	214.475
2032	0.03975	0.03440	0.20139	0.29923	0.00044	0.00768	0.04076	0.04844	0.00707	0.00958	0.01665	—	67.3263	67.3263	0.00190	0.00092	0.03379	67.6808

3. Construction Emissions Details

3.1. Clearing and Grubbing (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.47350	2.91871	25.2092	28.4319	0.04889	1.06629	—	1.06629	0.98098	—	0.98098	—	5,295.67	5,295.67	0.21482	0.04296	—	5,313.84
Dust From Material Movement	—	—	—	—	—	—	7.66623	7.66623	—	3.93995	3.93995	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19033	0.15993	1.38132	1.55791	0.00268	0.05843	—	0.05843	0.05375	—	0.05375	—	290.174	290.174	0.01177	0.00235	—	291.169
Dust From Material Movement	—	—	—	—	—	—	0.42007	0.42007	—	0.21589	0.21589	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03474	0.02919	0.25209	0.28432	0.00049	0.01066	—	0.01066	0.00981	—	0.00981	—	48.0415	48.0415	0.00195	0.00039	—	48.2064

Dust From Material Movement	—	—	—	—	—	—	0.07666	0.07666	—	0.03940	0.03940	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05066	0.04911	0.04468	0.57196	0.00000	0.00000	0.17681	0.17681	0.00000	0.04144	0.04144	—	160.674	160.674	0.00309	0.00667	0.01183	162.752
Vendor	0.00456	0.00157	0.08047	0.03312	0.00039	0.00078	0.01515	0.01593	0.00039	0.00408	0.00447	—	50.5855	50.5855	0.00295	0.00772	0.00215	52.9633
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00308	0.00271	0.00208	0.03200	0.00000	0.00000	0.00945	0.00945	0.00000	0.00221	0.00221	—	9.03357	9.03357	0.00015	0.00006	0.01081	9.06698
Vendor	0.00025	0.00009	0.00432	0.00179	0.00002	0.00004	0.00081	0.00086	0.00002	0.00022	0.00024	—	2.77161	2.77161	0.00016	0.00042	0.00196	2.90374
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00056	0.00049	0.00038	0.00584	0.00000	0.00000	0.00173	0.00173	0.00000	0.00040	0.00040	—	1.49561	1.49561	0.00002	0.00001	0.00179	1.50114
Vendor	0.00005	0.00002	0.00079	0.00033	< 0.000005	0.00001	0.00015	0.00016	< 0.000005	0.00004	0.00004	—	0.45887	0.45887	0.00003	0.00007	0.00032	0.48075
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Grading, Drainage and Access Road (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.36490	1.98662	13.0260	19.8980	0.05521	0.55963	—	0.55963	0.51486	—	0.51486	—	5,953.14	5,953.14	0.24149	0.04830	—	5,973.57
Dust From Material Movement	—	—	—	—	—	—	0.84047	0.84047	—	0.09133	0.09133	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.36490	1.98662	13.0260	19.8980	0.05521	0.55963	—	0.55963	0.51486	—	0.51486	—	5,953.14	5,953.14	0.24149	0.04830	—	5,973.57
Dust From Material Movement	—	—	—	—	—	—	0.84047	0.84047	—	0.09133	0.09133	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65440	0.54972	3.60446	5.50603	0.01528	0.15486	—	0.15486	0.14247	—	0.14247	—	1,647.31	1,647.31	0.06682	0.01336	—	1,652.96
Dust From Material Movement	—	—	—	—	—	—	0.23257	0.23257	—	0.02527	0.02527	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11943	0.10032	0.65781	1.00485	0.00279	0.02826	—	0.02826	0.02600	—	0.02600	—	272.731	272.731	0.01106	0.00221	—	273.666
Dust From Material Movement	—	—	—	—	—	—	0.04244	0.04244	—	0.00461	0.00461	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21111	0.18823	0.10873	2.66354	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	619.913	619.913	0.00794	0.00397	1.56616	622.860
Vendor	0.00469	0.00166	0.07515	0.03220	0.00039	0.00078	0.01515	0.01593	0.00039	0.00408	0.00447	—	50.5792	50.5792	0.00295	0.00772	0.08267	53.0376
Hauling	0.49904	0.10947	7.32142	3.23733	0.03381	0.06439	1.38598	1.45038	0.06439	0.37064	0.43504	—	4,727.32	4,727.32	0.35416	0.75983	7.41254	4,970.01
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17368	0.16839	0.15318	1.96101	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	550.882	550.882	0.01058	0.02288	0.04057	558.007
Vendor	0.00456	0.00157	0.08047	0.03312	0.00039	0.00078	0.01515	0.01593	0.00039	0.00408	0.00447	—	50.5855	50.5855	0.00295	0.00772	0.00215	52.9633
Hauling	0.49421	0.10464	7.90256	3.26631	0.03381	0.06600	1.38598	1.45198	0.06439	0.37064	0.43504	—	4,727.60	4,727.60	0.35255	0.75983	0.19245	4,963.04
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05329	0.04696	0.03605	0.55413	0.00000	0.00000	0.16367	0.16367	0.00000	0.03830	0.03830	—	156.410	156.410	0.00256	0.00110	0.18712	156.988
Vendor	0.00127	0.00045	0.02183	0.00902	0.00011	0.00021	0.00411	0.00432	0.00011	0.00111	0.00122	—	13.9966	13.9966	0.00082	0.00214	0.00989	14.6639
Hauling	0.13765	0.02940	2.14575	0.89893	0.00935	0.01782	0.37659	0.39441	0.01782	0.10083	0.11865	—	1,308.14	1,308.14	0.09800	0.21025	0.88543	1,374.13
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00973	0.00857	0.00658	0.10113	0.00000	0.00000	0.02987	0.02987	0.00000	0.00699	0.00699	—	25.8954	25.8954	0.00042	0.00018	0.03098	25.9912
Vendor	0.00023	0.00008	0.00398	0.00165	0.00002	0.00004	0.00075	0.00079	0.00002	0.00020	0.00022	—	2.31730	2.31730	0.00013	0.00035	0.00164	2.42777
Hauling	0.02512	0.00537	0.39160	0.16405	0.00171	0.00325	0.06873	0.07198	0.00325	0.01840	0.02165	—	216.578	216.578	0.01623	0.03481	0.14659	227.503

3.5. Fencing/Wall (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11656	0.09794	0.97041	1.75483	0.00330	0.03149	—	0.03149	0.02897	—	0.02897	—	356.701	356.701	0.01447	0.00289	—	357.925
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11656	0.09794	0.97041	1.75483	0.00330	0.03149	—	0.03149	0.02897	—	0.02897	—	356.701	356.701	0.01447	0.00289	—	357.925
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01948	0.01637	0.16218	0.29327	0.00055	0.00526	—	0.00526	0.00484	—	0.00484	—	59.6130	59.6130	0.00242	0.00048	—	59.8175
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00355	0.00299	0.02960	0.05352	0.00010	0.00096	—	0.00096	0.00088	—	0.00088	—	9.86961	9.86961	0.00040	0.00008	—	9.90348

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.02346	0.00829	0.37576	0.16098	0.00194	0.00388	0.07576	0.07964	0.00194	0.02039	0.02233	—	252.896	252.896	0.01473	0.03862	0.41337	265.188
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.02280	0.00785	0.40234	0.16561	0.00194	0.00388	0.07576	0.07964	0.00194	0.02039	0.02233	—	252.927	252.927	0.01473	0.03862	0.01074	264.816
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00385	0.00135	0.06594	0.02724	0.00032	0.00065	0.01241	0.01306	0.00032	0.00335	0.00367	—	42.2670	42.2670	0.00246	0.00646	0.02986	44.2820
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00070	0.00025	0.01203	0.00497	0.00006	0.00012	0.00226	0.00238	0.00006	0.00061	0.00067	—	6.99778	6.99778	0.00041	0.00107	0.00494	7.33139
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Below-Grade Civil (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.34412	1.12803	7.01688	10.7862	0.02828	0.23559	—	0.23559	0.21675	—	0.21675	—	3,016.11	3,016.11	0.12235	0.02447	—	3,026.46
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.34412	1.12803	7.01688	10.7862	0.02828	0.23559	—	0.23559	0.21675	—	0.21675	—	3,016.11	3,016.11	0.12235	0.02447	—	3,026.46
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48609	0.40795	2.53761	3.90076	0.01023	0.08520	—	0.08520	0.07838	—	0.07838	—	1,090.76	1,090.76	0.04425	0.00885	—	1,094.50
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08871	0.07445	0.46311	0.71189	0.00187	0.01555	—	0.01555	0.01431	—	0.01431	—	180.587	180.587	0.00733	0.00147	—	181.207
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.21111	0.18823	0.10873	2.66354	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	619.913	619.913	0.00794	0.00397	1.56616	622.860
Vendor	0.04691	0.01658	0.75151	0.32196	0.00388	0.00776	0.15151	0.15927	0.00388	0.04079	0.04467	—	505.792	505.792	0.02945	0.07725	0.82674	530.376
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17368	0.16839	0.15318	1.96101	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	550.882	550.882	0.01058	0.02288	0.04057	558.007
Vendor	0.04559	0.01570	0.80469	0.33122	0.00388	0.00776	0.15151	0.15927	0.00388	0.04079	0.04467	—	505.855	505.855	0.02945	0.07725	0.02147	529.633
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06965	0.06138	0.04712	0.72421	0.00000	0.00000	0.21391	0.21391	0.00000	0.05006	0.05006	—	204.417	204.417	0.00335	0.00144	0.24456	205.173
Vendor	0.01665	0.00584	0.28537	0.11787	0.00140	0.00281	0.05370	0.05651	0.00140	0.01448	0.01588	—	182.926	182.926	0.01065	0.02794	0.12923	191.647
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01271	0.01120	0.00860	0.13217	0.00000	0.00000	0.03904	0.03904	0.00000	0.00914	0.00914	—	33.8435	33.8435	0.00055	0.00024	0.04049	33.9687
Vendor	0.00304	0.00107	0.05208	0.02151	0.00026	0.00051	0.00980	0.01031	0.00026	0.00264	0.00290	—	30.2855	30.2855	0.00176	0.00463	0.02139	31.7293
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9. Control Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48421	0.40370	3.63158	5.45563	0.00894	0.10468	—	0.10468	0.09631	—	0.09631	—	858.825	858.825	0.03484	0.00697	—	861.772

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.48421	0.40370	3.63158	5.45563	0.00894	0.10468	—	0.10468	0.09631	—	0.09631	—	858.825	858.825	0.03484	0.00697	—	861.772
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18667	0.15563	1.40004	2.10325	0.00344	0.04036	—	0.04036	0.03713	—	0.03713	—	331.093	331.093	0.01343	0.00269	—	332.229
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03407	0.02840	0.25551	0.38384	0.00063	0.00736	—	0.00736	0.00678	—	0.00678	—	54.8162	54.8162	0.00222	0.00044	—	55.0043
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21111	0.18823	0.10873	2.66354	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	619.913	619.913	0.00794	0.00397	1.56616	622.860
Vendor	0.00308	0.00109	0.04927	0.02111	0.00025	0.00051	0.00993	0.01044	0.00025	0.00267	0.00293	—	33.1598	33.1598	0.00193	0.00506	0.05420	34.7715
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.17368	0.16839	0.15318	1.96101	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	550.882	550.882	0.01058	0.02288	0.04057	558.007
Vendor	0.00299	0.00103	0.05276	0.02171	0.00025	0.00051	0.00993	0.01044	0.00025	0.00267	0.00293	—	33.1638	33.1638	0.00193	0.00506	0.00141	34.7227
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07425	0.06543	0.05023	0.77202	0.00000	0.00000	0.22803	0.22803	0.00000	0.05336	0.05336	—	217.912	217.912	0.00357	0.00153	0.26070	218.718
Vendor	0.00116	0.00041	0.01994	0.00824	0.00010	0.00020	0.00375	0.00395	0.00010	0.00101	0.00111	—	12.7843	12.7843	0.00074	0.00195	0.00903	13.3938
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01355	0.01194	0.00917	0.14089	0.00000	0.00000	0.04162	0.04162	0.00000	0.00974	0.00974	—	36.0778	36.0778	0.00059	0.00025	0.04316	36.2112
Vendor	0.00021	0.00007	0.00364	0.00150	0.00002	0.00004	0.00068	0.00072	0.00002	0.00018	0.00020	—	2.11659	2.11659	0.00012	0.00032	0.00150	2.21750
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11. Control Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47344	0.39470	3.55273	5.44715	0.00894	0.09737	—	0.09737	0.08958	—	0.08958	—	858.823	858.823	0.03484	0.00697	—	861.770
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.47344	0.39470	3.55273	5.44715	0.00894	0.09737	—	0.09737	0.08958	—	0.08958	—	858.823	858.823	0.03484	0.00697	—	861.770
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15565	0.12977	1.16802	1.79084	0.00294	0.03201	—	0.03201	0.02945	—	0.02945	—	282.353	282.353	0.01145	0.00229	—	283.322
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02841	0.02368	0.21316	0.32683	0.00054	0.00584	—	0.00584	0.00537	—	0.00537	—	46.7467	46.7467	0.00190	0.00038	—	46.9071
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18294	0.17897	0.10741	2.52888	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	609.825	609.825	0.00661	0.00397	1.38763	612.561
Vendor	0.00305	0.00103	0.04587	0.02034	0.00025	0.00025	0.00968	0.00993	0.00025	0.00267	0.00293	—	31.9397	31.9397	0.00193	0.00481	0.04729	33.4687
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16574	0.16178	0.13294	1.85493	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	541.984	541.984	0.01058	0.02288	0.03598	549.104
Vendor	0.00299	0.00103	0.04910	0.02089	0.00025	0.00025	0.00968	0.00993	0.00025	0.00267	0.00293	—	31.9474	31.9474	0.00193	0.00481	0.00122	33.4303
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05493	0.05362	0.04240	0.62523	0.00000	0.00000	0.19446	0.19446	0.00000	0.04551	0.04551	—	182.831	182.831	0.00304	0.00130	0.19742	183.494
Vendor	0.00099	0.00034	0.01589	0.00677	0.00008	0.00008	0.00312	0.00320	0.00008	0.00086	0.00095	—	10.5018	10.5018	0.00063	0.00158	0.00669	10.9956
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01002	0.00979	0.00774	0.11411	0.00000	0.00000	0.03549	0.03549	0.00000	0.00830	0.00830	—	30.2698	30.2698	0.00050	0.00022	0.03269	30.3795
Vendor	0.00018	0.00006	0.00290	0.00124	0.00002	0.00002	0.00057	0.00058	0.00002	0.00016	0.00017	—	1.73869	1.73869	0.00011	0.00026	0.00111	1.82045
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.13. Integration of Building with Switchyard (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12836	0.10670	1.27393	1.14188	0.00240	0.02608	—	0.02608	0.02399	—	0.02399	—	221.779	221.779	0.00900	0.00180	—	222.540
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12836	0.10670	1.27393	1.14188	0.00240	0.02608	—	0.02608	0.02399	—	0.02399	—	221.779	221.779	0.00900	0.00180	—	222.540
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06908	0.05742	0.68558	0.61452	0.00129	0.01403	—	0.01403	0.01291	—	0.01291	—	119.352	119.352	0.00484	0.00097	—	119.762
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01261	0.01048	0.12512	0.11215	0.00024	0.00256	—	0.00256	0.00236	—	0.00236	—	19.7602	19.7602	0.00080	0.00016	—	19.8280
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01024	0.01002	0.00601	0.14162	0.00000	0.00000	0.03395	0.03395	0.00000	0.00796	0.00796	—	34.1502	34.1502	0.00037	0.00022	0.07771	34.3034
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00928	0.00906	0.00744	0.10388	0.00000	0.00000	0.03395	0.03395	0.00000	0.00796	0.00796	—	30.3511	30.3511	0.00059	0.00128	0.00201	30.7498
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00503	0.00492	0.00389	0.05731	0.00000	0.00000	0.01783	0.01783	0.00000	0.00417	0.00417	—	16.7596	16.7596	0.00028	0.00012	0.01810	16.8203
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00092	0.00090	0.00071	0.01046	0.00000	0.00000	0.00325	0.00325	0.00000	0.00076	0.00076	—	2.77473	2.77473	0.00005	0.00002	0.00300	2.78479
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.15. Integration of Building with Switchyard (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12756	0.10602	1.27289	1.14116	0.00240	0.02581	—	0.02581	0.02374	—	0.02374	—	221.778	221.778	0.00900	0.00180	—	222.540
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00150	0.00124	0.01495	0.01340	0.00003	0.00030	—	0.00030	0.00028	—	0.00028	—	2.60405	2.60405	0.00011	0.00002	—	2.61299
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00027	0.00023	0.00273	0.00245	0.00001	0.00006	—	0.00006	0.00005	—	0.00005	—	0.43113	0.43113	0.00002	< 0.000005	—	0.43261

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00899	0.00869	0.00737	0.09801	0.00000	0.00000	0.03395	0.03395	0.00000	0.00796	0.00796	—	29.8928	29.8928	0.00052	0.00022	0.00177	29.9738
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00010	0.00010	0.00007	0.00119	0.00000	0.00000	0.00039	0.00039	0.00000	0.00009	0.00009	—	0.36014	0.36014	0.00001	< 0.000005	0.00035	0.36139
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00002	0.00002	0.00001	0.00022	0.00000	0.00000	0.00007	0.00007	0.00000	0.00002	0.00002	—	0.05963	0.05963	< 0.000005	< 0.000005	0.00006	0.05983
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.17. Steel Erection (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.60279	0.50464	4.03577	5.01644	0.01310	0.10903	—	0.10903	0.10031	—	0.10031	—	1,355.43	1,355.43	0.05498	0.01100	—	1,360.08
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10074	0.08434	0.67447	0.83836	0.00219	0.01822	—	0.01822	0.01676	—	0.01676	—	226.524	226.524	0.00919	0.00184	—	227.301
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01839	0.01539	0.12309	0.15300	0.00040	0.00333	—	0.00333	0.00306	—	0.00306	—	37.5036	37.5036	0.00152	0.00030	—	37.6323
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18294	0.17897	0.10741	2.52888	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	609.825	609.825	0.00661	0.00397	1.38763	612.561
Vendor	0.04647	0.01570	0.69966	0.31032	0.00388	0.00388	0.14763	0.15151	0.00388	0.04079	0.04467	—	487.183	487.183	0.02945	0.07337	0.72132	510.505
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02792	0.02726	0.02155	0.31783	0.00000	0.00000	0.09885	0.09885	0.00000	0.02313	0.02313	—	92.9393	92.9393	0.00155	0.00066	0.10036	93.2760

Vendor	0.00769	0.00262	0.12321	0.05253	0.00065	0.00065	0.02417	0.02482	0.00065	0.00669	0.00734	—	81.4278	81.4278	0.00492	0.01226	0.05184	85.2567
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00510	0.00497	0.00393	0.05800	0.00000	0.00000	0.01804	0.01804	0.00000	0.00422	0.00422	—	15.3872	15.3872	0.00026	0.00011	0.01662	15.4429
Vendor	0.00140	0.00048	0.02249	0.00959	0.00012	0.00012	0.00441	0.00453	0.00012	0.00122	0.00134	—	13.4813	13.4813	0.00081	0.00203	0.00858	14.1152
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.19. Linear Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42843	0.35535	2.82542	2.58828	0.00604	0.11577	—	0.11577	0.10651	—	0.10651	—	502.635	502.635	0.02039	0.00408	—	504.360
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42843	0.35535	2.82542	2.58828	0.00604	0.11577	—	0.11577	0.10651	—	0.10651	—	502.635	502.635	0.02039	0.00408	—	504.360
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07797	0.06467	0.51422	0.47106	0.00110	0.02107	—	0.02107	0.01938	—	0.01938	—	91.4777	91.4777	0.00371	0.00074	—	91.7916
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01423	0.01180	0.09384	0.08597	0.00020	0.00385	—	0.00385	0.00354	—	0.00354	—	15.1452	15.1452	0.00061	0.00012	—	15.1971
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18294	0.17897	0.10741	2.52888	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	609.825	609.825	0.00661	0.00397	1.38763	612.561
Vendor	0.00465	0.00157	0.06997	0.03103	0.00039	0.00039	0.01476	0.01515	0.00039	0.00408	0.00447	—	48.7183	48.7183	0.00295	0.00734	0.07213	51.0505
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16574	0.16178	0.13294	1.85493	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	541.984	541.984	0.01058	0.02288	0.03598	549.104
Vendor	0.00456	0.00157	0.07490	0.03187	0.00039	0.00039	0.01476	0.01515	0.00039	0.00408	0.00447	—	48.7300	48.7300	0.00295	0.00734	0.00186	50.9919
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03041	0.02968	0.02347	0.34611	0.00000	0.00000	0.10765	0.10765	0.00000	0.02519	0.02519	—	101.210	101.210	0.00169	0.00072	0.10929	101.577
Vendor	0.00084	0.00029	0.01342	0.00572	0.00007	0.00007	0.00263	0.00270	0.00007	0.00073	0.00080	—	8.86743	8.86743	0.00054	0.00134	0.00564	9.28439
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00555	0.00542	0.00428	0.06317	0.00000	0.00000	0.01965	0.01965	0.00000	0.00460	0.00460	—	16.7565	16.7565	0.00028	0.00012	0.01809	16.8172

Vendor	0.00015	0.00005	0.00245	0.00104	0.00001	0.00001	0.00048	0.00049	0.00001	0.00013	0.00015	—	1.46810	1.46810	0.00009	0.00022	0.00093	1.53714
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.21. Linear Construction (2032) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42438	0.35195	2.78097	2.58314	0.00604	0.11323	—	0.11323	0.10417	—	0.10417	—	502.635	502.635	0.02039	0.00408	—	504.360
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42438	0.35195	2.78097	2.58314	0.00604	0.11323	—	0.11323	0.10417	—	0.10417	—	502.635	502.635	0.02039	0.00408	—	504.360
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15613	0.12949	1.02314	0.95035	0.00222	0.04166	—	0.04166	0.03833	—	0.03833	—	184.922	184.922	0.00750	0.00150	—	185.557
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.02849	0.02363	0.18672	0.17344	0.00041	0.00760	—	0.00760	0.00699	—	0.00699	—	30.6160	30.6160	0.00124	0.00025	—	30.7211
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17368	0.17103	0.08717	2.39819	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	600.564	600.564	0.00661	0.00397	1.22263	603.134
Vendor	0.00417	0.00157	0.06551	0.02987	0.00039	0.00039	0.01476	0.01515	0.00039	0.00408	0.00447	—	46.9104	46.9104	0.00251	0.00695	0.06103	49.1051
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16045	0.15516	0.13162	1.75016	0.00000	0.00000	0.60621	0.60621	0.00000	0.14209	0.14209	—	533.800	533.800	0.00926	0.00397	0.03165	535.246
Vendor	0.00413	0.00153	0.07014	0.03066	0.00039	0.00039	0.01476	0.01515	0.00039	0.00408	0.00447	—	46.9265	46.9265	0.00251	0.00695	0.00159	49.0617
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05854	0.05708	0.04000	0.66356	0.00000	0.00000	0.21761	0.21761	0.00000	0.05092	0.05092	—	201.507	201.507	0.00292	0.00146	0.19406	202.209
Vendor	0.00153	0.00058	0.02536	0.01112	0.00014	0.00014	0.00532	0.00546	0.00014	0.00147	0.00162	—	17.2612	17.2612	0.00092	0.00256	0.00970	18.0558
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01068	0.01042	0.00730	0.12110	0.00000	0.00000	0.03971	0.03971	0.00000	0.00929	0.00929	—	33.3617	33.3617	0.00048	0.00024	0.03213	33.4780
Vendor	0.00028	0.00011	0.00463	0.00203	0.00003	0.00003	0.00097	0.00100	0.00003	0.00027	0.00029	—	2.85778	2.85778	0.00015	0.00042	0.00161	2.98935
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.23. Paving (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74689	0.62759	6.12541	9.88333	0.01395	0.20981	—	0.20981	0.19303	—	0.19303	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.46990	0.46990	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03274	0.02751	0.26851	0.43324	0.00061	0.00920	—	0.00920	0.00846	—	0.00846	—	66.2194	66.2194	0.00269	0.00054	—	66.4466
Paving	0.02060	0.02060	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00598	0.00502	0.04900	0.07907	0.00011	0.00168	—	0.00168	0.00154	—	0.00154	—	10.9634	10.9634	0.00044	0.00009	—	11.0010
Paving	0.00376	0.00376	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04573	0.04474	0.02685	0.63222	0.00000	0.00000	0.15155	0.15155	0.00000	0.03552	0.03552	—	152.456	152.456	0.00165	0.00099	0.34691	153.140

Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00183	0.00179	0.00141	0.02084	0.00000	0.00000	0.00648	0.00648	0.00000	0.00152	0.00152	—	6.09438	6.09438	0.00010	0.00004	0.00658	6.11646
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00033	0.00033	0.00026	0.00380	0.00000	0.00000	0.00118	0.00118	0.00000	0.00028	0.00028	—	1.00899	1.00899	0.00002	0.00001	0.00109	1.01265
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	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
Clearing and Grubbing	Site Preparation	1/1/2030	1/28/2030	5.00000	20.0000	—

Grading, Drainage and Access Road	Grading	1/29/2030	6/18/2030	5.00000	101.000	—
Fencing/Wall	Building Construction	2/19/2030	5/14/2030	5.00000	61.0000	—
Below-Grade Civil	Building Construction	4/1/2030	10/1/2030	5.00000	132.000	—
Control Building Construction	Building Construction	6/18/2030	6/17/2031	5.00000	261.000	—
Integration of Building with Switchyard	Building Construction	4/1/2031	1/6/2032	5.00000	201.000	—
Steel Erection	Building Construction	7/8/2031	9/30/2031	5.00000	61.0000	—
Linear Construction	Building Construction	9/30/2031	7/6/2032	5.00000	201.000	—
Paving	Paving	6/17/2031	7/8/2031	5.00000	16.0000	—

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
Clearing and Grubbing	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Clearing and Grubbing	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading, Drainage and Access Road	Graders	Diesel	Average	2.00000	4.00000	148.000	0.41000
Grading, Drainage and Access Road	Scrapers	Diesel	Average	2.00000	4.00000	423.000	0.48000
Grading, Drainage and Access Road	Plate Compactors	Diesel	Average	2.00000	4.00000	8.00000	0.43000
Grading, Drainage and Access Road	Off-Highway Trucks	Diesel	Average	2.00000	4.00000	376.000	0.38000
Grading, Drainage and Access Road	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	1.20000	84.0000	0.37000
Grading, Drainage and Access Road	Sweepers/Scrubbers	Diesel	Average	1.000000	0.80000	36.0000	0.46000

Grading, Drainage and Access Road	Excavators	Diesel	Average	2.00000	4.00000	172.000	0.38000
Grading, Drainage and Access Road	Crawler Tractors	Diesel	Average	2.00000	4.00000	363.000	0.43000
Fencing/Wall	Skid Steer Loaders	Diesel	Average	3.00000	1.80000	71.0000	0.37000
Fencing/Wall	Tractors/Loaders/Backhoes	Diesel	Average	1.000000	1.20000	107.000	0.37000
Fencing/Wall	Cranes	Diesel	Average	1.000000	1.10000	367.000	0.29000
Below-Grade Civil	Bore/Drill Rigs	Diesel	Average	2.00000	3.60000	83.0000	0.50000
Below-Grade Civil	Off-Highway Trucks	Diesel	Average	3.00000	4.00000	376.000	0.38000
Below-Grade Civil	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	1.20000	84.0000	0.37000
Below-Grade Civil	Generator Sets	Diesel	Average	2.00000	2.40000	20.0000	0.74000
Below-Grade Civil	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Below-Grade Civil	Sweepers/Scrubbers	Diesel	Average	1.000000	1.30000	36.0000	0.46000
Below-Grade Civil	Excavators	Diesel	Average	1.000000	2.40000	172.000	0.38000
Control Building Construction	Cranes	Diesel	Average	1.000000	0.50000	367.000	0.29000
Control Building Construction	Forklifts	Diesel	Average	3.00000	4.60000	82.0000	0.20000
Control Building Construction	Generator Sets	Diesel	Average	1.000000	6.10000	20.0000	0.74000
Control Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	2.70000	84.0000	0.37000
Control Building Construction	Welders	Diesel	Average	1.000000	4.90000	46.0000	0.45000
Integration of Building with Switchyard	Aerial Lifts	Diesel	Average	2.00000	4.00000	46.0000	0.31000
Integration of Building with Switchyard	Generator Sets	Diesel	Average	2.00000	2.00000	20.0000	0.74000
Steel Erection	Cranes	Diesel	Average	1.000000	1.30000	367.000	0.29000
Steel Erection	Aerial Lifts	Diesel	Average	2.00000	6.60000	46.0000	0.31000

Steel Erection	Forklifts	Diesel	Average	1.000000	6.60000	82.0000	0.20000
Steel Erection	Off-Highway Trucks	Diesel	Average	2.00000	2.00000	376.000	0.38000
Steel Erection	Generator Sets	Diesel	Average	1.000000	5.20000	20.0000	0.74000
Steel Erection	Welders	Diesel	Average	1.000000	1.30000	46.0000	0.45000
Steel Erection	Sweepers/Scrubbers	Diesel	Average	1.000000	1.30000	36.0000	0.46000
Linear Construction	Cranes	Diesel	Average	1.000000	0.40000	367.000	0.29000
Linear Construction	Generator Sets	Diesel	Average	2.00000	8.00000	20.0000	0.74000
Linear Construction	Sweepers/Scrubbers	Diesel	Average	1.000000	0.40000	36.0000	0.46000
Linear Construction	Other Construction Equipment	Diesel	Average	1.000000	3.00000	101.000	0.42000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Clearing and Grubbing	Worker	17.5000	14.3000	LDA,LDT1,LDT2
Clearing and Grubbing	Vendor	2.00000	8.80000	HHDT,MHDT
Clearing and Grubbing	Hauling	0.00000	20.0000	HHDT
Clearing and Grubbing	Onsite truck	—	—	HHDT
Grading, Drainage and Access Road	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Grading, Drainage and Access Road	Vendor	2.00000	8.80000	HHDT,MHDT
Grading, Drainage and Access Road	Hauling	73.0198	20.0000	HHDT
Grading, Drainage and Access Road	Onsite truck	—	—	HHDT
Fencing/Wall	Worker	0.00000	14.3000	LDA,LDT1,LDT2
Fencing/Wall	Vendor	10.00000	8.80000	HHDT,MHDT
Fencing/Wall	Hauling	0.00000	20.0000	HHDT

Fencing/Wall	Onsite truck	—	—	HHDT
Below-Grade Civil	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Below-Grade Civil	Vendor	20.0000	8.80000	HHDT,MHDT
Below-Grade Civil	Hauling	0.00000	20.0000	HHDT
Below-Grade Civil	Onsite truck	—	—	HHDT
Control Building Construction	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Control Building Construction	Vendor	1.31120	8.80000	HHDT,MHDT
Control Building Construction	Hauling	0.00000	20.0000	HHDT
Control Building Construction	Onsite truck	—	—	HHDT
Integration of Building with Switchyard	Worker	3.36000	14.3000	LDA,LDT1,LDT2
Integration of Building with Switchyard	Vendor	0.00000	8.80000	HHDT,MHDT
Integration of Building with Switchyard	Hauling	0.00000	20.0000	HHDT
Integration of Building with Switchyard	Onsite truck	—	—	HHDT
Steel Erection	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Steel Erection	Vendor	20.0000	8.80000	HHDT,MHDT
Steel Erection	Hauling	0.00000	20.0000	HHDT
Steel Erection	Onsite truck	—	—	HHDT
Linear Construction	Worker	60.0000	14.3000	LDA,LDT1,LDT2
Linear Construction	Vendor	2.00000	8.80000	HHDT,MHDT
Linear Construction	Hauling	0.00000	20.0000	HHDT
Linear Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	14.3000	LDA,LDT1,LDT2
Paving	Vendor	—	8.80000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	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

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Clearing and Grubbing	—	—	30.0000	0.00000	0.00000
Grading, Drainage and Access Road	59,000.0	—	303.000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	17.9063

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	General Light Industry	0.00000	0%
Paving	Other Asphalt Surfaces	2.86961	100%
Paving	Other Non-Asphalt Surfaces	15.0367	0%
Paving	User Defined Recreational	0.00000	0%
Paving	User Defined Industrial	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2030	0.00000	374.840	0.01290	0.00170
2031	0.00000	374.840	0.01290	0.00170
2032	0.00000	374.840	0.01290	0.00170

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	21.7600	annual days of extreme heat
Extreme Precipitation	5.50000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	3.74000	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	1	0	0	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	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	1	1	1	2
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
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	48.5999
AQ-PM	23.6839
AQ-DPM	22.3149
Drinking Water	78.7811

Lead Risk Housing	41.1720
Pesticides	73.7931
Toxic Releases	30.3326
Traffic	28.4750
Effect Indicators	—
CleanUp Sites	86.5435
Groundwater	88.8594
Haz Waste Facilities/Generators	99.8015
Impaired Water Bodies	51.2180
Solid Waste	99.9084
Sensitive Population	—
Asthma	50.1994
Cardio-vascular	53.9008
Low Birth Weights	36.4126
Socioeconomic Factor Indicators	—
Education	47.5070
Housing	61.9392
Linguistic	43.8760
Poverty	58.5050
Unemployment	62.4024

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	36.84075452
Employed	20.45425382
Median HI	23.26446811

Education	—
Bachelor's or higher	39.34300013
High school enrollment	100
Preschool enrollment	18.64493776
Transportation	—
Auto Access	37.4566919
Active commuting	70.79430258
Social	—
2-parent households	14.75683306
Voting	58.51405107
Neighborhood	—
Alcohol availability	64.62209675
Park access	12.70370846
Retail density	22.81534711
Supermarket access	13.65327858
Tree canopy	2.065956628
Housing	—
Homeownership	60.60567176
Housing habitability	41.69126139
Low-inc homeowner severe housing cost burden	38.58591043
Low-inc renter severe housing cost burden	7.737713332
Uncrowded housing	46.38778391
Health Outcomes	—
Insured adults	43.96253048
Arthritis	0.0
Asthma ER Admissions	49.9
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	16.0
Cognitively Disabled	21.0
Physically Disabled	7.2
Heart Attack ER Admissions	53.7
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	98.4
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	0.0
SLR Inundation Area	0.0
Children	59.5
Elderly	21.1
English Speaking	31.0
Foreign-born	59.3
Outdoor Workers	28.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	91.1

Traffic Density	37.8
Traffic Access	23.0
Other Indices	—
Hardship	62.5
Other Decision Support	—
2016 Voting	63.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	70.0000
Healthy Places Index Score for Project Location (b)	29.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
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

8.1. Justifications

Screen	Justification

Land Use	Land use inputs from RFI.
Construction: Construction Phases	Project-specific construction schedule.
Construction: Off-Road Equipment	Project-specific equipment list.
Construction: Dust From Material Movement	All excavated material reused onsite, import only during grading phase.
Construction: Trips and VMT	Maximum 30 workers, vendor trucks for water trucks and equipment delivery. Haul trucks based on material quantities.
Operations: Fleet Mix	Assume operational trips split 50/50 LHD1 and LHD2.
Operations: Energy Use	Assume negligible energy use associated with lighting for facility. Site would be operated remotely.
Operations: Water and Waste Water	Site would be operated remotely. Assume no water use.
Operations: Solid Waste	Site would be operated remotely. Assume no waste generated.
Operations: Refrigerants	Site would be operated remotely. Assume no refrigerant use.

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Building Area	sq. ft	4,000.00	8,000.00
Landscape Area	sq. ft	—	0.00000
Lot Area	acre	0.00000	1.000000
Landscape Area	sq. ft	—	0.00000
Lot Area	acre	0.00000	4.11000
Landscape Area	sq. ft	—	0.00000

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Paving	Paving	Start Date	12/6/2031	6/17/2031
Paving	Paving	End Date	1/3/2032	7/8/2031

Paving	Paving	Work Days per Phase	20.0000	16.0000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Grading, Drainage and Access Road	Graders	Number per Day	1.000000	2.00000
Grading, Drainage and Access Road	Graders	Hours Per Day	8.00000	4.00000
Grading, Drainage and Access Road	Scrapers	Hours Per Day	8.00000	4.00000
Grading, Drainage and Access Road	Plate Compactors	Hours Per Day	8.00000	4.00000
Grading, Drainage and Access Road	Off-Highway Trucks	Hours Per Day	8.00000	4.00000
Grading, Drainage and Access Road	Tractors/Loaders/Backhoes	Hours Per Day	8.00000	1.20000
Grading, Drainage and Access Road	Sweepers/Scrubbers	Hours Per Day	4.00000	0.80000
Grading, Drainage and Access Road	Excavators	Hours Per Day	8.00000	4.00000
Grading, Drainage and Access Road	Crawler Tractors	Hours Per Day	8.00000	4.00000
Fencing/Wall	Skid Steer Loaders	Hours Per Day	8.00000	1.80000
Fencing/Wall	Tractors/Loaders/Backhoes	Hours Per Day	8.00000	1.20000
Fencing/Wall	Cranes	Hours Per Day	7.00000	1.10000
Below-Grade Civil	Bore/Drill Rigs	Hours Per Day	8.00000	3.60000
Below-Grade Civil	Off-Highway Trucks	Hours Per Day	8.00000	4.00000
Below-Grade Civil	Tractors/Loaders/Backhoes	Hours Per Day	8.00000	1.20000
Below-Grade Civil	Generator Sets	Hours Per Day	8.00000	2.40000
Below-Grade Civil	Sweepers/Scrubbers	Hours Per Day	4.00000	1.30000
Below-Grade Civil	Excavators	Hours Per Day	8.00000	2.40000
Control Building Construction	Cranes	Hours Per Day	7.00000	0.50000
Control Building Construction	Forklifts	Hours Per Day	8.00000	4.60000
Control Building Construction	Generator Sets	Hours Per Day	8.00000	6.10000
Control Building Construction	Generator Sets	Horsepower	14.0000	20.0000
Control Building Construction	Tractors/Loaders/Backhoes	Hours Per Day	7.00000	2.70000
Control Building Construction	Welders	Hours Per Day	8.00000	4.90000

Integration of Building with Switchyard	Aerial Lifts	Number per Day	3.00000	2.00000
Integration of Building with Switchyard	Aerial Lifts	Hours Per Day	8.00000	4.00000
Integration of Building with Switchyard	Aerial Lifts	Horsepower	82.0000	46.0000
Integration of Building with Switchyard	Aerial Lifts	Load Factor	0.20000	0.31000
Integration of Building with Switchyard	Generator Sets	Hours Per Day	8.00000	2.00000
Steel Erection	Cranes	Hours Per Day	7.00000	1.30000
Steel Erection	Aerial Lifts	Hours Per Day	8.00000	6.60000
Steel Erection	Forklifts	Hours Per Day	8.00000	6.60000
Steel Erection	Off-Highway Trucks	Hours Per Day	8.00000	2.00000
Steel Erection	Generator Sets	Hours Per Day	8.00000	5.20000
Steel Erection	Welders	Hours Per Day	8.00000	1.30000
Steel Erection	Sweepers/Scrubbers	Hours Per Day	8.00000	1.30000
Linear Construction	Cranes	Hours Per Day	7.00000	0.40000
Linear Construction	Generator Sets	Number per Day	1.000000	2.00000
Linear Construction	Generator Sets	Horsepower	14.0000	20.0000
Linear Construction	Sweepers/Scrubbers	Hours Per Day	8.00000	0.40000
Linear Construction	Other Construction Equipment	Hours Per Day	6.00000	3.00000

8.4.4. Dust from Material Movement

Phase Name	Model Parameter	Units	Default Value	New Value
Grading, Drainage and Access Road	Material Imported	Cubic Yards	—	59,000.0
Grading, Drainage and Access Road	Total Acres Graded	acres	202.000	303.000

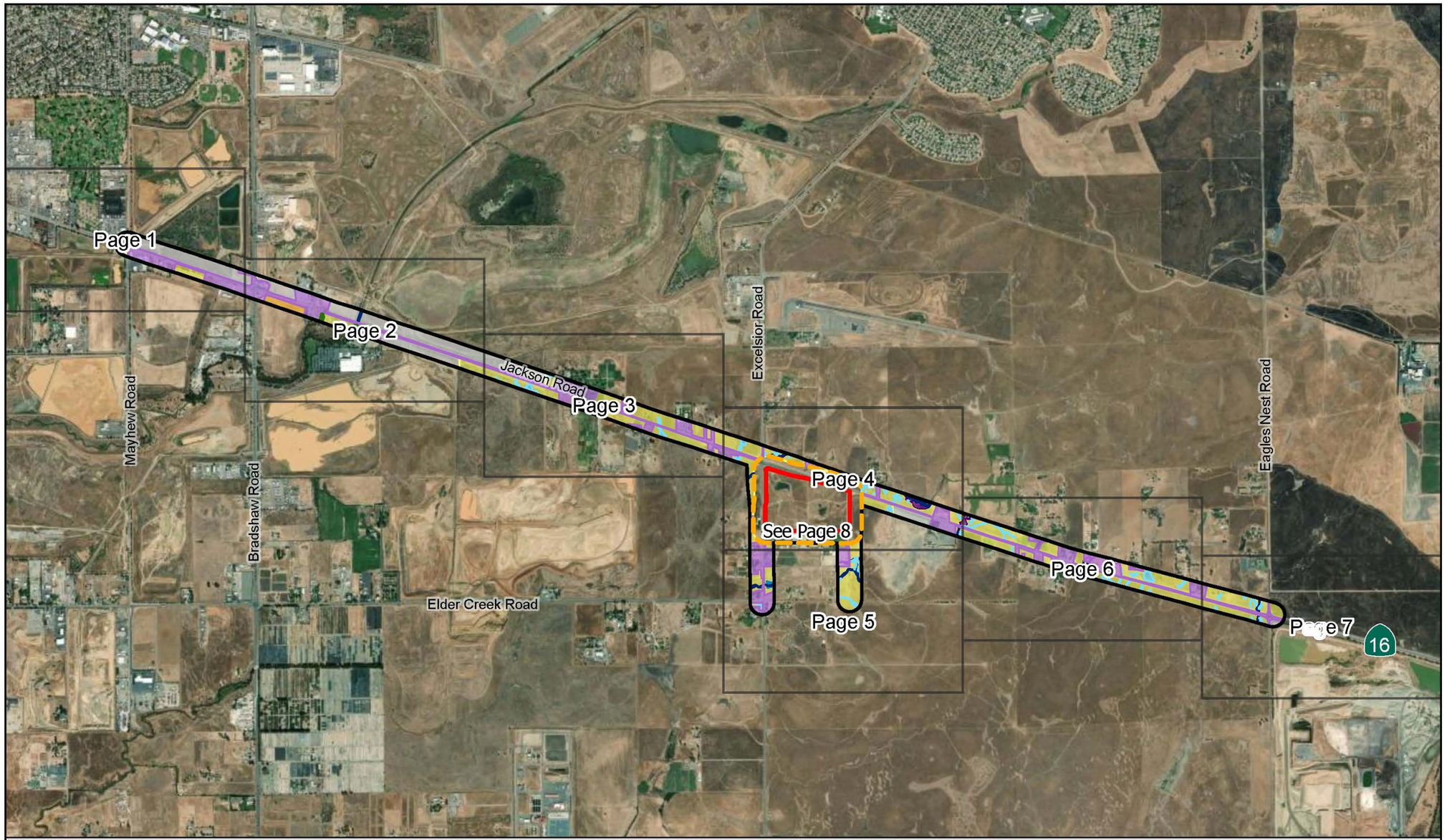
8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Grading, Drainage and Access Road	Worker	One-Way Trips per Day	35.0000	60.0000
Fencing/Wall	Worker	One-Way Trips per Day	3.36000	0.00000
Fencing/Wall	Vendor	One-Way Trips per Day	1.31120	10.00000
Below-Grade Civil	Worker	One-Way Trips per Day	3.36000	60.0000
Below-Grade Civil	Vendor	One-Way Trips per Day	1.31120	20.0000
Control Building Construction	Worker	One-Way Trips per Day	3.36000	60.0000
Integration of Building with Switchyard	Vendor	One-Way Trips per Day	1.31120	0.00000
Steel Erection	Worker	One-Way Trips per Day	3.36000	60.0000
Steel Erection	Vendor	One-Way Trips per Day	1.31120	20.0000
Linear Construction	Worker	One-Way Trips per Day	3.36000	60.0000
Linear Construction	Vendor	One-Way Trips per Day	1.31120	2.00000

Appendix B

BIOLOGICAL RESOURCES INFORMATION

1. SMUD HCP Land Cover Mapping
2. Special-status Species Lists (USFWS, CDFW, CNPS, and NMFS)
3. Table of Special-status Plants and Wildlife with Potential to Occur



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

250 ft Buffer of Project Activities

Proposed Substation

Field Verified Land Cover (see Page 8)

Map Grid Index with Page Number

Sacramento Municipal Utility District Habitat Conservation Plan (SMUD HCP) Land Cover Types

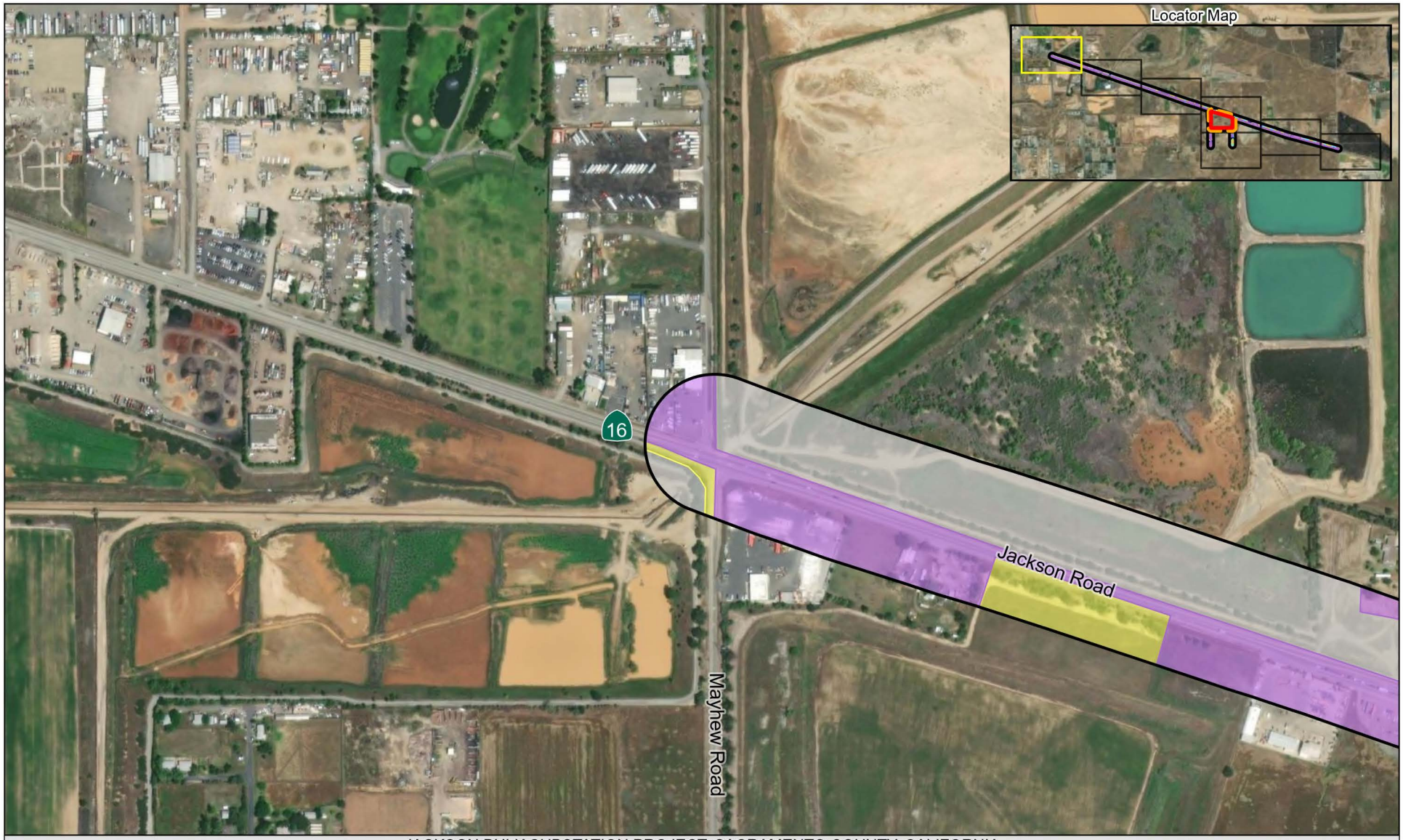
- Cropland
- Grasses and Forbs
- Pasture
- Urban
- Barren/Disturbed
- Valley Foothill Riparian
- Riverine
- Open Water/Fringe
- Other Depressional Wetland
- Seasonal Wetland/Seasonal Swale and Vernal Pool

N

0 1,500 3,000 feet

Data Source: - Sacramento Municipal Utility District Habitat Conservation Plan 2022; ESRI aerial imagery, accessed 2026;
Date: 2-9-26

Land Cover Types (Index Page)



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Sacramento Municipal Utility District Habitat Conservation Plan (SMUD HCP) Land Cover Types

250 ft Buffer of Project Activities

Barren/Disturbed

Grasses and Forbs

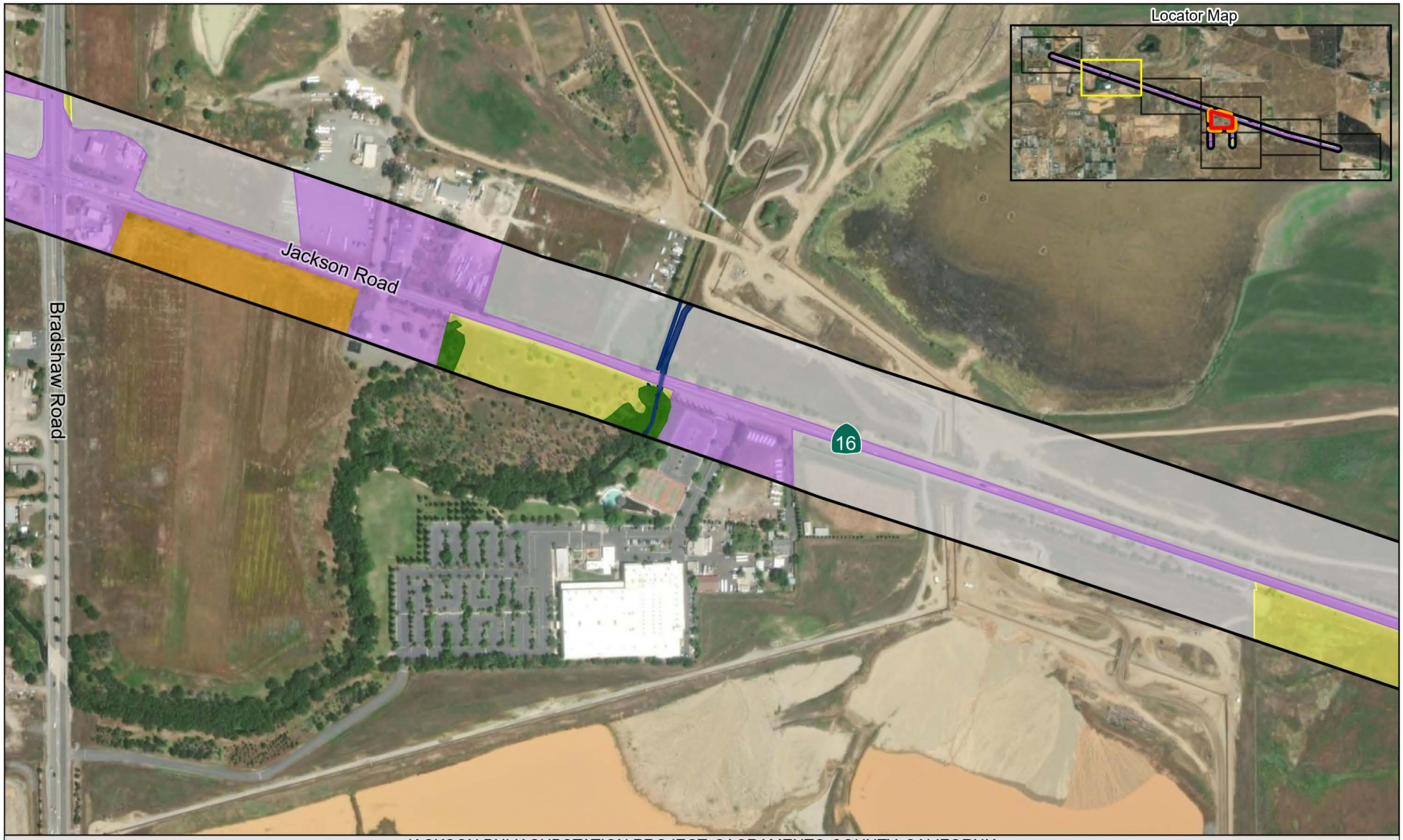
Urban

N

0 250 500 feet

Data Source: - Sacramento Municipal Utility District Habitat Conservation Plan 2022; ESRI aerial imagery, accessed 2026;
Date: 2-10-26

Land Cover Types (Page 1 of 8)



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Sacramento Municipal Utility District Habitat Conservation Plan (SMUD HCP) Land Cover Types

250 ft Buffer of Project Activities

Barren/Disturbed

Cropland

Grasses and Forbs

Riverine

Urban

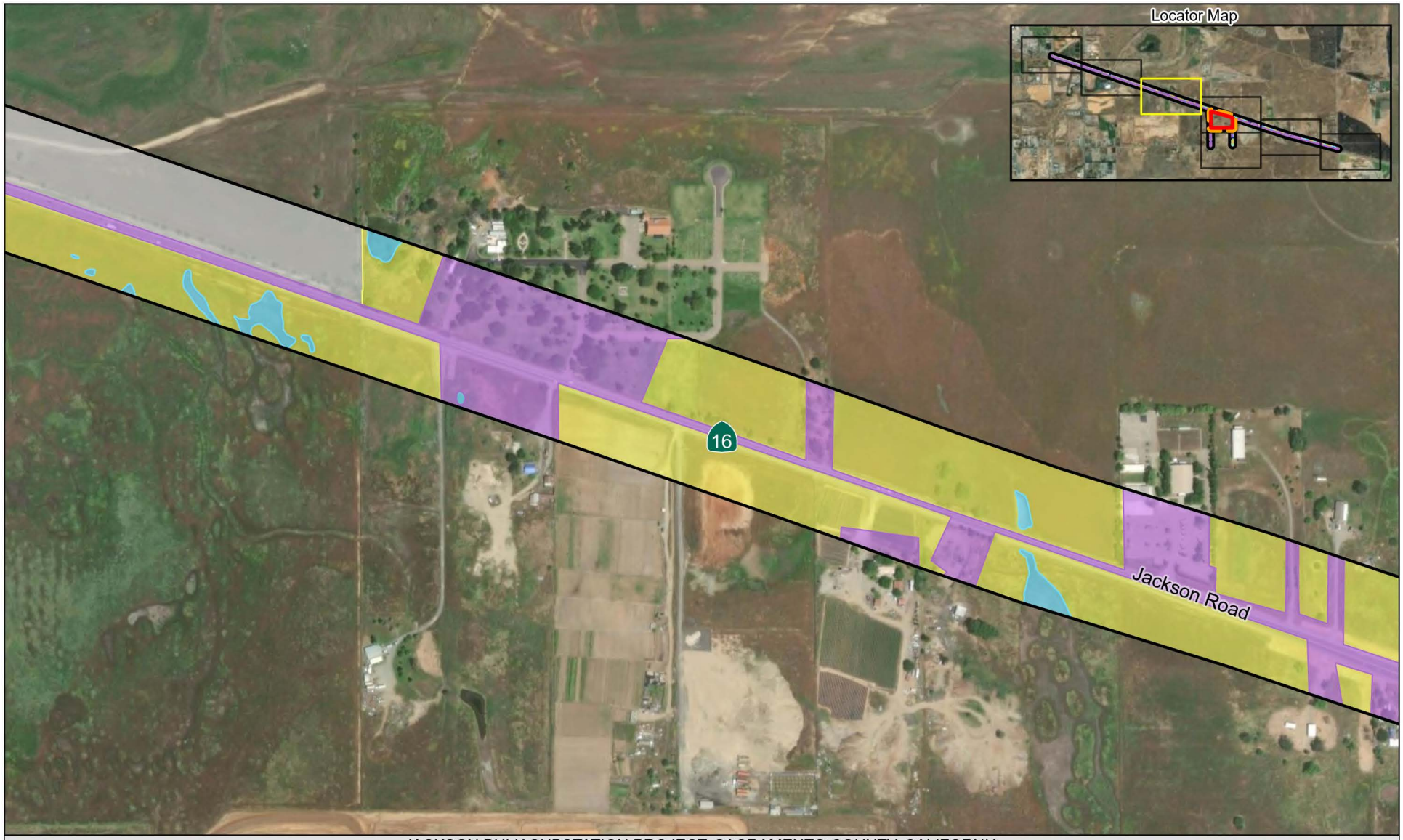
Valley Foothill Riparian

N

0 250 500 feet

Data Source: - Sacramento Municipal Utility District Habitat Conservation Plan 2022; ESRI aerial imagery, accessed 2026;
Date: 2-10-26

Land Cover Types (Page 2 of 8)



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Sacramento Municipal Utility District Habitat Conservation Plan (SMUD HCP) Land Cover Types

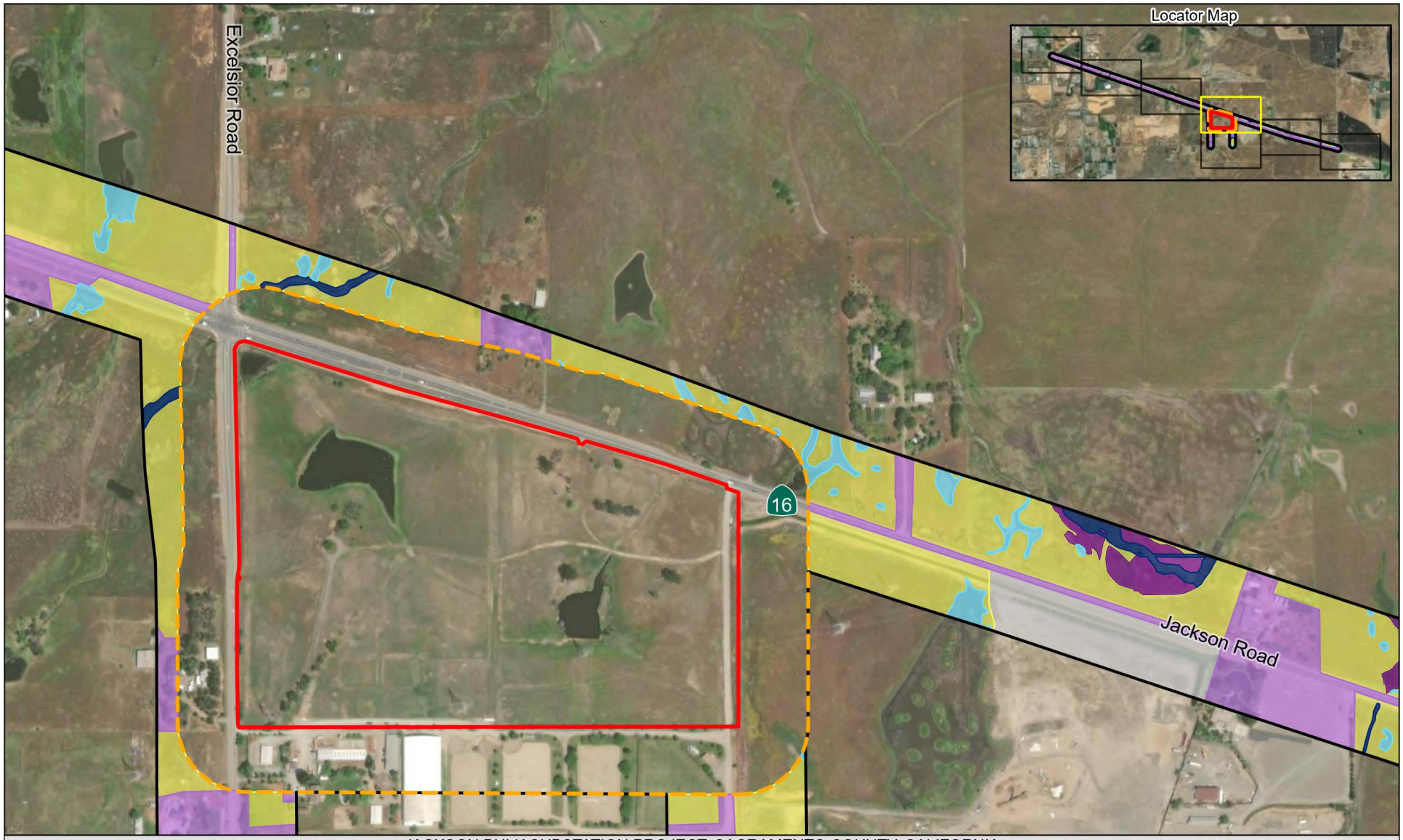
- 250 ft Buffer of Project Activities
- Barren/Disturbed
- Grasses and Forbs
- Seasonal Wetland/Seasonal Swale and Vernal Pool
- Urban

N

0 250 500 feet

Data Source: - Sacramento Municipal Utility District Habitat Conservation Plan 2022; ESRI aerial imagery, accessed 2026;
Date: 2-10-26

Land Cover Types (Page 3 of 8)



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Sacramento Municipal Utility District Habitat Conservation Plan (SMUD HCP) Land Cover Types

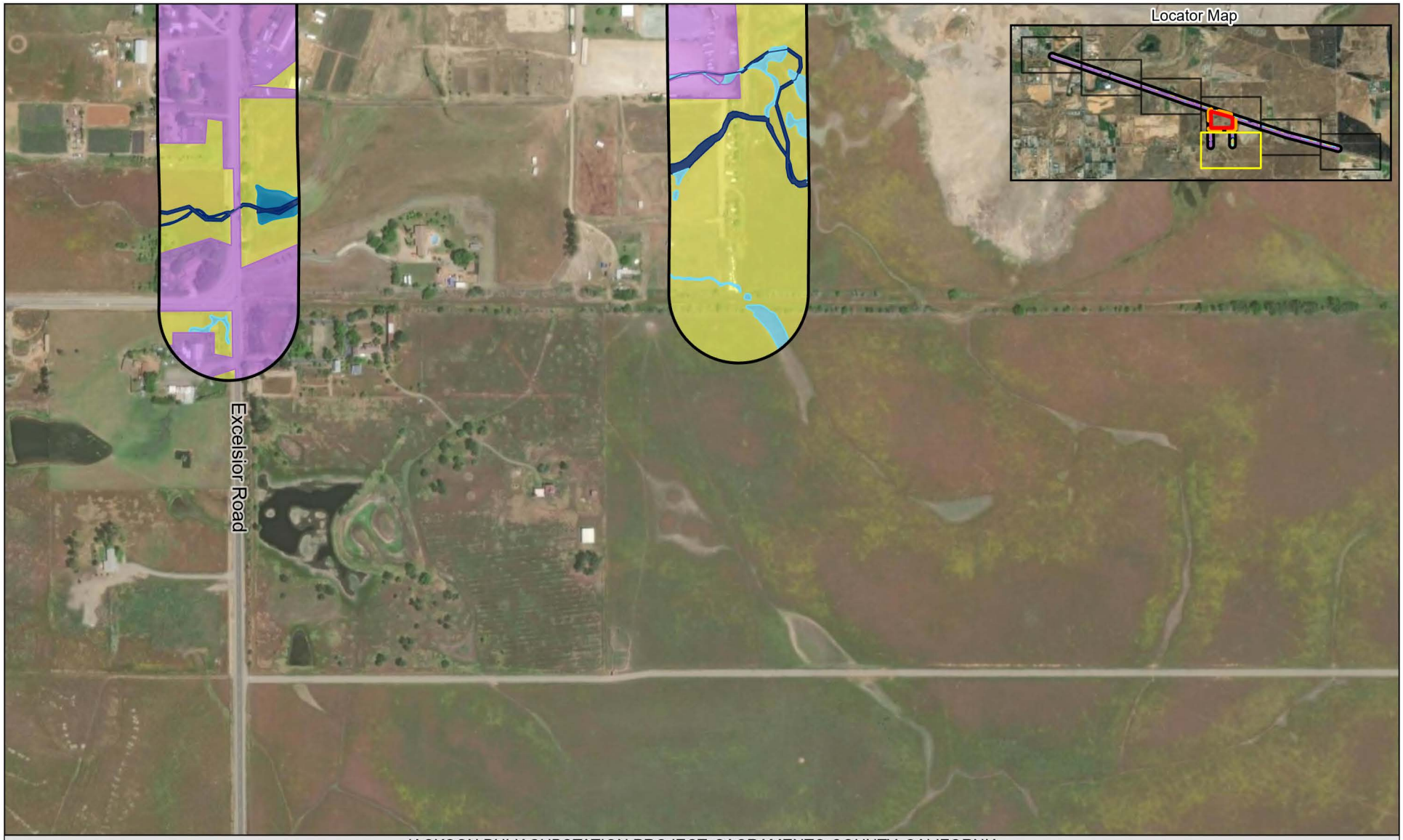
- 250 ft Buffer of Project Activities
- Proposed Substation
- Field Verified Land Cover (see Page 8)
- Barren/Disturbed
- Grasses and Forbs
- Other Depressional Wetland
- Riverine
- Seasonal Wetland/Seasonal Swale and Vernal Pool
- Urban

N

0 250 500 feet

Data Source: - Sacramento Municipal Utility District Habitat Conservation Plan 2022; ESRI aerial imagery, accessed 2026;
Date: 2-10-26

Land Cover Types (Page 4 of 8)



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

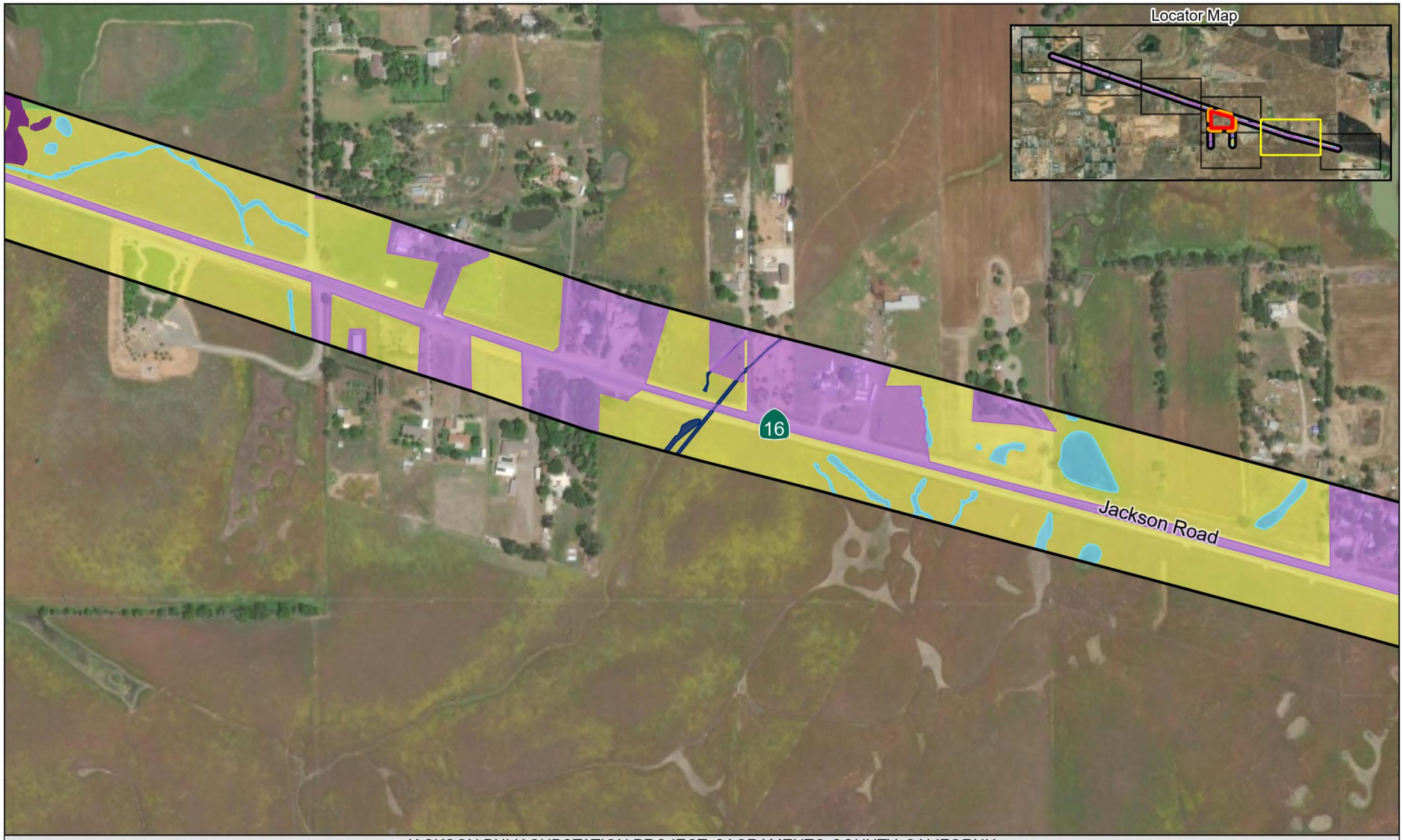
Sacramento Municipal Utility District Habitat Conservation Plan (SMUD HCP) Land Cover Types

- 250 ft Buffer of Project Activities
- Grasses and Forbs
- Open Water/Fringe
- Riverine
- Seasonal Wetland/Seasonal Swale and Vernal Pool
- Urban

0 250 500 feet

Data Source: - Sacramento Municipal Utility District Habitat Conservation Plan 2022; ESRI aerial imagery, accessed 2026;
Date: 2-10-26

Land Cover Types (Page 5 of 8)



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Sacramento Municipal Utility District Habitat Conservation Plan (SMUD HCP) Land Cover Types

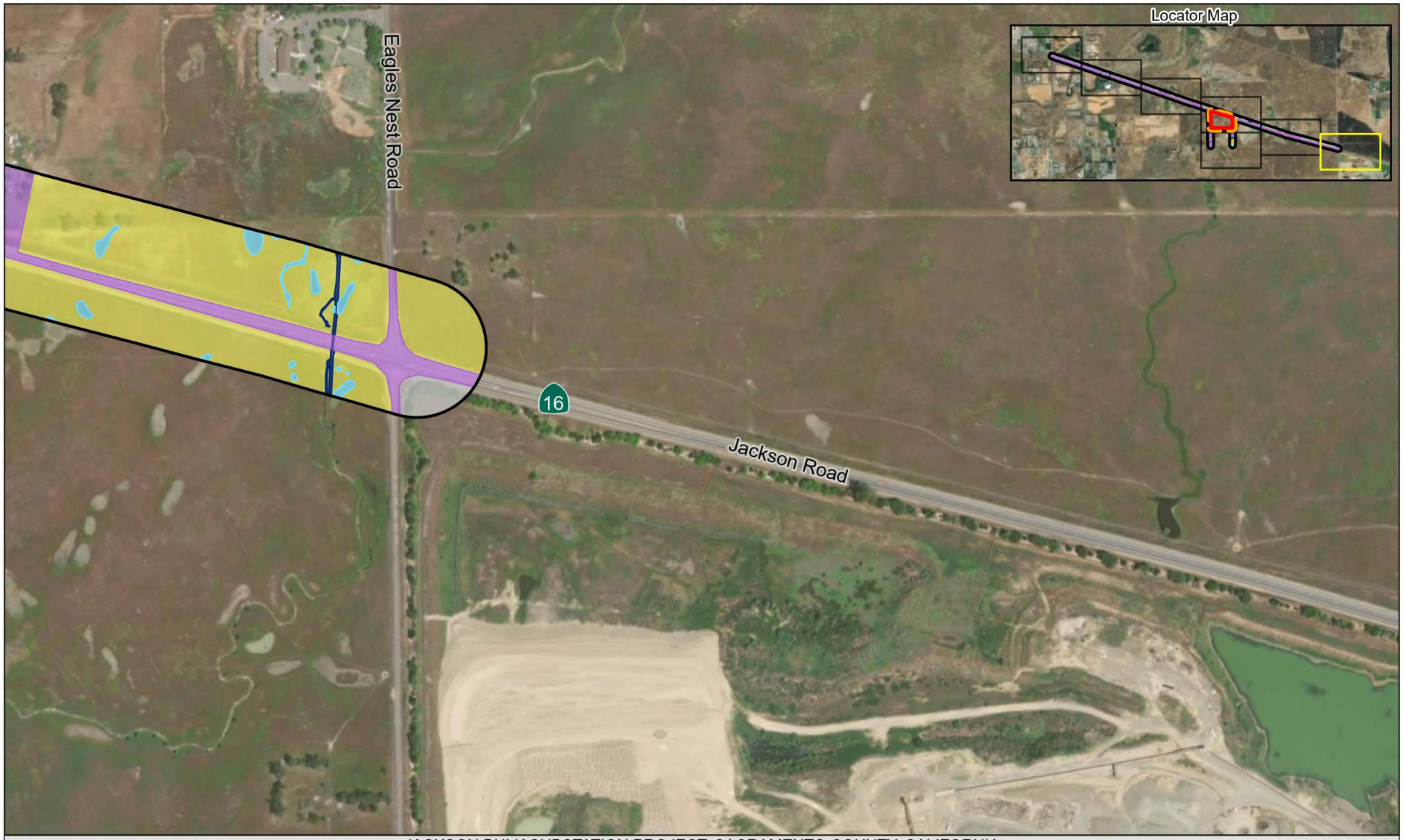
- 250 ft Buffer of Project Activities
- Grasses and Forbs
- Other Depressional Wetland
- Pasture
- Riverine
- Seasonal Wetland/Seasonal Swale and Vernal Pool
- Urban

N

0 250 500 feet

Data Source: - Sacramento Municipal Utility District Habitat Conservation Plan 2022; ESRI aerial imagery, accessed 2026;
Date: 2-10-26

Land Cover Types (Page 6 of 8)



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Sacramento Municipal Utility District Habitat Conservation Plan (SMUD HCP) Land Cover Types

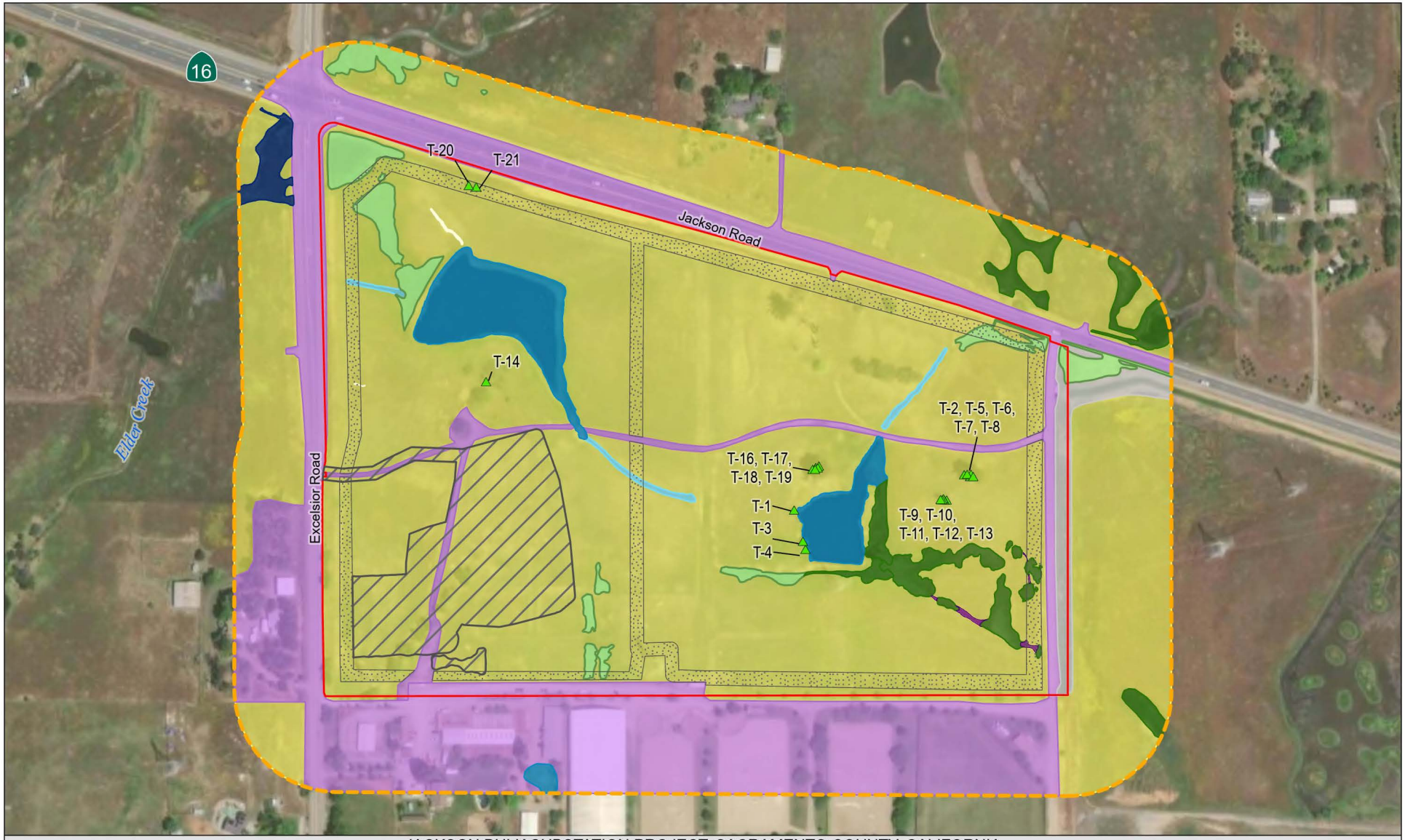
- 250 ft Buffer of Project Activities
- Barren/Disturbed
- Grasses and Forbs
- Riverine
- Seasonal Wetland/Seasonal Swale and Vernal Pool
- Urban

N

0 250 500 feet

Data Source: - Sacramento Municipal Utility District Habitat Conservation Plan 2022; ESRI aerial imagery, accessed 2026;
Date: 2-10-26

Land Cover Types (Page 7 of 8)



JACKSON BULK SUBSTATION PROJECT, SACRAMENTO COUNTY, CALIFORNIA

Proposed Substation
Field Survey Area
Firebreaks
Areas of Temporary Disturbance
Trees

Land Cover

Urban
Barren/Disturbed
Riverine

Grasses and Forbs

Grasses and Forbs
Upland Ditch

Open Water/Fringe

Seasonal Wetland/Seasonal Swale and Vernal Pool

Seasonal Wetland
Seasonal Swale
Vernal Pool
Vernal Swale

N

0 300 600 Feet

Data Source: - Area West Environmental. Inc 2026;
ESRI aerial imagery, accessed 2026;
Date: 2-10-26

Land Cover Types (Page 8 of 8)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: 01/29/2026 00:29:53 UTC
Project Code: 2026-0042524
Project Name: Jackson Bulk Substation Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation- migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2026-0042524
Project Name: Jackson Bulk Substation Project
Project Type: Distribution Line - Maintenance/Modification - Above Ground
Project Description: Construction of a bulk substation and subtransmission lines.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.520346849999996,-121.3034359943035,14z



Counties: Sacramento County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1] as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

REPTILES

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111 General project design guidelines: https://ipac.ecosphere.fws.gov/project/C3EK45555JG45OCCKX3TW6GEHQ/documents/generated/11271.pdf	Proposed Threatened

AMPHIBIANS

NAME	STATUS
Western Spadefoot *Spea hammondii* Population: Northern DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425 General project design guidelines: https://ipac.ecosphere.fws.gov/project/C3EK45555JG45OCCKX3TW6GEHQ/documents/generated/11271.pdf	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743 General project design guidelines: https://ipac.ecosphere.fws.gov/project/C3EK45555JG45OCCKX3TW6GEHQ/documents/generated/11271.pdf	Proposed Threatened
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246 General project design guidelines: https://ipac.ecosphere.fws.gov/project/C3EK45555JG45OCCKX3TW6GEHQ/documents/generated/11271.pdf	Endangered

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498 General project design guidelines: https://ipac.ecosphere.fws.gov/project/C3EK45555JG45OCCKX3TW6GEHQ/documents/ generated/11271.pdf	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246 General project design guidelines: https://ipac.ecosphere.fws.gov/project/C3EK45555JG45OCCKX3TW6GEHQ/documents/ generated/11271.pdf	Endangered

FLOWERING PLANTS

NAME	STATUS
Sacramento Orcutt Grass *Orcuttia viscida* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5507	Endangered
Slender Orcutt Grass *Orcuttia tenuis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1063	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Area West Environmental Inc.
Name: Becky Rozumowicz
Address: 6248 Main Avenue, Suite C
City: Orangevale
State: CA
Zip: 95662
Email frontdesk@areawest.net
Phone: 9169873362

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Citrus Heights (3812163) OR Folsom (3812162) OR Carmichael (3812153) OR Elk Grove (3812143) OR Sloughhouse (3812142) OR Buffalo Creek (3812152) OR Rio Linda (3812164) OR Florin (3812144) OR Sacramento East (3812154))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acipenser medirostris pop. 1 green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	SSC
Actinemys marmorata northwestern pond turtle	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G3	S2	SSC
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G3T3	S3	WL
Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S1	
Andrena subapasta An andrenid bee	IIHYM35210	None	None	G1G2	S1S2	
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astur cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Athene cunicularia burrowing owl	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
Bombus crotchii Crotch's bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Bombus pensylvanicus American bumble bee	IIHYM24260	None	None	G3G4	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Calycadenia spicata spicate calycadenia	PDAST1P090	None	None	G3?	S3	1B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111	None	None	G5T4?	SH	2B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Dumontia oregonensis hairy water flea	ICBRA23010	None	None	G1G3	S1	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Gonidea angulata western ridged mussel	IMBIV19010	None	None	G3	S2	
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2G3	S2	1B.2
Great Valley Valley Oak Riparian Forest Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G4	S3S4	
Lasthenia chrysantha alkali-sink goldfields	PDAST5L030	None	None	G2	S2	1B.1
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia pop. 1 song sparrow ("Modesto" population)	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
Nannopterum auritum double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G2T2	S2	1B.1
Northern Claypan Vernal Pool Northern Claypan Vernal Pool	CTT44120CA	None	None	G1	S1.1	
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
Orcuttia tenuis slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	G3	S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S3	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Spea hammondii western spadefoot	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
Spirinchus thaleichthys pop. 2 longfin smelt - San Francisco Bay-Delta DPS	AFCHB03040	Endangered	Threatened	G5TNRQ	S1	
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Xanthocephalus xanthocephalus yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 62

CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

Search Results

20 matches found. Click on scientific name for details

Search Criteria: , 9-Quad include [**3812162:3812163:3812153:3812143:3812142:3812152:3812164:3812144:3812154**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G4G5T3	S3	4.2	Yes	2019-01-07	 © 2011 Steven Perry
Calycadenia spicata	spicate calycadenia	Asteraceae	annual herb	May-Sep	None	None	G3?	S3	1B.3		2023-04-05	 © 2023 Christopher Bronny
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	Yes	2007-05-22	 © 2019 John Doyen
Clarkia biloba ssp. *brandegeeae*	Brandegee's clarkia	Onagraceae	annual herb	(Mar)May-Jul	None	None	G4G5T4	S4	4.2	Yes	2001-01-01	No Photo Available
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	None	None	G5T4?	SH	2B.2		2011-08-24	No Photo Available

Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		1980-01-01	 © 2013 Aaron Arthur
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1980-01-01	 © 2016 Aaron Schusteff
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2G3	S2	1B.2		1974-01-01	 ©2004 Carol W. Witham
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	Yes	1984-01-01	 © 2004 Carol W. Witham
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	 © 2009 California State University, Stanislaus

Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01
 © 2025 Adam Searcy											
Lepidium latipes var. *heckardii*	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	None	None	G4T1	S1	1B.2	Yes	1994-01-01
 2018 Jennifer Buck											
Navarretia eriocephala	hoary navarretia	Polemoniaceae	annual herb	May-Jun	None	None	G4?	S4?	4.3	Yes	1974-01-01
 © 2018 Leigh Johnson											
Navarretia myersii ssp. *myersii*	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	None	None	G2T2	S2	1B.1	Yes	1994-01-01
 © 2020 Leigh Johnson											
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	FT	CE	G2	S2	1B.1	Yes	1974-01-01
 © 2013 Justy Leppert											
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	Apr-Jul(Sep)	FE	CE	G1	S1	1B.1	Yes	1974-01-01
 © Rick York and CNPS											
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01
 ©2013 Debra L. Cook											

Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	2001-01-01	 © 2005 Dean Wm Taylor

Showing 1 to 20 of 20 entries

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Outlook

SMUD Jackson Bulk Substation

From edeng . <edeng@areawest.net>
Date Mon 2/9/2026 3:11 PM
To NMFS SpeciesList - NOAA Service Account < nmfs.wcrca.specieslist@noaa.gov >

Bulk substation construction and overhead line upgrades and construction

Quad Name Carmichael
Quad Number 38121-E3
ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - X
SRWR Chinook Salmon ESU (E) - X
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - X
Eulachon (T) -
sDPS Green Sturgeon (T) -
ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -
ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -
ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -
ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) - ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -
ESA Pinnipeds

Guadalupe Fur Seal (T) -
Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - X
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -
MMPA Species (See list)

ESA and MMPA Cetaceans/Pinnipeds
See list and consult Monica DeAngelis
monica.deangelis@noaa.gov
562-980-3232

MMPA Cetaceans -
MMPA Pinnipeds -

AREA WEST ENVIRONMENTAL, INC. EST 2000

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AWE Reference Number:

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
spicate calycadenia *Calycadenia spicata*	--	-- /1B.3	Amador, Butte, Calaveras, El Dorado, Kern, Mariposa, Nevada, Placer, Sacramento, San Joaquin, Stanislaus, Tulare, Tuolumne, and Yuba counties.	Cismontane woodlands and valley and foothill grasslands	May-Sep	P	**Low.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports grasses and forbs land cover suitable for this species. The species is not covered by the SMUD HCP; therefore, modeled habitat for the species is not depicted within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
Peruvian dodder *Cuscuta obtusiflora* var. *glandulosa*	--	-- /2B.2	Butte, Colusa, Los Angeles, Merced, Sacramento, San Bernadino, and Sonoma counties.	Freshwater marshes and swamps	Jul-Oct	P	**Low.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. Additionally, the proposed substation site supports only low quality other depressional wetland land cover. The Project area supports other depressional wetland land cover suitable for this species. The species is not covered by the SMUD HCP; therefore, modeled habitat for the species is not depicted within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
dwarf downingia *Downingia pusilla*	--	-- /2B.2	Butte, Calaveras, El Dorado, Fresno, Mariposa, Merced, Napa, Placer, Sacramento, San Joaquin, Shasta, Solano, Sonoma, Stanislaus, Sutter, Tehama, Tuolumne, and Yuba counties.	Mesic valley and foothill grasslands and vernal pools	Mar-May	P	**Low.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover suitable for this species. The species is not covered by the SMUD HCP. The SSHCP depicts modeled habitat for the species within the seasonal wetland/seasonal swale and vernal pool habitat west of the proposed substation north of Jackson Road within the Project area. However, there are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
Boggs Lake hedge-hyssop *Gratiola heterosepala*	--	SE/1B .2	El Dorado, Fresno, Lake, Lassen, Madera, Mendocino, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, Solano, Sonoma, and Tehama counties.	Marshes and swamps at lake margins and vernal pools with clay substrate	Apr-Aug	P	**Moderate.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. However, the proposed substation site supports seasonal wetland/seasonal swale and vernal pool land cover suitable for this species and the cutting of firebreaks at the proposed substation site had the potential of removing this species before identification. The Project area supports seasonal wetland/seasonal swale and vernal pool and other depressional wetland land cover suitable for this species. The species is not covered by the SMUD HCP, however, the SSHCP depicts modeled habitat for the species present within the seasonal wetland/seasonal swale and vernal pool habitats in the eastern half of the Project area. There are 8 CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	--	-- /1B.2	Alameda, Butte, Colusa, Contra Costa, Glenn, Sacramento, San Joaquin, Solano, Sutter, Tehama, and Yolo counties.	Freshwater marshes and swamps	Jun-Sep	P	**Unlikely.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports other depressional wetland land cover suitable for this species. The species is not covered by the SMUD HCP, therefore, modeled habitat for the species is not depicted within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	--	-- /1B.2	Butte, Calaveras, Placer, Sacramento, San Joaquin, Tehama, and Yuba counties.	Vernal pools and seasonal wetlands	Mar-May	P	**Moderate.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports grasses and forbs land cover suitable for this species. The species is not covered by the SMUD HCP, however, the SSHCP depicts modeled habitat for the species within the seasonal wetland/seasonal swale and vernal pool habitats in the eastern half of the Project area. There are 2 CNDDB occurrences within a 5- mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
alkali-sink goldfields *Lasthenia chrysantha*	--	-- /1B.1	Fresno, Kern, Kings, Lake, Madera, Merced, Placer, Sacramento, San Benito, Solano, Stanislaus, Tulare, and Tuolumne counties.	Alkaline vernal pools	Feb-Apr	P	**Unlikely.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover, but soils are not alkaline (NRCS 2026). The species is not covered by the SMUD HCP, therefore, modeled habitat for the species is not depicted within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
legenere *Legenere limosa*	--	-- /1B.2	Alameda, Calaveras, El Dorado, Lake, Merced, Monterey, Napa, Placer, Sacramento, San Joaquin, San Mateo, Santa Clara, Shasta, Solano, Sonoma, Stanislaus, Tehama, and yuba counties.	Vernal pools	Apr-Jun	P	**Moderate.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover suitable for this species. The species is not covered by the SMUD HCP, however, the SSHCP depicts modeled habitat for the species within the seasonal wetland/seasonal swale and vernal pool habitats in the eastern two thirds of the Project area. There are 12 CNDDB occurrences within a 5- mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
Heckard's pepper-grass *Lepidium latipes* var. *heckardii*	--	-- /1B.2	Glenn, Merced, Sacramento, Solano, and Yolo counties.	Valley and foothill grasslands with alkaline flats	Mar-May	P	**Unlikely.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports grasses and forbs land cover, but soils are not alkaline (NRCS Web Soil Survey 2026). The species is not covered by the SMUD HCP, therefore, modeled habitat for the species is not depicted within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
pincushion navarretia *Navarretia myersii* ssp. *myersii*	--	-- /1B.1	Amador, Calaveras, Lake, Madera, Mariposa, Merced, Placer, Sacramento, and San Joaquin counties.	Vernal pools, often with acidic water	Apr-May	P	**Low.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover suitable for this species. The species is not covered by the SMUD HCP. While the SSHCP depicts modeled habitat for the species within the seasonal wetland/seasonal swale and vernal pool habitats in the eastern half of the Project area, there are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
slender Orcutt grass *Orcuttia tenuis*	FT	SE/1B .1	Butte, El Dorado, Lake, Lassen, Modoc, Placer, Plumas, Sacramento, Shasta, Siskiyou, and Tehama counties.	Vernal pools, often with gravelly substrate	May-Sep(Oct)	P	**Moderate.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover suitable for this species. Both the SMUD HCP and SSHCP depict modeled habitat for the species within the seasonal wetland/seasonal swale and vernal pool habitats within the proposed substation and portions of the Project area east of the proposed substation. There are 3 CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
Sacramento Orcutt grass *Orcuttia viscida*	FE	SE/1B .1	El Dorado, Placer, and Sacramento counties.	Vernal pools	Apr-Jul(Sep)	P	**Moderate.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover suitable for this species. Both the SMUD HCP and SSHCP depict modeled habitat for the species within the seasonal wetland/seasonal swale and vernal pool habitats within the proposed substation and portions of the Project area east of the proposed substation. There are 11 CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
Sanford's arrowhead *Sagittaria sanfordii*	--	-- /1B.2	Butte, Del Norte, El Dorado, Fresno, Kings, Los Angeles, Madera, Marin, Mariposa, Merced, Napa, Orange, Placer, Sacramento, San Bernadino, San Joaquin, San Mateo, Shasta, Solano, Sutter, Tehama, Tulare, Ventura, and Yuba counties.	Shallow, freshwater marshes and swamps	May-Oct-(Nov)	P	**Moderate.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports other depressional wetland land cover suitable for this species. The species is not covered by the SMUD HCP, however, the SSHCP depicts modeled habitat for the species within the eastern two thirds of the Project area. There are hydrologically connected CNDDB occurrences found in the vicinity of the western end of the Project area within Morrison Creek. There are 10 CNDDB occurrences within a 5- mile radius of the proposed substation site.

Table 1. Special-status Plants with Potential to Occur in the Vicinity of the Project[i]

Scientific and Common Name	Legal Status[ii]		Distribution within California[i]	Habitat Association	Identification Period	Habitat Present/ Absent[iii]	Potential to Occur in the Project area[iv]
	Federal	State/ CNPS					
saline clover *Trifolium hydrophilum*	--	-- /1B.2	Alameda, Contra Costa, Lake, Marin, Mendocino, Monterey, Napa, Sacramento, San Benito, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, and Yuba counties.	Marshes and swamps, mesic or alkaline valley and foothill grasslands, and vernal pools	Apr-Jun	P	**Low.** This species was not observed during the 2025 special-status plant surveys of the proposed substation site. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover for this species. The species is not covered by the SMUD HCP, therefore, modeled habitat is not depicted for this species within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

i References for distribution, habitat association, bloom period, and plant records:

Source: Calflora 2026, CNPS 2025a, CNDDB 2025, USFWS 2025, NRCS 2026.

ii Status explanations:
-- = no listing
Federal
FE = listed as endangered under the federal Endangered Species Act.
FT = listed as threatened under the federal Endangered Species Act.
State
SE = listed as endangered under the California Endangered Species Act.
California Native Plant Society
1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2B = List 2B species: rare, threatened, or endangered in California and elsewhere.
0.1= Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat).
0.2= Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat).
0.3= Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

[ii] Habitat Designations:
Absent (A) = No habitat present in the Project area and no further analysis needed.

Present (P) = Habitat is present within the Project area. While seasonally-appropriate botanical surveys were conducted for each species at the proposed substation site, if suitable habitat is present, there is the potential for this species to occur in the future due to new establishment, an absence of blooming during the survey year, or destruction of habitat prior to survey.

iv Rational/ Survey Results:

Definitions for the Potential to Occur:
Unlikely. No suitable habitat present within the Project area.
Low. Minimal or marginal quality habitat in the Project area and no CNDDB occurrences within 5 miles of the proposed substation site.
Moderate. Suitable habitat occurs within the Project area. CNDDB occurrences within 5 miles of the proposed substation site.
High. Project area provides desirable habitat for species and there is a very high probability for its occurrence because there are CNDDB occurrences within 5 miles of the proposed substation site.
Present. Species was observed within the Project area.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
Invertebrates					
Crotch's bumble bee *Bombus crotchii*	--/CE	Historically ranged across southern California, from the coast and coastal ranges, through the Central Valley, and to the adjacent foothills. Has become largely extirpated from the Central Valley.	Open grasslands and scrub habitats. Needs abundant floral resources. Commonly visits the following plant families: Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, Hydrophyllacae, Asclepiadaceae, and Boraginaceae.	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. The Project area supports suitable grasses and forbs landcover for this species. There is one CNDDB occurrence within a 5-mile radius of the proposed substation site. There are also 7 verified observations on iNaturalist within a 5-mile radius of the proposed substation site. The nearest observation is approximately 1 mile to the east of the proposed substation site.
conservancy fairy shrimp *Branchinecta conservatio*	FE/--	Endemic to the northern two-thirds of the Central Valley. Known populations in Butte, Tehama, Glenn, Yolo, Solano, Stanislaus, Merced, and Ventura counites.	Inhabit astatic, large, and turbid pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	P	**Unlikely.** There are no CNDDB occurrences within Sacramento County. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
vernal pool fairy shrimp *Branchinecta lynchi*	FT/--	Central Valley, Central and South Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County.	Inhabit ephemeral freshwater habitats including a wide range of vernal pools, extremely small or marginal vernal pools, small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	P	**High.** No surveys were conducted for this species. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover suitable for this species. The SMUD HCP models habitat for this species within the seasonal wetland/seasonal swale and vernal pool habitats located within the proposed substation site and in the eastern two thirds of the Project area. There are 32 CNDDB occurrences within a 5-mile radius of the proposed substation site.
monarch butterfly *Danaus plexippus*	PT/--	Overwinter in central to southern California coastal region. Breed throughout the California, east of overwintering habitat.	California overwintering habitat including eucalyptus, Monterey pines, and Monterey cypresses. Milkweed is the sole food source for larvae.	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. Narrowleaf milkweed plants were observed at the proposed substation site during the 2024 and 2025 surveys, which provide suitable breeding habitat for this species. The Project area supports grasses and forbs land cover suitable for this species. There are six verified iNaturalist observations within a 5-mile radius of the proposed substation site. There are no CNDDB records within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i]	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
	Federal/State				
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT/--	Central Valley and surrounding foothills below 500-feet elevations. Areas above 500 feet with suitable habitat and known valley elderberry longhorn beetle occurrences in that drainage may contain valley elderberry longhorn beetle populations in certain circumstances.	Dependent on elderberry shrubs (host plant) as a food plant; potential habitat is shrubs with stems 1 inch in diameter within Central Valley.	P	**Moderate.** No elderberry shrubs (*Sambucus* sp.), the obligate host plant for this species, were observed during the 2024 and 2025 surveys of the proposed substation site. The Project area supports valley foothill riparian land cover suitable for this species along Morrison Creek. The SMUD HCP models habitat for this species within the valley foothill riparian landcover located along Morrison Creek within the Project area. There are 4 CNDDB occurrences within a 5-mile radius of the proposed substation site.
vernal pool tadpole shrimp *Lepidurus packardi*	FE/--	Central Valley from Shasta County south to Merced County.	Vernal pools, vernal lakes, and other seasonal wetlands. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	P	**High.** No surveys were conducted for this species. The Project area supports seasonal wetland/seasonal swale and vernal pool land cover suitable for this species. The SMUD HCP models habitat for this species within the seasonal wetland/seasonal swale and vernal pool habitats located within the substation site and in the eastern two thirds of the Project area. There are 52 CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
Amphibians					
western spadefoot *Spea hammondii*	PT/SSC	Throughout the Central Valley, and its associated foothills, through the South Coast Ranges into coastal California south of the Transverse mountains and west of the Peninsular mountains, into northwest Baja California.	A primarily terrestrial species, occurring primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Aquatic breeding pools are required for adults to disperse and reproduce, and for eggs and larvae to survive. Vernal pools are considered the primary breeding habitat; however, eggs and larvae have been observed in a variety of permanent and temporary wetlands (i.e. non-flowing rivers, artificial ponds, and tire ruts). (USFWS 2023a)	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. The Project area supports suitable wetland and upland land cover for this species. The wetlands (aquatic resources) provide suitable aquatic habitat for this species, and rodent burrows provide suitable upland refugia habitat. There are six CNDDB occurrences within a 5-mile radius of the proposed substation site.
California tiger salamander (central California DPS) *Ambystoma Californiense pop. 1*	FT/ST	Central Valley, including Sierra Nevada foothills up to 1,500 feet and Coastal regions from Butte County south to Santa Barbara County.	Breeds in temporary ponds formed from rain associated with annual grassland. May also occur in hardwood forest, but less common. Adult life is mostly subterranean in burrows, rock cracks and other structures. Seasonal movements associated with breeding are usually up to 1.25 miles.	P	**Unlikely.** Suitable habitat is present for this species, but the Project area is outside of the known range. The SMUD HCP does not model habitat for this species within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
Reptiles					
Northwestern pond turtle *Actinemys marmorata*	PT/SSC	Populations extend throughout the coast and central valley of California. Occurs throughout California, west of the Sierra-Cascade crest. (USFWS 2023b).	Thoroughly aquatic turtles of ponds, lakes, marshes, rivers, streams, irrigation ditches, and permanent pools along intermittent streams with aquatic vegetation, below 6,000 feet in elevation. Prefers exposed areas for basking, with aquatic vegetation, such as algae and other water plants. Requires suitable (sandy banks or grassy open fields) upland habitat up to 0.3 mile from water for egg laying. Females will travel overland up to approximately 325 feet to lay eggs. (USFWS 2023b).	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. The Project area supports suitable aquatic and upland habitat for this species. There are two CNDDB occurrences within a 5-mile radius of the proposed substation site. There are also 28 verified observations on iNaturalist within a 5-mile radius of the proposed substation site.
giant garter snake *Thamnophis gigas*	FT/ST	Historically ranged throughout the Sacramento and San Joaquin valleys but now has a reduced range. Appears to have been extirpated from south of Fresno except for west Kern County. (CDFW 2014).	Extremely aquatic snake rarely found away from permanent or semi-permanent water sources like marshes and sloughs. Thought to use burrows and holes for cover during the night. (CDFW 2014).	A	**Unlikely.** The SMUD HCP does not model habitat for this species within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
Birds					
tricolored blackbird *Agelaius tricolor*	--/ST	Colonies patchily distributed throughout the Central Valley, particularly in the Coast Ranges and on the coastal slope. Large colonies have also been observed in the Toledo Pit, Riverside County.	Freshwater marsh, swamp, and wetlands. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	P	**Present.** Tricolored blackbirds were observed foraging within the Project area during the June 2025 survey and a previous survey conducted in June 2019. There is also marginally suitable nesting habitat for this species, consisting of cattails and young willows, at the edges of the two stock ponds within the proposed substation site. There are numerous CNDDB occurrences within a 5-mile radius of the proposed substation site.
golden eagle *Aquila chrysaetos*	--/FP	Concentrated in the Central Valley and coastal valleys, as well as foothills and mountains throughout California.	Cliffs and escarpments or tall trees for nesting; annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals for prey	P	**Low.** The Project area contains suitable open grasses and forbs land cover that provides foraging habitat for this species, but there is no suitable nesting habitat. There is one CNDDB occurrence within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
burrowing owl *Athene cunicularia*	--/CE	Grasslands in the central valley and eastern California.	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.	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. However, the Project area contains valley grassland habitat with small mammal burrows suitable for overwintering burrowing owls. There are 11 CNDDB occurrences within a 5-mile radius of the proposed substation site.
Swainson's hawk *Buteo swainsoni*	--/ST	The Central Valley and Great Basin provide the species its core habitat in California. Scattered populations are also known in the Antelope Valley, some inner coastal valleys, portions of the Sierra foothills.	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	P	**Present.** A pair of Swainson's hawks were observed foraging within the proposed substation site during the April and June 2025 surveys. During the July 2025 survey, one adult hawk and three fledglings were observed within Project area. A stick nest was observed in a large eucalyptus tree in the center of the proposed substation site that is believed to be where the Swainson's hawks nested. Suitable nesting and foraging landcover for this species is present within the Project area. There are 7 CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i]	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
	Federal/State				
Northern harrier *Circus cyaneus*	--/SSC	Occurs year round within breeding range in California. The historic breeding range extended from the Modoc Plateau south to San Diego, mostly east and south of the humid northwest coast and west and north of the arid southeastern deserts (Grinnell 1915).	Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienegas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. However, the Project area supports suitable foraging and nesting habitat for this species in the grasses and forbs land cover. There are 12 verified observations on iNaturalist within a 5-mile radius of the proposed substation site. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT/SE	Isolated patches along rivers in the Sacramento Valley.	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	A	**Unlikely.** The Project area does not contain suitable riparian habitat to support this species. Some valley foothill riparian land cover is found in the Project area where Morrison Creek flows under Jackson Road, but it is not dense enough to suit this species. There is are no CNDDB occurrence within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
white-tailed kite *Elanus leucurus*	--/FP	Along the western coast and throughout the central valley in California. Most common in coastal and inland areas.	Open areas including marshes, annual grasslands, desert grasslands, and river valleys.	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. However, the Project area supports suitable nesting and foraging habitat for this species. There are six CNDDB occurrences within a 5-mile radius of the proposed substation site. There are also 95 verified observations on iNaturalist within a 5-mile radius of the proposed substation site.
bald eagle *Haliaeetus leucocephalus*	Delisted/SE	Throughout most of California. Most breeding territories are in northern California, but the eagles also nest in scattered locations in the central and southern Sierra Nevada mountains and foothills, in several locations from the central coast range to inland southern California.	Lower montane coniferous forests and old growth forests near lakes, reservoirs, rivers, and some rangelands and coastal wetlands. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine, most nests within 1-mile of water. Roosts communally in winter.	P	**Low.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. The Project area contains marginally suitable nesting and foraging habitat for this species in the grasses and forbs land cover. There are 18 verified observations on iNaturalist within a 5-mile radius of the substation site. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
loggerhead shrike *Lanius ludovicianus*	--/SSC	Resident and winter visitor in lowlands and foothills throughout California; rare on coastal slope north to Mendocino County, occurring only in winter.	Prefers open habitat with scattered vegetation and perches, such as fence posts or utilities. Typically occurs in valley foothill hardwood, hardwood-conifer, riparian, pinyon-juniper, and Joshua tree habitats.	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. However, the Project area contains suitable foraging habitat for this species. There is one verified observation on iNaturalist within a 5-mile radius of the substation site. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.
song sparrow ("Modesto" population) *Melospiza melodia pop. 1*	--/SSC	Restricted to the Sacramento Valley, Sacramento-San Joaquin River Delta, and the northern San Joaquin Valley.	Largely undescribed but found to have an affinity for emergent freshwater marshes and riparian forests along irrigation canals and levees.	P	**Low.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. However, the Project area contains marginal suitable habitat for this species around the open water features. There are no CNDDB occurrence within a 5-mile radius of the proposed substation site.
purple martin *Progne subis*	--/SSC	Found locally in the coast ranges and Sierra Nevada foothills of California. Few satellite populations exist on the valley floor, with one located in Sacramento County, California.	An uncommon resident and migrant in valley foothill, montane hardwood, montane hardwood-conifer, and riparian habitats. (CDFW n.d.).	A	**Unlikely.** The Project area does not contain suitable nesting or foraging habitat for this species. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
bank swallow *Riparia riparia*	--/ST	Found along the banks of the Sacramento and Feather rivers in the northern Central Valley and in Monterey, San Mateo, Shasta, Siskiyou, Lassen, Plumas, and Modoc counties.	In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. In migration, flocks with other swallows over many open habitats. (CDFW 1999).	A	**Unlikely.** The Project area does not contain suitable nesting or foraging habitat for this species. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.
yellow-headed blackbird *Xanthocephalus xanthocephalus*	--/SSC	Breeds thought much of California except for the coastal region north of the San Francisco Bay, west of the Sacramento Valley, and the southern deserts.	Yellow-headed blackbirds breed and roost in freshwater wetlands with dense, emergent vegetation such as cattails. They often forage in fields, typically wintering in large, open agricultural areas.	P	**Low.** Marginally suitable roosting habitat is present within the sparsely vegetated open water features within the proposed substation site. Foraging habitat is absent from the proposed substation site. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.
Mammals					
pallid bat *Antrozous pallidus*	--/SSC	Throughout California except for the high Sierra Nevada from Shasta to Kern Counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County.	Grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. The species is most common in open, dry habitats with rocky areas for roosting. Roosts include crevices in rocky outcrops, cliffs, caves, mines, trees, and various human structures such as bridges, barns, and porches.	P	**Moderate.** Suitable roosting habitat is present within the trees present in the Project area and suitable foraging habitat is found in the grasses and forbs landcover within the Project area. There are no CNDDB occurrences within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
American badger *Taxidea taxus*	--/SSC	Found throughout most of the state, except in the northern North Coast area.	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.	P	**Moderate.** This species was not observed during the 2025 wildlife surveys of the proposed substation site. The Project area contains suitable grasses and forbs landcover for this species. There are three CNDDB occurrences within a 5-mile radius of the proposed substation site.
Fish					
green sturgeon (southern DPS) *Acipenser medirostris pop. 1*	FT/SSC	This species is found along the west coast of Mexico, the United States, south of the Eel River. They are believed to spawn in the Rogue River, Klamath River Basin, and the Sacramento River. Adults present year-round along the California Coast from Monterey Bay to the Oregon border. Adults/subadults occur in the Humboldt Bay and San Francisco Bay and Delta during the summer and fall. Spawn in the Sacramento, Feather, and possibly the Yuba rivers.	This species spawns in deep pools or "holes" in large, turbulent, freshwater river. Specific spawning habitat preferences are unclear, but eggs likely are broadcast over large cobble substrates but range from clean sand to bedrock substrates as well. Adults live in oceanic waters, bays, and estuaries when not spawning. Adult and subadults habitat include marine and estuarine waters. Spawning habitat includes cool, deep, swift flowing river reaches over gravel and cobble bottoms.	A	**Unlikely.** The Project area does not contain suitable habitat for this species. Additionally, there are complete barriers to fish passage preventing fish from moving between the Sacramento River and Morrison Creek. There is 1 CNDDB occurrence within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
steelhead (Central Valley DPS) *Oncorhynchus mykiss irideus pop. 11*	FT/--	Historically found throughout the Sacramento and San Joaquin rivers and most of their tributaries, now found in less tributaries to the main rivers.	Juveniles and resident adults prefer complex habitat boulders, submerged clay and undercut banks, and large woody debris that provide feeding opportunities, segregation of territories, a refuge from high velocities, and cover from predators. (Caltrout 2024)	A	**Unlikely.** The Project area does not contain suitable habitat for this species. Additionally, there are complete barriers to fish passage preventing fish from moving between the Sacramento River and Morrison Creek. There is 1 CNDDB occurrence within a 5-mile radius of the proposed substation site.
Chinook salmon (Central Valley spring-run ESU) *Oncorhynchus tshawytscha pop. 11*	FT/ST	The Sacramento River up to Keswick Dam including tributaries to the Sacramento River. Known to occur in. portions of the Feather River, Yuba River, and American River.	Spawn in rivers or large tributaries in areas with gravel and cobble substrate. Embryos benefit from water temperatures between 5 and 13 degrees Celsius with oxygen levels close to saturation. (LSA Associates, Inc. 2012)	A	**Unlikely.** The Project area does not contain suitable habitat for this species. Additionally, there are complete barriers to fish passage preventing fish from moving between the Sacramento River and Morrison Creek. There is 1 CNDDB occurrence within a 5-mile radius of the proposed substation site.
Chinook salmon (Sacramento River winter-run ESU) *Oncorhynchus tshawytscha pop. 7*	FE/SE	Limited to areas downstream of the Shasta Dam after dam constructions in the 1940s. Currently found in the Sacramento River as far upstream as Keswick Dam.	Spawn in rivers or large tributaries in areas with gravel and cobble substrate. Embryos benefit from water temperatures between 5 and 13 degrees Celsius with oxygen levels close to saturation. (LSA Associates, Inc. 2012)	A	**Unlikely.** The Project area does not contain suitable habitat for this species. Additionally, there are complete barriers to fish passage preventing fish from moving between the Sacramento River and Morrison Creek. There is 1 CNDDB occurrence within a 5-mile radius of the proposed substation site.

Table 2. Special-status Wildlife with Potential to Occur in the Vicinity of the Project

Common and Scientific Name	Legal Status[i] Federal/State	Distribution	General Habitat Association	Habitat Present/ Absent[ii]	Potential to Occur in the Project area[iii]
Sacramento splittail *Pogonichthys macrolepidotus*	--/SSC	Formerly throughout Sacramento-San Joaquin River drainage, CA; now restricted to San Franscico Bay Delta and lower Sacramento River.	Backwaters and pools of rivers; lakes. Tolerant of brackish water.	A	**Unlikely.** The Project area does not contain suitable habitat for this species. Additionally, there are complete barriers to fish passage preventing fish from moving between the Sacramento River and Morrison Creek. There is 1 CNDDB occurrence within a 5-mile radius of the proposed substation site.
longfin smelt (San Francisco Bay-Delta DPS) *Spirinchus thaleichthys pop. 2*	FE/ST	Scattered populations of longfin smelt occur along the Pacific coast of North America from Alaska to the San Francisco Estuary. Historically found in the San Francisco Estuary and the Sacramento/San Joaquin Delta (Bay-Delta), Humboldt Bay, and the estuaries of the Eel River and Klamath River.	Longfin smelt larvae and small juveniles are rarely found in water warmer than 71.6 ºF (22 ºC). Competent-swimming young juveniles disperse toward more-saline and deeper-water habitats. Mature longfin smelt require cool-to-cold [less than 60.8 ºF (16 ºC)] freshwater habitats for spawning. Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 parts per thousand but can be found in completely freshwater to almost pure seawater.	A	**Unlikely.** The Project area does not contain suitable habitat for this species. Additionally, there are complete barriers to fish passage preventing fish from moving between the Sacramento River and Morrison Creek. There is 1 CNDDB occurrence within a 5-mile radius of the proposed substation site.

[i] **Status explanations:**

Source: USFWS 2025 and CDFW 2025a unless otherwise noted above

-- = no listing

Federal

Delisted	=	Federally delisted.
FE	=	Listed as endangered under the federal Endangered Species Act.
FT	=	Listed as threatened under the federal Endangered Species Act.
PT	=	Proposed for listing as threatened under the federal Endangered Species Act.

State

CE	=	Candidate for listing as Endangered under the California Endangered Species Act.
SE	=	Listed as endangered under the California Endangered Species Act.
ST	=	Listed as threatened under the California Endangered Species Act.
FP	=	Designated as a fully protected species under the California Fish and Game Code.
SSC	=	CDFW species of special concern

[ii] **Habitat Designations:**

Absent	=	No habitat present in the Project area and no further analysis needed.
Habitat Present	=	Habitat is or may be present and the species may be present in the Project area; further analysis needed.

[iii] **Rationale**

Definitions for the Potential to Occur:

Unlikely. No suitable habitat present within the Project area.

Low. Minimal or marginal quality habitat in the Project area and no CNDDB occurrences within 5 miles of the proposed substation site.

Moderate. Suitable habitat occurs within the Project area. CNDDB occurrences within 5 miles of the proposed substation site.

High. Project area provides desirable habitat for species and there is a very high probability for its occurrence because there are CNDDB occurrences within 5 miles of the proposed substation site.

Present. Species was observed within the Project area

APPENDIX C

Cultural Resources Memorandum and Addendum

AECOM Imagine it. Delivered.

AECOM
2020 L Street, Suite 400
Sacramento, CA 95811

June 13, 2019

Rob Ferrera
Environmental Specialist,
SMUD Environmental Services
Sacramento Municipal Utility District
6201 S Street, Mail Stop H201
Sacramento, CA 95817

Re: 10590 Jackson Road – Cultural Resources Memorandum

Introduction

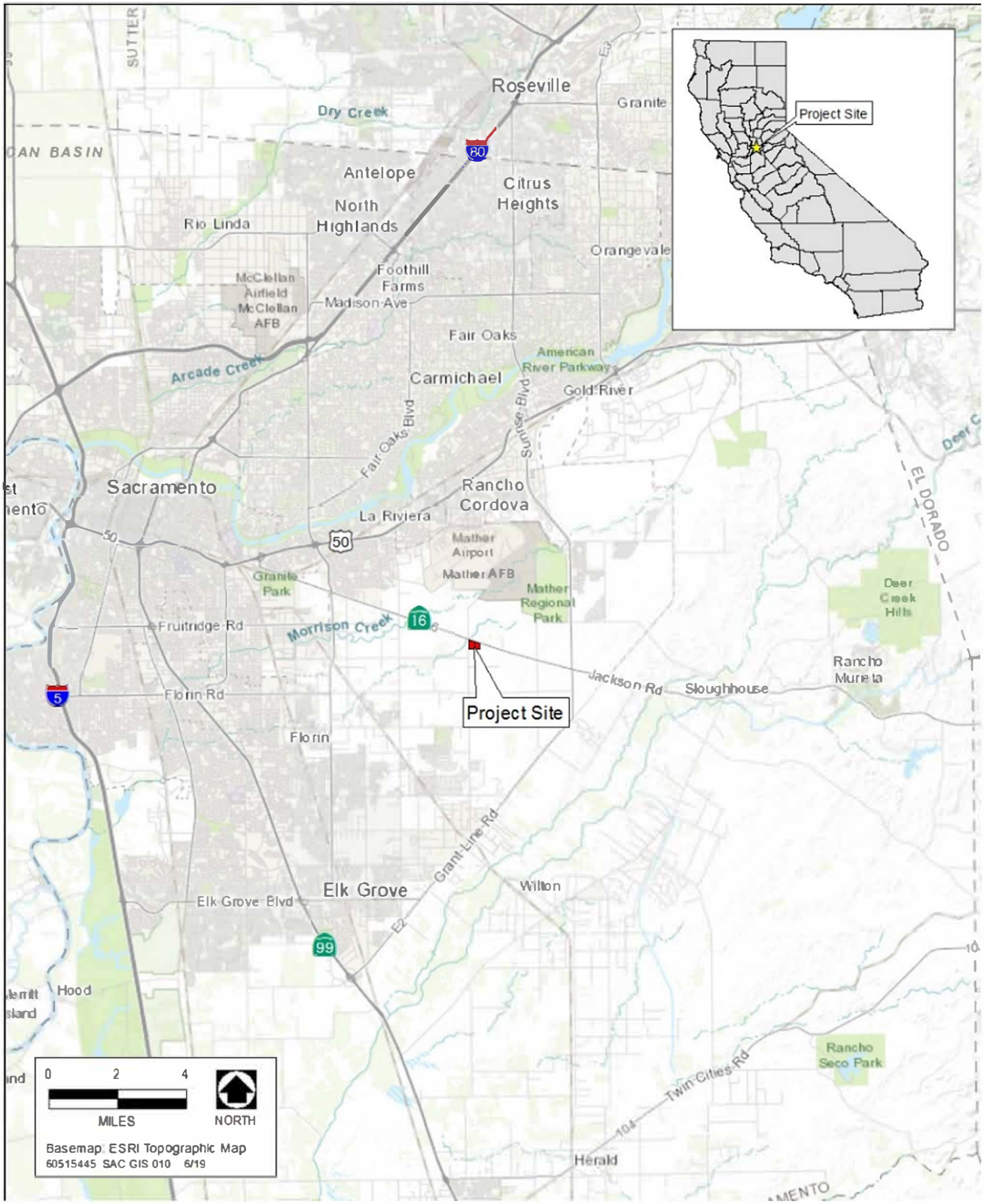
AECOM conducted cultural resource services for the Sacramento Municipal Utility District (SMUD) Jackson properties in Sacramento County on Jackson and Excelsior Roads (Assessor's Parcel Numbers [APNs] 067-00500-040 and 067-0050-039, 19.02 acres and 25.64 acres, respectively) for the eventual construction of a bulk substation. SMUD plans to demolish some existing structures onsite, remediate the adjacent soil that has been contaminated with oil, and remove some trees. AECOM conducted the reconnaissance-level cultural resource survey on May 23, 2019 for these two properties, conducted a North Central Information Center (NCIC) records search, and prepared this cultural resources memorandum with results of the survey, background research, and California Register of Historical Resources (CRHR) evaluation of the historic-age built environment resources located on APN 067-0050-040 if they meet the criteria as historical resources for the purposes of the California Environmental Quality Act (CEQA). Per the scope, the buildings on 067-0050-039 (6037 Excelsior Road) are not of historic age and do not require study by an architectural historian.

Project Description

SMUD plans to demolish and/or close some existing structures onsite, remediate the adjacent soil that has been contaminated with oil, and construct a fence around the site. Demolition and soil remediation will likely begin in September/October of 2019; however, construction of the bulk substation will not occur for another 8 to 10 years. The purpose of the cultural research and surveys is to provide information to support SMUD's proposed Categorical Exemption to complete the remediation, demolition, and fencing activities.

Project Location

One property is located at 6037 Excelsior Road in Sacramento, Sacramento County, California. The second parcel is on the southeast corner of Excelsior Road and Jackson Road. at 10590 Jackson Road in Sacramento, Sacramento County, California, as depicted in Figure 1. Both parcels are located in Township 65 North, Range 48 East Section 26, and are depicted on the Carmichael U.S. Geological Survey (USGS) 7.5 minute quadrangle (Figure 2).



Source: Compiled by AECOM in 2019

Figure 1. Project Vicinity Map

Regulatory Context

California Environmental Quality Act

CEQA offers directives regarding impacts on historical resources and unique archaeological resources. Generally, CEQA states that if implementation of a project would result in significant environmental impacts, then public agencies should determine whether such impacts can be substantially lessened or avoided through feasible mitigation measures or feasible alternatives. This general mandate applies equally to significant environmental effects related to certain cultural resources.

Only significant cultural resources (e.g., "historical resources" and "unique archaeological resources") need to be addressed. The State CEQA Guidelines define a "historical resource" as "a resource listed or eligible for listing in the California Register of Historical Resources" (CEQA Guidelines, Section 15064.5, subdivision [a][1]; see also Public Resources Code [PRC] Sections 5024.1, 21084.1). A historical resource may be eligible for inclusion in the California Register of Historical Resources (CRHR), as determined by the State Historical Resources Commission or the lead agency, if the resource:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or

2. Is associated with the lives of persons important in our past; or

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. Has yielded, or may be likely to yield, information important in prehistory or history.

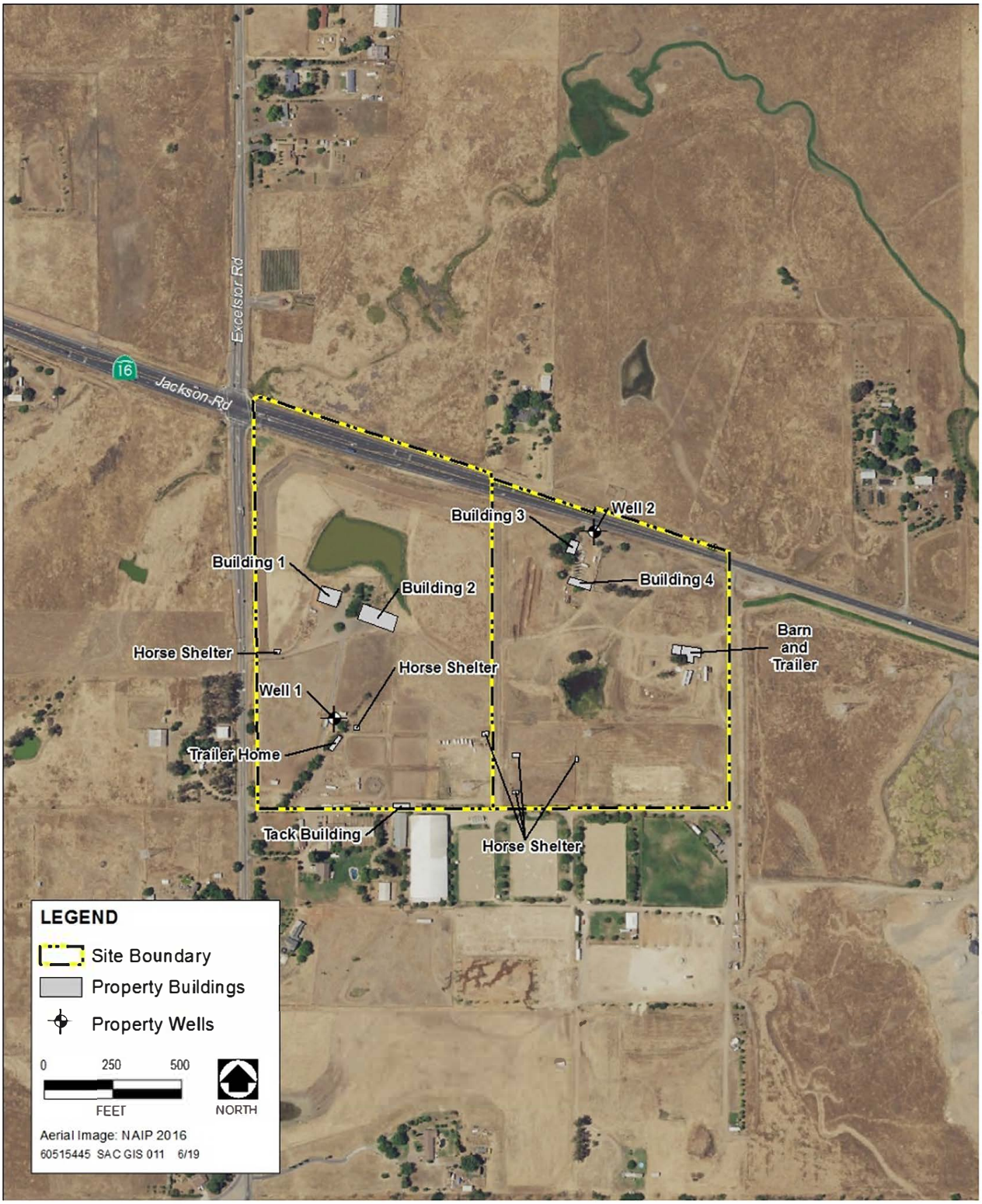
In addition, a resource is presumed to constitute a "historical resource" if it is included in a "local register of historical resources" unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (CEQA Guidelines, Section 15064.5, subdivision [a][2]). The State CEQA Guidelines require consideration of unique archaeological sites (Section 15064.5; see also PRC Section 21083.2). A "unique archaeological resource" is defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria (PRC 21083.2):

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If a cultural resource does not meet the criteria for inclusion in the CRHR but meets the definition of a unique archaeological resource as outlined in Section 21083.2 of the PRC, it is entitled to special protection or attention under CEQA. Treatment options under Section 21083.2 of CEQA include activities that preserve such resources in place, in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").



Source: Compiled by AECOM in 2019

Figure 2. Project Site Location

The State CEQA Guidelines require that excavation activities be stopped whenever human remains are uncovered, and that the county coroner be called to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, Section 15064.5(d) of the State CEQA Guidelines directs the lead agency to consult with the appropriate Native Americans, as identified by the NAHC, and directs the lead agency (or project applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains. El Dorado Irrigation District (EID) would be responsible for compliance with CEQA.

Environmental Setting

The project site contains several buildings, including barns, residences, and horse sheds, but is largely undeveloped. Vernal pool/annual grassland complexes occur to the east, north, and west of the project and are used for cattle grazing. Most of the site is comprised of vernal pool/seasonal wetland/grassland complexes and annual grassland. Developed and ruderal land cover types predominate in areas where horse shelters, barns, and other buildings have been established. Elder Creek flows southwest under the intersection of Jackson Road and Excelsior Road, at the northwestern boundary of the project site. An equine facility with jumping courses, pavilions, and stables are to the south of the project. The predominant land use of the project site is horse pasture.

Prehistoric Setting

Prehistoric land-use can be summarized within broad temporal periods that correspond with increasing occupation. The Late Pleistocene Pattern and Period (>10,000 Before Present [B.P.]) in the foothill and eastern Sacramento Valley is practically non-existent. Sites CA-SAC-370 and CA-SAC-379, located near Rancho Murieta, produced numerous bifaces, cores, and raw materials from gravel strata estimated to be between 12,000 and 18,000 years in age. Early Holocene Pattern and Period (circa [ca.] 10,000–7000 B.P.) was first defined by Bedwell (1970) as a human adaptation to lake, marsh, and grassland environments that were prevalent at this time. Appearing after 11,000 years B.P., the tradition slowly disappeared ca. 8000–7000 B.P.

In general, although earlier sites likely exist in the area that have yet to be discovered, the best documented evidence for human occupation in the region is found among sites exhibiting traits characteristic of the ***Windmiller Pattern*** **or Early Horizon**. Such sites date to as early as 4750 BP and as late as 2500 B.P, and frequently contain numerous mortar fragments, indicating that acorns and/or various seeds were relatively important food items (Moratto 1984). However, the remains of numerous faunal species are often found on Windmiller sites and the presence of angling hooks and pottery artifacts possibly used as net or line sinkers indicates a varied and efficient subsistence system.

Windmiller sites also show that a great deal of trade was taking place and obsidian, *Haliotis* and *Olivella* shell beads and ornaments, quartz crystals and other exotic materials are frequently found on these sites (Heizer 1949, 1974, Moratto 1984). Many exotic items, such as the quartz crystals and calcite, alabaster and schist artifacts have their origins in the foothills and their presence in the Central Valley indicates consistent contact with foothill peoples and possibly seasonal movements of the Windmiller groups. These seasonal migrations may have involved population shifts to higher elevations during the summer with winter occupations being in the valley (Moratto 1984).

Sites from the later ***Berkeley Pattern*** **or Middle Horizon** (2500 – 1450 B.P.) are often quite similar to Windmiller sites with features such as the use of red ocher in burial contexts, cobble mortars, and “charmstones”, lanceolate point styles occur during both periods. However, during this time, a much heavier reliance on acorns as a staple food develops as evidenced by an increased number of mortars and pestles in the archaeological record. Distinctive artifacts and radiocarbon dates from sites associated with the Berkeley Pattern suggests that these cultural manifestations may represent a Proto-Miwok population movement from the Bay area to the Central Valley.

First appearing in the archaeological record around 1,400 BP and extending to proto-historic times, manifestations of the ***Augustine Pattern*** **or Late Horizon** indicate that intensive fishing, hunting, and acorn gathering supported large, dense populations. Highly developed exchange systems had evolved and mortuary practices with elaborate ceremonialism indicate a well-stratified society. Earlier Augustine Pattern sites, however, still bear many similarities to the Berkeley Pattern, suggesting that the Augustine Pattern represents elements of local innovation and a blending of traits with the Middle Horizon (Morratto 1984).

Ethnographic Setting

Ethnographically, the project site is situated in the Nisenan (sometimes referred to as the Southern Maidu) sphere of influence. The Nisenan territory included the drainages of the Yuba, Bear, and American rivers, and the lower drainages of the Feather River, extending from the crest of the Sierra Nevada to the banks of the Sacramento River and south to the Cosumnes River. In the Nisenan territory, several political divisions, constituting tribelets, each had their own respective headmen who lived in the larger villages. However, it is not known which of these larger population centers wielded more influence than others, although they were all located in the foothill areas. In general, more substantial and permanent Nisenan villages were not established on the valley plain between the Sacramento River and the foothills, although this area was used as a rich hunting and gathering ground. (Kroeber 1925 and Wilson and Towne 1978).

Historic-Age Built Environment

10590 Jackson Road Description
This 19.02-acre parcel located along the south side of Jackson Road is accessed via a driveway and comprised of a 1,987-square-foot single-story residence built circa 1947–52 with a large modern addition, a rectangular plan shed with gable roof shed built circa 1937–47, a seasonal pond located in the center of the parcel, and a series of modern sheds along the east side of the parcel. The Minimal Traditional style portion of the residence is built on a slab concrete foundation, is stucco clad, and has a steeply-pitched hipped roof with composite shingles and a brick chimney pierces through the south side of the roof. The north side of the house has a replacement sliding glass door entrance, two replacement windows, and a window opening at the northwest corner has been infilled. Fenestration throughout the original portion of the house includes replacement vinyl sliding windows with faux muntins in deep set window openings. A large L-shaped shed roof addition constructed along the south side of the house is sheathed with vertical groove wooding siding. On the east side of the addition is a gable roof porch with stuccoed square column supports located over the 9-light entry door. The west side of the addition has a large 2-part sliding vinyl window with faux muntins in a wood window surround. The southwest corner of the house has a shed roof awning constructed over a window (see Photographs 1 and 2).

The rectangular plan, single-story shed located south of the house has a dirt floor with some concrete areas, a corrugated metal roof, and is sheathed primarily with corrugated metal while the west gable end has vertical wood board (see Photograph 3).

A modern, square plan, one-story, gable roof shed constructed on a concrete slab foundation with seamed metal siding is located along the eastern edge of the parcel (see Photograph 4). The west gable end has a centrally located tall roll-up door opening and an inset personnel door. There is a shed roof wood frame carport with corrugated metal panel roofing located off the south side. A shorter, longer, rectangular plan shed is constructed along the east side of the metal seamed shed (see Photograph 5). The shed is sheathed with vertical wood boards and has a corrugated metal roof. One one-over-one light window is located on the north side. A large area south of the cluster of modern sheds is fenced and has a small corrugated metal shed roof shed building clad with plywood and vertical groove wood panels along the east side of the fenced area (see Photograph 6).



Photograph 1: Residence northeast corner, camera facing southwest, May 23, 2019 (AECOM).



Photograph 2: Residence west side with rear addition, camera facing northeast, May 23, 2019 (AECOM).



Photograph 3: Shed near residence with openings along north side, Camera facing south, May 23, 2019 (AECOM).



Photograph 4: West side of modern shed along east side of parcel, camera facing southeast, May 23, 2019 (AECOM).



Photograph 5: Shorter gable shed near eastern edge of parcel, modern shed at far left, camera facing southwest May 23, 2019 (AECOM).



Photograph 6: Small shed south of eastern modern shed cluster within fenced area, camera facing northeast, May 23, 2019 (AECOM).

Historical Context

Sacramento County History

Located along the south side of State Route 16 in rural Sacramento County southeast of the city of Sacramento is the location for SMUD's Proposed Jackson Bulk Substation Site #2. State Route 16, also called Jackson Road, was initially developed in the late 1840s as a route from Sacramento to the mining trading center of Jackson in Amador County and to foothill gold camps. Rural farmsteads developed along this "Sacramento and Jackson Road" within Brighton Township beginning in the 1850s. Historically land ownership in Brighton Township ranged from 160 to 500 acres with stock raising, hay, and grain as the primary focus of the agriculture in the area and into the twentieth century small acreages of vineyards and orchards were planted with limited success, when compared to other parts of Sacramento County. The Sacramento and Jackson Road was paved in 1907, which spurred additional development in the region with an improved transportation route; however, the roadway was not brought into the state highway system until the 1950s when adopted by the Department of Transportation as State Route 16. Beginning in the 1920s and continuing into the post-World War II period, smaller farms with rural residential homes sprung up along Jackson Road as the historically larger parcels were sold off and divided (Britton & Rey 1885; USGS 1911; JRP 1996:2-6; UCSB 1937).

In the post-World War II period, the character of Jackson Road corridor in the area has shifted from primarily scattered farmsteads engaged in agriculture to a mixture of light industrial, surface mining, cemeteries, large church/community centers, small acreage rural residential development, and equestrian properties. The route continues as a heavily trafficked transportation corridor connecting smaller communities in rural Sacramento and Amador counties to the city of Sacramento (Nationwide Environmental Title Search 2019; UCSB 1961; UCSB 1952; UCSB 1981).

Records Search and Archival History:

The results are presented in Appendix A

Results of Field Investigations

On May 23, 2019 AECOM archaeologist, Diana Ewing M.A., conducted a pedestrian survey of the property where the property was not fenced and occupied by horses. This survey consisted of 20 meter parallel transects. The property was overgrown with grasses and weeds obscuring much of the surface. No archaeological artifacts or cultural materials were observed during the survey. There was an abundance of abandoned property and trash including lumber, a boat, trailers, an ATV, several drums and a pressurized tank, horse equipment such as barrels and steeplechase jump barriers, and what appeared to be an abandoned RV. Building 3 was broken into and vandalized.

Property Specific History - 10590 Jackson Road

Sacramento County assessor records assign a 1935 built year for 10590 Jackson Road (APN 067-0050-040); however, historical aerial imagery dates the development from the late 1940s to early 1950s. The property appears to have been initially developed with the long, single-story rectangular plan shed by 1947 and the house was constructed by 1952. A modern shop building constructed along the eastern edge of the parcel was constructed between 1984 and 1993. A discount saddlery store operated from the property in the early 1980s when Martin Shiro owned the property. The property was listed for sale in 1983 and described as a three bedroom two bath house with barns, a corral, pond and trees and was purchased by Robert Vancreveld. An addition was constructed adding two additional bedrooms to the residence in 2004 when the property was owned by Paul Tang (Sacramento County Building Inspection 2004). Jugal Thakor of Dupont, Washington purchased the property from Tang in 2012 and was the most recent owner of the property (Sacramento County Assessor 2019; AECOM 2019; *Sacramento Bee* 1981; *Sacramento Bee* 1983; UCSB 1937; Nationwide Environmental Title Search 2019; UCSB 1952).

California Register of Historical Resources (CRHR) Evaluation

Under CRHR Criterion 1, the property at 10590 Jackson Road is not significant for its association with important historic events within either an agricultural or residential context. This region was initially settled in the 1850s as scattered farms and the original development of the parcel dates to the late 1930s–1940s, when the shed was constructed. A small residence was then built on the property in the 1950s. The house was later expanded in 2004 under ownership by Paul Tang, and today it continues its use as a rural residential property. This property was developed decades after the initial settlement period in this part of Sacramento County and the development of this property in the twentieth century as a farm and residence does not appear to have played an important role in the development of small agricultural operations or residential properties in and around Brighton Township. It does not appear to be associated with events that have made a significant contribution to the broad patterns of local or regional history.

Under CRHR Criterion 2, these buildings have no significant association with the lives of persons important to history. The historic record did not reveal the names of the persons associated with the development and use of the property when it was initially developed circa 1937–47 and early 1950s. It does not appear that any of the subsequent owners or occupants related to the development and use of this property made demonstrably important contributions to history at the local, state, or national level.

Under CRHR Criterion 3, these buildings are not significant for possessing distinctive characteristics of a type, period, or method of construction. The circa 1937-47 shed with its corrugated metal gable roof, vertical wood plank siding and corrugated metal siding is an unexceptional example of a common building type found nationwide on farms during the early twentieth century. This shed incorporates design principals and materials that were in widespread use at the time of its construction. The house was initially built as a small residence in the early 1950s and was expanded to its present size in 2004. The house is a modified, modest, and unexceptional example of the Minimal Traditional style, a residential type that emerged in the 1930s and proliferated in the years following World War II.

Under Criterion 4, these buildings are not significant as sources (or likely sources) of important information regarding history. They do not appear to have any likelihood of yielding important information about historic construction materials or technologies.

Native American Consultation

A sacred lands search was requested by AECOM from the Native American Heritage Commission (NAHC) on May 17, 2019. The purpose of the search was to ascertain whether additional resources or locations exist that may be of importance to Native Americans who traditionally have resided in the project area. The NAHC responded on May 5, 2019 with a negative Sacred Lands Files result. SMUD is responsible for contacting the individuals and organizations on the Native American Heritage Commission Tribal Consultation List provided. The results are presented in Appendix B.

Conclusion and Recommendations

A cultural resources records search at the CHRIS, archival research, and a pedestrian level cultural resources survey resulted in the identification of an historic-era property. The property at 10590 Jackson Road (APN 067-0050-040) does not appear to meet the criteria for listing in the California Register of Historical Resources (CRHR) and does not appear to be an historical resource for purposes of the CEQA. The property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. Therefore, it is recommended that implementation of the proposed project will not result in impacts to significant cultural resources.

If any unanticipated archaeological finds are made within the project site that are considered significant, a number of methods may be used to mitigate potential adverse effects. While avoidance through project redesign or some method of stabilization and preservation is the preferred method, in its absence, it is recommended that any potential impacts on unanticipated finds be mitigated through data recovery. It is

also recommended that local Native American groups be consulted and their input solicited and considered in all aspects of such testing and mitigation as related to prehistoric resources.

If human remains are found, the California Health and Safety Code (HSC) requires that excavation be halted in the immediate area and that the county coroner be notified to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (HSC. 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by telephone within 24 hours of making that determination (HSC 7050.5[c]).

References:

AECOM, 2019. Phase I Environmental Site Assessment, Proposed Jackson Bulk Substation Site #2 – Approximately 19.02 Acres, 10590 Jackson Road – APN 067-0050-040, Sacramento, Sacramento County, California 95829. Prepared for SMUD.

Bedwell, Stephen F. 1970. Prehistory and Environment of the Pluvial Fort Rock Lake Area of Southcentral Oregon, Unpublished Ph.D. Dissertation in Anthropology, University of Oregon, Eugene.

Britton & Rey, 1885. Official Map of Sacramento County. San Francisco: Britton & Rey.

JRP Historical Consulting Services, 1996. Historic Architectural Survey Report: Eight Groups of Buildings and Structures Located Within the Project Area for Morrison Creek Mining Reach, Downstream (South of Jackson Highway, Sacramento County, California. Prepared for Garcia and Associates.

Kroeber, Alfred L., 1925. Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Washington

Moratto, Michael J, 1984. California Archaeology. Academic Press, Orlando

Nationwide Environmental Title Search, 2019. "10590 Jackson Road, Sacramento." Various years historical aerial imagery 1947-2012. Available: www.historicaerials.com. Accessed May 20, 2019.

Sacramento Bee, 1981. "Attention." Classified Ad, Horses, Equipment, Supplies, Event. December 8.

Sacramento Bee, 1983. "Open Rancho 1-5." Classified Ad. June 5.

Sacramento County Building Inspection, 2004. "10590 Jackson Road," building inspection permit CBN2004-00331. Finaled March 23. Available: https://actonline.saccounty.net/CitizenAccess/Default.aspx. Accessed May 20, 2019.

United States Geological Survey (USGS), 1911. Mills. Topographic map, scale 1:31680.

USGS, 1950. Carmichael, California. Topographic map, scale 1:24000.

USGS, 1967. Carmichael, California. Topographic map, scale 1:24000.

University of California, Santa Barbara (UCSB), Aerial Photography Special Collection, 1937. Flight ABC-46, Frame 23. August 17.

UCSB, 1952. Flight PAI-ABC-Y8, Frame 114.

UCSB, 1961. Flight CAS-SAC-1, Frame 241. July 13.

UCSB, 1981. Flight CAS-81081-5, Frame 144. April 9.

Wilson, Norman L., and Arlean H. Towne. 1978. Nisenan. Handbook of North American Indians, Volume 8, California, edited by R. F. Heizer, pp. 387-397. Smithsonian Institution, Washington.

Appendix A
Records Search Results

California Historical Resources Information System

CHRIS Data Request Form

ACCESS AND USE AGREEMENT NO.: 106 **IC FILE NO.:** _____

To: Northeast Information Center

Print Name: Diana Ewing Date: 05/17/19

Affiliation: AECOM

Address: 2020 L Street, Suite 400

City: Sacramento State: CA Zip: 95811

Phone: (916) 361-6448 Fax: (916) 414-5850 Email: diana.r.ewing@aecom.co,

Billing Address (if different than above): USAPImaging@aecom.com

Project Name / Reference: Jackson Bio & Cult/ Project Number 60515445

Project Street Address: 6037 Excelsior Road and 10590 Jackson Road, Sacramento County, CA

County: Sacramento County

Township/Range/UTMs: Township 65 [N] Range 48 [E] Section 26

USGS 7.5' Quad(s): Carmichael Quad , CA

PRIORITY RESPONSE (Additional Fee): yes◯/ no◉

TOTAL FEE NOT TO EXCEED: $_____

Special Instructions:

Please use a 0.25-mile buffer around the parcel for the records search.

Please send the invoice to USAPImaging@aecom.com with the project number

---

Information Center Use Only

Date of CHRIS Data Provided for this Request: _____

Confidential Data Included in Response: yes◯/ no◯

Notes: _____

CHRIS Data Request Form

Include the following information (mark as necessary) for the records search area(s) shown on the attached map(s) or included in the associated shapefiles. Shapefiles are the current CHRIS standard format for digital spatial data products.

NOTE: All digital data products are subject to availability - check with the appropriate Information Center.

1. **Map Type Desired:** Digital map products will be provided only if they are available at the time of this request. *Regardless of what is requested*, only hard copy hand-drawn maps will be provided for any part of the requested search area for which digital map products are not available at the time of this request.
There is an additional charge for shapefiles, whether they are provided with or without Custom GIS Maps.

Mark one map choice only

Custom GIS Maps ◉ Shapefiles ○ Custom GIS Maps **and** Shapefiles ○ Hard Copy Hand-Drawn Maps **only** ○

Any selection below left unmarked will be considered a "no. "

2a.

	Within project area	Within 1/4 mi radius
ARCHAEOLOGICAL Resource Locations+	yes◉/ no○	yes◉/ no○
NON-ARCHAEOLOGICAL Resource Locations	yes◉/ no○	yes◉/ no○
Report Locations+	yes◉/ no○	yes◉/ no○
Resource Database Printout* (list)	yes○/ no○	yes◉/ no○
Resource Database Printout* (detail)	yes○/ no◉	yes○/ no◉
Resource Digital Database Records (spreadsheet)+	yes○/ no◉	yes○/ no◉
Report Database Printout* (list)	yes◉/ no○	yes◉/ no○
Report Database Printout* (detail)	yes○/ no◉	yes○/ no◉
Report Digital Database Records (spreadsheet)+	yes○/ no◉	yes○/ no◉
ARCHAEOLOGICAL Resource Record copies+*	yes◉/ no○	yes◉/ no○
PDF◉/ Hard Copy○		
NON-ARCHAEOLOGICAL Resource Record copies*	yes◉/ no○	yes◉/ no○
PDF◉/ Hard Copy○		
Report copies+*:	yes◉/ no○	yes◉/ no○
PDF◉/ Hard Copy○		
	Only directory listing	Associated documentation
OHP Historic Properties Directory**		
within project area	yes◉/ no○	yes◉/ no○
within 1/4 mi radius	yes◉/ no○	yes◉/ no○
OHP Archaeological Determinations of Eligibility+		
within project area	yes◉/ no○	yes◉/ no○
within 1/4 mi radius	yes◉/ no○	yes◉/ no○
***California Inventory of Historical Resources* (1976):**		
within project area	yes◉/ no○	yes◉/ no○
within 1/4 mi radius	yes◉/ no○	yes◉/ no○

+ In order to receive archaeological information, requestor must meet qualifications as specified in Section III of the current version of the California Historical Resources Information System Information Center Rules of Operation Manual and be identified as an Authorized User under an active CHRIS Access and Use Agreement.

* These documents may be supplied as PDF files, if available

** Includes, but is not limited to, information regarding National Register of Historic Places, California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and historic building surveys.

CHRIS Data Request Form

2b. Listed below are sources of additional information that may be available at the Information Center. Indicate if a review and documentation of any of the following types of information is requested.

Caltrans Bridge Survey	yes ○	no ◉
Ethnographic Information	yes ○	no ◉
Historical Literature	yes ○	no ◉
Historical Maps	yes ◉	no ○
Local Inventories	yes ◉	no ○
GLO and/or Rancho Plat Maps	yes ○	no ◉
Shipwreck Inventory	yes ○	no ◉
Soil Survey Maps	yes ○	no ◉

Appendix B

Native American Heritage Commission Response

Local Government Tribal Consultation List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Type of List Requested

☑ **CEQA Tribal Consultation List (AB 52)** – ***Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2***

☑ **General Plan (SB 18)** - ***Per Government Code § 65352.3.***

Local Action Type:

___ **General Plan** ___ **General Plan Element** ___ **General Plan Amendment**

___ **Specific Plan** ___ **Specific Plan Amendment** X **Pre-planning Outreach Activity**

Required Information

Project Title: SMUD Jackson

Local Government/Lead Agency: SMUD

Contact Person: Diana Ewing

Street Address: 2020 L Street, Suite 400

City: Sacramento, CA **Zip:** 95811

Phone: 916-361-6433 **Fax:** 916-414-5850

Email: diana.r.ewing@aecom.com

Specific Area Subject to Proposed Action

County: Sacramento **City/Community:** 6037 Excelsior Road and 10590 Jackson Road

Project Description:

Proposed site for new substation with demolition of some currently standing buildings and remediation of any previously oil contaminated soils.

Additional Request

☒ **Sacred Lands File Search** - ***Required Information:***

USGS Quadrangle Name(s): Carmichael , CA

Township: 65N **Range:** 48E **Section(s):** 26

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

May 24, 2019

Diana R. Ewing
AECOM

VIA Email to: diana.r.ewing@aecom.com

RE: Native American Consultation, Pursuant to Senate Bill 18 (SB18), Government Codes §65352.3 and §65352.4, as well as Assembly Bill 52 (AB52), Public Resources Codes §21080.1, §21080.3.1 and §21080.3.2, SMUD Jackson Project, Sacramento County

Dear Ms. Ewing:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties or projects.

Government Codes §65352.3 and §65352.4 require local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places when creating or amending General Plans, Specific Plans and Community Plans.

Public Resources Codes §21080.3.1 and §21080.3.2 requires public agencies to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to tribal cultural resources as defined, for California Environmental Quality Act (CEQA) projects.

The law does not preclude local governments and agencies from initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The NAHC believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

Best practice for the AB52 process and in accordance with Public Resources Code §21080.3.1(d), is to do the following:

> Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The NAHC also recommends, but does not require that lead agencies include in their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential affect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE, such as known archaeological sites;

   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;

   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and

   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.

3. The result of the Sacred Lands File (SFL) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event, that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Katy.Sanchez@nahc.ca.gov.

Sincerely,

for Katy Sanchez
Associate Environmental Planner

Attachment

Native American Heritage Commission
Tribal Consultation List
05/24/2019

Buena Vista Rancheria of Me-Wuk Indians
Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200 Me-Wuk / Miwok
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Colfax-Todds Valley Consolidated Tribe
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Colfax-Todds Valley Consolidated Tribe
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Ione Band of Miwok Indians
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Nashville Enterprise Miwok-Maidu-Nishinam Tribe
Cosme A. Valdez, Chairperson
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United Auburn Indian Community of the Auburn Rancheria
Gene Whitehouse, Chairperson
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Wilton Rancheria
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This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.
Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety C ode, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.
This list is applicable only for consultation with Native American tribes under Government Code Sections 65352.3, 65362.4 et seq. and Public Resources Code Sections 21080.3.1 for the proposed:SMUD Jackson Project, Sacramento County.

AECOM
2020 L Street, Suite 300
Sacramento, CA 95811
aecom.com

April 27, 2026

Sarah Ahmed
Environmental Specialist,
SMUD Environmental Services
Sacramento Municipal Utility District
6201 S Street, Mail Stop H201
Sacramento, CA 95817

Re: SMUD Jackson Bulk Substation Cultural Resources Memorandum Addendum

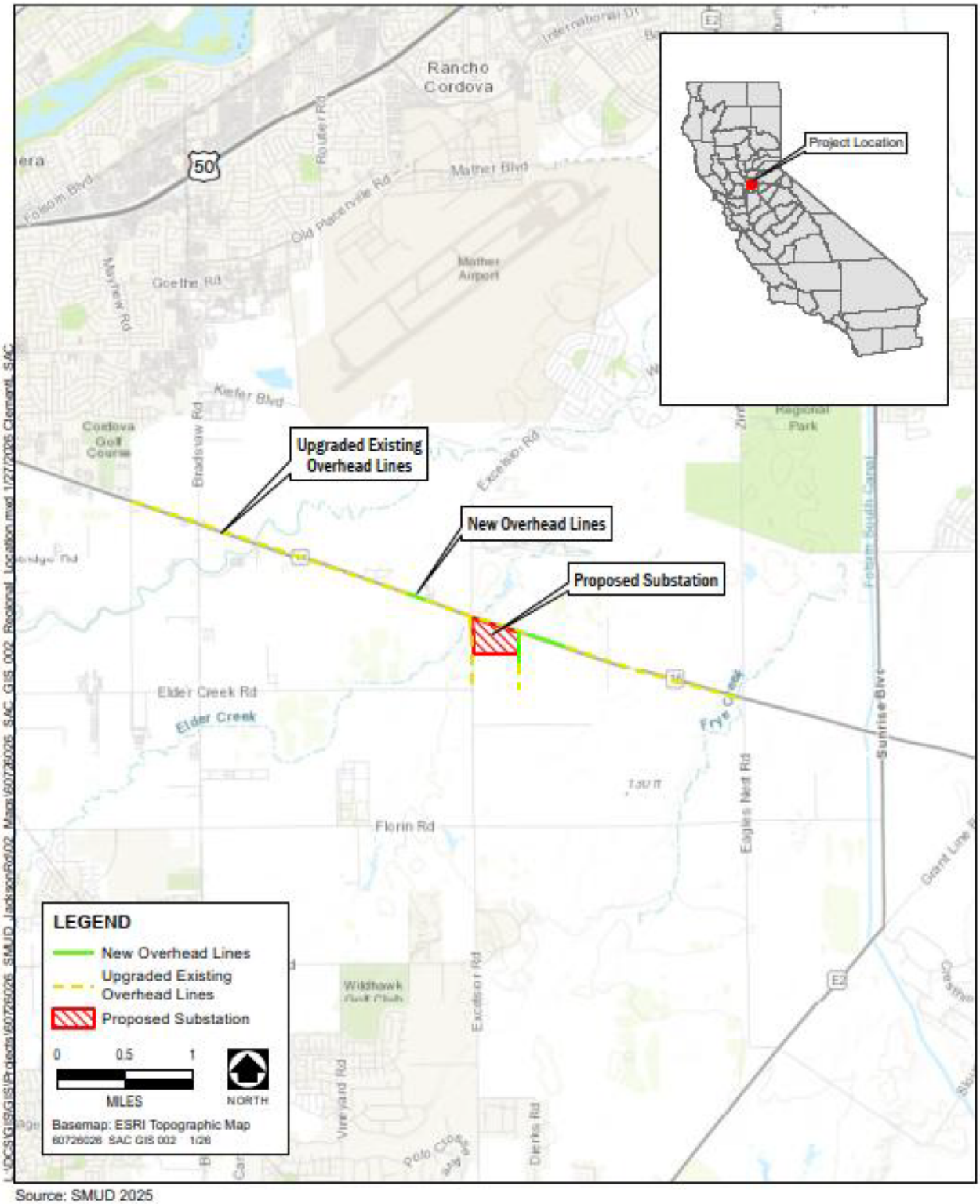
Introduction

In 2019, AECOM conducted cultural resource services for the Sacramento Municipal Utility District (SMUD) in Sacramento County on Jackson and Excelsior roads for the planned construction of a bulk substation in eight to 10 years. The preliminary project consisted of two adjacent parcels at 6037 Excelsior Road (Assessor's Parcel Number [APN] 067-0050-039 (25.64 acres), and 10590 Jackson Road (APN 067-0050-040) (19.02 acres) (AECOM 2019). AECOM conducted a North Central Information Center (NCIC) records search, background research, a reconnaissance-level cultural resource survey on May 23, 2019, on the two properties listed above, and prepared a cultural resources memorandum. The historic-age buildings and structures at 10590 Jackson Road were found ineligible for listing in the California Register of Historical Resources (CRHR); therefore, were not considered historical resources for the purposes of the California Environmental Quality Act (CEQA) and were subsequently demolished and cleared from the property.

SMUD has since refined and revised the proposed project to include linear corridors extending east, west, and south of the proposed substation for upgrades to existing distribution lines and proposed new sub-transmission lines. This addendum summarizes recent NCIC record searches, Native American consultation, and pedestrian surveys based on the revised Project linear overhead corridors.

Project Description

SMUD is proposing to construct and operate the new Jackson Bulk Substation (The Project) in Sacramento County on Jackson and Excelsior roads (**Figure 1**). The Project includes construction of a new approximately 18-acre bulk substation and new or modified overhead 69,000-volt (69kV) and 230,000-volt (230kV) power lines that would link the substation to the electrical grid (**Figure 2**). Using transformers, substations transfer power from the transmission system to the distribution system that serves a particular area. The substation reduces the voltage from the large transmission lines and moves power into a system that powers residential and commercial customers. The proposed substation would convert high voltage from 230kV transmission lines to 69kV through transformers for local distribution into residential and commercial customers along the Jackson Road Corridor.



Source: SMUD 2025

Figure 1. Regional Location Map

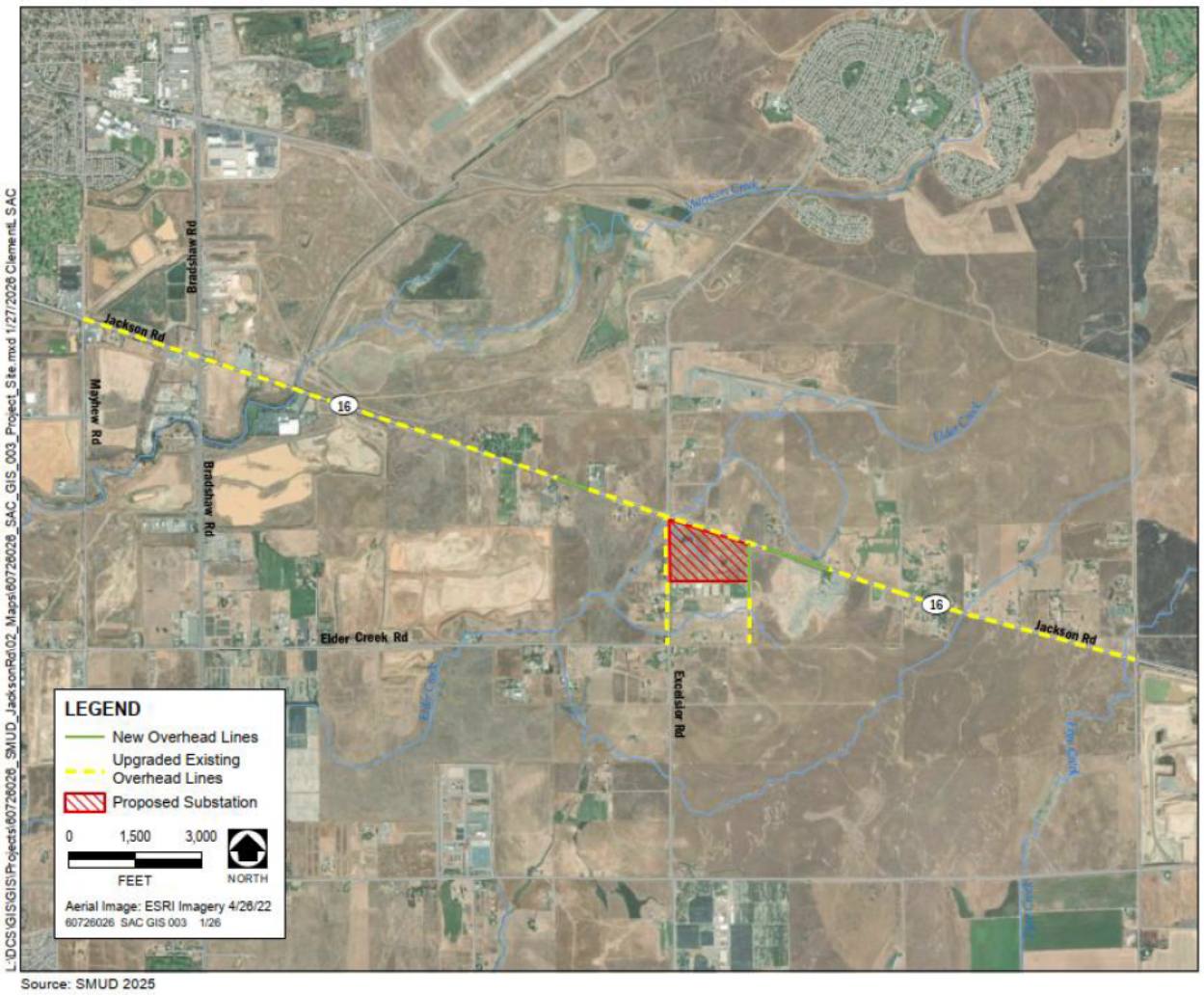


Figure 2. Proposed Substation and Offsite Overhead Line Work

Regulatory Context

California Environmental Quality Act

CEQA offers directives regarding impacts on historical resources and unique archaeological resources. Generally, CEQA states that if implementation of a project would result in significant environmental impacts, then public agencies should determine whether such impacts can be substantially lessened or avoided through feasible mitigation measures or feasible alternatives. This general mandate applies equally to significant environmental effects related to certain cultural resources.

Only significant cultural resources (e.g., "historical resources" and "unique archaeological resources") need to be addressed. The State CEQA Guidelines define a "historical resource" as "a resource listed or eligible for listing in the California Register of Historical Resources" (CEQA Guidelines, Section 15064.5, subdivision [a][1]; see also Public Resources Code [PRC] Sections 5024.1, 21084.1). A historical resource may be eligible for inclusion in the California Register of Historical Resources (CRHR), as determined by the State Historical Resources Commission or the lead agency, if the resource:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or

2. Is associated with the lives of persons important in our past; or

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. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, a resource is presumed to constitute a "historical resource" if it is included in a "local register of historical resources" unless "the preponderance of evidence demonstrates that it is not historically or culturally significant" (CEQA Guidelines, Section 15064.5, subdivision [a][2]). The State CEQA Guidelines require consideration of unique archaeological sites (Section 15064.5; see also PRC Section 21083.2). A "unique archaeological resource" is defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria (PRC 21083.2):

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If a cultural resource does not meet the criteria for inclusion in the CRHR but meets the definition of a unique archaeological resource as outlined in Section 21083.2 of the PRC, it is entitled to special protection or attention under CEQA. Treatment options under Section 21083.2 of CEQA include activities that preserve such resources in place, in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

The State CEQA Guidelines require that excavation activities be stopped whenever human remains are uncovered, and that the county coroner be called to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, Section 15064.5(d) of the State CEQA Guidelines directs the lead agency to consult with the appropriate Native Americans, as identified by the NAHC, and directs the lead agency (or project applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains. SMUD as the lead agency would be responsible for compliance with CEQA.

Environmental Setting

The proposed substation site is predominantly used for grazing and temporary soil storage. Elder Creek flows southwest under the intersection of Jackson and Excelsior roads, at the northwestern boundary of the proposed substation site. The Sacramento County zoning designation of the property is Agricultural. The proposed substation site is accessible from the west via Highway 16, also known as Jackson Road, and from the north or south via Excelsior Road. The proposed substation site is approximately 6.7 miles southeast of the Highway 50/Highway 16 interchange.

Surrounding land uses include rural residences, ranch and grazing lands, and scattered commercial and industrial uses. Vernal pool/annual grassland complexes are adjacent to the north, east, and west of the project area and are used for cattle grazing. Single-family residences are present within most of these lands. An equine facility with jumping courses, pavilions, and stables is to the immediate south of the proposed substation site. East and west of the site on Jackson Road there are rural residences and grazing lands, intermixed with small-scale agriculture and commercial/industrial uses. Similar land uses are present to the north and south of the site on Excelsior Road.

Precontact Setting

Ethnographic and archaeological research in the region by western academics has led to the development of a cultural chronology and context that can be used to interpret the archaeological record. Early ethnographers wrote that the Plains Miwok and Nisenan Tribal groups lived in the project area during European contact, and American archaeologists have attributed archaeological sites and artifacts in this area to those ancestral groups.

California's Central Valley has long held the attention of archaeologists, and was a focus of early research in California. Archaeological work through the twentieth century established, reiterated, and refined a general cultural chronology for the Sacramento Valley, identifying three overarching archaeological cultures and time periods, named Early, Transitional, and Late. These periods were associated with three cultural patterns, defined to reflect the general sharing of lifeways within groups in a specific area. The Windmiller pattern of the Early Horizon included cultural patterns dating from 5,000 to 3,000 BP; the Berkeley Pattern of the Middle Horizon (also known as the Cosumnes cultural pattern after Ragir 1972), included cultural patterns dating from 3,000 BP to AD 500, and the Augustine Pattern of the Late Horizon included the cultural patterns from AD 500 to the historic period (Beardsley 1948, 1954; Fredrickson 1973, 1974, and 1994; Heizer 1949; and Lillard et al. 1939).

In the early twenty-first century, Rosenthal, White, and Sutton (2007) recalibrated the sequence is divided into three broad periods: The Paleoindian Period (11,550 to 8,550 cal. BC); the three-staged Archaic period, consisting of the Lower Archaic (8,550 to 5,550 cal. BC), Middle Archaic (5,550 to 550 cal. BC), and Upper Archaic (550 cal. BC to cal. AD 1100); and the Emergent Period (cal. AD 1100 to Historic) (Rosenthal et al. 2007). The three divisions of the Archaic Period correspond to climate changes. The aforementioned periods are characterized by the following:

Paleo-Indian Period: This period began when the first people began to inhabit what is now known as the California culture area. It was commonly believed these first people subsisted on big game and minimally processed foods, (i.e., hunters and gatherers), presumably with no trade networks. More recent research indicates these people may have been more sedentary, relied on some processed foods, and traded (**Rosenthal et al. 2007**). Populations likely consisted of small groups traveling frequently to gather food and resources.

Archaic Period: This period was characterized by evidence of increased plant use, more elaborate burial accoutrements, and increase in trade network complexity (Bennyhoff and Fredrickson 1994). The three divisions that correspond to prehistoric climate change are characterized by the following aspects (Rosenthal et al. 2007):

- *Lower Archaic Period*—characterized by cycles of widespread floodplain and alluvial fan deposition. Artifact assemblages from this period include chipped stone crescents and early wide-stemmed points, marine shell beads, eastern Nevada obsidian, and obsidian from the north Coast Ranges. These types of artifacts found on sites dating to this period indicate trade was occurring in multiple directions. A variety of plant and animal species were also utilized, including acorns, wild cucumber, and manzanita berries.

- *Middle Archaic Period*—this period is characterized by a drier climate period. Rosenthal et al. (2007:153) identified two distinct settlement/subsistence patterns in this period: the Foothill Tradition and the Valley Tradition. Functional artifact assemblages, consisting primarily of locally sourced flaked-stone and groundstone cobbles, characterize the foothills tradition, while the Valley Tradition was generally characterized by diverse subsistence practices and extended periods of sedentism.

- *Upper Archaic Period*—this period is characterized by abrupt change to wetter and cooler environmental climate conditions. Much greater cultural diversity is evident from this period. More specialized artifacts, such as bone tools, ceremonial blades, polished and groundstone plummets, saucer and saddle *Olivella* shell beads, *Haliotis* shell ornaments, and a variety of groundstone implements are characteristic of this period.

Emergent Period: This period is most notably marked by the introduction of the bow and arrow, the emergence of social stratification linked to wealth, and more expansive trade networks signified by the presence of clam disk beads that were used as currency (Moratto 1984). It is characterized by the appearance of small projectile points (largely obsidian), rimmed display mortars, flanged steatite pipes, flanged pestles, and chevron-designed bird-bone tubes. Large mammals and small seeded resources appear to have made up a larger part of the diet during this period (Fredrickson 1968; Meyer and Rosenthal 1997).

Ethnohistoric Setting

The project area is situated near the nexus of the Plains Miwokand Nisenan (sometimes referred to as the Southern Maidu) tribal territories.

The Nisenan territory includes the drainages of the Yuba, Bear, and American rivers, and the lower drainages of the Feather River, extending from the crest of the Sierra Nevada to the banks of the Sacramento River and south to the Cosumnes River. In the Nisenan territory, several political divisions, constituting tribelets, each had their own respective headmen who lived in the larger villages. However, it is not known which of these larger population centers wielded more influence than others, although they were all located in the foothill areas. In general, more substantial and permanent Nisenan villages were not established on the valley plain between the Sacramento River and the foothills, although this area was used as a rich hunting and gathering ground (Kroeber 1925; Wilson and Towne 1978).

Plains Miwok territory includes riverine fishing, hunting and resource gathering areas at the lower reaches of the Mokelumne and Cosumnes Rivers and both banks of the Sacramento River from Rio Vista to Freeport. The territory was largely a flat plain of four distinct physiographic divisions. These are alluvial plains, delta marshland, river channels, and upland ridges, and the flora and fauna of these divisions would have provided ample resources. The Plains Miwok practiced an intensive food collecting subsistence strategy based primarily on plant food, particularly the acorn. Hunting and fishing, though practiced, appeared to have been of secondary importance (Bennyhoff 1977).

The project area is within an approximately 300-square-mile Tribal Cultural Landscape (TCL), called the “Tosewin District,” described as a “landscape of survivance” where displaced Native Americans congregated during the Gold Rush period. Sited east from Sacramento, south from Folsom, and between the American and Consumnes rivers, this area served as a refuge from Rancho and mining displacement, disease, forced labor, and violence inflicted on Native Americans by colonizers. The Walltown Indian camp at the Walltown Mining District, and a larger village two miles to the south on Deer Creek were the main settlements at Tosewin and were approximately 11.5-miles and 11-miles northeast from the project area, respectively. The village on Deer Creek was abandoned by the early 1870s, followed by Walltown the next decade as tribal members continued to move further east (County of Sacramento 2025: 14-14 to 14-17; Payen 1961: 1-2, 17-18).

In addition to being a “landscape of survivance,” the Tosewin District TCL is also associated with traditional sacred origin stories and their related viewsheds. One origin tale describes how the first people came into being on top of the mountain and lived immortal and without need for resources. Coyote led them away from the mountain to creeks below the American River. They bathed in the creek and became mortals and now had to learn to make baskets and harvest acorns, and the general area is where they first did this (Burril 1988 in County of Sacramento 2025: 14-19).

The Tosewin District TCL was found eligible for listing in the CRHR in 2025 and is a historical resource for the purposes of CEQA (see evaluation below):

> “The Tosewin TCL, is directly associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage (CRHR Criterion 1). Specifically, the landscape was vital in the maintenance of traditional tribal lifeways during a period of major upheaval for the Sacramento Valley and foothills indigenous population and is also important in ethnic heritage and sacred origin stories. Contributing elements of the Tosewin TCL include habitation sites, resource collection and

processing sites, burial sites, travel routes/paths, specific locations (e.g., Coyote Creek) related to sacred origin stories, viewsheds related to these stories (e.g., viewshed of Mount Diablo), as well as animal and plant communities (including native oak woodlands and "heritage trees") that are considered sacred and necessary for passing down indigenous traditions and customs. The Tosewin TCL is also directly associated with the lives of individuals who made an important contribution to the past (CRHR Criterion 2). Specifically, Coyote Spirit (an important spiritual figure prominent in various festivals and ceremonies) is associated with locations across the landscape. As described in the revised National Register Bulletin 38 (which is specifically developed to assist with evaluation under the National Historic Preservation Act but is a credible and relevant source of guidance in the County's consideration of the Tosewin TCL) "'persons' can refer to a physical human being whose existence in the past can be documented from historical, ethnographic, or other research, as well as an ancestor or spirit who features in the traditions of a group. Criterion B [equivalent to CRHR Criterion 2, in this case] is intended to be applied to a place associated with a specific person—or ancestor or spirit— not a general group like 'the ancestors'." (NPS 2023: 60). Finally, the Tosewin TCL appears significant for its potential to yield information important to the history and prehistory of California (Criterion 4). Aside from the archaeological sites identified within the Tosewin District…which are assumed eligible as historical resources with the potential to yield important archaeological data… as well as being eligible as TCRs, other as yet undefined portions of Tosewin have the potential to yield important information through ethnographic, archeological, sociological, folkloric, or other studies. Through ongoing tribal interaction with the landscape, the Tosewin TCL has the potential to continue to provide important ethnographic and historic information about the integral relationship between the landscape and the Tribes.

Large portions of the Tosewin TCL do not retain sufficient integrity. Large swaths of the TCL, primarily along the American River corridor, have been altered through modern development (e.g., the communities of Carmichael, Rancho Cordova, etc.) impacting many of the traditional contributing elements described above. Despite this, the southern and eastern portions of the TCL…remain relatively undeveloped (other than disparate agricultural and historic mining areas) and retain sufficient integrity of location, setting, feeling, and association, to convey the historic sense of place of this natural landscape.

The CRHR and the NRHP require definition of the "period of significance" for an eligible resource (i.e., the time period during which the resource is associated with significant events or attained significance). As stated in the revised draft National Register Bulletin 38, "Since significance to a living community in the present is a key characteristic of a… TCP, the period of significance of a TCP must extend to the present and may continue into the future. However, determining the 'starting point' of a period of significance for a TCP may be challenging" (NPS 2023: 109). Numerous examples are given in Bulletin 38 of TCP associated with sacred origin stories and the perpetuation of cultural traditions "where no specific starting date is readily identified, the recommended phrase for nomination is 'time immemorial to the present'" (NPS 2023: 113). Although the Tosewin TCL is directly related to the landscape of survivance, sites like Walltown, and individuals like Rabbit George, all of which gained significance during the historic-era, associations with sacred locations and viewsheds (like the Coyote and Mount Diablo origin stories) and the importance of the region to living descendants, suggest that the period of significance for Tosewin is indeed time immemorial to the present" (County of Sacramento 2025: 14-30 to 14-31).

The project area is also approximately 10 miles from the community of Rancho Murieta. Near the present community of Rancho Murieta a village called 'Palamana' once existed. An isolated mount of earth is located in Rancho Murieta, which is a symbol of native California's mythic heritage. According to mythology and oral literature, this mound of earth was formed by the coils of a giant snake 'hiiki' (Bibby 2005).

Oral tradition and stories shared by the Elders of the Wilton Rancheria indicate that the general alignment of Jackson Road/Highway 16 was used as travel route for the Native American Peoples of the area.

Contemporary Native American Setting

Today, Tribes are actively involved in defining their role as stewards of their ancestral sites and homelands including subject matter expertise on the identification of TCRs. TCRs represent areas of cultural significance that are rooted in or contribute to cultural practices, traditional stories, traditional knowledge, and cultural identity. TCRs provide the backdrop to religious understanding, traditional stories, knowledge of resources such as varying landscapes, bodies of water, animals and plants, and self-identity. Knowledge of place is central to the continuation and persistence of culture, even if former Tribal occupants live removed from their traditional homeland. Tribal groups view these interconnected sites and places as living entities; their associations and feelings persist and connect with descendant communities.

Historically, archaeologists focused on traditional Native American culture and ignored the active and vibrant current culture. This approach ignored the set of values maintained by the current Native American community related to their history and the landscape. Tribes view themselves as contemporary stewards of their culture and the landscape, representing a continuum from time immemorial to the present. They are resilient, vibrant, and active in the community. Tribes maintain their connection to their history and ongoing culture by practicing traditional ceremonies, engaging in traditional practices (e.g., basketry), and contributing to public education and interpretation. California has acknowledged the importance and contributions of Native American history, traditional knowledge and cultural practices, as well as the persistence of Tribes and the Tribal community via Executive Orders B-10-11 and N-15-19.

Of the Tribes contacted to consult on this project, Wilton Rancheria asked to consult. The following provides a summary of the Tribe's current status.

Wilton Rancheria

Members of Wilton Rancheria are descendants of the Penutian linguistic family identified as speaking the Miwok dialect. The Tribe's indigenous territory encompasses Sacramento, Contra Costa, San Joaquin, Solano, Sutter, Nevada, Placer, El Dorado, Amador, and Calaveras Counties. Between March 1851 and January 1852, three federally appointed Indian treaty commissioners hastily negotiated eighteen treaties with representatives of some of the indigenous population in California. The Treaty of the Forks of the Cosumnes River ceded the lands on which the Wilton Rancheria in Sacramento County was later established, but promised to establish a rancheria on the Cosumnes River (Wilton Rancheria 2024).

The Tribe's ancestors came back from nearly being annihilated only to have their children taken to boarding schools that stripped their indigenous language and culture further. Finally, in July 1928, the United States acquired land in trust for the Miwok people that were living in Sacramento County. A 38.77-acre tract of land in Wilton was purchased from the Cosumnes Company which formally established the Wilton Rancheria. However, under the California Rancheria Act of 1958, the federal government terminated federal recognition of the Tribe in 1964 (Wilton Rancheria 2024).

In 1991, surviving members of Wilton Rancheria reorganized their tribal government and in 1999 requested the United States formally restore their federal status. A United States District Court Judge restored Wilton Rancheria as a Federally Recognized Tribe in 2009. It is the only federally recognized tribe in Sacramento County, with its administration office located in the City of Elk Grove (Wilton Rancheria 2024).

In May 2024, Wilton Rancheria purchased 77-acres of their original Rancheria land that was taken from them by the federal government in 1959 after enaction of the California Rancheria Act of 1958. The Tribe plans to use the land to establish a community and cultural center, as well as teach non-natives about their history and who they are today (Sacramento Bee 2024 May 14).

Historical Setting[1]

Sacramento County History

Highway 16, also called Jackson Road, was initially developed in the late 1840s as a route from Sacramento to the mining trading center of Jackson in Amador County, and to foothill gold camps. Rural farmsteads developed along this "Sacramento and Jackson Road" within Brighton Township beginning in the 1850s. Historically, land ownership in Brighton Township ranged from 160 to 500 acres with stock raising, hay, and grain as the primary focus of the agriculture in the area, and into the twentieth century, small acreages of vineyards and orchards were planted with limited success when compared to other parts of Sacramento County. The Sacramento and Jackson Road was paved in 1907, which spurred additional development in the region with an improved transportation route; however, the roadway was not brought into the state highway system until the 1950s when adopted by the Department of Transportation as State Route 16. Beginning in the 1920s and continuing into the post-World War II period, smaller farms with rural residential homes sprang up along Jackson Road as the historically larger parcels were sold off and divided (Britton & Rey 1885; USGS 1911; JRP 1996:2-6; UCSB 1937).

In the post-World War II period, the character of Jackson Road corridor in the area has shifted from primarily scattered farmsteads engaged in agriculture to a mixture of light industrial, surface mining, cemeteries, large church/community centers, small acreage rural residential development, and equestrian properties. The route continues as a heavily trafficked transportation corridor connecting smaller communities in rural Sacramento and Amador counties to the city of Sacramento (Nationwide Environmental Title Search 2019; UCSB 1961; UCSB 1952; UCSB 1981).

Assembly Bill 52 Native American Consultation

On February 27, 2024, SMUD sent Assembly Bill (AB) 52 notification letters about the proposed project to four Tribes: Wilton Rancheria, Ione Band of Miwok Indians (IBMI), Shingle Springs Band of Miwok Indians (SSBMI), and United Auburn Indian Community of the Auburn Rancheria (UAIC). At the time, the proposed project did not include the overhead line corridor work. Wilton Rancheria emailed SMUD Environmental Specialist Sarah Ahmed on December 17, 2024 to inquire about a tribal member accompanying the AECOM archaeologist during the cultural survey on January 6, 2025.

After adding the overhead line corridors to the proposed project, SMUD re-sent AB 52 consultation letters to the same four Tribes on October 21, 2025. Wilton Rancheria responded via email on October 28, 2025 formally requesting AB 52 consultation. SMUD subsequently held four AB 52 project meetings with Wilton Rancheria on December 1, 2025, December 17, 2025, January 15, 2026, and February 12, 2026. The meetings included discussions of project scope and schedule, sharing locational project files with the Tribe, sending copies of previous and current cultural resources reports prepared for the project, and adding suggested ethnohistoric setting into the current cultural resources report. Consultation with Wilton Rancheria is on-going.

No responses were received from IBMI during the 30-day consultation period. An email from UAIC was received on December 1, 2025, after the 30-day consultation period, that based on their tribal geographic information system there were no identified TCRs or cultural sensitivity. Lastly, an email from SSBMI was received on December 11, 2025 after the 30-day consultation period that the Tribe did not wish to consult on the project.

Summary of Records Search Results

SMUD refined the proposed substation project in April 2024, but had yet to add the proposed overhead line corridors. Due to the passage of time, a new records search of the two adjacent proposed substation parcels with a 0.25-mile search radius was conducted on April 30, 2024 at the NCIC. The results of the

[1] Adapted from AECOM, 2019, "10590 Jackson Road – Cultural Resources Memorandum." Report on file at AECOM, Sacramento, CA.

records search identified the same two previously recorded cultural resources from the 2019 records search results reported in AECOM's 2019 cultural resources report, P-34-002106 and P-34-004822, and a newly identified resource within the property boundary of 6037 Excelsior Road (Assessor Parcel Number [APN] 067-0050-039), P-34-005324 (NCIC File No. SAC-24-66). The newly identified resource within the property boundary of 6037 Excelsior Road, P-34-005324, is a pair of black locust trees that were recorded in 2017, and it is unknown why this recordation was not included as part of the 2019 search results.

After the April 2024 NCIC records search and subsequent January 2025 pedestrian survey by AECOM, SMUD revised the proposed project to include linear proposed overhead line corridors extending east, west, and south of the proposed substation. The revised project footprint, including the proposed overhead line work, were utilized to review the September 2025 NCIC records search results and SMUD shared the three previously recorded cultural resources records (P-34-002106, P-34-004822, and P-34-005324), as well as five additional resources that intersect the proposed overhead lines (P-34-001627, P-34-002474, P-34-005303, P-34-005339, and P-34-005400) with AECOM (NCIC File No. SAC-25-36) (see **Table 1**).

Table 1: Previously Recorded Cultural Resources in the Project Area

Primary No.	Resource Type	Description	NRHP Eligibility/CRHR Significance
P-34-002106	Historic	Eleven Mile House (Stage Stop)	Not Evaluated
P-34-005324	Historic	Domestic Vegetation (Two Black Locust Trees)	Not Evaluated
P-34-001627	Historic	Concrete trough	Not Evaluated
P-34-002474	Historic	Concrete box culvert bridge	Not Evaluated
P-34-004822	Historic	Power Transmission Line	Not Evaluated
P-34-005303	Historic	Ohio House/Ten Mile House	Not Evaluated
P-34-005339	Historic	McManus Ranch (site only)	Not Evaluated
P-34-005400	Historic	Walsh's Station Area Site	Not Evaluated

Notes: Cultural resource documentation is on file at the NCIC
CRHR = California Register of Historical Resources
NCIC = North Central Information Center
NRHP = National Register of Historic Places
Source: NCIC 2019, 2024, 2025; Data compiled by AECOM 2025

The locations of the previously documented cultural resources in relation to the proposed substation site and overhead line corridors are depicted in Attachment A.

January 2025 Survey Results

Based on the project description and April 2024 NCIC records search and the AB 52 Notification letters sent by SMUD in February 2024, AECOM Archaeologist Zenzi Moore-Dawes, accompanied by Wilton Rancheria Tribal Monitor Tacante Thomas, conducted a pedestrian survey on the proposed substation parcels APN 067-0050-039 and 067-0050-040 on January 6, 2025. Fifteen-meter parallel transects were utilized to cover the proposed substation project site. Overall surface visibility was low due to dense grass and pools of water. No cultural materials were observed during this survey.

December 2025 Survey Results

Subsequent to the project revision with the proposed overhead line corridor and the updated records search results, AECOM archaeologists Kenny Robertson and Katie Sage conducted a pedestrian archaeological survey on the proposed substation parcels APN 067-0050-039 and 067-0050-040, the proposed overhead line corridors, and re-located the previously recorded cultural resources within the proposed substation site and overhead line corridors, on December 5, 2025. No new cultural resources were observed or required recordation.

The entire survey area was generally level, with 10-20% ground visibility due to vegetation growth from recent precipitation, and foliage cover typical of the fall/winter season. Vegetation consisted of grasses, pines, oaks, small shrubs as well as non-native trees and grasses from landscaping. Modern- and indeterminate-aged drainages were noted along Jackson Road. Gravel was present on the surface alongside Jackson Road and native soil was a brown clay loam. Modern trash and indeterminate-aged clay fragments and bottle glass fragments were also observed throughout the survey area along Jackson Road.

Fifteen-meter parallel transects were utilized to cover the proposed substation site. The survey area was generally level, with 10% ground visibility due to vegetation growth from recent precipitation, foliage cover typical of the fall/winter season, and pools of water (**Photograph 1** and **Photograph 2**). Spoils piles are located at the southwest corner of the proposed substation site and a previously recorded transmission line cuts through the south end of the proposed substation site (**Photograph 3**).



Photograph 1. Overview of northeast corner of substation Project Site facing east, December 5, 2025.



Photograph 2. Overview of northwest corner of substation Project Site near intersection of Jackson and Excelsior Roads, December 5, 2025.



Photograph 3. Overview of spoils piles at southwest corner of substation Project Site facing east, with transmission line P-34-04822, at far right, December 5, 2025.

All of the previously recorded resources were revisited by AECOM archaeologists, but none of the site records were updated as part of the survey effort. The following provides a brief description of the previously documented resources and the associated Department of Parks and Recreation (DPR) 523 forms are presented in Attachment B.

P-34-001627: This resource is a concrete water trough that was recorded in 2006. It appears in a similar condition to the previous recordation (**Photograph 4**).



Photograph 4. Overview of P-34-001627, December 5, 2025.

P-34-002106: This archaeological site, the Eleven Mile House, was an early stage and wagon stop on the Gold Rush-era Jackson Road, and was previously recorded in 2007 and 2016. Extant features consist of a stone foundation that appears to partially extend into the Jackson Road right of way, and a modern corral (**Photograph 5** and **Photograph 6**). No other artifacts were observed.



Photograph 5. Overview of stone foundation and corrals at P-34-002106, December 5, 2025.



Photograph 6. Overview of stone foundation and corrals at P-34-002106, December 5, 2025.

P-34-002474: This resource is a concrete box culvert bridge that was previously recorded in 1979. It appears in a similar condition to the previous recordation (**Photograph 7**).



Photograph 7. Overview of P-34-002474, December 5, 2025.

P-34-04822: This resource is the Gold Hill-Eight Mile Road 230 kilovolt (kV)/Gold Hill-Lodi STIG 230kV double-circuit line that was previously recorded in 2013 and 2014. It consists of two parallel sets of high voltage electrical transmission lines on lattice-type towers. It appears in a similar condition to the previous recordations (**Photograph 8**).



Photograph 8. Overview of P-34-004822 with Jackson Road at far right, December 5, 2025.

P-34-005303: This resource was the Ohio House/10 Mile House at 10320 Jackson Road which was previously recorded in 2016. The recordation included a two-story Italianate-style residence, a two-story well house, and a concrete trough (recorded in 2006 and assigned P-34-001627) but the trough was not identified with its Primary number in the 2016 recordation of the Ohio House/10 Mile House. Since the 2016 recordation, the residence and two-story wellhouse burned and have been cleared from the property (**Photograph 9**). Modern trash and grasses obscure the surface, hard to see any artifacts that were present in the right-of-way mentioned in the 2016 site record. Observed one possible green glazed ceramic sherd and one bottle fragment.



Photograph 9. Overview of where the residence and well house previously stood, December 5, 2025.

P-34-005324: This resource is an ecofact and consists of two Black Locust trees planted along a fenceline in the Jackson Road right-of-way that was previously recorded in 2017. It appears in a similar condition to the previous recordation (**Photograph 10**).



Photograph 10. Overview of P-34-005324 with fenceline on far right, December 5, 2025.

P-34-005339: This site was the former McManus Ranch, which was established in 1876. An artifact scatter was recorded at this site in 2016 but was not observed during the December 2025 survey. The general area of scatter was overgrown with vegetation and modern trash was present (**Photograph 11**).



Photograph 11. Overview of P-34-005339 with Jackson Road and right-of-way at right, December 5, 2025.

P-34-005400: This resource, known as Walsh's Station Area Site, consists of three linear concrete foundations, an artifact scatter, and a concrete culvert. All three foundations were relocated as part of this survey (**Photograph 12** to **Photograph 14**). The concrete culvert recorded at the site in 2020 as part of an update was relocated, but the western component has been partially destroyed (**Photograph 15**). The 2020 update did not relocate the artifact scatter, but several green bottle glass fragments with a maker's mark visible on one of them were observed at the western end of the site (**Photograph 16**).



Photograph 12. Overview of Foundation 1 at P-34-005400, December 5, 2025.



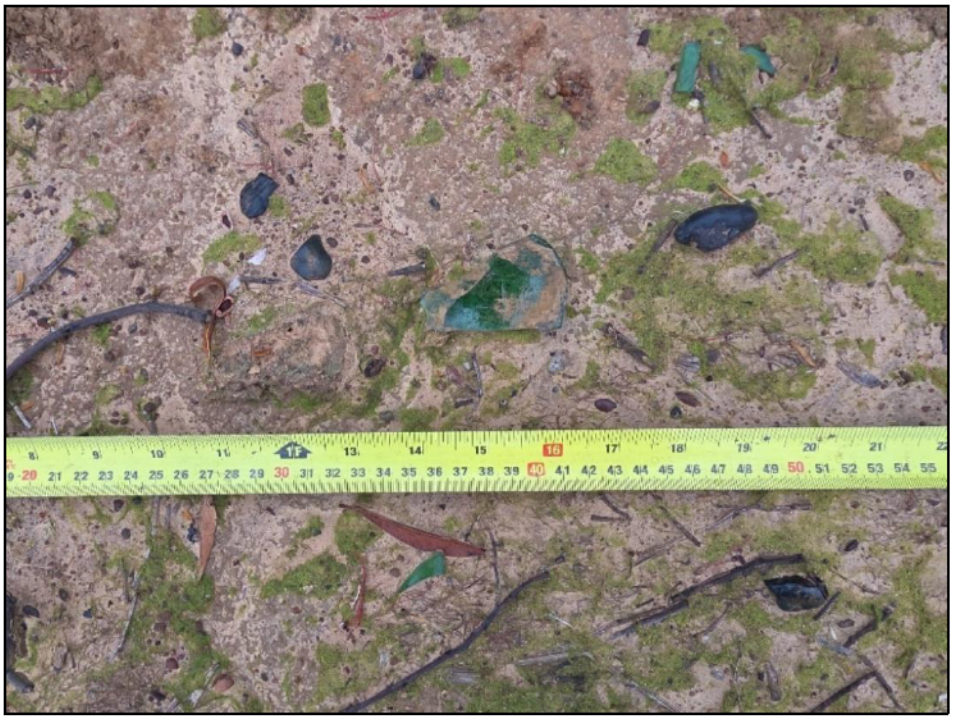
Photograph 13. Overview of Foundation 2 at P-34-005400, December 5, 2025.



Photograph 14. Overview of Foundation 3 at P-34-005400, December 5, 2025.



Photograph 15. Detail of damaged culvert, originally recorded at P-34-005400 in 2020, December 5, 2025.



Photograph 16. Detail of glass scatter bottle glass fragments observed at the western end of P-34-005400, December 5, 2025.

Summary

Based on a review of records search results from the NCIC and two pedestrian surveys in 2025 of the proposed substation site and the overhead line corridors, there are eight previously recorded historic-age cultural resources within the project area. No new cultural resources were observed during the two pedestrian surveys in 2025.

None of the previously recorded cultural resources have been evaluated for eligibility for listing in the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP). There is no indication that any of these resources would rise to the level of significance required for eligibility in either register and none would be considered historical resources for the purposes of CEQA.

Management Recommendations

If any unanticipated archaeological finds are made within the project area during project construction that are considered significant, a number of methods may be used to mitigate potential significant impacts. While avoidance through project redesign or some method of stabilization and preservation is the preferred method, in its absence, it is recommended that any potential impacts on unanticipated finds be mitigated through data recovery. It is also recommended that local Native American groups be consulted and their input solicited and considered in all aspects of such testing and mitigation as related to precontact resources.

If human remains are found, the California Health and Safety Code (HSC) requires excavation be halted in the immediate area and that the County coroner be notified to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (HSC. 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by telephone within 24 hours of making that determination (HSC 7050.5[c]).

References

AECOM. 2019. *10590 Jackson Road – Cultural Resources Memorandum*. Report on file at AECOM, Sacramento, CA.

Beardsley, R. K. 1954. *Temporal and Areal Relationships in Central California Archaeology, Parts I & II*. Berkeley, California: University of California Archaeological Survey Reports.

_____. 1948. Cultural Sequences in Central California Archaeology. *American Antiquity*. 14:1-28.

Bennyhoff. James A. 1977. *Ethnogeography of the Plains Miwok, Publication Number 5*. Center for Archaeological Research at Davis: Davis, California.

Bibby, Brian. 2005. *Deeper Than Gold: A Guide to Indian Life in the Sierra Foothills*. Heyday Books: Berkeley, CA.

Britton & Rey. 1885. "Official Map of Sacramento County" [map]. Britton & Rey: San Francisco, CA.

County of Sacramento. 2025. "Chapter 14 – Tribal Cultural Resources" in *Coyote Creek Agrovoltaic Ranch Project Draft Environmental Impact Report*. Available at: https://planning.saccounty.gov/Documents/Coyote%20Creek%20Agrivoltaic%20Ranch/DEIR/14_Coyote%20Creek_Tribal%20Cultural%20Resources_DEIR_FINAL.pdf. Accessed February 2026.

Fredrickson, D. A. 1994. "Spatial and Cultural Units in Central California Archaeology" in *Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A Bennyhoff and David A Fredrickson*. Hughes R.E., editor. p. 25-48. Published by Contributions to the University of California Archaeological Research Facility No. 52.

_____. 1974. "Cultural Diversity in Early Central California: A View from the North Coast Ranges" in *The Journal of California Anthropology UC Merced*. 1:41-54.

_____. 1973. *Early Cultures of the North Coast and North Coast Ranges, California.* [Davis, California]: University of California, Davis.

_____. 1968. "Archaeological Investigations at CCO-30 near Alamo, Contra Costa County, California. Davis, California: Center for Archaeological research at Davis Publication No. 1."

Heizer, R. F. 1949. "The Archaeology of Central California, I: The Early Horizon" in *University of California Anthropological Records, Berkeley, California* 12(1):1-84.

JRP Historical Consulting Services. 1996. *Historic Architectural Survey Report: Eight Groups of Buildings and Structures Located Within the Project Area for Morrison Creek Mining Reach, Downstream, South of Jackson Highway, Sacramento County, California*. Prepared for Garcia and Associates.

Kroeber, Alfred L.. 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington.

Lillard, J. B., Heizer R. F., Fenenga F. 1939. *An Introduction to the Archaeology of Central California*. Sacramento, California: Sacramento Junior College, Department of Anthropology.

Moratto, M. J. 1984. *California Archaeology*. Orlando, Florida: Academic Press, Inc. (Harcourt, Brace, Jovanovich, Publishers).

Nationwide Environmental Title Search. 2019. "10590 Jackson Road, Sacramento." Various years historical aerial imagery 1947-2012. Available: Accessed May 20, 2019.

North Central Information Center (NCIC). 2024. Records Search File No. 24-66, North Central Information Center, CSUS, Sacramento.

_____. 2025. Records Search File No. 25-36, North Central Information Center, CSUS, Sacramento.

Payen, Louis A. 1961. "The Walltown Nisenan." Manuscript on file at the Department of Anthropology, California State University, Sacramento.

Rosenthal, J. S., White G. G., Sutton M. Q. 2007. "The Central Valley: A View from the Catbird's Seat" in *California Prehistory: Colonization, Culture, and Complexity*. T.L. Jones, Klar K.A., editors. p. 147-163. Published by Altamira Press, Lanham, Maryland.

Sacramento Bee. 2024 May 14. "Wilton Rancheria Reclaims 77 Acres Near Sacramento From Federal Government: Here's What's Next." Available at: Accessed December 2025.

United States Geological Survey (USGS). 1911. *Mills, Calif.* Topographic map, scale 1:31680.

University of California, Santa Barbara (UCSB). Aerial Photography Special Collection. 1937. Flight ABC-46, Frame 23. August 17.

_____. 1952. Flight PAI-ABC-Y8, Frame 114.

_____. 1961. Flight CAS-SAC-1, Frame 241. July 13.

_____. 1981. Flight CAS-81081-5, Frame 144. April 9.

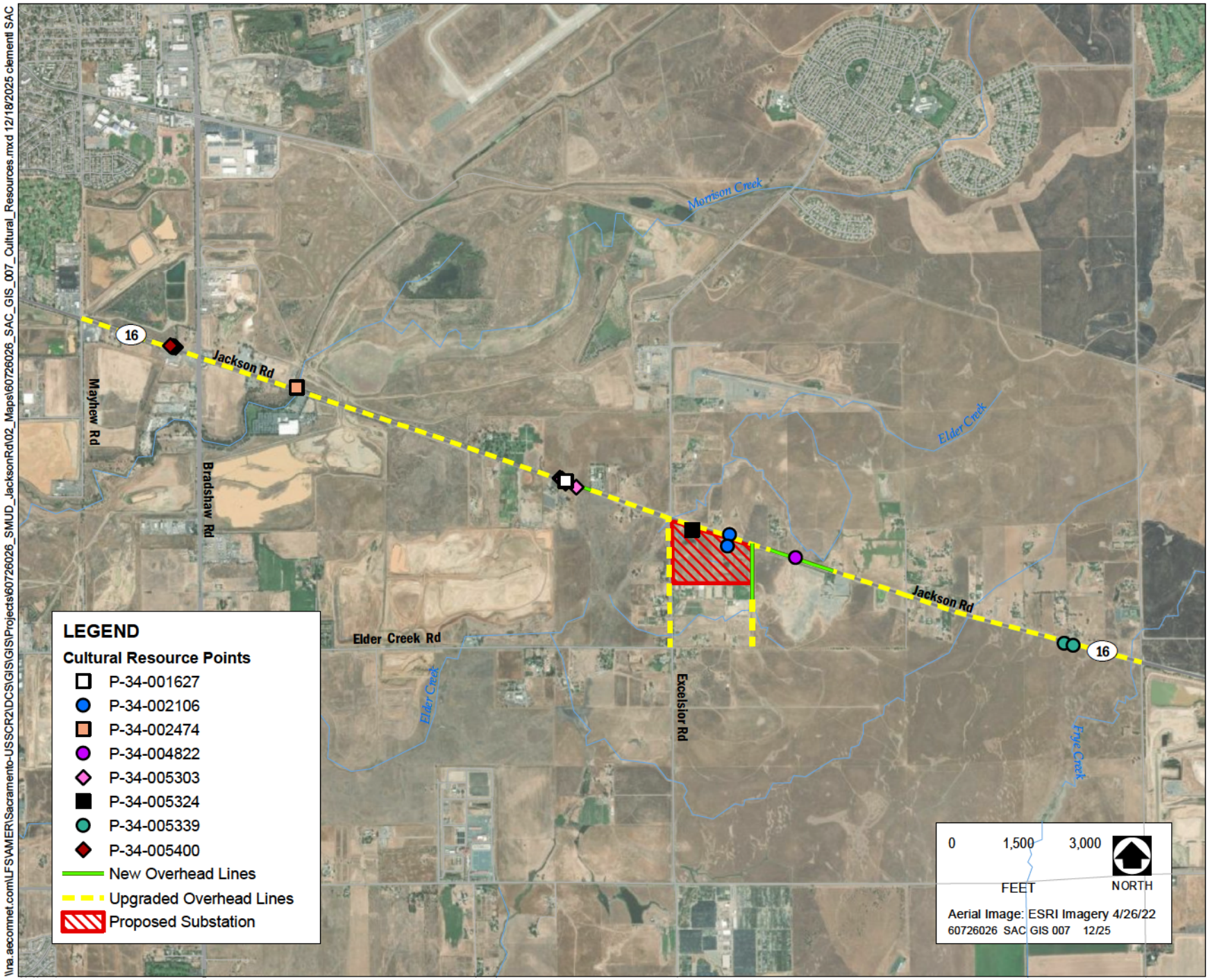
Wilson, Norman L., and Arlean H. Towne. 1978. "Nisenan" in *Handbook of North American Indians, Volume 8, California.* Edited by R. F. Heizer, pp. 387-397. Smithsonian Institution: Washington, D.C.

Acronyms

AB	Assembly Bill
APN	Assessor's Parcel Number
CEQA	California Environmental Quality Act
CHRIS	California Historic Resources Information System
CRHR	California Register of Historical Resources
HSC	California Health and Safety Code
kV	kilovolt
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NRHP	National Register of Historic Places
SMUD	Sacramento Municipal Utility District

Attachment A

Project and Previously Recorded Cultural Resources Map



Source:SMUD 2025

SMUD Jackson-Excelsior Substation Project and Previously Cultural Resources Map

AECOM

Attachment B (Confidential)

Department of Parks and Recreation Forms (Previously Documented Cultural Resources Within Project Area)

APPENDIX D

Noise Model Calculations

LT-01-Ldn

Long-Term 24 Hour Continuous Noise Monitoring

Model Input Sheet

Project: 6 - SMUD1745 TA Jackson Excelsior

Date: Existi **Wednesday, October 29, 2025** **Thursday, October 30, 2025**

Site: LT-01

Hour	Leq	Lmax	L50	L90
19:00	63.6	82.1	41.5	55.2
20:00	61.8	79.2	39.3	51.7
21:00	60.3	78.5	41.9	49.2
22:00	57.0	76.4	37.3	45.4
23:00	55.9	76.0	38.0	43.4
0:00	52.7	74.7	35.8	39.8
1:00	52.5	75.5	35.3	40.1
2:00	52.6	74.1	34.9	39.3
3:00	55.3	78.3	35.2	41.5
4:00	58.0	81.3	41.7	47.0
5:00	63.1	79.9	45.9	53.2
6:00	65.6	78.3	51.6	59.7
7:00	68.5	80.2	53.4	65.6
8:00	67.8	78.8	52.5	63.9
9:00	66.3	83.9	45.0	56.8
10:00	66.0	81.4	41.4	55.0
11:00	64.9	80.1	45.9	54.2
12:00	66.4	83.3	43.5	56.0
13:00	66.6	82.6	45.0	57.3
14:00	68.0	83.3	44.7	60.4
15:00	69.1	82.4	45.0	63.7
16:00	70.2	86.5	46.4	66.8
17:00	69.2	81.0	48.7	65.0
18:00	66.3	78.8	44.7	59.5

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	67.0	81.5	45.3	58.7
Nighttime (10 p.m. - 7 a.m.)	59.5	77.2	39.5	45.5

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	70.2	86.5	53.4	66.8
Nighttime (10 p.m. - 7 a.m.)	65.6	81.3	51.6	59.7

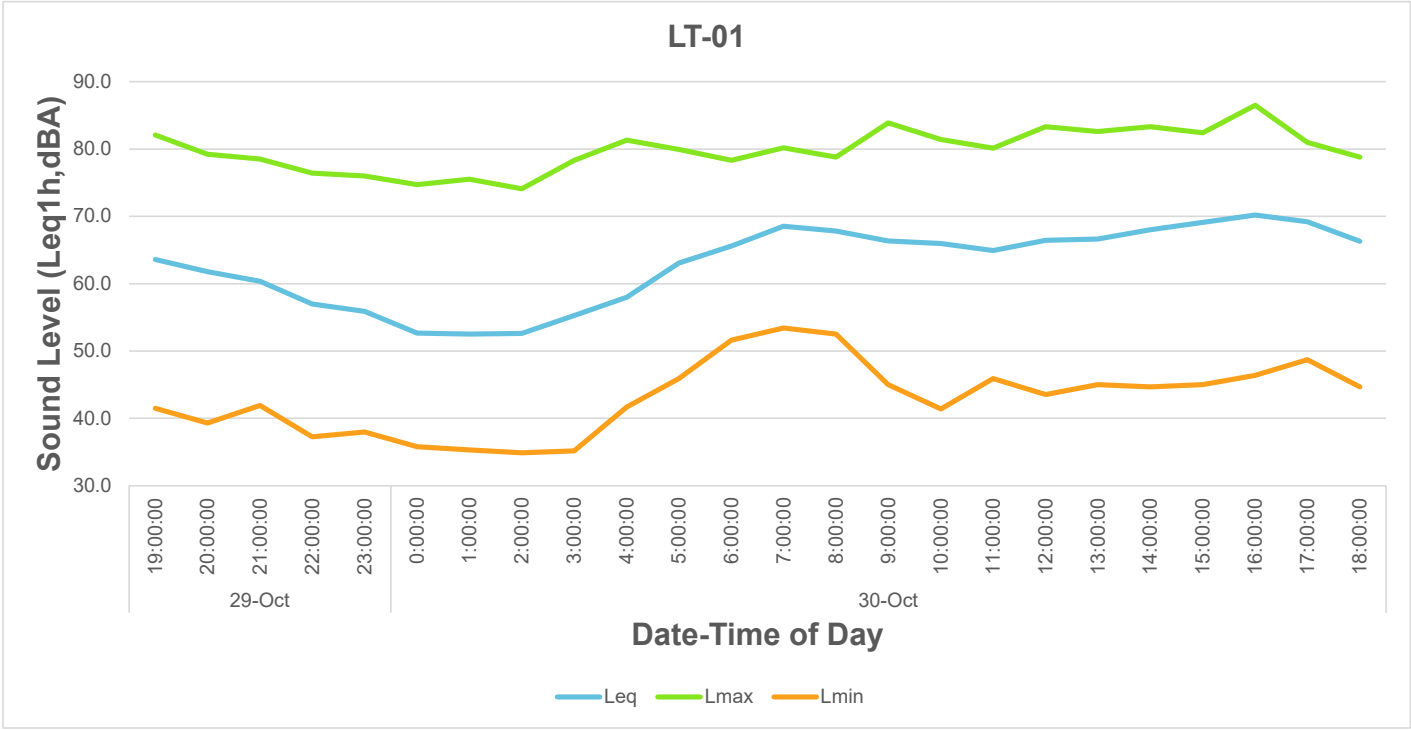
Percentage of Energy

Daytime	90%
Nighttime	10%

Calculated L_{dn}, dBA

68.1

Date	Time	Leq	Lmax	Lmin
29-Oct	19:00:00	63.6	82.1	41.5
	20:00:00	61.8	79.2	39.3
	21:00:00	60.3	78.5	41.9
	22:00:00	57.0	76.4	37.3
	23:00:00	55.9	76	38
30-Oct	0:00:00	52.7	74.7	35.8
	1:00:00	52.5	75.5	35.3
	2:00:00	52.6	74.1	34.9
	3:00:00	55.3	78.3	35.2
	4:00:00	58.0	81.3	41.7
	5:00:00	63.1	79.9	45.9
	6:00:00	65.6	78.3	51.6
	7:00:00	68.5	80.2	53.4
	8:00:00	67.8	78.8	52.5
	9:00:00	66.3	83.9	45
	10:00:00	66.0	81.4	41.4
	11:00:00	64.9	80.1	45.9
	12:00:00	66.4	83.3	43.5
	13:00:00	66.6	82.6	45
	14:00:00	68.0	83.3	44.7
	15:00:00	69.1	82.4	45
	16:00:00	70.2	86.5	46.4
	17:00:00	69.2	81	48.7
	18:00:00	66.3	78.8	44.7



LT-02-Ldn

Long-Term 24 Hour Continuous Noise Monitoring

Model Input Sheet

Project: 6 - SMUD1745 TA Jackson Excelsior

Date: Existi **Wednesday, October 29, 2025** **Thursday, October 30, 2025**

Site: LT-02

Hour	Leq	Lmax	L50	L90
19:00	69.0	84.1	44.8	62.0
20:00	67.4	80.4	45.3	59.6
21:00	67.2	85.0	44.7	59.2
22:00	66.0	80.5	40.4	55.9
23:00	64.2	81.1	37.4	49.3
0:00	60.9	81.8	33.2	43.7
1:00	60.9	81.1	33.3	45.6
2:00	60.7	78.7	32.3	39.8
3:00	62.8	80.5	35.1	47.1
4:00	66.5	87.6	44.5	56.3
5:00	70.5	86.0	50.6	64.8
6:00	72.4	86.2	55.0	70.2
7:00	72.3	85.3	54.9	70.1
8:00	72.4	87.8	52.8	69.5
9:00	71.3	82.8	45.6	67.1
10:00	71.5	91.6	41.7	67.0
11:00	71.0	84.3	41.5	66.0
12:00	71.4	82.6	43.7	68.0
13:00	71.0	89.7	42.9	66.9
14:00	70.5	83.2	42.0	66.6
15:00	70.9	91.4	42.3	67.2
16:00	71.2	91.2	44.2	67.7
17:00	71.3	83.0	45.2	68.3
18:00	70.0	87.6	48.6	65.2

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	70.8	86.0	45.3	66.0
Nighttime (10 p.m. - 7 a.m.)	67.0	82.6	40.2	52.5

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	72.4	91.6	54.9	70.1
Nighttime (10 p.m. - 7 a.m.)	72.4	87.6	55.0	70.2

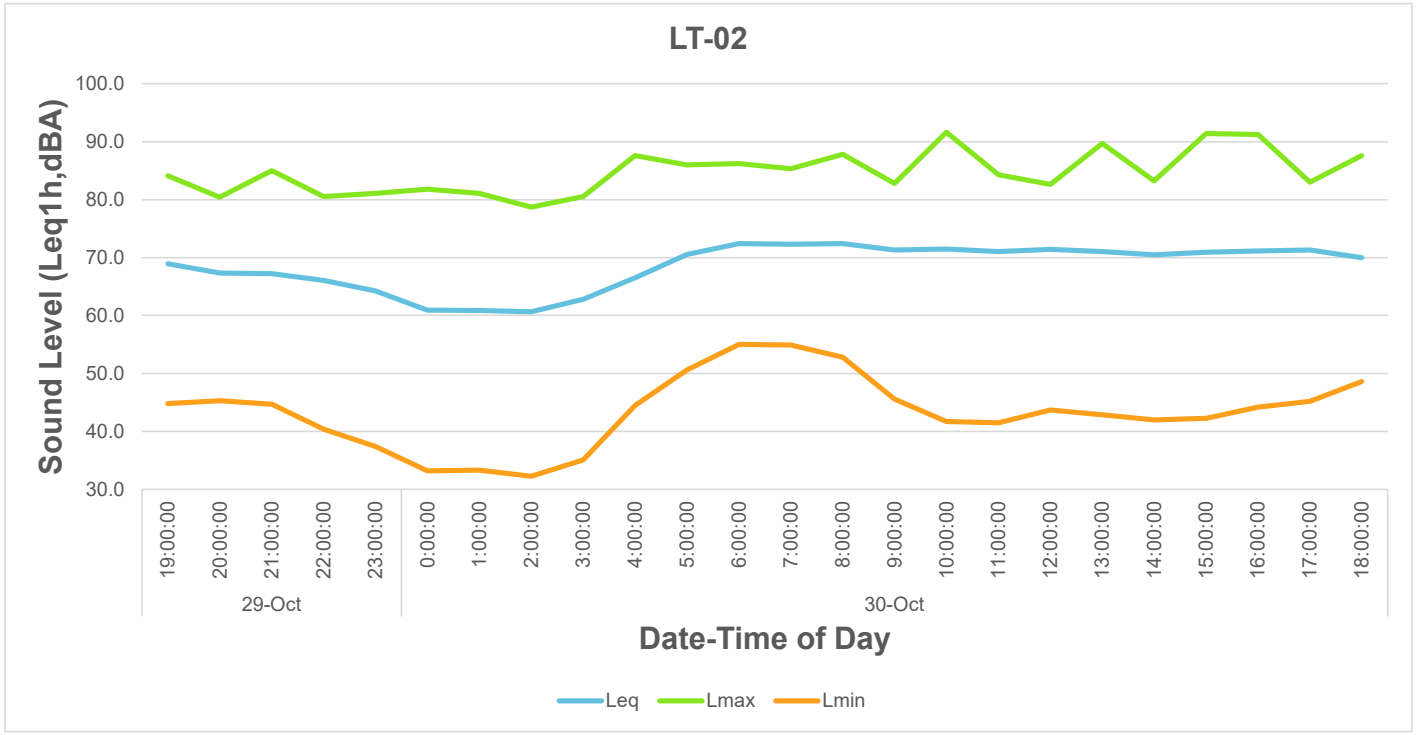
Percentage of Energy

Daytime	80%
Nighttime	20%

Calculated L_{dn}, dBA

74.2

Date	Time	Leq	Lmax	Lmin
29-Oct	19:00:00	69.0	84.1	44.8
	20:00:00	67.4	80.4	45.3
	21:00:00	67.2	85	44.7
	22:00:00	66.0	80.5	40.4
	23:00:00	64.2	81.1	37.4
30-Oct	0:00:00	60.9	81.8	33.2
	1:00:00	60.9	81.1	33.3
	2:00:00	60.7	78.7	32.3
	3:00:00	62.8	80.5	35.1
	4:00:00	66.5	87.6	44.5
	5:00:00	70.5	86	50.6
	6:00:00	72.4	86.2	55
	7:00:00	72.3	85.3	54.9
	8:00:00	72.4	87.8	52.8
	9:00:00	71.3	82.8	45.6
	10:00:00	71.5	91.6	41.7
	11:00:00	71.0	84.3	41.5
	12:00:00	71.4	82.6	43.7
	13:00:00	71.0	89.7	42.9
	14:00:00	70.5	83.2	42
	15:00:00	70.9	91.4	42.3
	16:00:00	71.2	91.2	44.2
	17:00:00	71.3	83	45.2
	18:00:00	70.0	87.6	48.6



SLM & RTA Summary

Translated:		2-Nov-25	13:04:51
File Translated:	C:\LARDAV\SLMUTIL\SMUD Jackson Station\ST_001.slmdl		
Model Number:		824	
Serial Number:	A2624		
Firmware Rev:		4.29	
Software Version:		3.12	
Name:	AECOM		
Descr1:	2020 L St		
Descr2:	Sacramento, CA		
Setup:	SLM&RTA.ssa		
Setup Descr:	SLM & Real-Time Analyzer		
Location:			
Note 1:			
Note 2:			

Overall Any Data

Start Time:		30-Oct-25	16:00:14
Elapsed Time:		15:00.6	

	A Weight	C Weight	Flat
Leq:	72.0 dBA	76.4 dBC	76.8 dBF
SEL:	101.6 dBA	105.9 dBC	106.4 dBF
Peak:	94.2 dBA	105.2 dBC	105.9 dBF
	10/30/2025 16:14	10/30/2025 16:14	10/30/2025 16:14
Lmax (slow):	81.1 dBA	94.2 dBC	94.4 dBF
	10/30/2025 16:14	10/30/2025 16:14	10/30/2025 16:14
Lmin (slow):	41.5 dBA	55.5 dBC	57.9 dBF
	10/30/2025 16:06	10/30/2025 16:06	10/30/2025 16:06
Lmax (fast):	83.7 dBA	97.4 dBC	97.5 dBF
	10/30/2025 16:14	10/30/2025 16:14	10/30/2025 16:14
Lmin (fast):	40.7 dBA	54.3 dBC	56.3 dBF
	10/30/2025 16:06	10/30/2025 16:07	10/30/2025 16:07
Lmax (impulse):	84.3 dBA	98.1 dBC	98.3 dBF
	10/30/2025 16:14	10/30/2025 16:14	10/30/2025 16:14
Lmin (impulse):	41.7 dBA	55.9 dBC	58.4 dBF
	10/30/2025 16:06	10/30/2025 16:06	10/30/2025 16:10

Spectra

Start Time:		30-Oct-25		16:00:14	Run Time:	15:00.6		
Freq Hz	Leq 1/3 Oct	Leq 1/1 Oct		Max 1/3 Oct	Max 1/1 Oct		Min 1/3 Oct	Min 1/1 Oct
12.5		55.6		68.3			26.3	
16		55.5	60.7	68.7	73.7		26.8	33.1
20		56.5		69.7			30.5	
25		61		70.5			48.9	
31.5		60.2	69.3	65.6	76.2		32.7	49.1
40		67.9		74.3			34	
50		64		80.1			35.3	
63		62.7	68.6	81.2	88.1		36.1	40.9
80		64.6		86.1			36.9	
100		67.6		92.6			36.4	
125		66.5	70.9	93.6	96.3		35.4	42.3
160		63.3		82.2			39.7	
200		59.5		75.9			34.8	
250		58.4	63.9	72.4	81.3		29.9	36.9
315		59.5		78.9			29.7	
400		60.3		76			26.9	
500		62.2	67.9	75.3	79.6		27	32.8
630		65.4		72.4			29.6	
800		66.3		72.7			31.3	
1000		65.6	70	69.9	75.7		31.9	35.9
1250		63.4		69.4			29.8	
1600		60		67			26.5	
2000		56.2	62.1	65.3	70.3		23.4	29.3
2500		53.1		63.5			22.6	
3150		50.4		63.9			21.8	
4000		47.7	53	62	66.9		20.4	25.5
5000		45		59.6			19.6	
6300		42.8		58.9			18.9	
8000		40.7	45.5	58.3	63.6		19.3	23.9
10000		36.8		59.3			19.3	
12500		32		52			19.1	
16000		27	33.7	46.5	53.3		20.3	25.4
20000		24.3		40.9			21.9	

Ln Start Level:	15 dB
L 2.00	77.9 dBA
L 8.00	76.2 dBA
L 25.00	74.2 dBA
L 50.00	70.3 dBA
L 90.00	47.5 dBA
L 95.00	44.5 dBA

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	65.0 dB	Exceeded:	19 times
SPL Exceedance level 2:	80 dB	Exceeded:	3 times
Peak-1 Exceedance Level:	100 dB	Exceeded:	3 times
Peak-2 Exceedance Level:	120 dB	Exceeded:	0 times
Hysteresis:	3		
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		

Current Any Data

Start Time:	30-Oct-25	16:00:14	
Elapsed Time:	15:00.6		

	A Weight	C Weight	Flat
Leq:	72.0 dBA	76.4 dBC	76.8 dBF
SEL:	101.6 dBA	105.9 dBC	106.4 dBF
Peak:	94.2 dBA	105.2 dBC	105.9 dBF
	10/30/2025 16:14	10/30/2025 16:14	10/30/2025 16:14
Lmax (slow):	81.1 dBA	94.2 dBC	94.4 dBF
	10/30/2025 16:14	10/30/2025 16:14	10/30/2025 16:14
Lmin (slow):	41.5 dBA	55.5 dBC	57.9 dBF
	10/30/2025 16:06	10/30/2025 16:06	10/30/2025 16:06
Lmax (fast):	83.7 dBA	97.4 dBC	97.5 dBF
	10/30/2025 16:14	10/30/2025 16:14	10/30/2025 16:14
Lmin (fast):	40.7 dBA	54.3 dBC	56.3 dBF
	10/30/2025 16:06	10/30/2025 16:07	10/30/2025 16:07
Lmax (impulse):	84.3 dBA	98.1 dBC	98.3 dBF
	10/30/2025 16:14	10/30/2025 16:14	10/30/2025 16:14
Lmin (impulse):	41.7 dBA	55.9 dBC	58.4 dBF
	10/30/2025 16:06	10/30/2025 16:06	10/30/2025 16:10

Calibrated:	1/1/2000 2:45	Offset:	-46.3 dB
Checked:	10/30/2025 15:49	Level:	113.9 dB
Calibrator	597860	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Enabled	Number Interval Records:	16
History Records:	Enabled	Number History Records:	3604
Run/Stop Records:		Number Run/Stop Records:	2

SLM & RTA Summary

Translated:		2-Nov-25	13:05:49
File Translated:	C:\LARDAV\SLMUTIL\SMUD Jackson Station\ST_002.slmdl		
Model Number:		824	
Serial Number:	A2624		
Firmware Rev:		4.29	
Software Version:		3.12	
Name:	AECOM		
Descr1:	2020 L St		
Descr2:	Sacramento, CA		
Setup:	SLM&RTA.ssa		
Setup Descr:	SLM & Real-Time Analyzer		
Location:			
Note 1:			
Note 2:			

Overall Any Data

Start Time:		30-Oct-25	16:21:07
Elapsed Time:		16:35.1	

	A Weight		C Weight		Flat	
Leq:	73.3 dBA		77.6 dBC		78.0 dBF	
SEL:	103.3 dBA		107.6 dBC		108.0 dBF	
Peak:	104.2 dBA		112.0 dBC		112.2 dBF	
		10/30/2025 16:26		10/30/2025 16:26		10/30/2025 16:26
Lmax (slow):	90.6 dBA		98.6 dBC		98.7 dBF	
		10/30/2025 16:26		10/30/2025 16:26		10/30/2025 16:26
Lmin (slow):	44.0 dBA		55.8 dBC		58.0 dBF	
		10/30/2025 16:25		10/30/2025 16:25		10/30/2025 16:32
Lmax (fast):	94.2 dBA		101.8 dBC		101.9 dBF	
		10/30/2025 16:26		10/30/2025 16:26		10/30/2025 16:26
Lmin (fast):	43.2 dBA		54.7 dBC		57.0 dBF	
		10/30/2025 16:21		10/30/2025 16:25		10/30/2025 16:32
Lmax (impulse):	94.9 dBA		102.4 dBC		102.5 dBF	
		10/30/2025 16:26		10/30/2025 16:26		10/30/2025 16:26
Lmin (impulse):	44.0 dBA		56.4 dBC		58.6 dBF	
		10/30/2025 16:25		10/30/2025 16:25		10/30/2025 16:32

Spectra

Start Time:		30-Oct-25	16:21:07	Run Time:	16:35.1		
Freq Hz	Leq 1/3 Oct	Leq 1/1 Oct		Max 1/3 Oct	Max 1/1 Oct	Min 1/3 Oct	Min 1/1 Oct
12.5		57.3		57.3		32.2	
16		65.9	68.7	57.3	69.1	33.4	37.5
20		64.8		68.5		32.6	
25		59.5		63.6		36.7	
31.5		59.9	65.7	66.9	76.8	36.3	41.6
40		62.7		76.1		37.3	
50		62		67		39.1	
63		67.6	72.2	87.6	98.3	39.6	44.7
80		69.7		97.9		41	
100		65.6		79.3		41.1	
125		63.8	69	81.2	86.8	38.3	43.7
160		62.7		84.2		35.9	
200		65.5		92.8		30.4	
250		63.7	68.9	92.5	96.5	28.4	33
315		62.7		89.2		23.6	
400		64.4		90.3		26.7	
500		64.4	69.6	86.7	92.3	29.1	33.8
630		65.5		82.3		30.5	
800		67.2		82.7		32.5	
1000		66.8	71.1	79.3	85.3	31.6	36.3
1250		64.5		78.5		30.2	
1600		61.6		74.3		28.7	
2000		57.8	63.7	73.9	79.6	25.3	31
2500		54.9		75.9		22.2	
3150		52.3		71.9		20	
4000		50.3	55.2	72.2	75.7	18.3	23.6
5000		47.5		67.4		17.7	
6300		45.1		65		17.7	
8000		43.5	48.1	65.3	68.8	18.3	23.1
10000		39.6		60.4		18.9	
12500		34.8		55.1		19.2	
16000		28.8	36.1	47	55.8	20.5	25.5
20000		25.1		39.8		22	

Ln Start Level:	15 dB
L 2.00	79 dBA
L 8.00	76.8 dBA
L 25.00	74.6 dBA
L 50.00	71.8 dBA
L 90.00	57.2 dBA
L 95.00	54.1 dBA

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	65.0 dB	Exceeded:	28 times
SPL Exceedance level 2:	80 dB	Exceeded:	5 times
Peak-1 Exceedance Level:	100 dB	Exceeded:	4 times
Peak-2 Exceedance Level:	120 dB	Exceeded:	0 times
Hysteresis:		3	
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		

Current Any Data		
Start Time:	30-Oct-25	16:21:07
Elapsed Time:	16:35.1	

	A Weight	C Weight	Flat
Leq:	73.3 dBA	77.6 dBC	78.0 dBF
SEL:	103.3 dBA	107.6 dBC	108.0 dBF
Peak:	104.2 dBA	112.0 dBC	112.2 dBF
		10/30/2025 16:26 10/30/2025 16:26	10/30/2025 16:26
Lmax (slow):	90.6 dBA	98.6 dBC	98.7 dBF
		10/30/2025 16:26 10/30/2025 16:26	10/30/2025 16:26
Lmin (slow):	44.0 dBA	55.8 dBC	58.0 dBF
		10/30/2025 16:25 10/30/2025 16:25	10/30/2025 16:32
Lmax (fast):	94.2 dBA	101.8 dBC	101.9 dBF
		10/30/2025 16:26 10/30/2025 16:26	10/30/2025 16:26
Lmin (fast):	43.2 dBA	54.7 dBC	57.0 dBF
		10/30/2025 16:21 10/30/2025 16:25	10/30/2025 16:32
Lmax (impulse):	94.9 dBA	102.4 dBC	102.5 dBF
		10/30/2025 16:26 10/30/2025 16:26	10/30/2025 16:26
Lmin (impulse):	44.0 dBA	56.4 dBC	58.6 dBF
		10/30/2025 16:25 10/30/2025 16:25	10/30/2025 16:32

Calibrated:	1/1/2000 2:45	Offset:	-46.3 dB
Checked:	10/30/2025 15:49	Level:	113.9 dB
Calibrator	597860	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Enabled	Number Interval Records:	17
History Records:	Enabled	Number History Records:	3982
Run/Stop Records:		Number Run/Stop Records:	2

SLM & RTA Summary

Translated:		2-Nov-25	13:06:14
File Translated:	C:\LARDAV\SLMUTIL\SMUD Jackson Station\ST_003.slmdl		
Model Number:		824	
Serial Number:	A2624		
Firmware Rev:		4.29	
Software Version:		3.12	
Name:	AECOM		
Descr1:	2020 L St		
Descr2:	Sacramento, CA		
Setup:	SLM&RTA.ssa		
Setup Descr:	SLM & Real-Time Analyzer		
Location:			
Note 1:			
Note 2:			

Overall Any Data

Start Time:		30-Oct-25	16:45:07
Elapsed Time:		15:00.3	

	A Weight		C Weight		Flat	
Leq:	66.1 dBA		72.4 dBC		72.8 dBF	
SEL:	95.7 dBA		101.9 dBC		102.4 dBF	
Peak:	90.4 dBA		99.9 dBC		100.4 dBF	
		10/30/2025 16:45		10/30/2025 16:47		10/30/2025 16:47
Lmax (slow):	76.2 dBA		88.3 dBC		88.4 dBF	
		10/30/2025 16:47		10/30/2025 16:47		10/30/2025 16:47
Lmin (slow):	43.5 dBA		54.7 dBC		56.8 dBF	
		10/30/2025 16:52		10/30/2025 16:49		10/30/2025 16:53
Lmax (fast):	78.6 dBA		91.4 dBC		91.5 dBF	
		10/30/2025 16:47		10/30/2025 16:47		10/30/2025 16:47
Lmin (fast):	42.9 dBA		53.7 dBC		55.3 dBF	
		10/30/2025 16:52		10/30/2025 16:53		10/30/2025 16:53
Lmax (impulse):	79.0 dBA		91.9 dBC		92.0 dBF	
		10/30/2025 16:47		10/30/2025 16:47		10/30/2025 16:47
Lmin (impulse):	43.3 dBA		55.6 dBC		57.7 dBF	
		10/30/2025 16:52		10/30/2025 16:49		10/30/2025 16:49

Spectra

Start Time:		30-Oct-25	16:45:07	Run Time:	15:00.3		
Freq Hz	Leq 1/3 Oct	Leq 1/1 Oct	Max 1/3 Oct	Max 1/1 Oct	Min 1/3 Oct	Min 1/1 Oct	
12.5		53.1	58.2		29.4		
16		59.1	61.8	58.9	64.1	31.4	35.2
20		57		60.6		30.3	
25		58.6		61.9		44	
31.5		55.5	62.2	65.1	69.2	35.6	45.6
40		57.5		65.5		39	
50		57.5		65.3		35	
63		62	67	76.6	85.4	36.4	40.5
80		64.5		84.7		35.6	
100		64.9		75.7		36.4	
125		62.8	67.8	86.7	87.5	36.4	40.8
160		59.9		77.8		35	
200		58.5		75.5		30	
250		57.7	62.4	73.6	79	34	36.5
315		56.4		73.4		29.6	
400		55.7		68		27.9	
500		56.3	61.7	65.1	71.6	27.7	33.4
630		58.4		66.9		29.9	
800		59.6		66.7		31.5	
1000		59.1	63.6	68.7	72.4	33.9	37.3
1250		57.4		67.2		31.9	
1600		54.8		65.6		27.6	
2000		51.6	57.2	60.6	67.6	21.5	29.2
2500		48.8		59.6		20.5	
3150		46.4		62.3		19	
4000		43.8	49	56.7	64	18.8	23.4
5000		40.5		55.4		18.1	
6300		38		51.2		18.1	
8000		35.3	40.3	43	52.3	18.8	23.5
10000		30.3		42.3		19.1	
12500		25.5		33.3		19.1	
16000		22.4	28.6	26.1	34.4	20.4	25.4
20000		23.1		23.8		22	

Ln Start Level:	15 dB
L 2.00	72.1 dBA
L 8.00	70.4 dBA
L 25.00	67.8 dBA
L 50.00	64.4 dBA
L 90.00	48.7 dBA
L 95.00	45.8 dBA

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	65.0 dB	Exceeded:	31 times
SPL Exceedance level 2:	80 dB	Exceeded:	0 times
Peak-1 Exceedance Level:	100 dB	Exceeded:	1 times
Peak-2 Exceedance Level:	120 dB	Exceeded:	0 times
Hysteresis:	3		
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		

Current Any Data

Start Time:	30-Oct-25	16:45:07	
Elapsed Time:	15:00.3		

	A Weight	C Weight	Flat
Leq:	66.1 dBA	72.4 dBC	72.8 dBF
SEL:	95.7 dBA	101.9 dBC	102.4 dBF
Peak:	90.4 dBA	99.9 dBC	100.4 dBF
	10/30/2025 16:45	10/30/2025 16:47	10/30/2025 16:47
Lmax (slow):	76.2 dBA	88.3 dBC	88.4 dBF
	10/30/2025 16:47	10/30/2025 16:47	10/30/2025 16:47
Lmin (slow):	43.5 dBA	54.7 dBC	56.8 dBF
	10/30/2025 16:52	10/30/2025 16:49	10/30/2025 16:53
Lmax (fast):	78.6 dBA	91.4 dBC	91.5 dBF
	10/30/2025 16:47	10/30/2025 16:47	10/30/2025 16:47
Lmin (fast):	42.9 dBA	53.7 dBC	55.3 dBF
	10/30/2025 16:52	10/30/2025 16:53	10/30/2025 16:53
Lmax (impulse):	79.0 dBA	91.9 dBC	92.0 dBF
	10/30/2025 16:47	10/30/2025 16:47	10/30/2025 16:47
Lmin (impulse):	43.3 dBA	55.6 dBC	57.7 dBF
	10/30/2025 16:52	10/30/2025 16:49	10/30/2025 16:49

Calibrated:	1/1/2000 2:45	Offset:	-46.3 dB
Checked:	10/30/2025 15:49	Level:	113.9 dB
Calibrator	597860	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Enabled	Number Interval Records:	16
History Records:	Enabled	Number History Records:	3603
Run/Stop Records:		Number Run/Stop Records:	2

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	634	60
	50	88
LT-01	100	80
LT-02	350	66

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Backhoe	78	0.4
Dozer	82	0.4
Excavator	81	0.4
Front End Loader	79	0.4
Grader	85	0.4
Scraper	84	0.4
Compactor (ground)	83	0.2
Dump Truck	76	0.4
Dump Truck	76	0.4
Dump Truck	76	0.4
Pickup Truck	75	0.4
Pickup Truck	75	0.4
Generator	81	0.5

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Backhoe	74.0
Dozer	78.0
Excavator	77.0
Front End Loader	75.0
Grader	81.0
Scraper	80.0
Compactor (ground)	76.0
Dump Truck	72.0
Dump Truck	72.0
Dump Truck	72.0
Pickup Truck	71.0
Pickup Truck	71.0
Generator	78.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
87.6

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, J

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	1,443	50
	50	87
LT-01	100	79
LT-02	350	65

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Excavator	81	0.4
Dozer	82	0.4
Front End Loader	79	0.4
Compactor (ground)	83	0.2
Scraper	84	0.4
Backhoe	78	0.4
Dump Truck	76	0.4
Dump Truck	76	0.4
Vacuum Street Sweeper	82	0.1
Pickup Truck	75	0.4
Generator	81	0.5
Pickup Truck	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Excavator	77.0
Dozer	78.0
Front End Loader	75.0
Compactor (ground)	76.0
Scraper	80.0
Backhoe	74.0
Dump Truck	72.0
Dump Truck	72.0
Vacuum Street Sweeper	72.0
Pickup Truck	71.0
Generator	78.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
86.5

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	473	60
	50	84
LT-01	100	77
LT-02	350	63

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Backhoe	78	0.4
Excavator	81	0.4
Auger Drill Rig	84	0.2
Man Lift	75	0.2
Generator	81	0.5
Roller	80	0.2
Dump Truck	76	0.4
Dump Truck	76	0.4
Vacuum Street Sweeper	82	0.1
Pickup Truck	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Backhoe	74.0
Excavator	77.0
Auger Drill Rig	77.0
Man Lift	68.0
Generator	78.0
Roller	73.0
Dump Truck	72.0
Dump Truck	72.0
Vacuum Street Sweeper	72.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.4

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	515	60
	50	85
LT-01	100	78
LT-02	350	64

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Excavator	81	0.4
Backhoe	78	0.4
Auger Drill Rig	84	0.2
Concrete Pump Truck	81	0.2
Man Lift	75	0.2
Front End Loader	79	0.4
Flat Bed Truck	74	0.4
Dump Truck	76	0.4
Generator	81	0.5
Welder / Torch	74	0.05
Pickup Truck	75	0.4
Vacuum Street Sweeper	82	0.1
Roller	80	0.2
Pickup Truck	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Excavator	77.0
Backhoe	74.0
Auger Drill Rig	77.0
Concrete Pump Truck	74.0
Man Lift	68.0
Front End Loader	75.0
Flat Bed Truck	70.0
Dump Truck	72.0
Generator	78.0
Welder / Torch	61.0
Pickup Truck	71.0
Vacuum Street Sweeper	72.0
Roller	73.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
85.3

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	464	60
	50	84
LT-01	100	77
LT-02	350	63

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Crane	81	0.16
Drill Rig Truck	79	0.2
Man Lift	75	0.2
Concrete Pump Truck	81	0.2
Backhoe	78	0.4
Front End Loader	79	0.4
Man Lift	75	0.2
Flat Bed Truck	74	0.4
Dump Truck	76	0.4
Generator	81	0.5
Welder / Torch	74	0.05
Vacuum Street Sweeper	82	0.1
Pickup Truck	75	0.4
Pickup Truck	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Crane	73.0
Drill Rig Truck	72.0
Man Lift	68.0
Concrete Pump Truck	74.0
Backhoe	74.0
Front End Loader	75.0
Man Lift	68.0
Flat Bed Truck	70.0
Dump Truck	72.0
Generator	78.0
Welder / Torch	61.0
Vacuum Street Sweeper	72.0
Pickup Truck	71.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.2

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	399	60
	50	83
LT-01	100	75
LT-02	350	61

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Crane	81	0.16
Man Lift	75	0.2
Man Lift	75	0.2
Drill Rig Truck	79	0.2
Front End Loader	79	0.4
Generator	81	0.5
Welder / Torch	74	0.05
Flat Bed Truck	74	0.4
Pickup Truck	75	0.4
Pickup Truck	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Crane	73.0
Man Lift	68.0
Man Lift	68.0
Drill Rig Truck	72.0
Front End Loader	75.0
Generator	78.0
Welder / Torch	61.0
Flat Bed Truck	70.0
Pickup Truck	71.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
82.6

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	426	60
	50	83
LT-01	100	76
LT-02	350	62

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Crane	81	0.16
Man Lift	75	0.2
Man Lift	75	0.2
Drill Rig Truck	79	0.2
Front End Loader	79	0.4
Flat Bed Truck	74	0.4
Dump Truck	76	0.4
Pickup Truck	75	0.4
Generator	81	0.5
Welder / Torch	74	0.05
Vacuum Street Sweeper	82	0.1
Pickup Truck	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Crane	73.0
Man Lift	68.0
Man Lift	68.0
Drill Rig Truck	72.0
Front End Loader	75.0
Flat Bed Truck	70.0
Dump Truck	72.0
Pickup Truck	71.0
Generator	78.0
Welder / Torch	61.0
Vacuum Street Sweeper	72.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
83.3

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	459	60
	50	84
LT-01	100	77
LT-02	350	63

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Paver	77	0.5
Roller	80	0.2
Compactor (ground)	83	0.2
Grader	85	0.4
Vacuum Street Sweeper	82	0.1
Dump Truck	76	0.4
Pickup Truck	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Paver	74.0
Roller	73.0
Compactor (ground)	76.0
Grader	81.0
Vacuum Street Sweeper	72.0
Dump Truck	72.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.1

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold

Project-Generated Construction Source Noise Prediction Model

60726026 - SMUD1745 TA Jackson Excelsior

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)	Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Threshold*	317	60	**Pickup Truck**	75	0.4
	50	80	**Pickup Truck**	75	0.4
LT-01	100	73	**Generator**	81	0.5
LT-02	350	59	**Pickup Truck**	75	0.4

Ground Type	Soft
Ground Factor	0.50

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Pickup Truck	71.0
Pickup Truck	71.0
Generator	78.0
Pickup Truck	71.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
80.0

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, Ja

[2] Based on the following from the Federal Transit Noise and Vibrati

$L_{eq}(equip) = E.L.+10*\log(U.F.) - 20*\log(D/50) - 10*G*\log(D/50)$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold