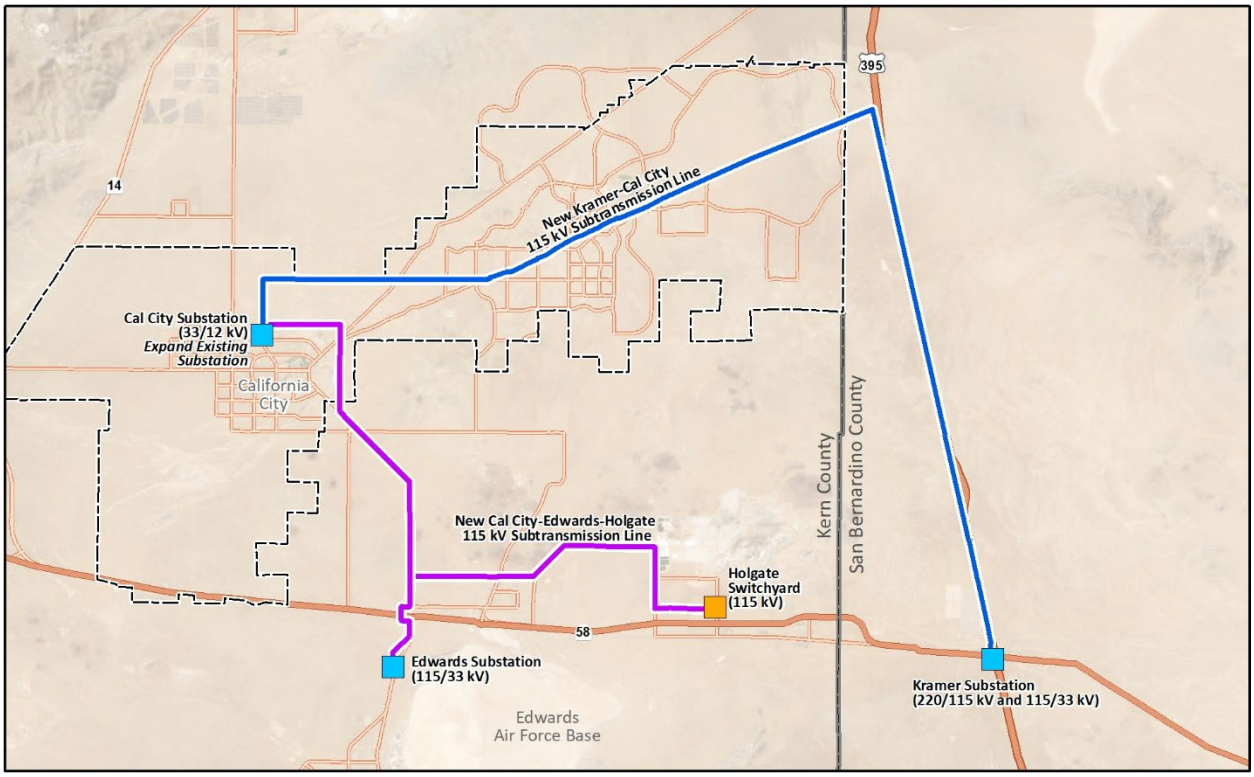

Proponent's Environmental Assessment for Southern California Edison Company's Cal City Substation 115 kV Upgrade Project

Volume 1

March 14, 2023 (PEA submittal date)

Upgrade and expansion of Cal City Substation, construction of new Kramer-Cal City and Cal City-Edwards-Holgate 115 kV subtransmission lines, installation of new telecommunications infrastructure along the proposed new lines, and associated improvements to two additional existing substations and a switchyard are proposed.

The Cal City Substation 115 kV Upgrade Project would be located in the City of California City, Kern County, and San Bernardino County.

Application A.23-XX-XX to the California Public Utilities Commission

Prepared by Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003
Lindsey Sarquilla, Project Manager
(805) 869-1672
lsarquilla@rinconconsultants.com

Prepared for Southern California Edison Company
2 Innovation Way, 3rd Floor
Pomona, California 91768
David De Leon, Major Construction Project Manager
(619) 894-1775
david.deleon@sce.com

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Acronyms and Abbreviations

µg/m3	Micrograms per cubic meter
3-D	Three-dimensional
AAB	Army Air Base
AEP	Association for Environmental Professionals
AAF	Army Airfield
AAM	Annual Arithmetic Mean
AB	Assembly Bill
ACEC	Area of Critical Environmental Concern
ACM	Asbestos-containing materials
ACCC	Aluminum Conductor Composite Core
ACHP	Advisory Council on Historic Preservation
ADL	Aerially deposited lead
ADSS	all-dielectric self-supporting
ADOE	Archaeological Determination of Eligibility
af	Acre-feet
AFY	Acre-feet per year
AGOL	ArcGIS Online
Al	aluminum
ALUCP	Airport Land Use Compatibility Plan
amsl	Above mean sea level
APCD	Air Pollution Control District
APE	Area of Potential Effect
API	Area of Potential Impacts
APLIC	Avian Power Line Interaction Committee
APM	Applicant Proposed Measure
ARPA	Archeological Resources Protection Act
AQMP	Air Quality Management Plan
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing Methods
AVEK	Antelope Valley-East Kern
BCD	Business Customer Division
BERD	Built Environment Resources Directory
B.P.	Before Present
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BLM S	Bureau of Land Management Sensitive Species
BMP	Best management practice
BNSF	Burlington Northern Santa Fe
BRTR	Biological Resources Technical Report
°C	Degrees Celsius
C_2H_3Cl	Vinyl chloride
CA	California
CAA	Clean Air Act

CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
Cal BP	Calibrated years before the present
Cal/EMA	California Emergency Management Agency
CAL FIRE	California Department of Forestry and Fire Protection
CalGEM	Geologic Energy Management Division
CalRecycle	California Department of Resources Recycling and Recovery
Cal/OSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CAP	Criteria air pollutant
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CATTCH	California Temporary Traffic Control Handbook
CBC	California Building Code
CCAA	California Clean Air Act
CCFD	California City Fire Department
CCR	California Code of Regulations
CDCA	California Desert Conservation Area
CDFW	California Department of Fish and Wildlife
CDP	census designated place
CDTFA	California Department of Tax and Fee Administration
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH4	Methane
CHRIS	California Historic Resource Information System
CHP	California Highway Patrol
CMA	Conservation and Management Action
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalents
COG	Council of Governments
CP	Cultural Resources Preservation
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CRMP	Cultural Resources Management Plan

CRPR	California Rare Plant Rank
CRTR	Cultural Resources Technical Report
CSD	Community Services District
CSE	Countywide Siting Element
CTC	California Transportation Commission
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibel
DOC	California Department of Conservation
DoD	Department of Defense
DOI	Department of the Interior
DOT	Department of Transportation
DPR	Department of Parks and Recreation
DRECP	Desert Renewable Energy Conservation
DTSC	California Department of Toxic Substances Control
DWMA	Desert Wildlife Management Area
DWQ	Division of Water Quality
DWR	Department of Water Resources
E	Estate
EA	Environmental Assessment
EAFB	Edwards Airforce Base
EDR	Environmental Data Resources, Inc.
EIAP	Environmental Impact Analysis Process
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EKAPCD	Eastern Kern Air Pollution Control District
EMFAC	Emission Factor
ENA	Electrical Needs Area
EPA	Environmental Protection Agency
EPR	Ethylene propylene rubber
ESA	Environmentally Sensitive Area
FAA	Federal Aviation Administration
FAR	fire-affected rock
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FRA	Federal Responsibility Areas
FR	Federal Register
FRAP	Fire and Resource Assessment Program
FEIS	Fire Effects Information System
FERC	Federal Energy Regulatory Commission
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps

FLPMA	Federal Land Policy and Management Act
FMMP	Farmland Mapping and Monitoring Program
FOCA	Federal Office of Civil Aviation
FP	Fully Protected
FPP	Floodplain Primary
FPPA	Farmland Protection Policy Act
FRA	Federal Responsibility Areas
FRED	Field Reporting Environmental Database
FTA	Federal Transit Administration
GO	General Order
GHG	Greenhouse gas
GIS	Geographic information system
GIS	Gas insulated switchgear
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
GWP	Global warming potential
H_2S	Hydrogen sulfide
HBER	Historic-Era Built Environment Report
HCP	Habitat Conservation Plan
HFTD	High Fire Threat District
HMMP	Hazardous Materials Management Plan
HMRR	Hazard Management and Resource Restoration
hp	Horsepower
HRP	Habitat Restoration Plan
HRRP	Habitat Restoration and Revegetation Plan
IC Project	Ivanpah- Control Project A. 19-07-015
IEEE	Institute of Electrical and Electronic Engineers
IEPR	Integrated Energy Policy Report
INA	Information Not Available
Insignia	Insignia Environmental
INRMP	Integrated Natural Resources Management Plan
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
IPMP	Invasive Plant Management Plan
IRWMP	Integrated Regional Water Management Planning
ITP	Incidental Take Permit
JCN	jacketed concentric neutral
KCSO	Kern County Sheriff's Office
KCFD	Kern County Fire Department
km	Kilometer
KOP	Key observation point
kV	kilovolt
kWh	Kilowatt hour
LBP	Lead based paint
Ldn	Day-night average sound level

Leq	Equivalent noise level
LOS	Level of Service
LSAA	Lake and Streambed Alteration Agreement
LST	Lattice steel tower
LUPA	Land Use Plan Amendment
LWS	lightweight steel
LRA	Local Responsibility Areas
MBTA	Migratory Bird Treaty Act
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
MEER	Mechanical and Electrical Equipment Room
MH	Mobilehome
MHMP	Multi-Jurisdiction Hazard Mitigation Plan
MLD	Most Likely Descendant
mm	Millimeter
MPUD	Mojave Public Utility District
mg/L	milligrams per liter
MGD	million-gallon-per-day
MGS	Mohave ground squirrel
mph	Miles per hour
MPR	Minor Project Refinement
MRDS	Mineral Resources Data System
MRZ	Mineral Resource Zones
MT	Metric tons
MTCO2e	metric tons carbon dioxide equivalent
MUTCD	Manual on Uniform Traffic Control Devices
MVA	megavolt-ampere
MVAR	megavolts ampere reactive
MW	megawatt
MWA	Mojave Water Agency
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NBMP	Nesting Bird Management Plan
NCCP	Natural Community Conservation Planning
NCCPA	Natural Community Conservation Planning Act
NECPA	National Energy Conservation Policy Act
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NETR	Nationwide Environmental Title Research
NHD	National Hydrography Dataset
NHMLA	Natural History Museum of Los Angeles
NHPA	National Historic Preservation Act

NISC	National Invasive Species Council
NIST	National Institute of Standards and Technology
NO2	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPMS	National Pipeline Mapping System
NPPA	Native Plant Protection Act
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NSF	National Science Foundation
NTP	Notice to Proceed
NWI	National Wetlands Inventory
NWP	Nationwide Permit
NWPS	National Wilderness Preservation System
O&M	Operation and Maintenance
O3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OHS	Office of Homeland Security
OHV	Off-highway vehicle
OPGW	Optical ground wire
OPLA	Omnibus Public Lands Act
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	Polychlorinated biphenyls
PEA	Proponent's Environmental Assessment
PFAS	Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
PG&E	Pacific Gas and Electric Company
PHMSA	Pipeline and Hazardous Materials Safety Administration
PL	Platted Lands
PLC	Programmable Logic Controller
PLSS	Public Land Survey System
PM	Particulate matter
PM10	Particulate matter less than 10 microns in diameter
PM2.5	Particulate matter less than 2.5 microns in diameter
PPE	Personal protective equipment
ppm	Parts per million
PRA	Paleontological Resources Assessment
PRC	California Public Resources Code

PRD	Permit Registration Documents
PRMMP	Paleontological Resource Mitigation and Monitoring Plan
PRP	Paleontological Resources Preservation
PRPA	Paleontological Resources Preservation Act
Proposed Project	Cal City Substation 115 kV Upgrade Project
PTC	Permit to Construct
PVC	Polyvinyl chloride
Qa	Quaternary young (Holocene) alluvium
Qc	Quaternary young (Holocene) clay and silt
Qcs	Quaternary young (Holocene) sand-covered clay and silt
qm	Cretaceous or Jurassic quartz monzonite
Qoa	Quaternary old (Pleistocene) alluvium
Qs	Quaternary young (Holocene) loose sand
RCRA	Resource Conservation and Recovery Act of 1976
RF	Recreation-Forestry
RFP	Reasonable Further Progress
RMS	Root mean square
ROD	Record of Decision
ROG	Reactive organic compound
ROW	Right-of-way
RPS	Renewables Portfolio Standard
RUSLE	Revised Universal Soil Loss Equation
RWQCB	Regional Water Quality Control Board
SAC	Standard Aluminum Conductor
SANBAG	San Bernardino Associated Governments
SARA	Superfund Amendments and Reauthorization Act
SAS	Substation Automation System
SB	Senate Bill
SBSD	San Bernardino Sheriff's Department
SCADA	Supervisory Control and Data Acquisition
SCCIC	South-Central Coastal Information Center
SCE	Southern California Edison Company
SDC	Seismic design category
SDWA	Safe Drinking Water Act
SED	Safety and Enforcement Division
SEI	Structural Engineering Institute
SF6	Sulfur hexifluoride
SHMP	State Hazard Mitigation Plan
SIP	State Implementation Plan
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act
SMP	Soil Management Plan
SO2	Sulfur dioxide
SoCalGas	Southern California Gas Company
SPCC	Spill Prevention, Control, and Countermeasure

SRA	State Responsibility Areas
SRMA	Special Recreation Management Area
SR-	State Route
SSC	Species of special concern
SSJVIC	Southern San Joaquin Valley Information Center
SVP	Society of Vertebrate Paleontology
SWIS	Solid Waste Information System
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant
TBD	To be determined
TCE	Temporary Construction Easement
TDS	total dissolved solids
TEP	Temporary Entry Permit
Tlf	Miocene Tropico Group (lower) granitic fanglomerate and sandstone
TMDL	Total maximum daily load
TPZ	Timberland Production Zone
TUP	Temporary Use Permit
Tsb	Miocene Saddleback Basalt
TSP	Tubular steel pole
U.S.	United States
U.S. 395	United States Highway 395
U.S.C.	United States Code
UCMP	University of California Museum of Paleontology
UPRR	Union Pacific Railroad
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USDA	United States Department of Agriculture
USDOD	United States Department of Defense
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Services
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
UXO	Unexploded Ordnance
VdB	Vibration velocity level
VMT	vehicle miles traveled
VOC	Volatile organic compound
VRM	Visual Resource Management
VRP	Visibility reducing particles
WBD	Watershed Boundary Dataset
WDID	Waste Discharger Identification Number
WDR	Waste discharge requirement

WEAP	Worker Environmental Awareness Program
WECC	Western Electricity Coordinating Council
WST	Western Stemmed Tradition
WUI	Wildland urban interface
WWTP	Wastewater treatment plant
XLPE	Cross-linked polyethylene
ZEV	Zero-Emission Vehicle

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Chapter 1 Executive Summary

This Chapter provides an Executive Summary for Southern California Edison Company's (SCE's) proposed Cal City Substation 115 kilovolt (kV) Upgrade Project (Proposed Project).

1.1 Proposed Project Summary

The Proposed Project proposes to add load-serving capacity in the Electrical Needs Area (ENA) to serve current and long-term forecast electrical demand, improve system reliability within the ENA by providing diverse routes of power supply to the region, improve system operational flexibility by minimizing reliance on Edwards Substation (located on a military base with restricted access) to provide power to the ENA (adjacent to military base), and improve system reliability within the ENA by providing a diversely-routed second 115 kV source line to Edwards Substation. The Proposed Project would include installation of new subtransmission lines; expansion of the existing Cal City Substation; improvements at the existing Cal City, Kramer, and Edwards Substations and Holgate Switchyard; installation of new distribution getaways; and installation of new telecommunication cables on new subtransmission lines. The sections below provide a summary of the purpose, objectives, and proposed activities. The Proposed Project location is shown on Figure 1-1.

1.1.1 Purpose and Objectives

Under the rules, guidelines, and regulations of the Federal Energy Regulatory Commission (FERC), North American Electric Reliability Council (NERC), Western Energy Coordinating Council (WECC), California Public Utilities Commission (CPUC), and SCE's planning criteria and guidelines, electrical transmission, subtransmission, and distribution systems must have sufficient capacity to maintain safe, reliable, and adequate service to customers. The safety and reliability of the systems must be maintained under normal conditions when all facilities are in service, as well as under abnormal conditions during equipment or line failures, maintenance outages, or outages that cannot be predicted or controlled, which are caused by weather, earthquakes, traffic accidents or any other unforeseeable events.

The purpose of the Proposed Project is to enable SCE to provide the necessary capacity to meet the electrical needs of the customers in the Electrical Needs Area (ENA) while also doing so in a reliable and safe manner consistent with prudent planning practices. Additionally, the Proposed Project would enable SCE to comply with applicable rules, guidelines, and regulations as they relate specifically to the subtransmission and distribution system that serve the ENA. The ENA is shown on Figure 1-1. Specifically, the Proposed Project would serve current and projected demand for electricity within the ENA by providing new 115 kV subtransmission lines between Kramer and Cal City Substations and between Cal City and Edwards Substations and the Holgate Switchyard, along with necessary substation and distribution getaway improvements to increase capacity of the Cal City Substation. In addition to meeting current and projected demand for electricity, the expansion of the Cal City Substation and the construction of two 115 kV source lines would also reduce reliance on Edwards Substation to serve non-military base load in the ENA. This would improve reliability and operational flexibility, as the location of Edwards Substation on a military base results in restricted access by SCE personnel due to jurisdictional and security challenges.

Furthermore, Edwards Substation is located in the southern portion of the ENA and is currently served by a single 115 kV source line, which reduces reliability to Edwards Air Force Base (EAFB), as an unplanned outage along this line could result in a total loss of power to the substation. As described in Chapter 2, Introduction, Edwards Substation currently serves more than 28 MVA of load and includes more than a

single 28 MVA transformer and, therefore, requires a second subtransmission source line in accordance with Section 2.3.8.1 of SCE's Subtransmission Planning Criteria and Guidelines.[1] Therefore, the Proposed Project would also improve electrical reliability and operational flexibility in the ENA by providing a second 115 kV subtransmission source line to Edwards Substation in compliance with SCE's reliability criteria to ensure safe and reliable electrical service to EAFB.

As described further in Chapter 2, the Proposed Project is being proposed to meet the following objectives:

- Add load-serving capacity in the ENA to serve current and long-term forecast electrical demand
- Improve system reliability within the ENA by providing diverse routes of power supply to the region
- Improve system operational flexibility by minimizing the reliance on Edwards Substation (located on military base with restricted access) to provide power to the ENA (adjacent to military base)
- Improve system reliability within the ENA by providing a diversely-routed second 115 kV source line to Edwards Substation

1.1.2 Summary of Activities

The Proposed Project is planned to be operational by 2028 and would include the following major components:

1.1.2.1 Subtransmission

- Construct one new Kramer-Cal City 115 kV Subtransmission Line
- Construct one new Cal City-Edwards-Holgate 115 kV Subtransmission Line

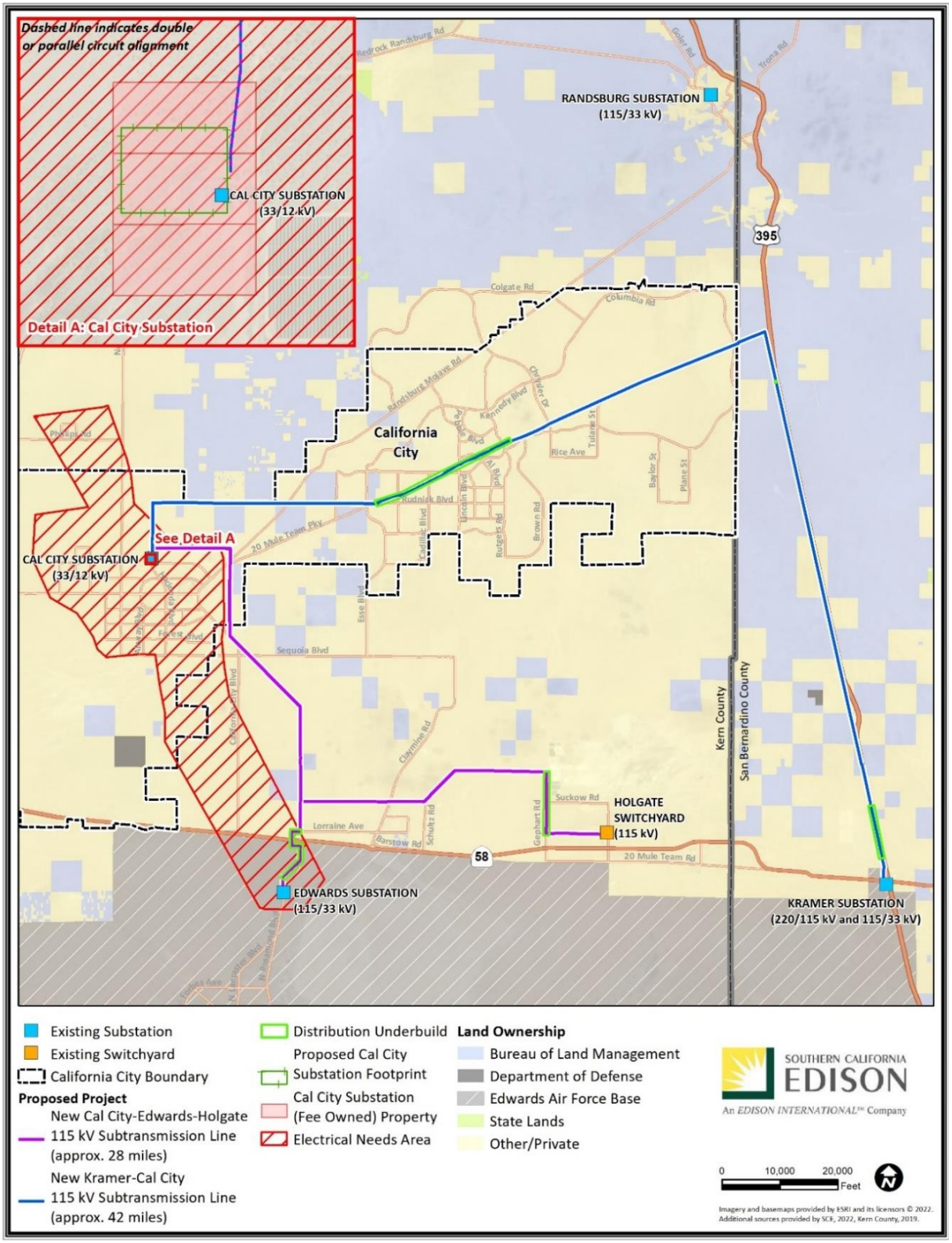
1.1.2.2 Substation

- Cal City Substation Improvements
  - Expand the existing substation by approximately 10 acres[2]
  - Install new five-position 115 kV switchrack with five positions initially equipped
  - Install new five-position 33 kV switchrack with five positions initially equipped
  - Install new 21-position 12 kV switchrack with 19 positions initially equipped
  - Install two 115 kV/33 kV, 28 megavolt-ampere (MVA) transformers
  - Install four 115 kV/12 kV, 28 MVA transformers
  - Install one 115 kV, 28.8 megavolt-ampere reactive (MVAR) capacitor
  - Install two 33 kV, 4.8 MVAR capacitors
  - Install four 12 kV, 4.8 MVAR capacitors
  - Install a new Mechanical Electrical Equipment Room (MEER), with the associated communication, control and protection for the expanded substation

[1] As described in greater detail in Chapter 2, Introduction, Section 2.3.8.1 of SCE's Subtransmission Planning Criteria and Guidelines states, "A distribution substation with more than one standard 28 MVA transformer or more than 28 MW of load will normally be provided with two line service."

[2] The Proposed Project would expand the approximately 5-acre Cal City Substation by approximately 10 acres onto parcels acquired by SCE in 2022. A portion of the expanded substation property would accommodate the expanded substation footprint and security fence line; the remainder of the property would be used for drainage improvements and material staging.

Figure 1-1 Proposed Project and Electrical Needs Area Location[3]



[3] Figure 1-1 and subsequent figures in this PEA reflect the existing voltage levels of Cal City Substation (33/12 kV). Under the Proposed Project, Cal City Substation would be upgraded to a 115/12 kV and 115/33 kV substation.

- Edwards Substation Improvements
  - Equip one existing 115 kV line position
  - Expand existing 115 kV switchrack to a breaker-and-a-half configuration
  - Convert two 115 kV bank positions to a double bus, double breaker configuration
  - Install or upgrade protection for two 115 kV lines and two buses
- Holgate Switchyard Improvements
  - Equip one existing 115 kV line position
  - Upgrade protection for four 115 kV lines and the north 115 kV bus
- Kramer Substation Improvements
  - Equip one existing 115 kV line position
  - Convert two 115 kV bank positions to a double bus, double breaker configuration
  - Install or upgrade protection for two 115 kV lines and two banks

1.1.2.3 Distribution

- Construct two new underground 33 kV distribution getaways[4] at Cal City Substation
- Construct 14 new underground 12 kV distribution getaways at Cal City Substation
- Transfer approximately 5 miles of existing Castle Butte 33 kV and approximately 2 miles of existing Isner 33 kV Distribution Lines to new Kramer-Cal City 115 kV Subtransmission Line structures, and remove approximately 151 existing distribution structures along these line segments
- Transfer approximately 2 miles of existing Castle Butte 33 kV and approximately 2 miles of existing Conte 12 kV Distribution Lines to new Cal City-Edwards-Holgate 115 kV Subtransmission Line structures, and remove approximately 90 existing distribution structures along these line segments

1.1.2.4 Telecommunication

- Install equipment to support substation automation and protection requirements at Cal City Substation
- Install optical ground wire (OPGW) on the new Kramer-Cal City 115 kV Subtransmission Line
- Install OPGW and all-dielectric self-supporting (ADSS) fiber optic cable on the new Cal City-Edwards-Holgate 115 kV Subtransmission Line
- Install equipment at Kramer and Edwards Substations and Holgate Switchyard in support of the new telecommunications cable

1.2 Land Ownership and Right-of-Way Requirements

The Proposed Project would be located on federal lands managed by the Bureau of Land Management (BLM) and the Department of Defense (DoD, United States Air Force); state lands managed by the California Department of Fish and Wildlife (CDFW) and California Department of Transportation (Caltrans); county/city lands managed by Kern County, San Bernardino County, and the City of California City; private lands; and lands owned and managed by SCE.

[4] Distribution getaways generally consist of distribution cable, conduits, and vaults in the immediate vicinity of the substation as distribution lines enter/exit the property.

Existing right-of-way (ROW) or easements are found along some lengths of the Proposed Project alignment. The Proposed Project proposes to replace, modify, and install facilities within or in close proximity to the existing SCE facility alignment and may be able to reuse portions of the existing rights (see Appendix A for existing SCE ROW locations). At this time, it is assumed that SCE does not possess sufficient ROW or easements along the length of the Proposed Project where new facilities are being installed. The new ROW and/or easements will range in width from 30 to 60 feet. The specific width of necessary easements and/or ROW along the Proposed Project alignments will be refined during the final engineering process. New permanent easements on private lands would be obtained by SCE through negotiations with landowners. New permanent or modified ROWs may be obtained from the relevant public agency through that agency's designated process. Franchise rights will also be relied upon where applicable. All acquisitions would be finalized following CPUC approval.

1.3 Areas of Controversy

No areas of controversy or major issues related to the Proposed Project have been communicated to SCE by representatives from City of California City, Kern County, San Bernardino County, or others contacted by SCE as described in Section 2.2 of this document. SCE anticipates that possible areas of controversy may include: the temporary closure of lanes on some public roads during construction activities; the potential to affect aesthetics and biological resources; and compatibility and design considerations.

1.4 Summary of Impacts

1.4.1 Impact Assessment Methodology

The analysis of environmental impacts is based upon the environmental setting applicable to each resource/issue and the manner in which the construction, operation, and maintenance of the Proposed Project or alternatives would affect the environmental setting and related resource conditions. In accordance with California Environmental Quality Act (CEQA) requirements and guidelines, the impact assessment methodology also considers the following three topics: (1) the regulatory setting and evaluation of whether the Proposed Project or alternatives would be consistent with adopted federal, state, and local regulations and guidelines; (2) growth-inducing impacts; and (3) cumulative impacts. Regulatory compliance issues are discussed in each resource/issue area section. This Proponent's Environmental Assessment (PEA) is organized according to the following major issue area categories:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology, Soils, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards, Hazardous Materials, and Public Safety
- Hydrology and Water Quality
- Land Use and Planning

- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

To provide for a comprehensive and systematic evaluation of potential environmental consequences to the resource/issue areas, the environmental impact assessments for the Proposed Project and alternatives are based upon a classification system with the following definitions:

- SI: Significant Impact (also referred to as Significant and Unavoidable); adverse impacts may occur that would be significant even after applicant proposed measures have been applied to minimize their severity. A "significant impact" applies where the environmental impact exceeds the significance threshold, or information was lacking to make a finding of less than significant.
- LTSWM: Less than Significant Impact with Mitigation; significant adverse impacts may occur; however, with proper applicant proposed measures, the impacts can be reduced to less than significant.
- LTS: Less than Significant Impact; some impacts may result from the Proposed Project; however, they are judged to be less than significant. Impacts are frequently considered less than significant when the changes are minor relative to the size of the available resource base or would not change an existing resource. A "less-than-significant impact" applies where the environmental impact does not exceed the significance threshold.
- NI: No Impact; there would be no impact to the identified resource as a result of the Proposed Project.
- ND: No Determination; no determination can be made regarding the Proposed Project's impact to the resource at this time. An impact determination will be made pending additional information or analysis.

SCE has proposed measures to reduce impacts to potentially affected resources or areas referred to as Applicant Proposed Measures (APMs). Further, SCE will implement CPUC-identified Draft Environmental Measures as necessary and as applicable.

1.4.2 Impact Summary Table

Table 1-1 provides a summary of impacts and impact severity, APMs that would be applied, and significance of impact after mitigation. As shown in Table 1-1, for issue areas where impacts have been determined, the Proposed Project would not result in an impact that is significant and cannot be mitigated to a level that is less than significant.

Table 1-1 Summary of Impacts and APMs for the Proposed Project

Impact	Impact Class	Applicant Proposed Measure(s)[1]	Residual Impact
Impact AES-1: Have a substantial adverse effect on a scenic vista	LTS	None required.	LTS
Impact AES-2: Substantially damage scenic resources including, but not limited to: trees, rock outcroppings, and historic buildings within a state scenic highway	NI	None required	NI
Impact AES-3: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point)	SI	AES-1, AES-2	SI
Impact AES-4: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area	LTS	None Required.	LTS
Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to nonagricultural use	NI	None Required.	NI
Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract	NI	None Required.	NI
Impact AG-3: Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))	NI	None Required.	NI
Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use	NI	None Required.	NI
Impact AG-5: 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	NI	None Required.	NI
Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan	NI	None Required.	NI
Impact AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard	LTSWM	AIR-1, AIR-2, NOI-1	LTS
Impact AIR-3: Expose sensitive receptors to substantial pollutant concentrations	LTSWM	AIR-1, AIR-2, NOI-1	LTS
Impact AIR-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people	LTS	None Required.	LTS
Impact BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status in local or regional plans, policies, or regulations, or by the CDFW or USFWS	LTSWM	BIO-GEN-1, ENV-GEN-1 WEAP, BIO-HERP-1, BIO-RES-1, BIO-RES-2, BIO-RES-3, BIO-AVI-2, BIO-AVI-3, BIO-MAM-1, BIO-MAM-2, BIO-BOT-1, BIO-BOT-2	LTS

Impact	Impact Class	Applicant Proposed Measure(s)[1]	Residual Impact
Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS	LTSWM	BIO-GEN-1, ENV-GEN-1 WEAP, BIO-BOT-1, BIO-BOT-2, BIO-RES-1, BIO-RES-2, BIO-WET-1	LTS
Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means	LTSWM	WET-1	LTS
Impact BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites	LTS	None Required.	LTS
Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	LTSWM	BIO-GEN-1, ENV-GEN-1 WEAP, BIO-HERP-1, BIO-RES-1, BIO-RES-2, BIO-RES-3, BIO-AVI-2, BIO-AVI-3, BIO-MAM-1, BIO-MAM-2, BIO-BOT-1, BIO-BOT-2	LTS
Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan	NI	None Required.	NI
Impact BIO-7: Create a substantial collision or electrocution risk for birds or bats	LTS	None Required.	LTS
Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15065.5	ND[2]	ND[2]	ND[2]
Impact CUL-2: Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15065.5; and/or	ND[3]	ND[3]	ND[3]
Impact CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries	LTSWM	CUL-1, CUL-2, CUL-3, CUL-4, CUL-5	LTS
Impact EN-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation	LTS	None Required.	LTS
Impact EN-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency	NI	None Required.	NI
Impact EN-3: Add capacity for the purpose of serving a nonrenewable energy resource	NI	None Required.	NI
Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42.); strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides	LTS	None Required.	LTS

Impact	Impact Class	Applicant Proposed Measure(s)[1]	Residual Impact
Impact GEO-2: Result in substantial soil erosion or the loss of topsoil	LTS	None Required.	LTS
Impact GEO-3: 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	LTS	None Required.	LTS
Impact GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property	LTS	None Required.	LTS
Impact GEO-5: 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	NI	None Required.	NI
Impact GEO-6: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	LTSWM	PAL-1, PAL-2, PAL-3	LTS
Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment	LTS	None Required.	LTS
Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases	NI	None Required.	NI
Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	LTSWM	HAZ-1, HAZ-2	LTS
Impact HAZ-2: 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	LTSWM	HAZ-1, HAZ-2	LTS
Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school	LTSWM	HAZ-1, HAZ-2	LTS
Impact HAZ-4: Be located on a site that is included on a list of hazardous material sites, compiled pursuant to Government Code Section 65962.5, and as a result would create a significant hazard to the public or the environment	NI	None Required.	NI
Impact HAZ-5: 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, the project would result in a safety hazard or excessive noise for people residing or working in the project area	LTS	None Required.	LTS
Impact HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	LTS	None Required.	LTS
Impact HAZ-7: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires	LTS	None Required.	LTS
Impact HAZ-8: Create a significant hazard to air traffic from the installation of new power lines and structure	LTSWM	HAZ-3	LTS
Impact HAZ-9: Create a significant hazard to the public or environment through the transport of heavy materials using helicopters	NI	None Required.	NI

Impact	Impact Class	Applicant Proposed Measure(s)[1]	Residual Impact
Impact HAZ-10: Expose people to a significant risk of injury or death involving unexploded ordnance	LTSWM	HAZ-4	LTS
Impact HAZ-11: Expose workers or the public to excessive shock hazards	NI	None Required.	NI
Impact HYDR-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality	LTSWM	HAZ-1, WET-1	LTS
Impact HYDR-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin	LTS	None Required.	LTS
Impact HYDR-3: 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: Result in substantial erosion or siltation on site or off site; Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; Impede or redirect flood flows	LTSWM	WET-1	LTS
Impact HYDR-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation	LTSWM	HAZ-1, WET-1	LTS
Impact HYDR-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	LTSWM	HAZ-1, WET-1	LTS
Impact LU-1: Physically divide an established community	NI	None Required.	NI
Impact LU-2: 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	NI	None Required.	NI
Impact MIN-1: 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	NI	None Required.	NI
Impact MIN-2: 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	NI	None Required.	NI
Impact NOI-1: 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	LTSWM	NOI-1	LTS
Impact NOI-2: Generation of excessive groundborne vibration or groundborne noise levels	LTS	None Required.	LTS
Impact NOI-3: Exposure of people residing or working in the Project area to excessive noise levels 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	NI	None Required.	NI

Impact	Impact Class	Applicant Proposed Measure(s)[1]	Residual Impact
Impact POP-1: Induce substantial unplanned population growth in the area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through the extension of new roads or other infrastructure)	NI	None Required.	NI
Impact POP-2: Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere	NI	None Required.	NI
Impact PUB-1: 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, or other public facilities	NI	None Required.	NI
Impact REC-1: 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	NI	None Required.	NI
Impact REC-2: Include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment	NI	None Required.	NI
Impact REC-3: Reduce or prevent access to a designated recreation facility or area	LTSWM	REC-1	LTS
Impact REC-4: Substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas	NI	None Required.	NI
Impact REC-5: Damage recreational trails or facilities	LTS	None Required.	LTS
Impact TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities	LTS	None Required.	LTS
Impact TRA-2: Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) (vehicle miles traveled)	LTS	None Required.	LTS
Impact TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)	LTS	None Required.	LTS
Impact TRA-4: Result in inadequate emergency access.	LTS	None Required.	LTS
Impact TRA-5: Create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations	LTS	None Required.	LTS
Impact TRA-6: Interfere with walking or bicycling accessibility	NI	None Required.	NI
Impact TRA-7: Substantially delay public transit	LTS	None Required.	LTS

Impact	Impact Class	Applicant Proposed Measure(s)[1]	Residual Impact
Impact TCR-1: 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	ND[4]	TCR-1, TCR-2, CUL-1, CUL-2, CUL-3, CUL-4, and CUL-5[4]	ND[4]
Impact UTIL-1: 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	LTS	None Required.	LTS
Impact UTIL-2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years	NI	None Required.	NI
Impact UTIL-3: 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	NI	None Required.	NI
Impact UTIL-4: 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	LTS	None Required.	LTS
Impact UTIL-5: Comply with federal, state, and local management and reduction statutes and regulations related to solid waste	NI	None Required.	NI
Impact UTIL-6: Increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts	LTS	None Required.	LTS
Impact WF-1: Substantially impair an adopted emergency response/evacuation plan.	NI	None Required.	NI
Impact WF-2: 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	NI	None Required.	NI
Impact WF-3: 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	NI	None Required.	NI

Impact	Impact Class	Applicant Proposed Measure(s)[1]	Residual Impact
Impact WF-4: 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	NI	None Required.	NI

[1] Full text of the APMs is included in Table 3-14 in Chapter 3, Proposed Project Description.
[2] The results of the Historic-Era Built Environment Report are pending and currently under review by the Bureau of Land Management (BLM). Therefore, it cannot be determined at this time if structures to be modified or replaced are eligible for listing under the NRHP, CRHR, or local listing. As a result, no determination has been made.
[3] The results of the Cultural Resources Technical Report are pending and currently under review by BLM. Therefore, it cannot be determined at this time if significant archaeological resources would be affected by the Proposed Project. As a result, no determination has been made.
[4] The CPUC will consult with eligible tribes under PRC Section 21080.3.1 once the Application is complete. Impacts on tribal cultural resources are not addressed in this PEA because under AB 52, the CPUC must identify these resources during consultation. Therefore, no tribal cultural resources have been identified, and the impacts associated with tribal cultural resources have not been determined.
Notes:
SI = Significant Impact
LTS = Less than Significant
LTSWM = Less than Significant with Mitigation
ND = No Determination
NI = No Impact

1.5 Summary of Alternatives

Alternatives to the Proposed Project are identified in accordance with CEQA Guidelines. Section 15126.6(a) of the Guidelines state:

> An [Environmental Impact Report] EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.

Section 15364 of the Guidelines defines "feasible" as:

> …capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

SCE conducted an extensive routing process to identify solutions to meet the identified Project Objectives. This process began by identifying a study area that surrounded the ENA and the potential scope elements required to meet the Project Objectives. Once the study area was established, existing environmental data across 10 resource categories were collected. These data were categorized as an opportunity (i.e., areas with characteristics that were conducive to the routing of overhead power lines), concern (i.e., areas with characteristics that could make permitting, constructing, and/or maintaining overhead power lines extremely difficult and/or costly), or constraint (i.e., areas with characteristics that could make permitting, constructing, and/or maintaining overhead power lines challenging, though they were not considered infeasible). Utilizing this data, SCE identified an extensive network of route segments to create the necessary scope elements to meet the Project Objectives. Each segment was then scored according to a standard score sheet. The scores were used to develop weighted scores for end-to-end route combinations (i.e., route segments were combined to create unique routes). The best scoring routes were then reviewed and evaluated by SCE. Additional qualitative input was combined with the previously described quantitative input and the preferred routes were selected using this iterative process. This process included

evaluating more than 20,000 unique end-to-end route combinations. The routing process is described in greater detail in the *Cal City Substation 115 kV Upgrade Project Routing Report* (attached as Appendix S).

SCE has identified one feasible alternative to the Proposed Project and has identified a No Project Alternative. These are briefly summarized below and described in greater detail in Sections 4.1 and 4.2, respectively. SCE also identified and analyzed a number of other alternatives to the Proposed Project; these alternatives, and the criteria and rationale behind why each was rejected from further analysis, are presented in Section 4.1. Although various "route alternatives", "alternative-engineering alternatives", and "technological alternatives" were considered during the development of the Proposed Project, the Proposed Project was ultimately selected because no other project alternatives reduced or eliminated potentially significant impacts of the Proposed Project and the Proposed Project best meets the Project Objectives.

1.5.1 Sequoia Boulevard Alternative

Under the Sequoia Boulevard Alternative, the Cal City-Edwards-Holgate 115 kV Subtransmission Line would remain unchanged from the Proposed Project, while the proposed Kramer-Cal City 115 kV Subtransmission Line would follow a different route. From the Kramer Substation, this alternative would generally follow an existing utility corridor north along U.S. 395 for approximately 7.6 miles (versus 18.5 miles for the Proposed Project). The route then turns due west and travels overland in an area with no existing utility infrastructure or access roads for approximately 4.4 miles, to 270th Street. At this point, the route parallels Sequoia Boulevard, an existing unimproved dirt road for approximately 15 miles, to the intersection of Sequoia Boulevard and 140th Street, where the route meets the proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line. From this location, the alternative route for the new Kramer-Cal City 115 kV Subtransmission Line follows the same route as the Cal City-Edwards-Holgate 115 kV Subtransmission Line associated with the Proposed Project. Under the Sequoia Boulevard Alternative, the proposed Kramer-Cal City 115 kV Subtransmission Line would extend for approximately 34 miles, as compared to approximately 42 miles under the Proposed Project. As with the Proposed Project, the Sequoia Boulevard Alternative would involve distribution underbuild along portions of the proposed subtransmission line alignments. The alternative route would include transferring approximately 6 miles of existing distribution lines from existing poles to the new 115 kV poles associated with the Kramer-Cal City 115 kV Subtransmission Line. All other components of the Proposed Project would remain the same for the Sequoia Boulevard Alternative.

This alternative would satisfy all of the Proposed Project objectives by adding the required capacity to the ENA, reducing reliance on Edwards Substation, adding a second 115 kV subtransmission source line to Edwards Substation, and improving system reliability by providing diverse routes of power to the region. However, the approximately 7 miles of the new Kramer-Cal City 115 kV Subtransmission Line and new Cal City-Edwards-Holgate 115 kV Subtransmission Line that would be constructed physically adjacent to each other (i.e., non-diverse) would satisfy the final objective to a lesser degree when compared to the more diverse routes associated with the Proposed Project. Placing these lines physically adjacent to each other increases the vulnerability of both lines being subject to a concurrent outage due to a common event, thereby reducing reliability.

This Alternative is further described in Chapter 4, Description of Alternatives, and is analyzed in Chapter 6, Comparison of Alternatives.

1.5.2 No Project Alternative

Under the No Project Alternative, SCE would attempt to provide additional capacity to the ENA through the implementation of distribution level mitigation projects described in Chapter 2, Introduction. However, due to lack of existing infrastructure in the area these mitigating actions (including, but not limited to, construction of one new 33 kV distribution circuit from Edwards Substation to the Cal City portion of the ENA, reconductoring one of the existing Cal City Substation 33 kV source lines to maximize its capacity, and installation of temporary distribution substations) would fall well short of the forecasted capacity targets. Furthermore, SCE would have limited opportunities to connect additional services and customers in the area. Therefore, the No Project Alternative would fail to meet any of the Proposed Project's objectives because it would not bring sufficient capacity to the ENA to meet forecasted demand, would not minimize reliance on Edwards Substation to provide power to the ENA, would not bring a second 115 kV source line to Edwards Substation, and would not diversify the sources of power to the ENA. This Alternative is described in Chapter 4, Description of Alternatives.

1.6 Pre-filing Consultation and Public Outreach Summary

To date, SCE has briefed land managers (BLM, DoD, and CDFW); local jurisdictions crossed by or near the Project alignment (Kern County, San Bernardino County, and the City of California City); and the CPUC Energy Division CEQA Unit. A Virtual Town Hall meeting was conducted on August 11, 2021, which included local residents, landowners, and commercial developers. On an ongoing basis, SCE is in communication with other project applicants in the California City area, such as Big West and Canna Systems Corporations. Additionally, SCE has conducted pre-filing/pre-application meetings with both the CPUC and BLM. Details regarding this pre-filing consultation with agencies and SCE's public outreach efforts are presented in Section 2.2, Pre-filing Consultation and Public Outreach. Pre-filing consultation and public outreach did not result in the generation of any significant outcomes, and thus none were incorporated into the Proposed Project.

1.7 Conclusions

The primary conclusions resulting from the environmental impact analyses presented in Chapter 5 and Chapter 6 of this document are as follows:

- The Proposed Project, as described in Chapter 3, and the Sequoia Boulevard Alternative identified in Chapter 4, both meet most of the objectives identified for the Proposed Project.
- At this time the Proposed Project, as described in Chapter 3, results in one potentially significant environmental impact that cannot be mitigated to a level that is not significant related to aesthetics.
- The Sequoia Boulevard Alternative, as analyzed in Chapter 6, does not reduce or eliminate the significant and unavoidable aesthetic impact of the Proposed Project. The significant and unavoidable aesthetic impact identified for the Proposed Project would be greater under the Sequoia Boulevard Alternative.

1.8 Remaining Issues

No major environmental, engineering, or real property-related issues remain to be resolved.

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Chapter 2 Introduction

This Chapter introduces the Cal City Substation 115 kV Upgrade Project (Proposed Project) and identifies its purpose and need and its objectives. This information is required by the California Public Utilities Commission's (CPUC) Proponent's Environmental Assessment (PEA) Guidelines (*Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*, dated November 2019) and the California Environmental Quality Act (CEQA) Guidelines (Pub. Resources Code § 21000 *et seq.*) and its implementing Guidelines (14 Cal. Code Regs. § 15000 *et seq*). Additional information regarding the Proposed Project's purpose and need is provided in Southern California Edison's (SCE) Permit to Construct (PTC) Application to the CPUC in accordance with CPUC General Order (GO) 131-D.

This section also provides a roadmap to the organization of this PEA document.

2.1 Project Background

SCE is a public utility that provides electric service to a population of approximately 15 million people within a 50,000-square-mile service area that encompasses 180 cities throughout Southern California. SCE owns and operates approximately 5,000 miles of transmission lines (500 kV and 220 kV) and 2,700 miles of subtransmission lines (66 kV and 115 kV).

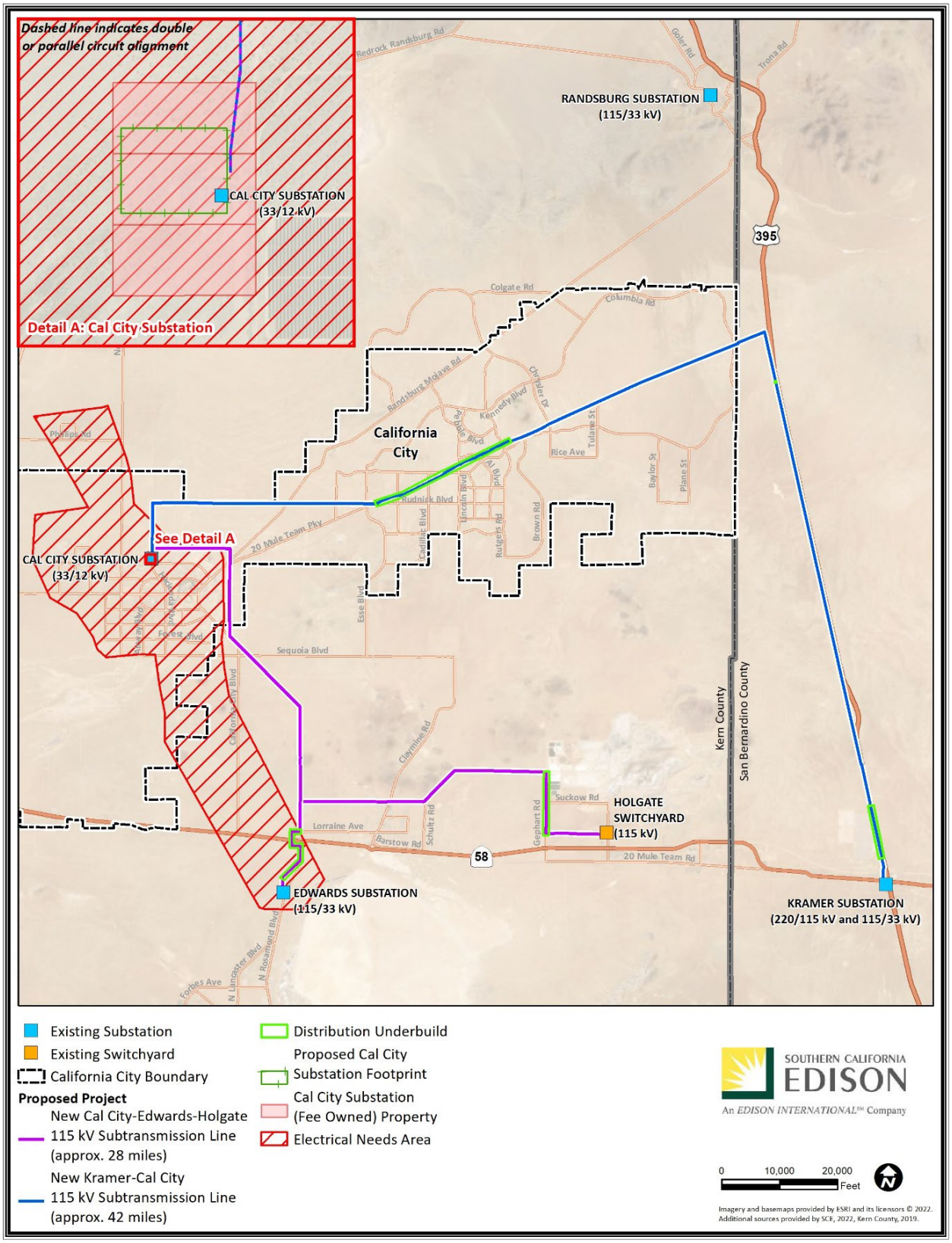
The Proposed Project is comprised of: 1) substation upgrade of Cal City Substation from 33/12 kV to 115/33 kV and 115/12 kV and associated construction of two new 115 kV subtransmission lines to serve the upgraded substation, and 2) construction of a new 115 kV line segment into Edwards Substation. The substation upgrade component is intended to serve current and projected demand for electricity and maintain electric system reliability in the Electrical Needs Area (ENA), located in California City and surrounding portions of unincorporated Kern County and Edwards Air Force Base (EAFB). Figure 2-1, Electrical Needs Area, shows the location of the Proposed Project and ENA in relation to the larger regional area. The 115 kV line segment to Edwards Substation component of the Proposed Project is to address the operational flexibility need and the reliability need for a second source of power to the Edwards Substation consistent with SCE's Subtransmission Planning Criteria and Guidelines.

SCE's Cal City 33/12 kV Substation, located in California City, serves customer electrical demand in the California City portion of the ENA[1]. Presently, Cal City Substation receives power through two 33 kV distribution lines. Due to a significant amount of new development and the associated increase in electrical demand within the ENA, loading in the ENA exceeded the capacity of Cal City Substation (as limited by the 33 kV source lines and the transformation capacity of the substation) beginning in 2017. As the electrical demand is projected to continue to grow, additional substation capacity, source line capacity, and distribution facilities are needed to support the continued growth.

The southern portion of the ENA contains SCE's Edwards Substation, one of two SCE substations that serve customer electrical demand on the United States Air Force installation at EAFB, the other being Southbase Substation. Both substations currently receive power from a single 115 kV source line originating from SCE's Holgate Switchyard, located approximately 11 miles to the northeast. Dependence on a single source line reduces reliability, as an unplanned outage along this source line can result in total loss of power to Edwards Substation and, by extension, all of EAFB. As such, a second 115 kV source line

[1] Cal City Substation currently serves customer electrical demand within the incorporated limits of California City, as well as a small portion of unincorporated Kern County in the northern portion of the ENA.

Figure 2-1 Electrical Needs Area



to Edwards Substation is required to conform with SCE's Subtransmission Planning Criteria and Guidelines to ensure safe and reliable electrical service to EAFB.

2.1.1 Purpose and Need

SCE proposes to construct the Proposed Project to serve current and projected demand for electricity and to maintain and improve electric system reliability in the ENA, which includes portions of California City as well as surrounding portions of unincorporated Kern County and EAFB.

In addition to serving the forecasted demand for the ENA, the Proposed Project would provide a second 115 kV source line to Edwards Substation to improve system reliability and operational flexibility in the ENA. Edwards Substation currently serves more than 28 MVA of load and includes more than a single 28 MVA transformer and, therefore, requires a second subtransmission source line in accordance with Section 2.3.8.1 of SCE's Subtransmission Planning Criteria and Guidelines.

2.1.1.1 Project Purpose

Under the rules, guidelines, and regulations of the Federal Energy Regulatory Commission (FERC), North American Electric Reliability Council (NERC), Western Energy Coordinating Council (WECC), CPUC, and SCE's planning criteria and guidelines, electrical transmission, subtransmission, and distribution systems must have sufficient capacity to maintain safe, reliable, and adequate service to customers. The safety and reliability of the systems must be maintained under normal conditions when all facilities are in service, as well as under abnormal conditions during equipment or line failures, maintenance outages, or outages that cannot be predicted or controlled, which are caused by weather, earthquakes, traffic accidents or any other unforeseeable events.

The purpose of the Proposed Project is to enable SCE to provide the necessary capacity to meet the electrical needs of the customers in the ENA in a reliable and safe manner consistent with prudent planning practices. Additionally, the Proposed Project would enable SCE to comply with applicable rules, guidelines, and regulations as they relate specifically to the subtransmission and distribution system that serve the ENA. Specifically, the Proposed Project would serve current and projected demand for electricity within the ENA by providing new 115 kV subtransmission lines between Kramer and Cal City Substations and between Cal City Substation, Edwards Substation, and Holgate Switchyard, along with necessary substation improvements and distribution getaway improvements to increase capacity of Cal City Substation.

Furthermore, Edwards Substation is located in the southern portion of the ENA and is currently served by a single 115 kV source line, which reduces reliability to EAFB as an unplanned outage along this line could result in a total loss of power to the substation. As described in Section 2.1.1.3.2, below, Section 2.3.8.1 of SCE's Subtransmission Planning Criteria and Guidelines state that when a substation either serves more than 28 MVA of load or when more than a single 28 MVA transformer is installed, two subtransmission source lines should be provided. Edwards Substation meets both criteria requiring installation of a second subtransmission source line. Therefore, the Proposed Project would also improve system reliability and operational flexibility in the ENA by providing a second 115 kV subtransmission source line to Edwards Substation consistent with SCE's reliability criteria to ensure safe and reliable electrical service to EAFB.

2.1.1.2 Project Need

SCE's planning activities establish forecasts of electrical demand and then evaluate the adequacy and performance of SCE's existing electrical facilities to meet such needs as described in further detail in Section 2.1.1.2.1, Planning Processes. System design and operating parameters (including adequate voltage

delivery, the amount of electrical load that can be served by equipment, and minimum number of source lines) have been established to ensure that SCE maintains the required capacity and system operational flexibility to safely and reliably meet the projected electrical demands under both normal and abnormal conditions.

Cal City Substation serves customer electrical demand in the California City portion of the ENA. Cal City Substation is currently provided power by two 33 kV lines, one from SCE's Randsburg Substation located approximately 24 miles to the northeast and one from SCE's Edwards Substation located approximately 12 miles to the southeast. Transformers at Cal City Substation transform voltage from 33 kV to 12 kV, then distribute it within the ENA via 12 kV distribution circuits. The amount of electrical load that can be served by the existing Cal City Substation is limited by the maximum amount of electrical power that the 33 kV source lines can provide (considering the maximum amount of power they can deliver while also maintaining adequate voltage). The maximum amount of power the two 33 kV lines can provide to Cal City Substation is limited to 18 MVA (see Table 2-1 and Table 2-2) and thus, this is the maximum operating limit of the Cal City Substation and the limiting factor that determines the maximum amount of electrical demand the substation can provide. Loading in the ENA exceeded the capacity of Cal City Substation (as limited by the 33 kV source lines) beginning in 2017 and the load is forecast to grow to 173 MVA by 2030. Consequently, a project to increase capacity is needed.

In addition to the capacity and reliability concerns in the Cal City portion of the ENA, there are also reliability concerns in the EAFB area because the two substations serving the area (Edwards Substation and Southbase Substation) both ultimately receive power from the same single 115 kV subtransmission source line originating from SCE's Holgate Switchyard. An outage of this single source line results in a loss of service to all customers served from both substations. In most of SCE's service territory, substations have adjacent substations that are provided power through a network of subtransmission source lines that remain in service even when one line experiences an outage. Those substations can be leveraged to restore service in the event of an unplanned outage. When a substation serves less than the capacity of a single substation transformer, which is typically 28 MVA, it may be served by a single subtransmission source line if adjacent electrical facilities have sufficient capacity to restore service during an outage. However, if the capacity margin of the adjacent facilities is insufficient (as is the case with the EAFB area because there are no adjacent facilities that would be unaffected by an outage to the single subtransmission source line), SCE proposes a project to increase the number of subtransmission source lines to the substation. Therefore, a second 115 kV subtransmission source line to Edwards Substation is needed to ensure loss of power does not occur during expected contingency events, which include an unplanned outage of a single subtransmission system component (e.g., 115 kV source line).

Recent load growth at Edwards Substation necessitated the addition of a second transformer (installed in 2022) and the current need for a second source line. The need for the second line of service to Edwards Substation is independent of the capacity need for the facilities required to serve the load growth in the Cal City Substation portion of the ENA; however, rather than propose two separate projects to address the independent needs (i.e., Cal City Substation load growth and the Edwards Substation reliability criteria), SCE proposes a combined comprehensive project. This approach minimizes scope, schedule, cost, and environmental impacts by leveraging the scope being proposed to upgrade Cal City Substation to also address the reliability needs of a second source line to Edwards Substation.

The Proposed Project is needed to 1) address forecast increases in electrical demand due to new development and associated electrical demand growth in the Cal City Substation area, 2) address reliability concerns associated with increased loading and a single 115 kV source line at Edwards Substation, and 3) increase operational flexibility in the ENA.

2.1.1.2.1 Planning Processes

The Proposed Project consists of two main components: upgrading the existing Cal City 33/12 kV Substation to 115/33 kV and 115/12 kV along with constructing two new 115 kV source lines, and constructing a new 115 kV subtransmission line segment into Edwards Substation.

Each of the Proposed Project components have specific planning processes and address different needs; the planning process and need for each component are described in the following subsections.

Distribution System Planning Process

Presently, Cal City Substation is only served by distribution infrastructure. SCE's annual distribution system planning process is designed to ensure that the required capacity and operational flexibility of the distribution system is available to safely and reliably meet the projected peak electrical demands under normal and abnormal system configurations. The planning process evaluates recorded loading profiles and peak electrical demand values to develop normal weather condition (i.e., 1-in-2 year temperatures) starting points for distribution circuits and substations for the 10-year forecast. From these starting points, annual values of projected growth in electrical demand are established through disaggregation of the California Energy Commission's (CEC) Integrated Energy Policy Report (IEPR) forecasts and through analysis of such data inputs as historical load growth values, near-term known future load growth projects, energy efficiency programs, distributed energy resources, and economic conditions. Once starting points and net load growth forecasts are established, the projected peak electrical demand values are calculated to represent the expected demand during periods of extreme heat (i.e., 1-in-10 year temperatures). SCE terms these loading values as "criteria projected loading" values. SCE then evaluates the performance of the distribution system using the criteria projected loading values with all electrical facilities in-service and then again with single elements of the electrical system out-of-service; these are known as normal (i.e., base case or N-0) and abnormal (i.e., contingency or N-1) system configurations, respectively. When the criteria projected loading value exceeds the maximum operating limits of the existing electrical facilities, an analysis is performed to determine what solutions may be needed in order to ensure electrical demand remains within equipment operating limits. This analysis includes evaluating adjacent electrical facilities to determine if available capacity is present to accommodate load transfers, the possibility of upgrades to existing facilities (e.g., replacing existing equipment with higher-rated equipment) to increase capacity, and whether the installation of new facilities (e.g., distributed energy resources, new circuits, or substations) are needed.

Subtransmission System Planning Process

Presently, Edwards Substation is served by a single, 115 kV subtransmission source line. SCE's annual subtransmission system planning process is designed to ensure that there is adequate capacity and operational flexibility to provide electrical service to the distribution substations during peak electrical demand periods both under normal system conditions (when all subtransmission facilities are in-service) and under specific abnormal system conditions (when any one subtransmission facility is out-of-service). Power flow studies of a network of subtransmission lines evaluate the specific power flows that occur on the lines within the network as well as identify the resulting voltage values. The power flow values that result are dictated by the electrical demand values of the distribution substations served by the configuration of the subtransmission lines and the characteristics of the subtransmission lines themselves (e.g., impedance of the lines). Criteria projected loading values are also used for the subtransmission planning process to reflect subtransmission system performance during periods of extreme heat and use the distribution substation planning process as input values.

When power flow studies identify insufficient capacity to provide service while preventing overloads or voltage violations from occurring, a similar process to that described for distribution system planning is performed, including: evaluating adjacent electrical facilities to determine if available capacity is present to accommodate load transfers, whether upgrades to existing facilities (e.g., replacing existing equipment with higher-rated equipment) may be needed to increase capacity, and whether the installation of new facilities (e.g., distributed energy resources or new subtransmission lines) is necessary.

2.1.1.3 System Needs

2.1.1.3.1 Distribution System Need

Currently, the Cal City Substation portion of the ENA is served exclusively by distribution infrastructure (i.e., equipment designed for operation at less than 50 kV). The amount of electrical power that can be distributed throughout the Cal City portion of the ENA is limited to the amount of electrical demand that the distribution infrastructure (existing Cal City Substation, its source lines, and the associated distribution circuits) can serve while staying within design and operating limits. The operating capacity of Cal City Substation to serve the ENA is currently limited to 18 MVA under a normal system configuration. While the substation has a total transformer capacity of 36.4 MVA, the full utilization of this is unachievable because the 33 kV source lines, which deliver power to the substation, are constrained by voltage limitations that limit the maximum power they can deliver to 18 MVA. In other words, the capacity that the substation can provide is determined by the lesser of the transformer capacity or its source lines; for Cal City Substation, the source lines limit capacity.

In 2017, the loading in the ENA first exceeded the capacity of Cal City Substation (as limited by the 33 kV source lines), as presented in Table 2-1. This resulted in slightly subpar voltage but did not result in customer load being unserved. The same situation occurred in both 2018 and 2020, but not in 2019[2]. With the significant increase in the projected electrical demand due to load growth in the area, the resulting projected overloads become significant and would no longer be able to be accommodated without consequence as in the years 2017-2020. With the Proposed Project's anticipated operational year of 2028, and the projected electrical demand being forecast to be approximately 173 MVA (existing customer load plus new load growth) in 2028, the projected electrical demand in the ENA significantly exceeds the maximum operating limits of existing electrical facilities.

Table 2-1 and Table 2-2 provide the Cal City Substation historical peak demand and forecasted peak demand values, respectively, relative to the maximum operating limit of the substation. Figure 2-2 is a chart of the data in Table 2-2. As shown in Tables 2-1 and 2-2, without the Proposed Project, SCE will be unable to provide sufficient electrical service to meet customer load growth reliably and safely in the ENA. As a result, SCE identified several distribution system improvements, including reconductoring an existing 33 kV line, installing a new 33 kV line, and installing temporary 33/12 kV distribution pad mount substations to serve a portion of the new load growth prior to the Proposed Project being constructed. These are described in more detail in Section 2.1.2.3. Reconductoring the existing 33 kV line and installing a new 33 kV line would increase the capacity of the existing Cal City Substation from 18.0 MVA to 36.4 MVA, the maximum capacity of the substation transformers, but projected load continues to exceed the capacity of the ENA. Expected to be complete in 2023, the installation of temporary distribution pad mount substations along the 33 kV source lines will provide an additional 54 MVA, bringing the total amount of capacity in the ENA to 90.4 MVA. However, load projections will continue to exceed capacity, increasing to 173.4 MVA by 2030, a deficit of approximately 83 MVA. Further, the 33/12 kV distribution pad mount

[2] 2019 was a significantly cooler than normal year throughout California and as a result loads in the ENA were less than prior and subsequent years.

substations would be temporary because they would not be designed to have the same level of reliability as standard facilities intended as long-term solutions.[3] Therefore, a long-term project is needed to: supply additional substation transformer capacity, provide subtransmission voltage level source lines to the substation, and provide distribution circuitry allowing for delivery of power to the customers in the Cal City Substation portion of the ENA. Chapter 4, Description of Alternatives, describes system alternatives considered to address these identified system deficiencies.

Information provided in Table 2-1 and Table 2-2 is based on the most current data available as of the date of this PEA. SCE continues to track substation capacity and peak demand and may update the values presented in these tables as such data becomes available.

Table 2-1 Historical Electrical Needs Area Substation Capacity and Peak Demand

	Historical Years				
Historical: Capacity versus Peak Demand	**2016**	**2017**	**2018**	**2019**	**2020**
Maximum Operating Limit (MVA)	18.0	18.0	18.0	18.0	18.0
Adjusted Peak Demand: Normal Weather (MVA)	15.3	17.6	18.0	16.8	17.1
Adjusted Peak Demand: 1-in-10 Year Heat Storm (MVA)	16.2	18.7	19.1	17.8	18.1
Surplus/Deficit (MVA)	1.8	-0.7	-1.1	0.2	-0.1

Table 2-2 Projected Electrical Needs Area Substation Capacity and Peak Demand

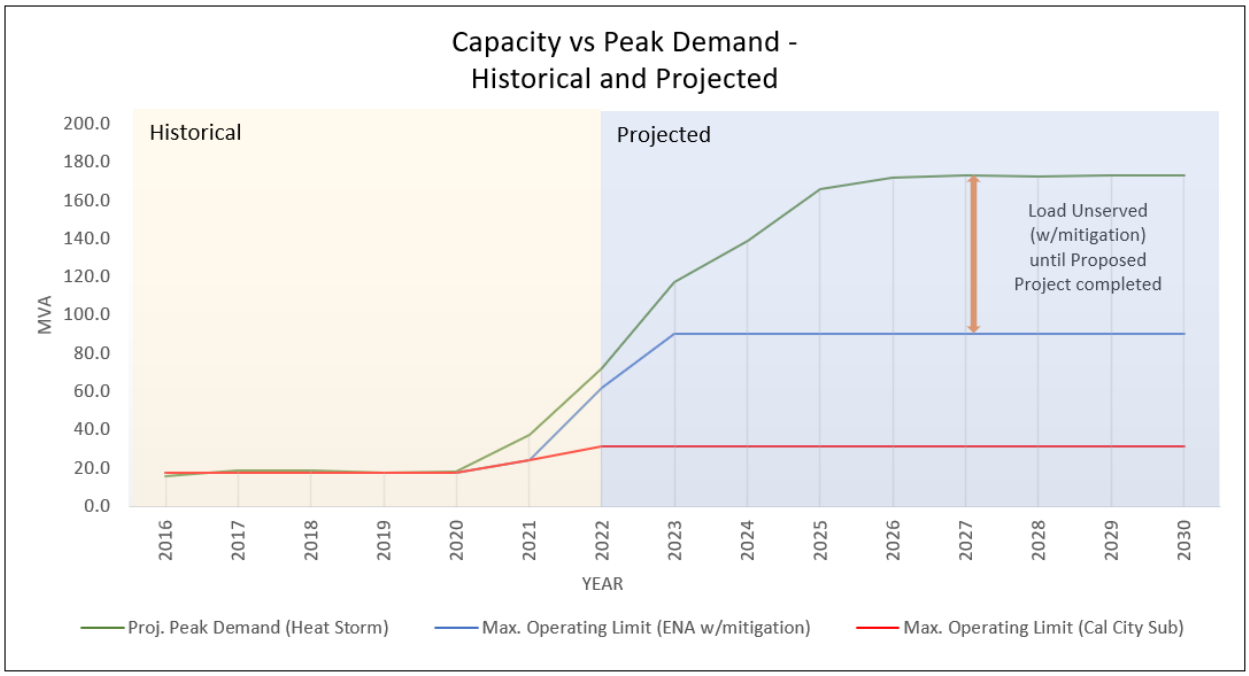
	Future Years				
Projected: Capacity versus Peak Demand	**2021[1]**	**2022**	**2023**	**2024**	**2025**
Maximum Operating Limit (MVA)*	24.3	36.4	36.4	36.4	36.4
Projected Peak Demand 1-in-10 Year Heat Storm (MVA)	37.4	72.4	117.4	138.8	165.8
Surplus/Deficit *before* Temporary Mitigation (MVA)	-13.3	-40.8	-85.8	-107.2	-134.2
Additional Peak Demand Served by Temporary Mitigation (MVA)*	0	26.0	54.0	54.0	54.0
Surplus/Deficit *after* Temporary Mitigations (MVA)	-13.1	-10.0	-27.0	-48.4	-75.4
	Future Years				
Projected: Capacity versus Peak Demand	**2026**	**2027**	**2028**	**2029**	**2030**
Maximum Operating Limit (MVA)	36.4	36.4	36.4	36.4	36.4
Projected Peak Demand 1-in-10 Year Heat Storm (MVA)	171.9	173.0	172.9	173.2	173.4
Surplus/Deficit *before* Temporary Mitigation (MVA)	-140.3	-141.4	-141.3	-141.6	-141.8
Additional Peak Demand Served by Temporary Mitigation (MVA)	54.0	54.0	54.0	54.0	54.0
Surplus/Deficit *after* Temporary Mitigations (MVA)	-81.5	-82.6	-82.5	-82.8	-83.0

1. The 2021 data is based on forecast data and, therefore, included in future year projections. SCE continues to track substation capacity and peak demand, and information will be updated as historical data and updated forecasts become available.

*As described in greater detail in Section 2.1.2.3, SCE is implementing several mitigation projects that would provide additional temporary capacity to minimize the amount of load that would otherwise go unserved until the Proposed Project was constructed. The "Maximum Operating Limit" includes mitigation projects that would increase the capacity of the existing Cal City Substation while the term "Temporary Mitigation" refers to the installation of temporary distribution pad mount substations along the 33 kV source lines which, in addition to the substation capacity improvements, increases the total capacity in the ENA.

[3] Consistent with common electrical utility industry practice and sound engineering, SCE's planning criteria is written to ensure adequate capacity is available to meet customer demand under both normal conditions (base case or N-0) where all facilities are in service but also during reasonable planned for abnormal conditions (N-1) where one facility is out of service due to an unplanned outage. Planning for sufficient capacity under both conditions requires an adequate level of redundancy to ensure that during unplanned outages, adjacent electrical facilities may be utilized to restore electrical service while the outage cause is remedied. The interim temporary distribution facilities would not have the equivalent N-1 redundancy as would standard facilities constructed with the intent to be long-term permanent facilities. The lack of the redundancy may result in degraded reliability in trade off for maximizing capacity to minimize unserved customer load prior to the completion of the Proposed Project.

Figure 2-2 Projected Electrical Needs Area: Substation Capacity and Peak Demand[4]



Note: The Max. Operating Limit (Cal City Sub) reflects the capacity of the the substation as is (18.0 MVA from 2016-2020) and then after upgrades to the 33 kV source lines (2021-2030). The Max. Operating Limit (ENA w/mitigation) of the Electrical Needs Area after upgrades to the 33 kV source lines, the existing 115 kV line, AND after installation of the temporary 33/12 kV mitigation capacity additions.

2.1.1.3.2 Subtransmission System Need

The current subtransmission facilities that serve Edwards Substation consist of a single 115 kV source line that originates from SCE's Holgate Switchyard. Edwards Substation operates at 115/33 kV and currently has 56 MVA and 28 MVA transformer banks installed with a nameplate capacity of 84 MVA and is expected to have an operational planned loading limit of 109.2 MVA.[5] By the end of the current 10-year forecast (covering the years 2021-2030), Edwards Substation is projected to have 67 MVA of electrical demand.

Section 2.3.8.1 of SCE's Subtransmission Planning Criteria and Guidelines state that when a substation either serves more than 28 MVA of load or when more than a single 28 MVA transformer is installed, two subtransmission source lines should be provided to ensure sufficient capacity, reliability, and operational flexibility. Edwards Substation meets both criteria in support of adding a second subtransmission source line; therefore, a new 115 kV subtransmission project is proposed. When designing subtransmission systems, it is necessary to provide sufficient subtransmission line capacity to ensure the transformer capacity of a substation is not limited by its source lines. Additionally, and separate from providing sufficient capacity, it is important to provide a sufficient number of source lines to accommodate reasonably

[4] 2022 data is based on forecast data and, therefore, included in future year projections. SCE continues to track substation capacity and peak demand, and information will be updated as historical data and updated forecasts become available.

[5] Distribution substation power transformers are provided a "nameplate" rating by the manufacturer. SCE typically establishes a "planned loading limit" of the distribution substation power transformers that may be up to 130 percent of the nameplate rating. In determining the planned loading limit capacity of an entire distribution substation, SCE performs an analysis of all components of the substation that operate together (e.g., transformers, circuit breakers, conductors, and other ancillary equipment) and would impact the operational capacity of the substation. The limiting component of the substation equipment determines the planned loading limit. For new substations, SCE typically ensures that no ancillary equipment ratings would result in less than the 130 percent planned loading limit of the nameplate capacity of the substation transformers.

planned for contingency events in which a single line is removed from service. Without a second source, there would be no source of power to the substation.

Disruptions to subtransmission lines for reasonably expected causes (i.e., N-1 contingencies) can translate to disruptions to the distribution substations resulting in power outages to customers. For this reason, operational flexibility is an important design tenet that affords system operators opportunities to reconfigure the system to address a number of situations including such things as contingencies, maintenance, repairs, relocations, and new construction. Improving system operational flexibility by minimizing reliance on Edwards Substation to serve off-base demand is important because it reduces the potential for access and security clearance considerations to delay necessary maintenance and repairs to infrastructure serving customers located outside of EAFB.

Both the existing transformer inventory and the projected load at Edwards Substation necessitate a second source line in accordance with SCE's Subtransmission Planning Criteria and Guidelines. The Proposed Project component constructing a 115 kV line segment to Edwards Substation from the proposed new Cal City-Holgate 115 kV source line would satisfy the reliability and operational flexibility requirements.

2.1.1.4 Localities Served

The substation upgrade component (including the 115 kV source lines) of the Proposed Project would serve the Cal City Substation portion of the ENA, which includes portions of California City and surrounding areas of unincorporated Kern County. The Proposed Project would serve current and forecasted electrical demand requirements within this portion of the ENA by providing additional capacity to localities currently served by existing substations/infrastructure.

The subtransmission line component of the Proposed Project (i.e., subtransmission line segment to Edwards Substation, providing a second source line) would serve EAFB (military load on military base) as well as SCE customers in California City and adjacent areas of unincorporated Kern County. This component of the Proposed Project would provide improved system reliability and operational flexibility through the construction of a second source line to Edwards Substation.

2.1.1.5 California Independent System Operator Consideration

The SCE electrical facilities, both current and proposed, to serve the ENA and the surrounding area are not CAISO-controlled nor under CAISO jurisdiction and, therefore, no CAISO consideration or approval is necessary or required.

2.1.2 Project Objectives

2.1.2.1 Basic Project Objectives

The Proposed Project is being proposed to meet the following objectives:

- Add load-serving capacity in the ENA to serve current and long-term forecast electrical demand
- Improve system reliability within the ENA by providing diverse routes of power supply to the region
- Improve system operational flexibility by minimizing the reliance on Edwards Substation (located on military base with restricted access) to provide power to the ENA (adjacent to military base)
- Improve system reliability within the ENA by providing a diversely-routed second 115 kV source line to Edwards Substation

2.1.2.2 How Project Implementation Will Achieve the Basic Project Objectives

Implementation of the Proposed Project will achieve the basic project objectives through the upgrade of Cal City Substation (and associated distribution getaway improvements) and construction of the new Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Lines, which includes construction of the new 115 kV line segment to Edwards Substation.

As described in Section 2.1.1.3, System Needs, the portion of the ENA near Cal City Substation is not currently served by subtransmission infrastructure. Peak demand began exceeding the capacity of Cal City Substation (as limited by its 33 kV source lines) in 2017 and forecasted peak demand is expected to continue, significantly exceeding the maximum operating capacity of the Cal City Substation currently.[6] New subtransmission facilities associated with the substation upgrade (including the new 115 kV source lines) will increase capacity to meet the electrical demands driven by customer growth and will improve reliability by minimizing SCE's reliance on electrical facilities located at Edwards Substation, which is located on a military base with restricted access.

The facilities associated with the new 115 kV line segment to Edwards Substation will improve operational flexibility and reliability through the addition of a second subtransmission source line that will ensure power is maintained during reasonably planned for contingency conditions (i.e., N-1 contingencies).

2.1.2.3 Why Attainment of the Basic Project Objectives is Necessary

Add load-serving capacity in the ENA to serve current and long-term forecast electrical demand

The Proposed Project includes an objective to add capacity to serve long-term forecasted electrical demand requirements in the Cal City Substation portion of the ENA. Currently, Cal City 33/12 kV Substation is the only substation that directly serves customer load in the Cal City Substation portion of the ENA. The amount of electrical power that can be delivered is limited to the maximum amount of electrical demand that the 33 kV source lines to Cal City Substation can provide before exceeding the maximum operating limits. As shown in Table 2-1 and Table 2-2, the operating capacity of the Cal City Substation is source-line limited to 18 MVA due to voltage limitations. This capacity has been insufficient since 2017 to adequately provide electrical service (i.e., serving all electrical demand while also ensuring voltage delivery meets SCE's CPUC-filed Rule 2[7]).

Voltage decreases along the path the power takes from its point of origin to its point of delivery. The amount of decrease is dependent on several factors, including the amount of power being delivered and the impedance of the power line transmitting it. Coupling the increased demand of Cal City Substation with its very long 33 kV distribution source lines decreases SCE's ability to maintain adequate voltage while meeting all customer demand. By the Proposed Project's anticipated operational year of 2028, the projected demand is forecast to be approximately 173 MVA which far exceeds the available capacity to provide service to SCE's customers. Without the Cal City Substation upgrade, the projected new electrical demand from customers in California City will exceed the existing capacity that can be provided from Cal City Substation and load would go unserved as demonstrated by the data provided in Table 2-2 and Figure 2-2.

Upgrades to the Cal City Substation along with new distribution and 115 kV subtransmission infrastructure are needed to meet the electrical demands of customers in the ENA. The Proposed Project includes the scope necessary to provide the substation, distribution, and subtransmission system capacities needed to

[6] Current applications for service cannot be interconnected because SCE does not have the capacity at Cal City Substation to accommodate the new load currently awaiting interconnection.
[7] https://library.sce.com/content/dam/sce-doclib/public/regulatory/tariff/electric/rules/ELECTRIC_RULES_2.pdf

meet the customer load in the ENA. As the expected in-service date of the Proposed Project is not until 2028, SCE has identified several mitigation projects in the interim to allow for some additional capacity to be added to the Cal City Substation portion of the ENA serving a portion of the forecasted new load growth.[8] These mitigation projects include constructing one new 33 kV distribution circuit from Edwards Substation to the Cal City ENA, reconductoring the existing 33 kV source line from Edward Substation (maximizing its capacity), extending an existing 33 kV circuit to Cal City Substation from Randsburg Substation, and installing several 33/12 kV temporary distribution pad mount substations,[9] which would be provided power from the 33 kV lines from Edwards Substation. While these mitigation projects would provide some loading relief, they would not be sufficient to meet the 10-year forecast need of the Cal City Substation portion of the ENA and therefore would not be a substitute for the long-term solution provided by the Proposed Project. Through implementation of these mitigation projects, approximately 54 MVA of load of the customers' requesting service can be served until the Proposed Project is completed. After completion, the customers served by the temporary distribution pad mount substation facilities would be transferred to the new Cal City Substation facilities and the temporary facilities would be removed.

Upgrades to the Cal City Substation and construction of the new Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Lines would satisfy the project objectives by adding load serving capacity to address current and forecasted capacity deficits in the Cal City Substation portion of the ENA.

Improve system reliability within the ENA by providing diverse routes of power supply to the region

In addition to adding load serving capacity to the Cal City Substation portion of the ENA, the Proposed Project includes an objective to improve system reliability within the ENA by providing diverse routes of power supply to the region. The Proposed Project involves construction of two new 115 kV subtransmission source lines to serve the upgraded Cal City Substation, which is not presently served by subtransmission infrastructure. Constructing two source lines along the same path—either physically adjacent to each other or on shared structures—increases the vulnerability of both lines to experiencing a concurrent outage due to a common event. As such, reliability is diminished the longer two source lines share a common path. Route diversity inherently improves system reliability, as an event resulting in an outage along one line is less likely to affect the second line if it is physically distanced from the other. For these reasons, the Proposed Project has been designed to maximize route diversity for the proposed Kramer-Cal City 115 kV Subtransmission Line and Cal City-Edwards-Holgate 115 kV Subtransmission Line, thereby resulting in improved system reliability within the ENA consistent with prudent planning practices.

Improve system operational flexibility by minimizing the reliance on Edwards Substation (located on military base with restricted access) to provide power to the ENA (adjacent to military base)

The Proposed Project includes as an objective to improve operational flexibility within the ENA by minimizing reliance on Edwards Substation (located on EAFB) to provide power to non-EAFB portions of the ENA. The ENA encompasses California City and the surrounding portions of unincorporated Kern County, including Edwards Substation. The ENA is shown above in Figure 2-1, Electrical Needs Area. Currently the ENA consists of approximately 5,300 metered customers served from SCE's existing Cal City 33/12 kV Substation and SCE's Edwards 115/33 kV Substations. Cal City Substation currently

[8] Mitigation projects described herein are distribution level and not subject to CPUC licensing.

[9] Temporary distribution pad mount substations consist of pad mounted distribution transformers and associated switching and protective equipment. They would provide temporary capacity but because they are not constructed using substation-class equipment and cannot accommodate many of the design elements associated with a standard substation (telemetry, remote monitoring and operation, emergency overload capacity, security measures, etc.) they are not adequate for long-term use and do not provide a level of service consistent with the rest of SCE's electrical system.

receives power through two 33 kV circuits, one of which emanates from Edwards Substation. Edwards Substation serves both military base load and other SCE customers that are not located on the base and not associated with the base (e.g., Cal City Substation and its customers). The location of the substation on a military base results in restricted access by SCE personnel due to jurisdictional and security challenges. This adversely impacts SCE's ability to maintain operational flexibility for all customers served by Edwards Substation. While SCE personnel and contractors are able to access the base to perform work such as inspections, upgrades, repairs, and maintenance, access is not unrestricted and requires coordination and proper security clearance in advance of approval. This approval process can delay the required work to be performed and, in the specific case where an unplanned outage occurs to a piece of electrical equipment that results in an outage of power to customers, this restricted access would adversely affect the operational flexibility of the electrical service to the customers served from Edwards Substation.

Minimizing the reliance on Edwards Substation to serve SCE non-military base customers in the ENA (e.g., those customers served in the Cal City Substation portion of the ENA) would improve operational flexibility and would be achieved by the Proposed Project by serving those customers via an upgraded Cal City Substation served by two 115 kV source lines (operated independently of Edwards Substation) versus the existing 33 kV lines that originate at Edwards Substation.

Improve system reliability within the ENA by providing a diversely-routed second 115 kV source line to Edwards Substation

Presently, Edwards Substation receives power through a single 115 kV subtransmission line connected to SCE's Holgate Switchyard. Edwards Substation serves EAFB by providing source power at 33 kV, at which point the customer then owns and operates the distribution facilities downstream. Edwards Substation also provides power to surrounding non-military customers (i.e., SCE customers) in the ENA, which includes Cal City Substation. As Edwards Substation is currently provided power through a single source line, the entire substation would lose power any time there is an outage of the source line from Holgate Switchyard. This results in adverse reliability impacts to both EAFB customers and the SCE customers in the area surrounding the base.

As described in Section 2.1.1.3.2, Subtransmission System Need, a distribution substation with more than one standard 28 MVA transformer or more than 28 MVA of load should normally be provided with two-line service in accordance with SCE's Subtransmission Planning Criteria and Guidelines. As load served by Edwards Substation has grown over time, a second transformer was added to accommodate this load growth and a second 115 kV subtransmission source line to Edwards Substation is now necessary to satisfy this planning criteria and ensure safe and reliable electrical service to both EAFB and SCE customers. The Proposed Project would satisfy this project objective by constructing a new 115 kV line segment to Edwards Substation from the proposed new Cal City-Holgate 115 kV subtransmission source line that would be constructed as one of the two new 115 kV source lines necessary for the Cal City Substation upgrade portion of the Proposed Project.

2.1.3 Project Applicant(s)

SCE is the project Applicant and owner of all substation, distribution, and subtransmission infrastructure components of the Proposed Project. SCE is a public utility that provides electric service to a population of approximately 15 million people within a 50,000-square-mile service area that encompasses 180 cities throughout Southern California.

2.2 Pre-filing Consultation and Public Outreach

2.2.1 Pre-filing Consultation and Public Outreach

2.2.1.1 Description of Pre-filing Consultation and Public Outreach

The sections below describe all pre-filing consultation and public outreach that has occurred to date.

2.2.1.1.1 California Independent System Operator

As discussed in Section 2.1.1.5, SCE's current and proposed electrical facilities that serve the ENA are not currently and are not anticipated to become part of SCE's bulk electric system. The Proposed Project would not fall under CAISO jurisdiction and, therefore, consultation with CAISO is not required.

2.2.1.1.2 Public Agencies with Jurisdiction over Project Areas or Resources that May Occur in the Project Area

If the Proposed Project is approved, SCE will provide periodic updates to local jurisdictions at key milestones throughout the life of the Proposed Project, such as prior to filing an application for a Permit to Construct (PTC), immediately after a final decision, and prior to the start of construction .

United States Bureau of Land Management

SCE has communicated with United States Bureau of Land Management (BLM) regarding the Proposed Project. SCE has obtained permission to conduct biological resources surveys and Field Work Authorizations to conduct cultural and paleontological resource surveys in support of the Proposed Project within BLM properties. Additionally, SCE completed a pre-application meeting with BLM representatives in August 2022 to discuss the nature of the Proposed Project; its purpose, need, and objectives; and the environmental review process.

California Public Utilities Commission

Beginning in August 2021, SCE provided the CPUC Energy Division with quarterly presentations that included a high-level description of the Proposed Project. SCE provided a Draft PEA for the CPUC Energy Division's review in Summer 2022, and completed a pre-filing meeting with Energy Division staff and the agency's environmental consultant in November 2022 to discuss the Proposed Project and its status.

United States Department of Defense/Edwards Air Force Base

In 2021, SCE staff conducted informal conversations with Edwards Air Force Base Civil Engineering staff regarding the need to upgrade the high voltage system in the Proposed Project area to increase system reliability to EAFB. SCE has also obtained permission to conduct environmental surveys in support of the Proposed Project within EAFB.

California Department of Fish and Wildlife

In 2022, SCE met with the California Department of Fish and Wildlife (CDFW) to introduce the Proposed Project. SCE will also meet with the agency frequently to provide updates as the Proposed Project develops through to its completion. SCE has bi-annual meetings with CDFW to talk about the project development and coordination.

Kern County

SCE's Local Public Affairs has provided periodic updates to Kern County Supervisors and the Kern County Economic Development Corporation regarding the status of SCE's short-, medium-, and long-term solutions to meeting load growth in the region. SCE has also obtained permission to conduct environmental surveys in support of the Proposed Project on land owned by Kern County. Engagement with Kern County was provided in 2022 with regular updates planned for 2023 and throughout the duration of the project.

San Bernardino County

SCE's Local Public Affairs communicated with San Bernardino County Planning regarding the components of the Proposed Project in October 2021. Additional engagement with County Public Works and Special Districts is planned for 2023 and regular updates will be provided throughout the duration of the project..

City of California City

Engagement with California City Officials predates 2019, when SCE committed to several of the mitigation projects described in Section 2.1.2.3 above and timelines. Since that time, SCE garnered City Council support for the Proposed Project; began monthly meetings between SCE staff, the Mayor, City Manager, and Public Works Director to discuss the status of SCE's mitigation projects and the Proposed Project to meet load growth; and partnered with the City by hosting a virtual town hall meeting on August 11, 2021, with elected officials and community stakeholders. SCE obtained Temporary Entry Permits (TEPs) from the City to conduct environmental surveys in support of the Proposed Project on City-owned parcels. SCE Local Public Affairs provided California City with monthly updates in 2022 and plans to provide regular updates in 2023 and throughout the duration of the project.

2.2.1.1.3 Native American Tribes Affiliated with the Project Area

Communication with Native American tribes will be performed by the Lead Agency on a government-to-government basis in accordance with regulations under Assembly Bill 52, Section 106 of the National Historic Preservation Act, and others as applicable. For information regarding outreach to the Native American Heritage Commission, please see Sections 5.5.1.2.4 and 5.18.1.1.

2.2.1.1.4 Private Landowners and Homeowner Associations

Outreach efforts to date include a Virtual Town Hall meeting on August 11, 2021 that included landowners and homeowners. Additionally, SCE sent out notification letters to private landowners prior to completing environmental surveys in support of the Proposed Project in 2021 and 2022, and prior to completing staking activities in 2022. SCE will provide Proposed Project updates via a newsletter and the project webpage in 2023.

2.2.1.1.5 Developers for Large Housing or Commercial Projects Near the Project Area

Outreach efforts to date included the August 11, 2021 Virtual Town Hall meeting that included commercial developers. On an ongoing basis, SCE's Business Customer Division (BCD) representatives are in communication with project applicants, such as Big West and Canna Systems Corporations.

2.2.1.1.6 Other Utility Owners and Operators

SCE has not communicated with other utility owners or operators.

2.2.1.1.7 Federal, State, and Local Fire Management Agencies

SCE has not communicated with federal, state, or local fire management agencies regarding the Proposed Project.

2.2.1.2 Significant Outcomes

Consultation and outreach efforts have not resulted in the identification of areas of controversy or major issues related to the Proposed Project; therefore, no significant outcomes of consultation were incorporated into the Proposed Project.

2.2.1.3 Development that Could Coincide or Conflict with Project Activities

SCE is not aware of any developments that could coincide or conflict with Proposed Project activities (i.e., developments within or immediately adjacent to the existing or proposed infrastructure).

2.2.2 Records of Consultation and Public Outreach

Contact information, notification materials, meeting dates and materials, meeting notes, and records of communication organized by entity are provided in Appendix G.

2.3 Environmental Review Process

2.3.1 Environmental Review Process

The Proposed Project will be subject to environmental review under the CEQA and National Environmental Policy Act (NEPA). The state and federal environmental review process is anticipated to extend from 2021 until late 2024.

2.3.2 California Environmental Quality Act Review

2.3.2.1 CPUC as CEQA Lead Agency

Pursuant to the CPUC's GO 131-D, SCE is applying to the CPUC for a PTC authorizing SCE to construct the Proposed Project. To issue a PTC, GO 131-D requires the CPUC find that the project complies with CEQA. Therefore, the CPUC will be the Lead Agency under CEQA for the Proposed Project because it has the greatest responsibility for supervising or approving the project as a whole (14 Cal Code Regs. § 15051(b)).

2.3.2.2 Other State and Federal Agencies that May Have Discretionary Permitting Authority

The BLM, the United States Department of Defense (USDOD), the U.S. Fish and Wildlife Service (USFWS), Caltrans, the CDFW, and the Lahontan Regional Water Quality Control Board (RWQCB) may have discretionary permitting authority over aspects of the Proposed Project.

2.3.2.3 Federal, State, and Local Agencies that May Have Ministerial Permitting Authority

Caltrans, Kern County, San Bernardino County, and the City of California City may have ministerial permitting authority over aspects of the Proposed Project.

2.3.2.4 Results of Preliminary Outreach with Agencies

SCE has not been made aware of any unexpected issues that would affect the CEQA process as a result of the outreach described above in Section 2.2.1, Pre-filing Consultation and Public Outreach. Future outreach with Federal, state, and local agencies is anticipated to occur on an ongoing basis through survey access requests and applications for applicable permits.

2.3.3 National Environmental Policy Act Review

Those portions of the Proposed Project located on federal lands and those elements that may result in impacts to federally-listed threatened or endangered species will be subject to review under the NEPA. One of the federal agencies issuing discretionary approvals will take the lead coordination role should approval by more than one federal agency be required for NEPA purposes.

2.3.4 Pre-filing California Environmental Quality Act and National Environmental Policy Act Coordination

Pre-filing coordination with CEQA and NEPA review agencies is described in Section 2.2. The coordination to date has identified that separate CEQA and NEPA processes will be engaged for the Proposed Project.

2.4 Document Organization

2.4.1 PEA Organization

The Proposed Project PEA document contains the following Chapters, as set forth in the CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*, dated November 2019, Revision 1.0.

2.4.1.1 Chapter 1, Executive Summary

This chapter includes a summary of the Proposed Project, a discussion of the land ownership and right-of-way (ROW) requirements, a presentation of the areas of controversy identified to date, a summary of potential impacts, a summary of alternatives to the Proposed Project, a summary of the pre-filing consultation and public outreach performed to date, a summary of the major PEA conclusions, and a listing of major issues that remain to be resolved.

2.4.1.2 Chapter 2, Introduction

This chapter includes a presentation of the purpose and need for, and objectives of, the Proposed Project, identifies the Applicant, details the pre-filing consultation and public outreach activities conducted to date, outlines the environmental review process, and establishes the organization of the PEA document.

2.4.1.3 Chapter 3, Proposed Project Description

This chapter includes an overview of the Proposed Project; a description of the existing and proposed system; a presentation of the components of the Proposed Project; information related to land ownership, ROWs, and easements; a description of the construction methodologies to be employed; data regarding the construction workforce, equipment, traffic, and schedule; information on post-construction activities; a

discussion of operation and maintenance-related work; decommissioning-related information; a listing of anticipated permits and approvals; and a table presenting Applicant Proposed Measures (APMs).

2.4.1.4 Chapter 4, Description of Alternatives

This chapter identifies and describes Alternatives to the Proposed Project; includes a discussion of a No Project Alternative; and lists Alternatives identified and considered but rejected.

2.4.1.5 Chapter 5, Environmental Analysis

This chapter includes a description of the environmental setting, regulatory setting, and impact analysis for each resource area. The resource areas addressed include each environmental factor (resource area) identified in the most recent adopted version of the State CEQA Guidelines Appendix G checklist and any additional relevant resource areas and impact questions that are defined in the CPUC's PEA checklist.

2.4.1.6 Chapter 6, Comparison of Alternatives

This section compares each Alternative described in Chapter 4 against the Proposed Project in terms of each Alternative's ability to avoid or reduce a potentially significant impact. This section also provides a detailed table that summarizes the Applicant's comparison results and ranks the alternatives in order of environmental superiority.

2.4.1.7 Chapter 7, Cumulative Impacts and Other CEQA Considerations

This section provides a detailed table listing past, present, and reasonably foreseeable future projects within and surrounding the Proposed Project (within an approximately 2-mile buffer); presents a cumulative impact analysis; and provides an evaluation of potential growth-inducing impacts.

2.4.1.8 Chapter 8, List of Preparers

This chapter lists the major authors and preparers of the PEA document.

2.4.1.9 Chapter 9, References

This chapter includes a list of references cited in this PEA.

2.4.1.10 Required PEA Appendices and Supporting Materials

SCE is submitting with this PEA the Required PEA Appendices and Supporting Materials listed in the CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*, dated November 2019, Revision 1.0 that are applicable and necessary to support the environmental impact analyses contained in Chapters 5 and 6. These appendices are presented in this PEA in the same order as presented in the CPUC's Guidelines.

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Chapter 3 Proposed Project Description

This Chapter provides a detailed description of Southern California Edison Company's (SCE) Cal City Substation 115 kilovolt (kV) Upgrade Project (Proposed Project).

3.1 Project Overview

3.1.1 Summary of the Proposed Project

As detailed in Chapter 2, Introduction, the Proposed Project proposes to add load-serving capacity in the Electrical Needs Area (ENA) to serve current and long-term forecast electrical demand, improve system reliability within the ENA by providing diverse routes of power supply to the region, improve system operational flexibility by minimizing reliance on Edwards Substation (located on military base with restricted access) to provide power to the ENA (adjacent to military base), and improve system reliability within the ENA by providing a diversely-routed second 115 kV source line to Edwards Substation.

The Proposed Project is planned to be operational by 2028 and would include the following major components:

3.1.1.1 Subtransmission

- Construct one new Kramer-Cal City 115 kV Subtransmission Line
- Construct one new Cal City-Edwards-Holgate 115 kV Subtransmission Line

3.1.1.2 Substation

- Cal City Substation Improvements
  - Expand the existing substation by approximately 10 acres[1]
  - Install new five-position 115 kV switchrack with five positions initially equipped
  - Install new five-position 33 kV switchrack with five positions initially equipped
  - Install new 21-position 12 kV switchrack with 19 positions initially equipped
  - Install two 115 kV/33 kV, 28 MVA transformers
  - Install four 115 kV/12 kV, 28 MVA transformers
  - Install one 115 kV, 28.8 megavolt-ampere reactive (MVAR) capacitor
  - Install two 33 kV, 4.8 MVAR capacitors
  - Install four 12 kV, 4.8 MVAR capacitors
  - Install a new Mechanical Electrical Equipment Room (MEER), with the associated communication, control and protection for the expanded substation
- Edwards Substation Improvements
  - Equip one existing 115 kV line position
  - Expand existing 115 kV switchrack to a breaker-and-a-half configuration

[1] The Proposed Project would expand the approximately 5-acre Cal City Substation by approximately 10 acres onto parcels acquired by SCE in 2022. A portion of the expanded substation property would accommodate the expanded substation footprint and security fence line; the remainder of the property would be used for drainage improvements and material staging.

- Convert two 115 kV bank positions to a double bus, double breaker configuration
- Install or upgrade protection for two 115 kV lines and two buses

- Holgate Switchyard Improvements
  - Equip one existing 115 kV line position
  - Upgrade protection for four 115 kV lines and the north 115 kV bus

- Kramer Substation Improvements
  - Equip one existing 115 kV line position
  - Convert two 115 kV bank positions to a double bus, double breaker configuration
  - Install or upgrade protection for two 115 kV lines and two banks

3.1.1.3 Distribution

- Construct two new underground 33 kV distribution getaways[2] at Cal City Substation
- Construct 14 new underground 12 kV distribution getaways at Cal City Substation
- Transfer approximately 5 miles of existing Castle Butte 33 kV and approximately 2 miles of existing Isner 33 kV Distribution Lines to new Kramer-Cal City 115 kV Subtransmission Line structures, and remove approximately 151 existing distribution structures along these line segments
- Transfer approximately 2 miles of existing Castle Butte 33 kV and approximately 2 miles of existing Conte 12 kV Distribution Lines to new Cal City-Edwards-Holgate 115 kV Subtransmission Line structures, and remove approximately 90 existing distribution structures along these line segments

3.1.1.4 Telecommunication

- Install equipment to support substation automation and protection requirement at Cal City Substation
- Install optical ground wire (OPGW) on the new Kramer-Cal City 115 kV Subtransmission Line
- Install OPGW and all-dielectric self-supporting (ADSS) fiber optic cable on the new Cal City-Edwards-Holgate 115 kV Subtransmission Line
- Install equipment at Kramer and Edwards Substations and Holgate Switchyard in support of the new telecommunication cable

3.1.2 Geographical Location of the Proposed Project

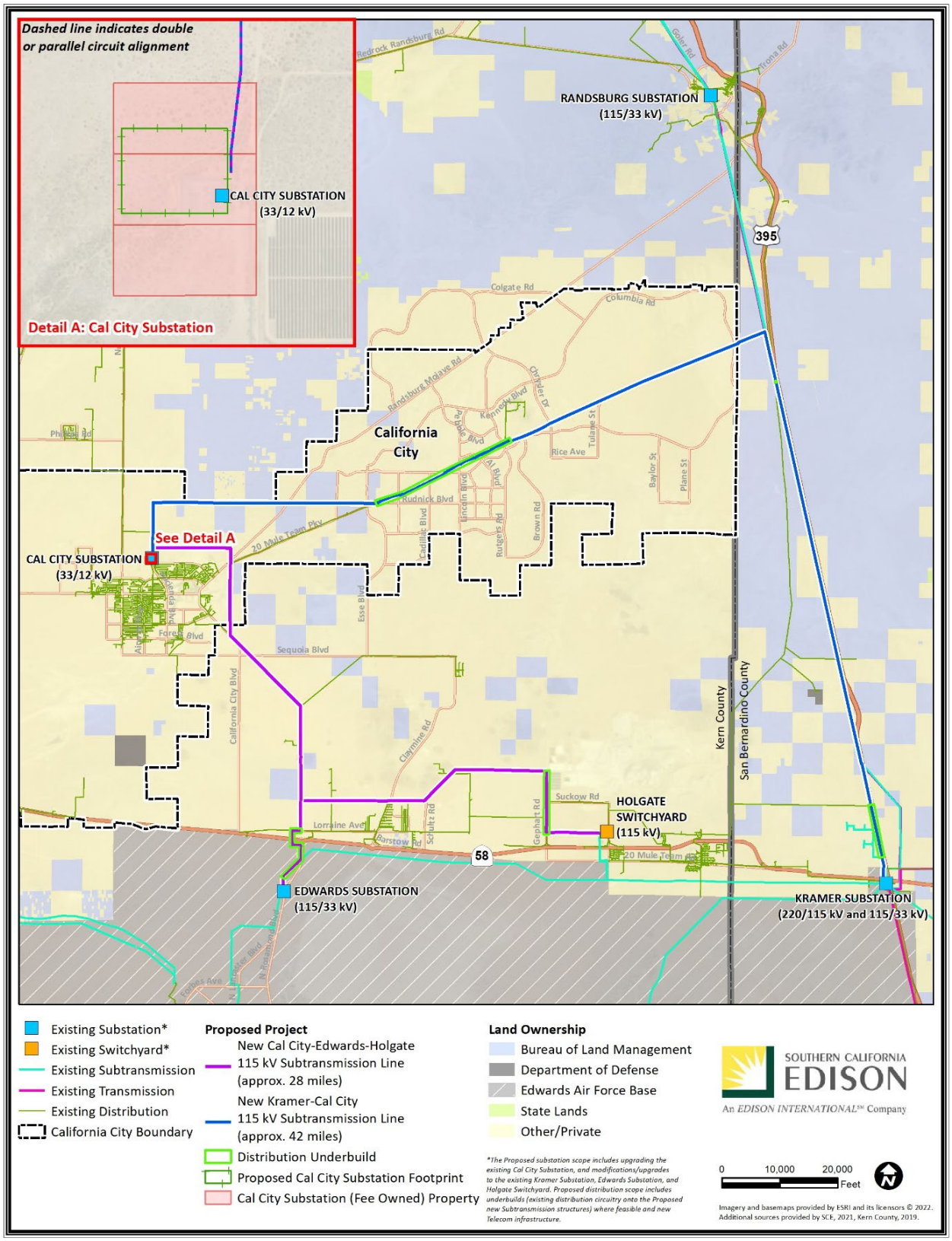
The Proposed Project would be located in unincorporated Kern and San Bernardino Counties, the City of California City, and Edwards Air Force Base (EAFB) in the Mojave Desert region of California on federal, state, private, and municipal land.

3.1.3 Overview Map

An overview map of the Proposed Project area is presented in Figure 3-1.

[2] Distribution getaways generally consist of distribution cable, conduits, and vaults in the immediate vicinity of the substation as distribution lines enter/exit the property.

Figure 3-1 Proposed Project Overview Map



3.2 Existing and Proposed System

3.2.1 Existing System

3.2.1.1 Existing Utility System

The existing utility system related to the Proposed Project is defined by the existing transmission, subtransmission, and distribution lines in the Proposed Project vicinity, and the switchyard and substations that bound, or are found along, these lines. The existing utility system comprises the following:

- Existing Switchyard and Substations
  - Cal City Substation (33/12 kV)
  - Randsburg Substation (115/33 kV)
  - Kramer Substation (220/115 kV and 115/33 kV)
  - Holgate Switchyard (115 kV)
  - Southbase Substation (115/33 kV)
  - Edwards Substation (115/33 kV)
- Existing Transmission Line
  - BLM West-Kramer (220 kV)
- Existing Sub transmission Lines
  - Edwards-Holgate-Southbase (115 kV)
  - Kramer-Holgate (115 kV)
  - Kramer-Inyokern-Randsburg No. 1 (115 kV)
  - Kramer-Inyokern-Randsburg No. 3 (115 kV)
- Existing Distribution Lines
  - Heavy (33 kV)[3]
  - Castle Butte (33 kV)[3]
  - Isner (33 kV)
  - Dogbane (12 kV)
  - Overall (12 kV)
  - Greasewood (12 kV)
  - Brittle Bush (12 kV)
  - Conte (12 kV)

3.2.1.2 Users and Area Served by the Existing Utility System

The infrastructure associated with the existing utility system provides power to communities served from the existing Cal City 33/12 kV Substation, including the City of California City and surrounding communities. The existing infrastructure also serves areas that include unincorporated Kern and San

[3] Heavy and Castle Butte (33 kV) are the two existing source lines for Cal City Substation.

Bernardino Counties, and EAFB. These communities are primarily served from Edwards 115/33 kV, Kramer 220/115 kV and 115/33 kV, Randsburg 115/33 kV, and Southbase 115/33 kV Substations, and Holgate 115 kV Switchyard.

3.2.1.3 Proposed Project and the Existing Local and Regional Systems

Presently, there is no subtransmission infrastructure serving Cal City Substation. Cal City Substation is currently provided power by two 33 kV distribution lines, one extending from SCE's Randsburg Substation located approximately 24 miles to the northeast and one extending from SCE's Edwards Substation located approximately 12 miles to the southeast. Transformers at Cal City Substation transform voltage from 33 kV to 12 kV, then distribute it within the ENA via 12 kV distribution circuits.

Edwards Substation, located on United States Department of Defense (DoD) property in the southern portion of the ENA, is one of two SCE substations (the other being Southbase Substation located approximately 7 miles to the south) that serve customers on the EAFB. Edwards Substation also serves other SCE customers not located on the base. Edwards Substation is provided power by a single 115 kV line originating from SCE's Holgate Switchyard, situated approximately 11 miles to the northeast. The existing system configuration is shown in Figure 3-2.

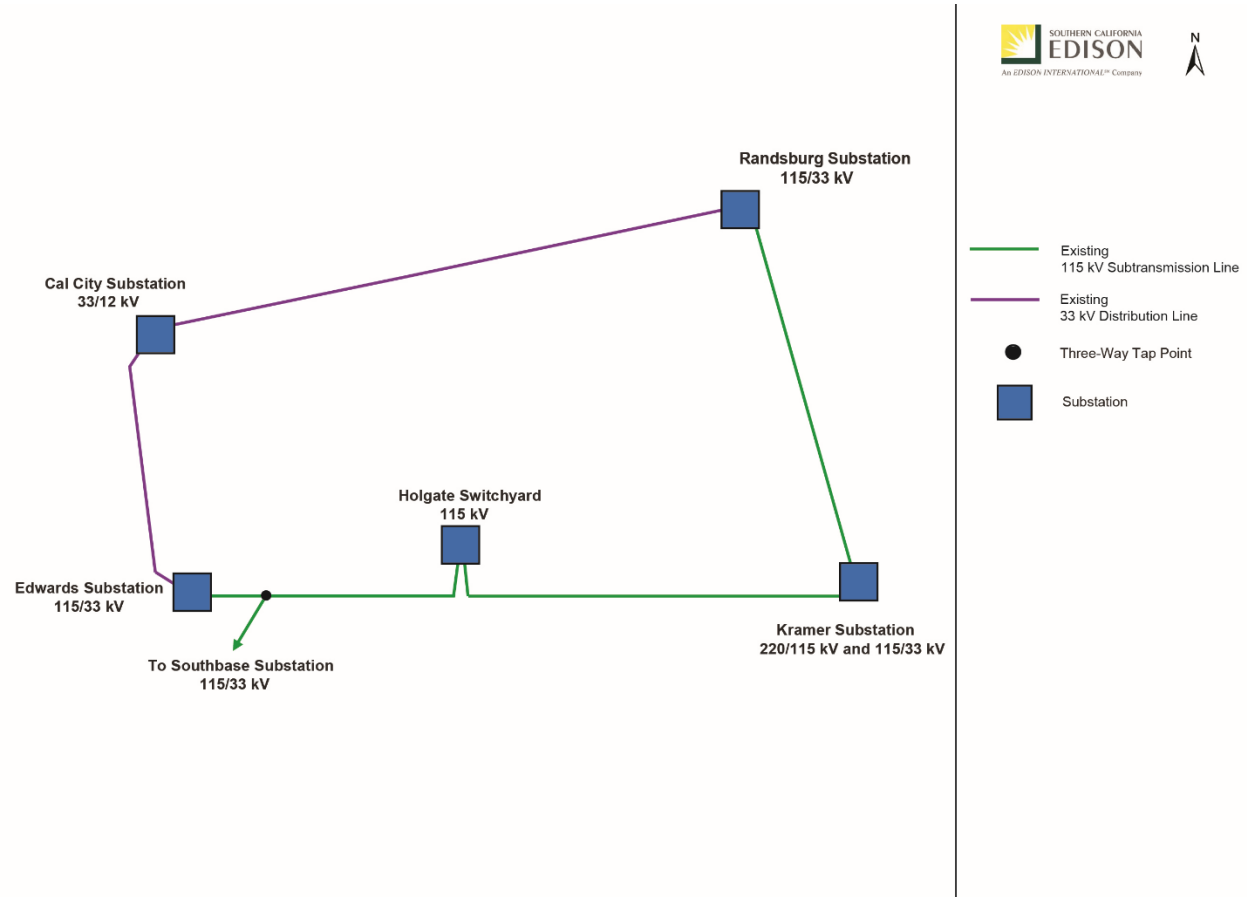
The Proposed Project would include upgrading the transformers at the Cal City Substation from 33/12 kV to 115/33 kV and 115/12 kV. In addition, the Proposed Project would include construction of two new 115 kV subtransmission lines, the Kramer-Cal City Subtransmission Line, from Kramer Substation to Cal City Substation, and the Cal City-Edwards-Holgate Subtransmission Line, from Cal City Substation to Holgate Switchyard. The proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line would also include a tap line to serve Edwards Substation located on EAFB. The Proposed Project would include 14 new underground 12 kV distribution getaways and two new underground 33 kV distribution getaways from Cal City Substation. The Proposed Project would also include installation of telecommunication cable on both new 115 kV subtransmission lines and telecommunication improvements at the existing Holgate Switchyard and Cal City, Kramer, and Edwards Substations.

3.2.1.4 Schematic Diagram of the Existing System Features

Figure 3-2 provides a schematic diagram of the existing utility system.[4]

[4] Figure 3-2 shows existing subtransmission and distribution lines that provide power to Cal City Substation. Existing transmission lines, as well as existing 12 kV distribution lines in the vicinity of the Proposed Project, are not shown in Figure 3-2.

Figure 3-2 Existing System Configuration



3.2.1.5 Detailed Maps and Associated GIS Data for Existing Facilities that would be Modified

Appendix A contains maps of the existing facilities that would be modified by the Proposed Project; GIS data is provided under separate electronic cover.

3.2.2 Proposed Project System

3.2.2.1 Proposed Project by Component

A description of the Proposed Project by component is provided below in Section 3.3. The Proposed Project would include installing new subtransmission lines, equipment upgrades or installation at existing substations and a switchyard installing new distribution getaways at Cal City Substation, installing new telecommunication cables on new subtransmission structures, underbuilding existing distribution lines along portions of the proposed new subtransmission line alignments, and removing existing distribution infrastructure along these proposed underbuild segments. Except as discussed in this chapter, no other upgrades or expansions to existing structures or facilities are included as part of the Proposed Project, and there are no other interrelated activities that are part of the Proposed Project.

3.2.2.2 System Features

System features that would be added, modified, or disconnected as part of the Proposed Project are described in detail in Section 3.3.

3.2.2.3 Expected Capacities of the Proposed Facilities

The Proposed Project is designed to improve reliability and increase the capacity of Cal City Substation and, therefore, the existing utility system. Presently, Cal City Substation has a transformer capacity of 36.4 MVA; however, the operating capacity of Cal City Substation to serve the ENA is limited to 18.0 MVA under a normal system configuration due to the voltage limitations of the substation's existing 33 kV source lines. At loading values greater than 18.0 MVA, power flow modeling demonstrates the inability to provide adequate voltage per SCE's Rule 2 filed with the California Public Utilities Commission (CPUC) and thus the maximum power flow through the Cal City Substation is limited by the lesser of the transformer rating or the voltage limitations. The Cal City Substation upgrade portion of the Proposed Project, including the construction of two new 115 kV subtransmission source lines to serve Cal City Substation, would address the voltage and capacity issues in the ENA. The higher voltage lines would allow for maintaining adequate voltage to customers, while upgrading the transformer banks to include four 115/12 kV, 28 MVA transformers and two 115/33 kV 28 MVA transformers would increase the area's substation transformer capacity. Specifically, the new subtransmission and substation facilities would increase Cal City Substation's load-serving capacity to 168 MVA.[5]

3.2.2.4 Initial and Full Buildout of the Proposed Facilities

Initial buildout at Cal City Substation, included as part of the Proposed Project, would include expanding the substation by approximately 10 acres[6] to accommodate the expanded substation footprint, drainage improvements, and additional material staging area, and replacing existing transformers with six 28 MVA transformers, increasing capacity to 168 MVA. Full substation buildout would include installation of two additional 28 MVA, 115/33 kV transformers, increasing capacity to a substation total of 224 MVA (168 MVA + 56 MVA).[7] Appendix A contains maps of the existing substation facility that would be modified by the Proposed Project. Figure 3-3 shows a preliminary plot plan of the proposed expanded Cal City Substation.

3.2.2.5 System Tie or Loop for Reliability

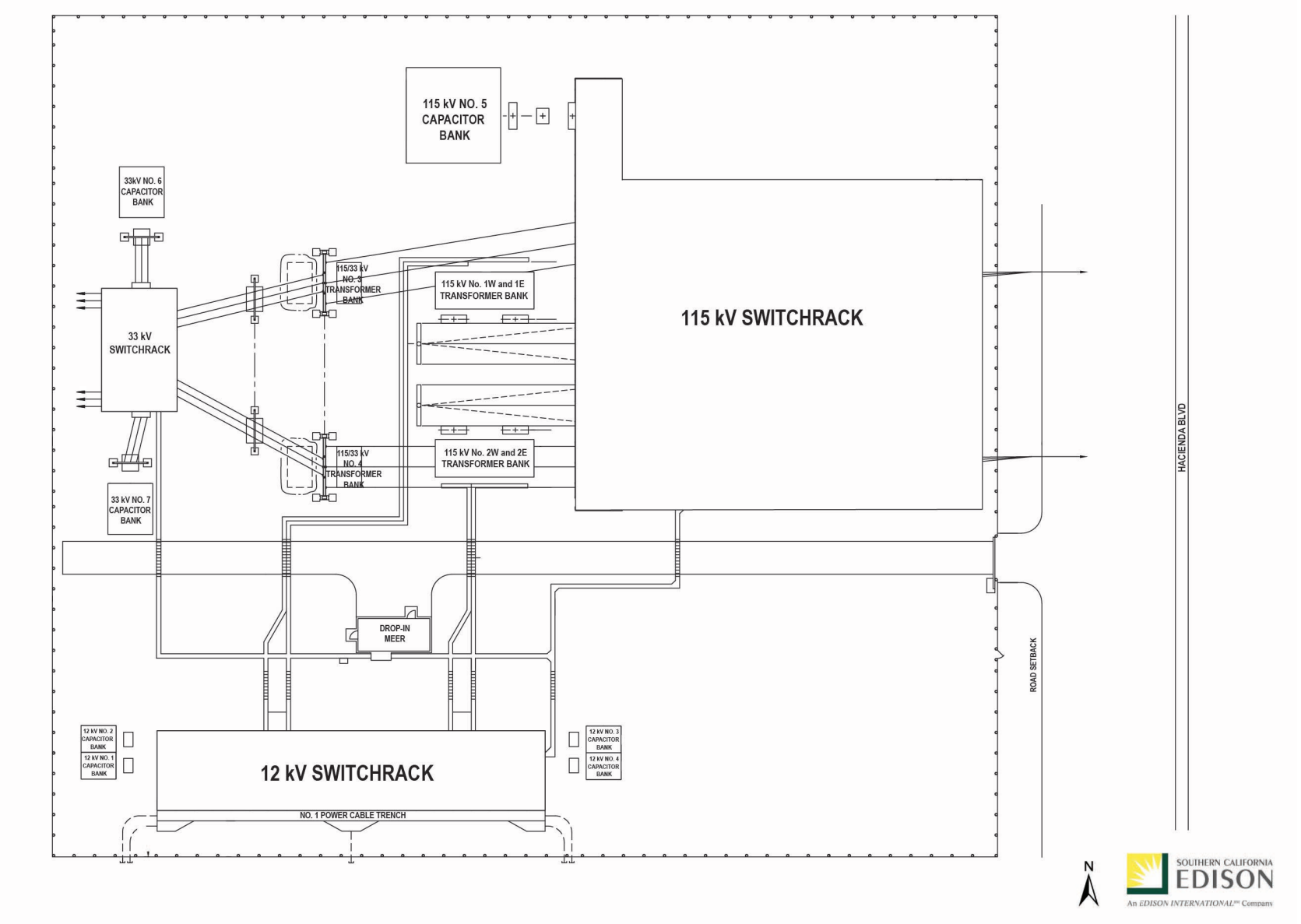
Edwards Substation currently receives power from a single 115 kV subtransmission line from Holgate Switchyard, which adversely impacts customer reliability. By constructing a second source line to Edwards Substation, the Proposed Project would improve reliability to customers served by Edwards Substation by ensuring that during planned and unplanned outages of one of the 115 kV source lines there would not be a complete loss of source line power to the substation.

[5] Six transformers each with a nameplate rating of 28 MVA is 168 MVA in total. When permissible, SCE operates its distribution substation transformers at 130 percent of the nameplate rating during peak load conditions which equates to 218.4 MVA. The planned maximum operating limit at Cal City Substation from 2022 to 2030 is 31.6 MVA (refer to Table 2-2 in Chapter 2, Introduction).

[6] The Proposed Project would expand the approximately 5-acre Cal City Substation by approximately 10 acres onto parcels acquired by SCE in 2022. A portion of the expanded substation property would accommodate the expanded substation footprint and security fence line; the remainder of the property would be used for drainage improvements and material staging.

[7] As noted above, when permissible, SCE operates its distribution substation transformers at 130 percent of the nameplate rating during peak load conditions. Under full substation buildout, installation of two additional 28 MVA, 115/33 kV transformers would increase capacity to a substation total of 291.2 MVA (218.4 MVA + 72.8 MVA) during peak load conditions.

Figure 3-3 Proposed Plot Plan for Cal City Substation Expansion[8]



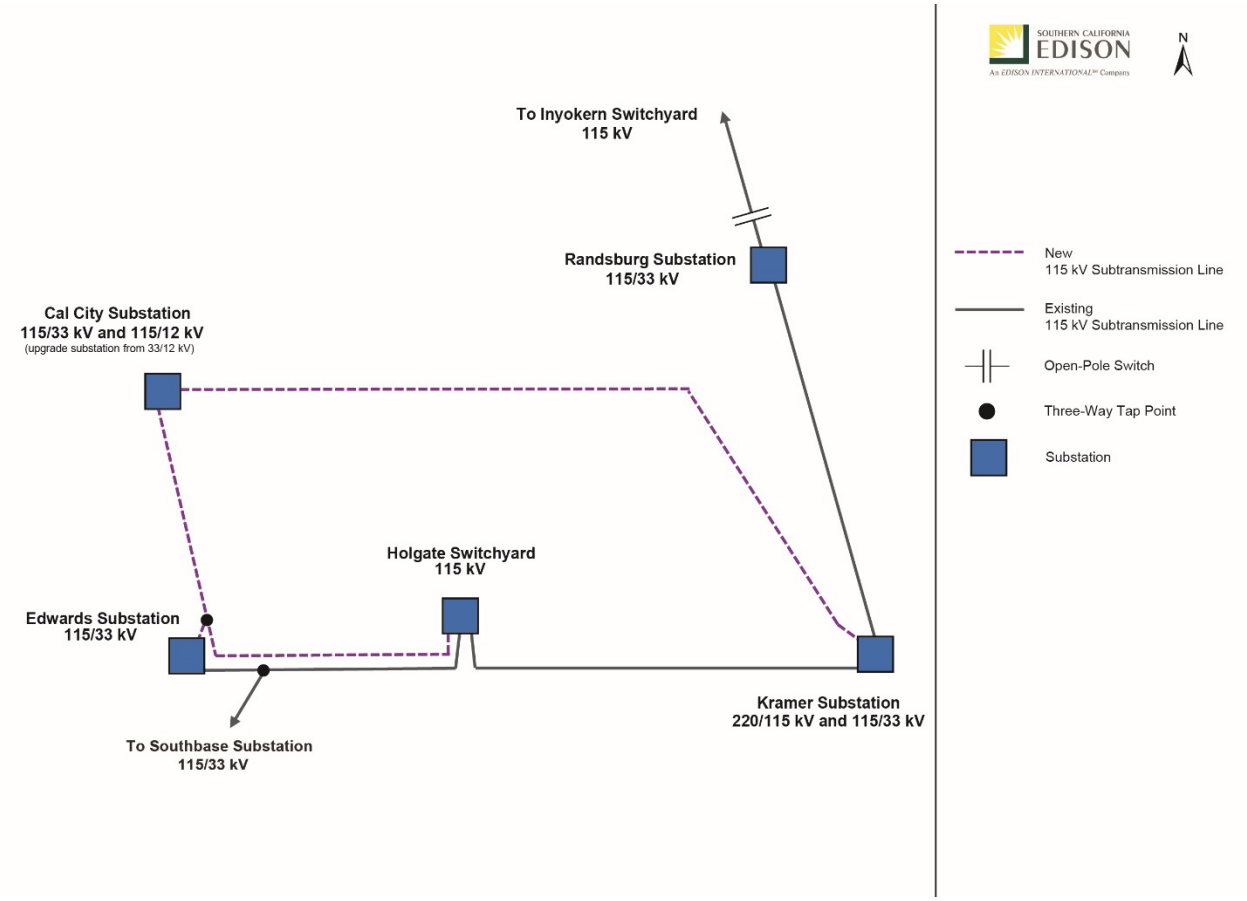
3.2.2.6 Users and Area Served by the Proposed Utility System

As described in Chapter 2, Introduction, the ENA consists of approximately 5,300 metered customers, which are served from SCE's existing Cal City and Edwards Substations. The Proposed Project includes an objective to add capacity to serve long-term forecasted electrical demand requirements within the ENA and would accomplish this objective by increasing the capacity of the existing Cal City Substation. The intent of the Proposed Project is to serve current and forecasted electrical demand requirements within the ENA by providing additional capacity to localities currently served by existing substations and infrastructure. The Proposed Project would not expand electrical service to areas or users not presently served by the existing electrical system.

3.2.2.7 Schematic Diagram of the Proposed System Features

Figure 3-4 provides a schematic diagram of the Proposed Project utility system.

Figure 3-4 Proposed System Configuration



3.2.2.8 Detailed Maps and Associated GIS Data for Proposed Facilities

Appendix A contains maps of the existing facilities that would be modified by the Proposed Project. GIS data is provided under separate electronic cover.

3.2.3 System Reliability

As described above in Section 3.2.2.5, Edwards Substation currently receives power from a single 115 kV subtransmission line from Holgate Switchyard. The Proposed Project would improve reliability at Edwards Substation by constructing a new second source line to Edwards Substation from Holgate Switchyard.

3.2.4 Planning Area

SCE defines a system planning area when considering projects intended to address load growth in the SCE system. For the Proposed Project, this area is the ENA. The ENA defined for the Proposed Project is described in Chapter 2, Introduction, and shown in Figure 2-1. The ENA includes portions of the City of California City, EAFB, and surrounding portions of unincorporated Kern County. The ENA's approximately 5,300 metered customers are currently served from the existing electrical system.

3.3 Project Components

The sections below address the components of the Proposed Project.

3.3.1 Preliminary Design and Engineering

3.3.1.1 Preliminary Design and Engineering

Design and engineering information available at this time for facilities included in the Proposed Project are presented in subsequent sections. The approximate location of the alignment corridor for new subtransmission lines and telecommunication lines included in the Proposed Project are presented in Appendix A. The typical dimensions and the limits of areas that would be needed to construct the proposed subtransmission structures are described in subsequent sections. The location and the limits of the Cal City Substation expansion are presented graphically in Appendix A.

3.3.1.2 Preliminary Design Drawings

Figure 3-5a and Figure 3-5b provide preliminary design drawings for typical subtransmission structures included as part of the Proposed Project; these drawings approximate a 35 percent-complete design. This Proposed Project Description is based on planning level assumptions. Actual work scope would be determined following completion of final engineering, further identification of field conditions, and compliance with applicable environmental and permitting requirements.

3.3.1.3 Proposed Project Maps

Appendix A contains detailed Proposed Project maps that display all facility locations and boundaries known at this time with attributes and spatial geometry that corresponds to information in this chapter. GIS data is provided under separate electronic cover.

Figure 3-5a Typical Subtransmission Structures

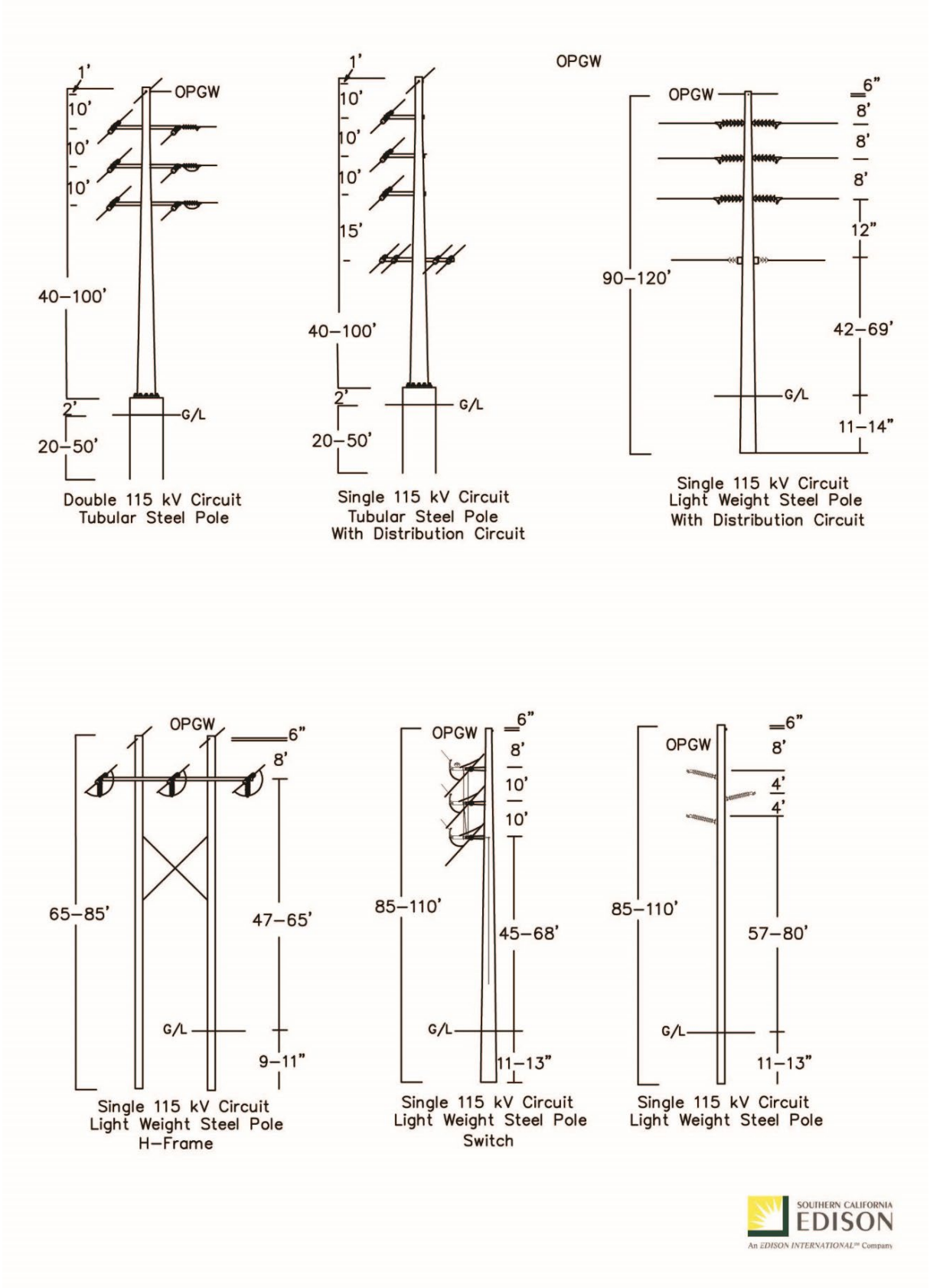
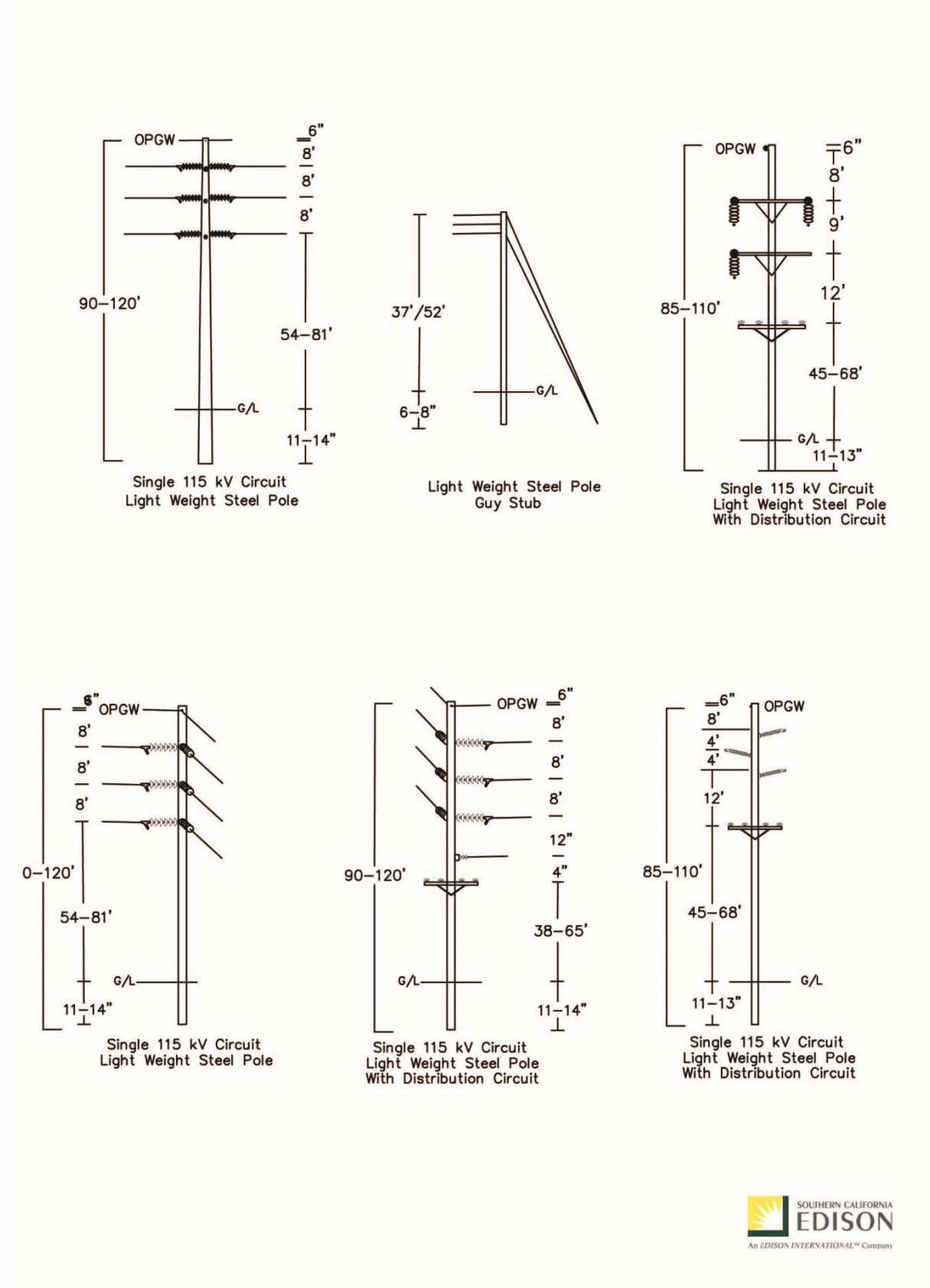


Figure 3-5b Typical Subtransmission Structures



3.3.2 Components and Phases

3.3.2.1 Components

The Proposed Project is divided into the following major component categories described in greater detail in subsequent sections:

- Subtransmission
- Substation
- Distribution
- Telecommunication

3.3.2.1.1 Subtransmission

The Proposed Project would include the following subtransmission-related components:

- Construct one new Kramer-Cal City 115 kV Subtransmission Line (approximately 42 miles)
- Construct one new Cal City-Edwards-Holgate 115 kV Subtransmission Line (approximately 28 miles)

3.3.2.1.2 Substation

The Proposed Project would include the following substation-related components:

- Cal City Substation Improvements:
  - Expand the existing substation by approximately 10 acres[9]
  - Install new five-position 115 kV switchrack with five positions initially equipped
  - Install new five-position 33 kV switchrack with five positions initially equipped
  - Install new 21-position 12 kV switchrack with 19 positions initially equipped
  - Install two 115 kV/33kV, 28 MVA transformers
  - Install four 115 kV/12 kV, 28 MVA transformers
  - Install one 115 kV, 28.8 MVAR capacitor
  - Install two 33 kV, 4.8 MVAR capacitors
  - Install four 12 kV, 4.8 MVAR capacitors
  - Install a new MEER with the associated communication, control and protection for the expanded substation
- Edwards Substation Improvements:
  - Equip one existing 115 kV line position
  - Expand existing 115 kV switchrack to a breaker-and-a-half configuration
  - Convert two 115 kV bank positions to a double bus, double breaker configuration
  - Install or upgrade protection for two 115 kV lines and two buses

[9] The Proposed Project would expand the approximately 5-acre Cal City Substation by approximately 10 acres onto parcels acquired by SCE in 2022. A portion of the expanded substation property would accommodate the expanded substation footprint and security fence line; the remainder of the property would be used for drainage improvements and material staging.

- Holgate Switchyard Improvements:
  - Equip one existing 115 kV line position
  - Upgrade protection for four 115 kV lines and the north 115 kV bus
- Kramer Substation Improvements:
  - Equip one existing 115 kV line position
  - Convert two 115 kV bank positions to a double bus, double breaker configuration
  - Install or upgrade protection for two 115 kV lines and two banks

3.3.2.1.3 Distribution

The Proposed Project would include the following distribution-related components:

- Construct two new underground 33 kV distribution getaways at Cal City Substation
- Construct 14 new underground 12 kV distribution getaways at Cal City Substation
- Transfer approximately 5 miles of existing Castle Butte 33 kV and approximately 2 miles of existing Isner 33 kV Distribution Lines to new Kramer-Cal City 115 kV Subtransmission Line structures, and remove approximately 151 existing distribution structures along these line segments
- Transfer approximately 2 miles of existing Castle Butte 33 kV and approximately 2 miles of existing Conte 12 kV Distribution Lines to new Cal City-Edwards-Holgate 115 kV Subtransmission Line structures, and remove approximately 90 existing distribution structures along these line segments

3.3.2.1.4 Telecommunication

The Proposed Project would include the following telecommunication-related components:

- Install equipment to support substation automation and protection requirements at Cal City Substation
- Install OPGW on new Kramer-Cal City 115 kV Subtransmission Line (approximately 42 miles)
- Install OPGW and ADSS fiber optic cable on new Cal City-Edwards-Holgate 115 kV Subtransmission Line (approximately 28 miles)
- Install equipment at Kramer and Edwards Substations and Holgate Switchyard in support of the new telecommunication cable

3.3.2.2 Phases

There are two phases associated with the Proposed Project: the construction phase and the operation and maintenance (O&M) phase. The Proposed Project is planned to be operational by 2028. This PEA addresses the potential environmental impacts associated with the construction and O&M phases of the Proposed Project.

3.3.2.3 Overview Map

An overview map showing each component is provided in Figure 3-1. Appendix A contains detailed Proposed Project maps that display all facility locations and boundaries known at this time. GIS data is provided under separate electronic cover.

3.3.3 Existing Facilities

3.3.3.1 Types of Existing Facilities to be Removed or Modified

The Proposed Project may include modification or removal of existing wood poles near existing substation and switchyard facilities to accommodate the new lines connecting into substations and a switchyard. Existing distribution poles would also be removed along portions of the new Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Lines where distribution underbuild is proposed. Where distribution underbuild is proposed, existing distribution infrastructure (e.g., distribution transformers) may be transferred onto the new subtransmission structures or replaced as necessary. Existing infrastructure at Edwards and Kramer Substations and Holgate Switchyard would be modified. Cal City Substation would be expanded. Table 3-1 describes the type and approximate number of existing structures that would be removed or modified. Removal or modification of lightweight steel (LWS) poles, H-frames, tubular steel poles (TSP), and lattice steel towers (LST) is not anticipated at this time. No other facilities would be removed or modified as part of the Proposed Project.

Table 3-1 Approximate Number of Existing Structures to be Removed or Modified

Pole Type	Number of Structures Removed	Number of Structures to be Modified	Approximate Height Above Ground, Existing and Modified Structures (Feet)
Kramer-Cal City 115 kV Subtransmission Line			
Wood poles	151	0	35-80
Cal City-Edwards-Holgate 115 kV Subtransmission Line			
Wood poles[1]	96	0	35-80
Cal City Substation			
Wood poles[2]	0	6	35-80

[1] Includes removal of approximately 90 existing distribution poles along proposed distribution underbuild segments, as well as six existing subtransmission poles along SCE's existing Edwards-Holgate-Southbase 115 kV Subtransmission Line that would be removed west of Holgate Switchyard.

[2] Includes replacement of six existing distribution structures located east of the existing Cal City Substation but within the proposed general disturbance area of the substation expansion. As needed, these structures would be replaced in-kind with similar wood poles in a similar location.

3.3.3.2 Description of Existing Facilities by Component

The quantities and types of existing facilities to be removed or modified are described by component in the following sections.

3.3.3.2.1 Subtransmission

The Proposed Project would include two new 115 kV subtransmission lines, which are anticipated to be built on new structures within the approximately 70-mile total alignment (see Section 3.3.4 for description of Proposed Facilities). However, six wood poles along SCE's existing Edwards-Holgate-Southbase 115 kV Subtransmission Line adjacent to Holgate Switchyard may be removed to accommodate the new lines connecting into the facility. The locations of these existing structures are shown in Appendix A. GIS data is provided under a separate digital cover.

3.3.3.2.2 Substation

Existing substations and a switchyard would be modified as part of the Proposed Project. Substation and switchyard modifications are described in more detail in Section 3.5.7. The location and size of existing substations and switchyard are described in Table 3-2 and the locations are depicted in Appendix A.

Table 3-2 Location and Size of Existing Substations/Switchyardto be Modified

Substation	Location	Approximate Size (acres)
Cal City Substation	West of 90th Street and north of Mendiburu Road in the City of California City	5
Kramer Substation	West of U.S. Route 395 and south of State Route 58 in Kramer Junction, unincorporated San Bernardino County	27
Holgate Switchyard	West of Borax Road and north of State Route 58 in unincorporated Kern County	2
Edwards Substation	East of the intersection of Rosamond Boulevard and North Base Road in EAFB	4

3.3.3.2.3 Distribution

The Proposed Project would include underbuilding approximately 11 linear miles of distribution circuitry along SCE's existing Castle Butte 33 kV, Isner 33 kV, and Conte 12 kV Distribution Lines. In these areas, distribution lines would be underbuilt along the proposed new Kramer-Cal City 115 kV or Cal City-Edwards-Holgate 115 kV Subtransmission Lines, and existing distribution structures would be removed or modified.[10] Additionally, approximately six existing wood poles located east of Cal City Substation but within the general disturbance area of the substation expansion would be replaced in-kind with similar wood poles in similar locations.

3.3.3.2.4 Telecommunication

The Proposed Project would include installation of new telecommunications facilities in the new MEER at Cal City Substation, as well as within the existing MEER at Edwards Substation and Holgate Switchyard, and within the existing telecommunications room at Kramer Substation. As part of the telecommunications scope, the iDirect communications system at Cal City and Edwards Substations and Holgate Switchyard will be decommissioned and removed, once the new telecommunications system is in service.

3.3.3.3 Above-Ground and Below-Ground Facilities

The Proposed Project would potentially include removal or modification of above-ground facilities adjacent to existing Cal City Substation and Holgate Switchyard and along the proposed Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Line alignments in areas where distribution underbuild is proposed. Existing structures range in height from 60 to 80 feet for wood or LWS poles.

As currently designed, only wood poles would be removed or modified under the Proposed Project. Wood poles are direct-buried. The embedded depth of wood poles is not known. The entirety of a wood pole identified for removal (both the above-ground and below-ground portions) would be removed unless

[10] As part of the interim mitigation projects described in Chapter 2, Introduction, construction of a battery energy storage system (BESS) is proposed on the adjacent parcel located immediately south of the existing Cal City Substation. The BESS is anticipated to be operational in 2025 and is not included in the scope of the Proposed Project. However, the Proposed Project would require relocating the connection of the BESS from the existing 12 kV switchrack in Cal City Substation to the new 12 kV switchrack at the expanded Cal City Substation.

removal of the below-ground portion presents potential environmental impacts, such as erosion or soil instability risk, that could be avoided by leaving the below-ground portion in-place. Removal of structures attached to foundations, such as LSTs and TSPs, is not currently anticipated.

3.3.3.4 Disposition of Existing Facilities

As discussed under Section 3.3.3.3, the above-ground portions of existing structures would generally be removed completely. The below-ground portions of wood poles would generally be removed completely, unless removal of the below-ground portion presents potential environmental impacts.

3.3.3.5 Names, Types, and Materials of Existing Facilities

The Proposed Project may include removal or modification of the following structure types near or within Cal City, Edwards, and Kramer Substations and Holgate Switchyard and along the proposed Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Line alignments in areas where distribution underbuild is proposed:

- Wood Pole: Self-supporting or guyed structure that is direct-buried.
- Various substation facilities and a switchyard would be modified including buses, capacitor banks, switchracks, disconnect switches, circuit breakers, transformers, steel support structures, perimeter fences, and MEERs.

The quantities and heights of existing structures to be removed or modified under the Proposed Project are summarized in Table 3-1. The volumes and masses of structures to be removed or modified under the Proposed Project are described in Section 3.5.14.

3.3.3.6 Existing Facility Diagram

A diagram of the existing system configuration, including existing substations and a switchyard that would be modified as part of the Proposed Project, are found in Figure 3-1.

3.3.3.7 Surface Colors, Textures, Light Reflectivity, and Lighting

Generally, existing wood poles and wood pole H-frames that may be removed or modified are brown in color; the surface texture is grainy and often vertically-striated; the poles and H-frames are generally not light reflective as they are wood; and there is typically no lighting on the existing poles and H-frames. Generally, existing LWS poles are galvanized steel poles that are grey in color, with a dulled finish and a spangle pattern; for the most part there is no lighting on the existing LWS poles. Lighting exists at existing substations and switchyard, including automatic nighttime lighting at the existing Cal City Substation, which is triggered by a timer.

3.3.4 Proposed Facilities

3.3.4.1 Facilities to be Installed or Modified

As part of the Proposed Project, new subtransmission structures, poles, conductor, and telecommunication cables would be installed, and existing substations and a switchyard would be modified and expanded. The locations of these facilities are illustrated in Figure 3-1 and Appendix A.

No substations, switching stations, gas storage facilities, gas pipelines, or service buildings would be installed as part of the Proposed Project.

3.3.4.1.1 Subtransmission Structures Description

New subtransmission structures (i.e., TSPs, LWS poles, and guy stub TSPs) would be installed for the Proposed Project. Construction activities associated with subtransmission structures are described in more detail in Sections 3.5.5 and 3.5.6.

TSPs are self-supporting, engineered structures constructed from galvanized steel; the design of a given TSP is specific to the location and engineering considerations of that given TSP. TSPs would be either installed on a drilled, poured-in-place, concrete foundation, or would be installed on drilled micro-piles. LWS poles are self- supporting or guyed structures constructed from galvanized steel; LWS poles are wood pole-equivalents. LWS poles would be direct-buried.

Subtransmission facilities would be designed consistent with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee [APLIC] 2006) where feasible. Subtransmission facilities would also be evaluated for potential collision reduction devices in accordance with *Reducing Avian Collisions with Power Lines: The State of Art in 2012* (APLIC 2012).

3.3.4.1.2 Conductor/Cable Description

As part of the Proposed Project, new non-specular 954 Standard Aluminum Conductor (SAC) Magnolia and/or 954 Aluminum Core Steel Reinforced (ACSR) Rail would be installed along the lengths of the new Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Lines. The conductor would have a diameter of approximately 1.124 inches or 1.165 inches, respectively. Approximately 70 circuit miles of new 954 SAC Magnolia and/or 954 ACSR Rail would be installed.

OPGW would be installed along the lengths of the new Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Lines. The OPGW would have a diameter of approximately 0.773 inch. Approximately 70 miles of new OPGW would be installed overhead at the top of structures. ADSS fiber optic cable would be installed on approximately 1,600 feet of the Cal City-Edwards-Holgate 115 kV Subtransmission Line, where the telecommunication line connects into Cal City Substation. The ADSS fiber optic cable would have a diameter of approximately 0.5 inches and would be installed below the conductor on new structures.

3.3.4.1.3 Substation Description

As part of the Proposed Project, the existing Cal City Substation property would be expanded by approximately 10 acres, from 5 acres to 15 total acres (see Figure 3-1 and Appendix A for a mapbook depicting the substation expansion). Figure 3-3 shows a preliminary plot plan of the proposed expanded Cal City Substation. The Proposed Project would include demolition of the existing 33/12 kV substation facility infrastructure and installation of a new five-position 115 kV switchrack, a new five-position 33 kV switchrack, and a new 21-position 12 kV switchrack with vacuum circuit breakers at Cal City Substation. Twelve 115 kV Sulfur hexafluoride (SF6) gas circuit breakers would be installed. The Proposed Project would install two 115/33 kV, 28 MVA and four 115/12 kV, 28 MVA transformers at Cal City Substation, one 115 kV, 28.8 MVAR capacitor, two 33 kV, 4.8 MVAR capacitors, and four 12 kV, 4.8 MVAR capacitors. Existing cabinets housing substation automation and protection, and telecommunication equipment would be demolished. New telecommunication equipment would be installed within the new MEER along with substation automation and protection equipment.

The Proposed Project would include installing equipment at one existing 115 kV line position at Edwards and Kramer Substations and Holgate Switchyard, as well as the installation of six 115 kV SF6 gas-insulated circuit breakers at Edwards Substation, two at Holgate Switchyard, and three at Kramer Substation. At Edwards Substation, the existing 115 kV switchrack would be expanded to a new configuration and two 115 kV bank positions would be upgraded to double-bus-double-breaker positions. At Holgate Switchyard, existing protection would be upgraded for four 115 kV lines and the north 115 kV bus. At Kramer Substation, two 115 kV bank positions would be upgraded to double-bus-double breaker positions. Additional telecommunication equipment would also be installed within the existing MEER at Edwards Substation and Holgate Switchyard, and within the existing communications room at Kramer Substation. Substation modifications are described in more detail in Section 3.5.7.

3.3.4.1.4 Distribution Description

Within the existing and expanded Cal City Substation, 14 new 12 kV distribution getaways and two new 33 kV distribution getaways would be installed in underground conduit systems. Distribution getaways would be constructed to the perimeter of the substation in underground duct banks. These duct banks would be installed in appropriate directions based on substation orientation and terminate in the first distribution vault along the proposed distribution circuitry in close proximity to the proposed substation. The direction of the proposed circuitry is unknown at this time and would be designed at a later date to respond to customer distribution and location, as well as customer power consumption profiles, and to ensure a cost-effective and efficient design. Electrical distribution circuits would be constructed from the existing substation to areas of demand on an as-needed basis and with consideration of the following guidelines:

- The location of the current load growth
- Existing electrical distribution facilities in the area
- The location of roads and existing SCE rights-of-way (ROW)

The Proposed Project also includes underbuilding approximately 7 miles of existing 33 kV distribution circuitry on new subtransmission structures along the Kramer-Cal City 115 kV Subtransmission Line, as well as approximately 2 miles of existing 33 kV and 2 miles of existing 12 kV distribution circuitry on new subtransmission structures along the Cal City-Edwards-Holgate 115 kV Subtransmission Line. Distribution underbuild would involve transferring existing distribution circuitry to new subtransmission structures and removal of existing distribution wood poles. Areas of proposed distribution underbuild are shown in Figure 3-1 and Appendix A. GIS data is provided under a separate digital cover.

3.3.4.2 Description of Proposed Facilities by Component

An accounting of the numbers and types of facilities proposed to be installed, by component, are presented in Table 3-3 This table also presents the range of above-ground and below-ground dimensions of proposed facilities.

3.3.4.2.1 Subtransmission and Telecommunication

The following facilities would be installed in the new Kramer-Cal City 115 kV Subtransmission Line:

- Approximately 685 single-circuit LWS poles and TSPs
- Approximately 42 circuit miles of new 954 SAC Magnolia and/or 954 ACSR Rail conductor in a single-circuit configuration on new structures

- Approximately 42 miles of OPGW on new structures
- Marker balls on OPGW, as required

The following facilities would be installed in the new Cal City-Edwards-Holgate 115 kV Subtransmission Line:

- Approximately 463 single-circuit LWS poles (including LWS H-Frames) and TSPs
- Approximately 28 circuit miles of new 954 SAC Magnolia and/or 954 ACSR Rail conductor single circuit on new structures
- Approximately 28 miles of OPGW on new structures
- Approximately 1,600 feet of ADSS fiber optic cable on new structures connecting into Cal City Substation
- Marker balls on telecommunication cables, as required

Table 3-3 Structures to be Installed

Structure Type	Proposed Approximate Number of Structures	Approximate Height Above Ground (Feet)[1]	Approximate Pole Diameter (Feet)	Approximate Burial Depth (LWS poles) and Foundation Depth (TSPs) (Feet)	Approximate Auger Width (LWS pole) and Foundation Diameter (TSPs) (Feet)	Approximate Concrete Volume (Cubic Yards)
New Kramer-Cal City 115 kV Subtransmission Line						
LWS Poles	681	72-109	1.5-3	6-14	2-3	N/A
TSP	4	40-132	2-6	20-50	5	15-39
New Cal City-Edwards-Holgate 115 kV Subtransmission Line						
LWS Poles	437	72-109	1.5-3	6-14	2-3	N/A
LWS H-Frame Poles[2]	10	65-85	1.5-3	9-11	2-3	N/A
TSP[3]	16	40-100	2-6	20-50	5	15-39

[1] Some structures may be guy stub TSPs, which range in height from approximately 37 to 52 feet
[2] H-Frames consist of two poles each. Number of H-Frames provided reflects total number of poles (10 poles) associated with H-Frames (five H-Frame structures).
[3] Includes seven TSPs entering Cal City Substation from the north that would be shared by both proposed 115 kV subtransmission lines.

3.3.4.3 Above-Ground and Below-Ground Facilities

All facilities to be installed for the Proposed Project, with the exception of those facilities addressed in Section 3.3.7, are considered above-ground facilities. The TSPs and LWS poles to be installed have both above-ground and below-ground portions; TSPs would be installed on concrete foundations or on micro-piles, and LWS poles would be direct-buried. The range of burial depth or size of foundations associated with the TSPs and LWS poles is presented in Table 3-3.

3.3.4.4 Different Facilities

Guy wires are typically used when wood pole-equivalents are located on angles or corners to provide support to the poles. Guy wires may also be used on tangent/suspension poles as field conditions dictate. Guying consists of a guy wire (down guy) that is fastened to a pole and attached to a buried anchor, or when

there is not adequate space for the required down guy, a shorter guy pole (stub pole) is typically placed with a down guy and buried anchor in a location that has sufficient room for these facilities. The need for and location of guy wires and anchors for wood pole-equivalents would be determined during final engineering and construction on a case-by-case basis. Guying locations along the Proposed Project alignment may include guy lines and anchors or guy stub TSPs or wood pole equivalents. Guying across a roadway would be avoided where feasible; however, based on preliminary guying locations identified at this time, guying across the following roadways may occur: Rosamond Boulevard, Suckow Road, Gephart Road, Sequoia Boulevard, and various other non-dedicated/unpaved roads. While not anticipated based on current design, guying across Twenty Mule Team Parkway, California City Boulevard, and Borax Road may also be required pending final engineering. In instances where guying would cross existing roadways, it would be established to ensure existing roadway access would not be impeded. The Proposed Project would not include guying across U.S. Route 395 and State Route 58.

Typical guying locations would require a 100-foot by 100-foot work area, if located at alignment corners, and a 100-foot by 60-foot work area, if located along the alignment; guying across a roadway would require location-specific work area dimensions. Preliminary guying locations are identified in Appendix A; Proposed Project GIS data is provided under separate electronic cover.

3.3.4.5 Civil Engineering Requirements

3.3.4.5.1 Access Roads

As described in more detail in Section 3.5.1.1 and 3.5.1.2, access roads would generally have a minimum 14-foot drivable width with 2 feet of shoulder on each side as determined by the existing land terrain to accommodate required drainage features. Typically, the drivable road width would be further widened by up to 8 feet along curved sections of the access road creating up to 22 feet of drivable surface for the access road. Access road gradients would be leveled so that sustained grades generally would not exceed 14 percent. Curves would typically have a minimum radius of 50 feet measured from the center line of the drivable road width. Specific site locations may require a wider drivable area to accommodate multi-point turns where 50-foot minimum radii cannot be achieved. The Proposed Project is primarily designed along existing roads that would be used for access. However, the condition of existing unpaved roads in the area is unpredictable, and new permanent access roads are anticipated to be required. Preliminary design conservatively identifies approximately 22 linear miles of new, approximately 18-foot wide unpaved access road along the proposed Kramer-Cal City 115 kV Subtransmission Line alignment, and approximately 7 linear miles of new, approximately 18-foot wide unpaved access road along the proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line alignment. Additionally, current design identifies approximately 15 linear miles of heavy improvements to existing unpaved access roads along the proposed Kramer-Cal City 115 kV Subtransmission Line alignment, and approximately 19 linear miles of heavy improvements to existing unpaved access roads along the proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line alignment. The locations of new access roads and heavily improved roads are provided in Appendix A; Proposed Project GIS data is provided under a separate electronic cover. As design progresses, opportunities to use or improve existing unpaved roadways along the Proposed Project alignment may be identified, resulting in reduced construction of new permanent access roads.

3.3.4.5.2 Foundations

TSPs, or equivalent structures, would generally be attached to a concrete drilled pier foundation or installed on an engineered micro-pile foundation. TSP concrete drilled pier foundations would be approximately 5

feet in diameter and would extend underground approximately 20 to 50 feet with approximately 1 to 3 feet of concrete visible above ground. Each TSP would use approximately 15 to 39cubic yards of concrete. The size of foundations associated with the TSPs is presented in Table 3-3.

Where necessary, micro-pile foundations may be used. Installation of micro-piles would require the drilling of several smaller diameter holes (approximately 3-10, 8-inch holes) for each foundation. An anchor rod would be placed within each hole and the holes would be filled with cement grout (approximately 0.5 to 2 cubic yards). The micro-piles would then be tied together to form a single, reinforced concrete cap upon which the TSP would be installed.

The foundations necessary to support new equipment at substations and the switchyard are addressed in Section 3.5.7.1.

3.3.4.5.3 Pads

The Proposed Project includes installation of 32 permanent O&M structure pads in areas where existing ground gradient exceeds 5 percent. Pads would be graded during construction and used for future O&M activities at the structure site. Typical dimensions for O&M structure pads vary depending on location and terrain. The locations of proposed O&M structure pads are provided in Appendix A; Proposed Project GIS data is provided under a separate electronic cover. Temporary crane pad locations have not been identified for the Proposed Project at this time. Temporary crane pads will be located at pole/TSP locations where the existing grade is less than 5 percent. Final pad dimensions will be further refined during final engineering, further identification of field conditions, and compliance with applicable environmental and permitting requirements.

3.3.4.5.4 Spill Containment

The Proposed Project would include installation of engineered spill containment structures at Cal City Substation for the six proposed transformers.

3.3.4.6 Permanent and Temporary Facilities

No temporary facilities, such as temporary mobile substations, transformers, capacitors, or switchracks are included in the Proposed Project. Furthermore, no temporary poles or shoo-fly lines have been identified at this time. Temporary facilities associated with construction staging areas, such as construction trailers, security features, temporary power facilities, and lighting, are discussed in Section 3.5.2.

3.3.4.7 Names, Types and Materials of Proposed Facilities

The following structures would be installed or modified as part of the Proposed Project:

- TSPs: Self-supporting monopole structure constructed from galvanized steel that has a foundation.
- LWS Pole: Self-supporting or guyed monopole structure constructed from galvanized steel that is direct-buried.
- LWS Pole H-frame: Self-supporting or guyed H-frame structure constructed from two LWS poles that are direct-buried including a spar arm.

The quantities, types, and dimensions of structures that would be installed as part of the Proposed Project are described in Table 3-3.

3.3.4.8 Diagrams of the Proposed Structures

Diagrams of the proposed structures are presented in Figure 3-5a and Figure 3-5b. The typical dimensions of such structures are presented in Table 3-3.

3.3.4.9 Surface Colors, Textures, Light Reflectivity, and Lighting

The TSPs and LWS poles installed for the Proposed Project would be grey in color, with a dull non-specular finish. Since the galvanized steel would be dull, the light reflectivity of the TSPs and LWS poles would be moderate and would lessen over time as the poles weather. Wood poles installed, if necessary, would be light to dark brown in color and would be non-reflective. SCE does not anticipate any new structure lighting would be installed as part of the Proposed Project, except as described in Section 3.3.5.1.2 below. New overhead conductor and cable would have a dulled finish. Coatings applied to the proposed MEER at Cal City Substation would be tan or ivory in color. Coatings would comply with SCE's existing color requirements and, as applicable, matched to BLM's Standard Environmental Colors. Expansion of the Cal City Substation would require additional lighting, similar in nature to what is existing, and would consist of high-pressure sodium or light emitting diode lights located around the transformer banks and elsewhere in the substation where O&M activities may occur. However, the expanded Cal City Substation would not be illuminated at night during regular operation. Rather, lighting would be turned on remotely by SCE personnel prior to entering the substation, only when required for maintenance outages or emergency repairs occurring at night.

3.3.5 Other Potentially Required Facilities

3.3.5.1 Other Actions or Facilities that may be Required

3.3.5.1.1 Other Types of Infrastructure

Relocation of other types of infrastructure, such as unconnected utilities like third-party infrastructure including telecommunication, telephone lines, or other cables, may be required for approximately 0.4 mile. However, this length will be further refined upon completion of final engineering. Unconnected, third-party infrastructure, where present, would be transferred to new structures where applicable, or would be left in-place on existing structures.

3.3.5.1.2 Aviation Lighting and/or Marking

Aviation lighting and/or marking may be required for some structures that would be constructed as part of the Proposed Project, specifically in proximity to EAFB. Upon completion of final design, SCE would file with the Federal Aviation Administration (FAA) for official study and determination of lighting and/or marking requirements for all structures in proximity to Edwards Substation.

3.3.5.1.3 Additional Civil Engineering Requirements to Address Site Conditions or Slope Stabilization

The need for slope stabilization, including retaining walls, is addressed in Sections 3.5.1.1, 3.5.1.2, 3.5.2.2, 3.5.3.1, and 3.5.4.5. Local ministerial permits would also be obtained, if required.

3.3.5.2 Location of Each Facility

The locations of unconnected utilities and other types of infrastructure are displayed in Section 5.19, Utilities and Service Systems, on Figures 5.19-1, 5.19-2 and 5.19-3.

3.3.6 Future Expansions and Equipment Lifespans

3.3.6.1 Current and Reasonably Foreseeable Plans for Expansion

There are no current and reasonably foreseeable plans for expansion or future phases of development associated with the Proposed Project; however, there is potential for full Cal City Substation build-out.

3.3.6.2 Expected Usable Life

The structures, conductor, overhead cable, and substation components to be installed for the Proposed Project could have a usable life of greater than 40 years.

3.3.6.3 Reasonably Foreseeable Consequences

There are no reasonably foreseeable consequences of the Proposed Project; however, there is potential for full Cal City Substation build-out and build-out of distribution lines. As discussed in Section 3.3.4.1.4, the exact location and routing of each of the initial 33 and 12 kV distribution circuits has not yet been determined. These initial 33 and 12 kV distribution circuits cannot be designed at this time due to the uncertainty of where load relief will be needed and where future load growth will precisely occur in addition to unforeseen changes in the physical and environmental condition of the surrounding area.

3.3.7 Below-Ground Conductor/Cable Installations

3.3.7.1 Type of Line to be Installed

Within the existing and expanded Cal City Substation, 14 new 12 kV distribution getaways and two new 33 kV distribution getaways would be placed in underground conduit systems. Fiber optic cable would be installed underground in separate duct banks at and in the vicinity of the existing Cal City, Edwards, and Kramer Substations and Holgate Switchyard.

3.3.7.2 Type of Casing

Cables and conductors would be installed in separate below-ground duct banks, or casings. The below-ground fiber optic cables would be installed in 5-inch diameter burial polyvinyl chloride (PVC) within trenches. The typical dimensions and configuration of below-ground conduit installation and duct banks for fiber optic cables are presented in Figure 3-6. The below-ground conductor would be installed in approximately 5-inch diameter burial PVC within trenches. Typical dimensions and configuration of manholes are included in Figure 3-7.

Figure 3-6 Typical Telecommunications Conduit and Duct Bank

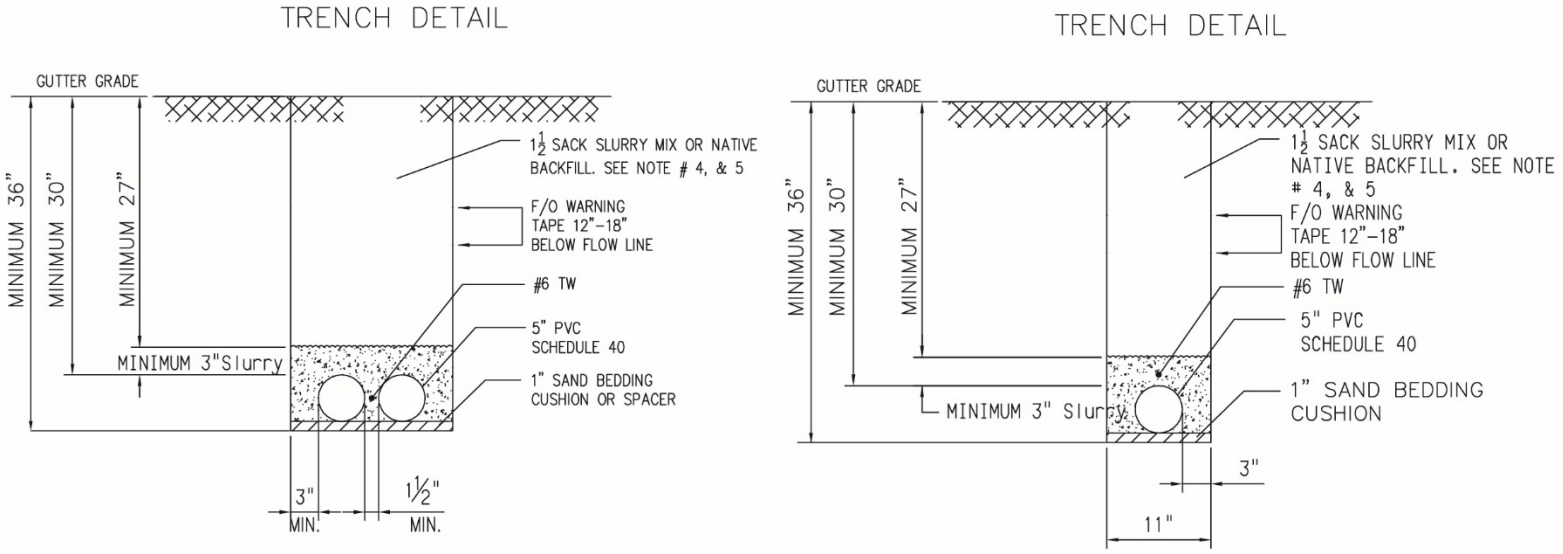
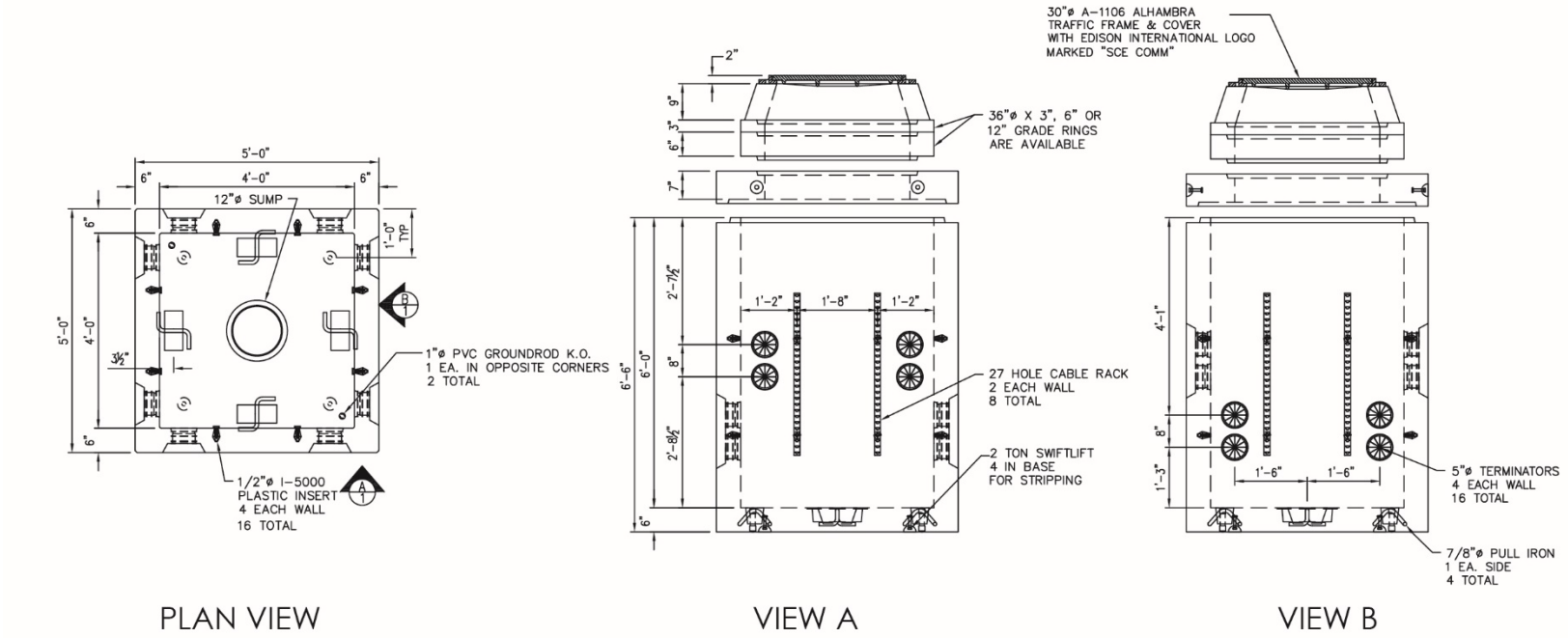


Figure 3-7 Typical Telecom Manhole



3.3.7.3 Type of Infrastructure Installed Within Casing

Fiber optic cable would be installed within casings. In addition, appropriately sized underground conductor would be installed within casings.

3.3.8 Electric Substations and Switching Stations

3.3.8.1 Transformer Banks

The Proposed Project would include installation of transformer banks at the Cal City Substation. Transformation would consist of four 28 MVA, 115 kV/12 kV transformers and two 28 MVA, 115 kV/33 kV transformers with adjacent group-operated disconnect switches on the high voltage and low voltage side.

3.3.8.2 Gas Insulated Switchgear

The Proposed Project would include installation of twelve 115 kV SF6 gas-insulated circuit breakers at Cal City Substation, six 115 kV SF6 gas-insulated circuit breakers at Edwards Substation, three 115 kV SF6 gas-insulated circuit breakers at Kramer Substation, and two 115 kV SF6 gas-insulated circuit breakers at Holgate Switchyard, as described in Section 3.3.4.1.3.

3.3.8.3 Operation and Maintenance Facilities, Telecommunications Equipment, or SCADA Equipment

No O&M facilities would be installed as part of the Proposed Project. The existing Cal City Substation includes a cabinet housing telecommunications equipment, which would be removed as part of the Proposed Project. New telecommunications infrastructure would be installed inside the new Cal City Substation MEER to connect to SCE's telecommunications system and would provide Supervisory Control and Data Acquisition (SCADA), protective relaying, data transmission, and telephone services for the substation. Additional telecommunication equipment would also be installed within the existing MEER at Edwards Substation and Holgate Switchyard and within the existing communications room at Kramer Substation.

3.3.9 Gas Pipelines

No gas pipelines are included in the Proposed Project.

3.3.10 Gas Storage Facilities – Background and Resource Information

No gas storage facilities are included in the Proposed Project.

3.3.11 Gas Storage Facilities – Well-Head Sites

No gas storage facilities are included in the Proposed Project.

3.3.12 Gas Storage Facilities – Production and Injection

No gas storage facilities are included in the Proposed Project.

3.3.13 Gas Storage Facilities – Electrical Energy

No gas storage facilities are included in the Proposed Project.

3.3.14 Telecommunication Lines

3.3.14.1 Type of Cable and Linear Length

The OPGW that would be installed as part of the Proposed Project serves as both system protection (e.g., lightning protection) and as a telecommunication line. OPGW would be installed at the top of overhead structures. Additionally, ADSS fiber optic cable would be installed on the new Cal City-Edwards-Holgate 115 kV Subtransmission Line connecting into Cal City Substation and serves as a telecommunication line. Cable types and lengths are as follows:

- Approximately 42 miles of OPGW on the new Kramer-Cal City 115 kV Subtransmission Line
- Approximately 28 miles of OPGW on the new Cal City-Edwards-Holgate 115 kV Subtransmission Line
- Approximately 1,600 feet of ADSS fiber optic cable on new Cal City-Edwards-Holgate 115 kV Subtransmission Line

The installation location and characteristics of the cable to be installed above-ground is addressed in Section 3.3.4.1.2.

3.3.14.2 Antenna and Node Facilities

No antenna or node facilities are included in the Proposed Project.

3.3.14.3 Below-Ground Telecommunication Lines

Fiber optic cable would be installed below-ground within and immediately adjacent to the existing Cal City, Kramer, and Edwards Substations and Holgate Switchyard. Fiber optic cable would be routed below-ground from the communications room or MEER at these substations to a getaway structure, and then would transition to an above-ground configuration.

3.3.14.4 Above-Ground Telecommunication Lines

3.3.14.4.1 Type of Poles

No telecommunication structures would be installed exclusively to support new telecommunication line.

3.3.14.4.2 Existing Poles

No existing telecommunication structures would be used to exclusively support new telecommunication line.

3.3.14.4.3 Additional Infrastructure

Telecommunication line appurtenances include splice boxes and risers, among other infrastructure. Risers are small-diameter (2-5 inch) plastic or galvanized steel conduit attached with strapping to poles or other structures through which fiber optic cable is placed to transition from an overhead to an underground

configuration. Splice boxes are metal or plastic enclosures, frequently of dimensions approximating 36 by 36 by 10-inch, that are attached to subtransmission structures with strapping.

3.4 Land Ownership, Rights-of-Way, and Easements

3.4.1 Land Ownership

The Proposed Project is located on private lands with the following exceptions:

- Federal Land
  - Approximately 15.5 miles of the Proposed Project alignment is located on lands managed by the BLM
  - Approximately 2.7 miles of the Proposed Project alignment is located on lands managed by the DoD (United States Air Force)
- State Land
  - Approximately 0.6 mile of the Proposed Project alignment is located on land managed by California Department of Fish and Wildlife (CDFW)
  - The Proposed Project is located on/over state lands where the alignment crosses state highways owned and administered by Caltrans
- County/City Lands
  - Approximately 0.06 mile of the Proposed Project alignment is located on lands owned by Kern County
  - Approximately 8.8 miles of the Proposed Project alignment is located on lands owned by the City of California City
  - The Proposed Project is located on county and city lands where the alignment crosses county- or city-maintained roadways

Work at Cal City, Edwards, and Kramer Substations and Holgate Switchyard would be performed on lands owned by SCE or on lands whereby SCE has existing land rights.

3.4.2 Existing Rights-of-Way or Easements

3.4.2.1 Existing Rights-of-Way or Easements: Identification and Description

SCE has existing ROW, which is a combination of easements, permits, grants and/or franchise rights along portions of the Proposed Project alignment (see Appendix A for existing SCE ROW locations). The existing ROW on BLM lands generally ranges from approximately 75 to 225 feet wide. The existing easements on DoD lands range from approximately 65 to 105 feet wide. Easements on CDFW lands are approximately 225 feet wide. Easements on private lands vary in width from approximately 30 feet to 225 feet. Portions of the Proposed Project alignment are also located within or cross over areas within franchise.

3.4.2.2 Existing Rights-of-Way or Easements: Replacement, Modification, or Relocation of Proposed Project Facilities

The Proposed Project proposes to replace, modify, and install facilities within or in close proximity to existing SCE facilities and/or ROW along portions of the Proposed Project alignment where such existing

facilities and/or ROW exist. SCE may be able to use portions of its existing land rights and/or ROW along portions of the Proposed Project alignment (see Appendix A for existing SCE ROW locations).

3.4.3 New or Modified Rights-of-Way or Easements

3.4.3.1 New Permanent or Modified Rights-of-Way or Easements

SCE will acquire the necessary land rights along the length of the Proposed Project where new facilities are being installed. The new ROW and/or easements will range in width from 30 to 60 feet. The specific width of necessary easements and/or ROW along the Proposed Project alignments will be refined during the final engineering process.

3.4.3.2 Acquisition of New Permanent or Modified Rights-of-Way or Easements

SCE will acquire land rights to support the Proposed Project, as required. The land rights to be acquired will be a combination of new permanent easement rights on private property, franchise, permits, grants, or licenses on public lands along with modified/upgraded ROWs. The permanent easement rights will be acquired by SCE through negotiations with private landowners. New permanent or modified ROWs may also be acquired from the applicable public agency through that agency's designated process. SCE will also utilize its franchise rights, if applicable. The total number of land rights to be acquired would be finalized during final engineering. Pursuant to Cal. Pub. Util. Code section 612, SCE also has the power of eminent domain to acquire any necessary land rights for construction of the project.

3.4.3.3 Properties/Parcels That May Require Acquisition

The Proposed Project does not include acquisition of any additional fee properties or parcels[11].

3.4.3.4 New ROWs or Easements: Development Restrictions

SCE will acquire and obtain the necessary land rights and/or ROW that will allow SCE to safely construct, operate, maintain, upgrade, relocate, and access its facilities.

3.4.3.5 Relocation or Demolition of Commercial or Residential Property or Structures

No commercial or residential properties or structures have been identified that would require relocation or demolition as part of the Proposed Project.

3.4.4 Temporary Rights-of-Way or Easements

3.4.4.1 Temporary ROWs or Easements: Required for Access

Based on final engineering and construction requirements, Temporary Entry Permits (TEPs) and/or Temporary Construction Easements (TCEs) may be required from private landowners to provide sufficient equipment and material storage, staging and work areas, access, and landing zones for any approved project component.

[11] The Proposed Project includes expansion of the Cal City Substation onto two parcels acquired by SCE in 2022.

3.4.4.2 Temporary ROWs or Easements: Construction Area Locations

Construction work areas located along the Proposed Project alignment that may require temporary rights consist of pull-and-tension/stringing sites, splice sites, structure installation/removal locations, guard sites, staging areas, construction laydown areas, helicopter landing zones, and access roads. SCE anticipates obtaining TCEs, TEPs, and/or other permits for all construction work areas that extend beyond SCE's existing easements and proposed easements on private lands and CDFW lands, if necessary, including portions of the staging areas listed in Section 3.5.2 below. For temporary construction work areas on DoD and/or BLM lands, the respective governmental agency would issue temporary licenses/site approvals (on DoD lands) and Temporary Use Permit (TUP) approvals (on BLM lands), if necessary.

3.4.4.3 Temporary ROWs or Easements: Acquisition

Temporary land rights (TCEs or TEPs) may be required from private landowners. The total number of temporary land rights to be acquired from private landowners will be determined during final engineering. Temporary land rights on federal lands (if identified during final engineering as necessary) would be acquired from the BLM or DoD. Pursuant to Cal. Pub. Util. Code section 612, SCE also has the power of eminent domain to acquire any necessary land rights for construction of the Proposed Project.

3.5 Construction

The following subsections describe the construction activities associated with the Proposed Project.

3.5.1 Construction Access (All Projects)

Where required, a network of existing access roads could be improved and new roads would be constructed to current SCE road practices to support the construction, and O&M of the Proposed Project.

The typical subtransmission access road consists of a network of unpaved and paved roads accessed from public and private roads located on public, private, and government lands. These access roads consist of a network of through roads and spur roads which are used to access subtransmission facilities. Access to the subtransmission line ROW for construction activities and future O&M activities associated with the Proposed Project would be accomplished by utilizing this network of roads. The following section describes construction activities typically associated with the construction of these roads and Section 3.3.4.5.1 describes the typical dimensions of access roads in more detail.

Access roads would typically have turnaround areas to provide safe ingress/egress of vehicles to access the structure location. It is common to use access road turnaround areas for the dual purpose of structure access and as a crane pad set up area for construction activities. If a crane pad is built where terrain is steeper than 5 percent, it would remain as a permanent feature for O&M. Permanent O&M structure pads have been identified for the Proposed Project and are discussed in Section 3.3.4.5.3.

3.5.1.1 Existing Access Roads

3.5.1.1.1 Existing Access Roads: Lengths, Widths, and Ownership

During construction of the Proposed Project, crews would utilize existing public roads and existing SCE access roads to the maximum extent feasible; however, the Proposed Project as currently designed includes construction of new access roads and heavy improvement of existing access roads along both the proposed Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Lines, as detailed in Section

3.5.1.2. Subtransmission line roads are classified into two groups: access roads and spur roads. Access roads are through roads that run between structure sites and serve as the main transportation route along subtransmission line alignments. Spur roads are roads that lead from access roads and terminate at one or more structure sites.

Construction crews would employ a network of existing and newly constructed dirt access and spur roads along the Proposed Project alignment; this network would be accessed from paved and unpaved public roads.

The Proposed Project is primarily designed along existing roads that would be used for access. However, the Proposed Project as currently designed includes construction of new access roads and heavy improvement of existing access roads along both the proposed Kramer-Cal City and Cal City-Edwards-Holgate 115 kV Subtransmission Lines, as detailed in Section 3.5.1.2. Approximately 20 miles of existing SCE-maintained dirt access and spur roads would potentially be used during the construction of the Proposed Project, in addition to new access roads. Existing access roads are located along the Kramer-Inyokern-Randsburg No. 1 and No. 3 115 kV Subtransmission Lines. The widths of these existing roads vary across the Proposed Project alignment but are generally 8 to 25 feet wide; these roads account for approximately 28 acres of existing permanent disturbance (Table 3-4).

Approximately 35 miles of existing unpaved public or unpaved private (non-SCE-maintained) roads are located adjacent and parallel to the Proposed Project alignment such that work would be performed from the roadway. The widths of these roads vary but are generally 10 to 50 feet wide; these roads account for approximately 111 acres of existing permanent disturbance.

Approximately 7.4 miles of existing paved public roads are located adjacent and parallel to the Proposed Project alignment such that work would be performed from the roadway. The widths of these roads vary but are generally 20 to 38 feet wide; these roads account for approximately 24 acres of existing permanent disturbance.

Table 3-4 Existing Access and Spur Road Land Disturbance

Proposed Project Feature	Description	Approximate Area of Existing Permanent Disturbance (acres)
Existing SCE Dirt Access and Spur Roads	Previously-graded. Rehabilitation as described in Section 3.5.1.1.	28
Existing Unpaved Public or Private (non-SCE-maintained) Roads	Previously-graded	111
Existing Paved Public Roads	Previously-graded	24

3.5.1.1.2 Existing Access Roads: Modifications and Rehabilitation

Rehabilitation, road widening, and/or upgrades to existing access roads may also be required to facilitate construction access and to support operation and maintenance activities. Approximately 20 miles of existing SCE access and spur roads would be employed for construction of the Proposed Project. At present, all 20 miles are projected to require rehabilitation work, including regrading and repair of the existing roadbed. These roads would be cleared of vegetation; blade-graded to remove potholes, ruts, and other surface irregularities; and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. As part of this rehabilitation, vegetation within the existing road prism may be trimmed and/or removed to prevent vegetation from intruding into the roadway. In some locations, road

base (crushed rock), temporary plating or matting may be placed within the existing road prism to compensate for soft soils. Plating or matting would be removed at the end of construction. Existing unpaved roads may also require additional upgrades such as protection (e.g., soil cover, steel plates) for existing underground utilities. This activity may be repeated as required during the course of the project.

Prior to the start of construction, some of the existing access and spur roads may require more extensive rehabilitation. The extent and scope of this rehabilitation is unknown at this time, as field conditions along the Proposed Project alignment are subject to change. The types of more-extensive rehabilitation that may be required could include:

- Widening of the existing roadbed at curves and other locations.
- Installation of new, or repair of existing, drainage structures such as wet crossings, water bars, over side drains, and pipe culverts to allow for construction traffic usage, as well as to prevent road damage due to uncontrolled water flow.
- Repair and stabilization of slides, washouts, and other slope failures by installing retaining walls or other means necessary to prevent future failures. The type of structure to be used would be based on specific site conditions.
- Where existing access or spur roads cross culverted waterways, temporary plating or matting may be laid over the roadway to protect the culverts and to support the movement of heavy construction equipment. Plating or matting may also be placed in other locations depending on surface conditions at the time of construction.

No improvements have been identified at this time for existing unpaved public or private (non-SCE-maintained) roads that may be used for Proposed Project access. The condition of unpaved public or private (non-SCE-maintained) roads will be evaluated prior to Proposed Project construction and improvements made, as necessary.

3.5.1.1.3 Existing Access Roads: Incidental Damage

No incidental road damage is anticipated to be caused by the Proposed Project activities. SCE and construction contractor crews would utilize paved and unpaved public roads to access existing SCE-maintained dirt roads; work would also be performed from these paved and unpaved public roads. If ministerial permits are necessary for the movement of oversize or overweight vehicles along public roadways, or to perform work from public roadways, SCE would comply with the conditions of the permit(s), including conditions related to the repair of incidental road damage.

3.5.1.1.4 Detailed Maps and Associated GIS Data for Existing Access

Existing access roads are shown in Appendix A; GIS data is provided under separate electronic cover.

3.5.1.2 New Access Roads

3.5.1.2.1 New Access Roads

New access roads would be constructed to current SCE practices for safety during construction and O&M. The Proposed Project is primarily designed along existing roads that would be used for access. However, the condition of existing unpaved roads in the area is unpredictable, and new permanent access roads are anticipated to be required. Preliminary design conservatively identifies approximately 22 linear miles of new, approximately 18-foot wide unpaved access road along the proposed Kramer-Cal City 115 kV

Subtransmission Line alignment, and approximately 7 linear miles of new, approximately 18-foot wide unpaved access road along the proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line alignment. Additionally, current design identifies approximately 15 linear miles of heavy improvements to existing unpaved access roads along the proposed Kramer-Cal City 115 kV Subtransmission Line alignment, and approximately 19 linear miles of heavy improvements to existing unpaved access roads along the proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line alignment. The locations of new access roads and heavily improved roads are provided in Appendix A; Proposed Project GIS data is provided under a separate electronic cover. As design progresses, opportunities to use or improve existing unpaved roadways along the Proposed Project alignment may be identified, resulting in reduced construction of new permanent access roads.

Typical construction activities associated with new access roads generally include similar activities as described for the rehabilitation of existing unpaved roads but may also include the following additional construction requirements that depend upon the existing land terrain.

- Existing relatively flat terrain approximately 0 to 4 percent grade: Construction activities are generally similar to rehabilitation activities to existing unpaved roads and may require additional activities such as clearing and grubbing, and constructing drainage improvements (e.g., wet crossings, water bars, culverts). Detailed information regarding locations requiring drainage improvements would be provided during final engineering.
- Existing rolling terrain approximately 5 to 12 percent grade: Construction activities generally include activities typical to flat terrain and may require additional activities such as cut and fill in excess of 2 feet in depth, benched grading, drainage improvements (e.g., v-ditches, downdrains, and energy dissipaters), retaining walls, and slope stability improvements such as geogrid reinforcement. The extent of retaining walls and slope stability improvements would be determined during final engineering, and are described in more detail in Section 3.5.3.1.10. Detailed information regarding locations requiring cut and fill, benched grading and/or drainage improvements would be provided during final engineering.
- Existing mountainous terrain over 12 percent grade: construction activities would include similar activities as rolling terrain construction activities and in addition, would likely require significant cut and fill depths, benched grading, drainage improvements and slope stability improvements. Detailed information regarding locations requiring cut and fill, benched grading and/or drainage improvements would be provided during final engineering.

Slope stability systems considered include mechanically stabilized systems, along with drainage improvements (e.g., v-ditches, downdrains, energy dissipaters). The extent of slope stability improvements would be determined during final engineering.

3.5.1.2.2 Lengths, Widths, and Development Methods for New Access Roads

Access roads would generally have a minimum 14-foot drivable width with 2 feet of shoulder on each side as determined by the existing land terrain to accommodate required drainage features. Typically, the drivable road width would be further widened by up to 8 feet along curved sections of the access road creating up to 22 feet of drivable surface for the access road. Access road gradients would be leveled so that sustained grades generally would not exceed 14 percent. Curves would typically have a minimum radius of 50 feet measured from the center line of the drivable road width. Specific site locations may require a wider drivable area to accommodate multi-point turns where 50-foot minimum radii cannot be achieved. The Proposed Project is primarily designed along existing roads that would be used for access. However, preliminary design conservatively identifies approximately 22 linear miles of new,

approximately 18-foot wide unpaved access road along the proposed Kramer-Cal City 115 kV Subtransmission Line alignment, and approximately 7 linear miles of new, approximately 18-foot wide unpaved access road along the proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line alignment. Additionally, current design identifies approximately 15 linear miles of heavy improvements to existing unpaved access roads along the proposed Kramer-Cal City 115 kV Subtransmission Line alignment, and approximately 19 linear miles of heavy improvements to existing unpaved access roads along the proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line alignment. The locations of new access roads and heavily improved roads are provided in Appendix A; Proposed Project GIS data is provided under a separate electronic cover. As design progresses, opportunities to use or improve existing unpaved roadways along the Proposed Project alignment may be identified, resulting in reduced construction of new permanent access roads.

3.5.1.2.3 New Access Roads: Gates

No temporary or permanent gates are proposed as part of the Proposed Project at this time.

3.5.1.2.4 New Temporary Access Roads: Restoration

No temporary access roads are proposed as part of the Proposed Project at this time.

3.5.1.2.5 Detailed Maps and Associated GIS Data for New Access Roads

The locations of new access roads are shown in Appendix A and provided in the GIS data.

3.5.1.3 Overland Access Routes

3.5.1.3.1 Overland Access Routes

Where existing spur or access roads to a construction work area are not present, and where surface conditions are amenable, that location may be accessed overland. Where overland travel is feasible, vegetation would be trimmed while leaving the root structure intact, or vehicles would drive overland over the extant vegetation. In some locations, temporary matting may be placed on the surface to facilitate access to a work location. No blading, grading, or gravel placement would occur on overland access routes.

3.5.1.3.2 Overland Access Routes: Lengths and Widths

Preliminary design for the Proposed Project has identified 12 overland access routes. These routes have been identified to access proposed temporary construction work areas where no existing spur or access road exists. Overland access routes are anticipated to be approximately 10 feet wide and vary in length, ranging from 7 to 144 linear feet.

3.5.1.3.3 Detailed Maps and Associated GIS data for Overland Access Routes

Overland access routes are shown in Appendix A and provided in the GIS data.

3.5.1.4 Watercourse Crossings

3.5.1.4.1 Temporary/ Permanent Watercourse Crossings

Perennial, intermittent, and ephemeral watercourses are crossed at-grade on BLM, county, city, and SCE access roads. Watercourses are generally crossed at-grade or are culverted; larger watercourses crossed by improved roads or man-made watercourses (e.g., canals) are bridged or culverted. Where access or spur roads cross a watercourse, temporary plating or matting may be laid over the watercourse to support the movement of heavy construction equipment. Some watercourse crossings would require permanent improvements. At this time, 15 hardened wet crossing locations have been identified along access roads following the Proposed Project alignment. Depending on potential wet crossing designs, installation of these permanent structures would be done in a similar manner as the retaining walls, described in Section 3.5.3.1.10. As currently designed, hardened wet crossings would be lined by approximately 10-foot wide rip-rap upstream and downstream of the crossing. The locations of permanent wet crossings are provided in Appendix A and GIS data is provided under a separate cover.

3.5.1.4.2 Bridge or Culvert Replacement or Installation

Design and engineering for the Proposed Project are in progress. No bridges or culverts have been identified for replacement or installation at this time. As described in Section 3.5.1.1 above, installation or repair of culverts may be performed during the rehabilitation of existing access or spur roads. The need for such installation or repair would be determined immediately prior to or during construction based on existing field conditions at that time.

Where existing access or spur roads cross a culverted watercourse, temporary steel plating or matting may be laid over the roadway to protect the culverts and to support the movement of heavy construction equipment. Steel plating or matting may also be placed where access roads cross watercourses at-grade, depending on surface conditions at the time of construction. The need to place temporary steel plating or matting would be determined immediately prior to construction, as the locations, morphologies, and physical conditions of the ephemeral drainages crossed by the access road network are subject to change over time.

3.5.1.4.3 Location, Design, and Construction Methods

The locations of temporary plating or matting, or a temporary bridge, and the design and construction of such plating, matting, or bridge, would be determined prior to construction, as the morphologies and physical conditions of the drainages crossed by the access road network are subject to change over time.

3.5.1.5 Helicopter Access

3.5.1.5.1 Helicopter Access: Types and Quantities

Light and medium duty helicopters would be used to support construction activities. The Proposed Project would not include the use of heavy-duty helicopters. Helicopter use supporting construction may include but is not limited to areas where access is limited (e.g., no suitable access road, limited construction area to facilitate on-site structure assembly, and/or there are environmental constraints to accessing the Proposed Project area with standard construction vehicles and equipment) or where system outage constraints are a factor.

Specifically, SCE currently anticipates helicopters would be utilized in support of the construction of the Proposed Project, as well as the installation of subtransmission structures.

Light helicopter (Hughes 500 or similar) activities may include transportation of construction workers, delivery of equipment and materials to construction work area, hardware installation, marker ball installation (if applicable), and conductor and cable stringing operations.

Medium helicopter (Kaman K-Max or similar) activities may include delivery of equipment and materials to structure sites, installation of poles and structures, and removal of existing structures, if necessary.

3.5.1.5.2 Helicopter Access: Takeoff and Landing Areas

Helicopter takeoff and landing areas typically include helicopter landing zones and staging areas, and public and private airports or airstrips. SCE anticipates using the 17 staging areas listed in Table 3-5 as helicopter staging areas for the Proposed Project; helicopter operation crews, as well as fueling and maintenance trucks, may be based in the staging areas or at public or and private airports or airstrips in the vicinity of the Proposed Project (see Appendix A for all staging areas which may serve as helicopter landing zone locations). Specifically, helicopters would most likely be based out of California City Municipal Airport, located approximately 2.2 miles west of Cal City Substation, and Mojave Air & Space Port, located approximately 11.3 miles southwest of Cal City Substation. In addition to staging areas, helicopters may land on existing or proposed access roads or within SCE ROW as needed.

3.5.1.5.3 Helicopter Access: Refueling Procedures and Locations

Helicopter refueling would generally occur off-site at local airports described in Section 3.5.1.5.2 above and at the staging areas listed in Table 3-5; in some instances, refueling could occur at locations along the Proposed Project alignment that are not identified as staging areas, such as helicopter landing zones that may be sited within access roads and/or SCE ROWs (see Appendix A for all helicopter landing zone locations). Best management practices (BMPs) WM-4, Spill Prevention and Control, and NS-9, Vehicle and Equipment Fueling, would be implemented during refueling at all locations where commercial refueling services are not available. These BMPs are described in more detail in Section 3.5.13.

3.5.1.5.4 Helicopter Access: Flight Paths, Payloads, and Hours and Durations of Operation

Flight paths would be determined immediately prior to construction by the helicopter contractor. Flight paths would be filed with the appropriate authorities as needed. Helicopter payloads would vary according to the construction activity: during conductor and cable installation, the payload would consist of a lightweight sock line; during structure installation and removal, the payload would comprise structures or sections of structures being removed or being installed, and human external cargo (i.e., construction workers).

Table 3-10 provides hours and duration of operation for helicopter use during construction. When operated, helicopters would generally be flown only during daytime hours (i.e., the period from 30 minutes before sunrise to 30 minutes after sunset).

3.5.1.5.5 Helicopter Access: Safety Procedures or Requirements

As necessary, SCE or its construction contractor will develop a Helicopter Plan and would coordinate development of a Congested Area Plan pursuant to 14 CFR Part 133.33(d) with the FAA Flight Standards District Offices in Van Nuys and Riverside, which have jurisdiction over the Proposed Project area.

3.5.2 Staging Areas

3.5.2.1 Staging Area Locations

3.5.2.1.1 Staging Area Locations

SCE anticipates using one or more of the possible locations listed in Table 3-5 for construction staging. Staging Areas are shown in Appendix A and GIS data are provided under separate electronic cover. SCE has identified six preferred staging areas for use during construction of the Proposed Project. These preferred staging areas are denoted with an asterisk in Table 3-5. However, all staging areas described herein are analyzed in this PEA.

3.5.2.1.2 Staging Area Size

The approximate size of each of the identified staging areas is presented in Table 3-5.

Table 3-5 Potential Staging Area Locations

Staging Area Name	Location	Condition	Approx. Area (acres)
1-1	U.S. 395	Disturbed	3.6
1-2	Lorraine Avenue	Disturbed	8.4
1-3	Suckow Road	Disturbed	6.4
1-4*	140th Street	Disturbed	10[1]
1-5	140th Street	Undisturbed	10[2]
1-6*	Twenty Mule Team Parkway	Disturbed	5.0
1-7	U.S. 395	Undisturbed	4.7
1-8	U.S. 395	Undisturbed	2.6
1-9	U.S. 395	Undisturbed	3.4
1-10*	U.S. 395	Disturbed	4.9
1-11	U.S. 395	Undisturbed	4.1
1-12	U.S. 395	Undisturbed	1.6
1-13	U.S. 395	Undisturbed	5.0
1-14	U.S. 395	Undisturbed	4.3
1-15*	90th Street	Undisturbed	5.1
1-16*	90th Street	Undisturbed	5.1
1-17*	90th Street	Undisturbed	4.2

* Denotes preferred staging area

[1] The Proposed Project would include an up to 10-acre staging area within an approximately 86-acre potential area identified at the southeast corner of 140th Street and Suckow Road in the Proposed Project GIS data (see Appendix A).

[2] The Proposed Project would include an up to 10-acre staging area within an approximately 65.7-acre potential area identified at the northeast corner of 140th Street and Suckow Road in the Proposed Project GIS data (see Appendix A).

3.5.2.2 Staging Area Preparation

3.5.2.2.1 Site Preparation

Preparation of the staging areas would include temporary perimeter fencing and, depending on existing ground conditions at the site, grubbing (i.e., vegetation removal) and/or minor grading may be required to provide a flat and dense surface for the application of gravel or crushed rock. No new access roads would be constructed to access any of the staging areas. Land that may be disturbed at the staging area would be returned to preconstruction conditions following the completion of construction for the Proposed Project, unless otherwise agreed to by the property owner.

3.5.2.2.2 Staging Area: Uses

Staging areas would be used as a reporting location for workers, vehicle and equipment parking, helicopter landing zones, and as material storage areas. Materials commonly stored at the staging areas would include, but not be limited to, construction trailers, generator, construction equipment, portable worker sanitation facilities, steel bundles, steel/wood poles, conductor/cable reels, hardware, insulators, cross arms, signage, consumables (such as fuel and filler compound), waste materials for salvaging, recycling, or disposal, and Storm Water Pollution Prevention Plan (SWPPP) BMP materials such as, but not limited to, straw wattles, gravel bags, and silt fences.

A majority of materials associated with the construction efforts would be delivered by truck to designated staging areas, while some materials may be delivered directly to the temporary construction areas described in Section 3.5.3.1.

The staging areas may also have construction trailers for supervisory and clerical personnel. Normal maintenance and refueling of construction equipment would also be conducted at these staging areas. All refueling—which may include helicopters—and storage of fuels would be in accordance with the site-specific SWPPP, and all applicable laws and regulations.

3.5.2.2.3 Staging Area: Security

The staging areas would be secured through installation of temporary perimeter fencing and one or more gates; typically, chain-link fencing is used. In some instances, existing fencing may be present at the staging area location; in these instances, temporary perimeter fencing would not be installed. Other security measures that may be employed at staging areas could include cameras, privacy screening, and security personnel.

3.5.2.2.4 Staging Area: Power

Temporary power would be determined based on the type of equipment/facilities being used at the staging areas. If existing distribution facilities are available, a temporary service and meter may be used for electrical power at one or more of the staging areas. If it is determined that temporary power is not needed or available at the staging areas full-time, a portable generator may be used intermittently for electrical power at one or more of the staging areas.

3.5.2.2.5 Staging Area: Temporary Lighting

Staging areas may be lit for security or for staging area operations; this lighting would be directed internally and on-site. If temporary lighting is needed at staging areas, portable light standards would be placed along

the outside of the staging area, as necessary. The sources of illumination on the light standards would be shielded, resulting in light being directed downward and inward (toward the staging area). To the extent feasible, light standards would be positioned so that illumination is directed away from the nearest residence(s).

3.5.2.2.6 Staging Area: Grading Activities and/or Slope Stabilization

No slope stabilization or extensive grading activities would be performed at any staging area; the identified staging areas are relatively level, and thus grading activities would be focused on leveling the surface. Because generally level areas have been selected for staging areas, no slope stabilization is anticipated.

3.5.3 Construction Work Areas

3.5.3.1 Construction Work Areas and Activities

Construction of the Proposed Project would be performed in the construction work areas described in the sections below.

3.5.3.1.1 Helicopter Landing Zones and Touchdown Areas

The activities that may be performed at any given helicopter landing zone (including touchdown areas) would include:

- Dropping-off or picking-up construction crew members
- Dropping-off or picking-up air-portable construction equipment
- Assembly of pole sections (installation of cross-arms, hardware, etc. on a section of pole)
- Lifting of pole sections by helicopter
- Deposition of removed structure sections
- Dropping-off or picking-up conductor sock line
- Dropping-off or picking-up conductor pull rope
- Dropping-off or picking up conductor
- Loading and unloading poles, structure sections, and other material to and from trucks
- Fueling of helicopters

3.5.3.1.2 Vehicle and Equipment Parking, Passing, or Turnaround Areas

Vehicles and construction equipment would be parked during the day and overnight at staging areas and would be parked during the day (and potentially overnight) at pull-and-tension/stringing sites and other construction work areas along the Proposed Project alignment. During work on a structure, vehicles and construction equipment would be parked during construction hours at structure work areas and guard structures, and on adjacent access or spur roads. Vehicles and construction equipment would be parked at helicopter landing zones and on adjacent access or spur roads during helicopter operations from a particular helicopter landing zone. Passing and turnaround areas would be available along the access and spur road network included in the Proposed Project.

3.5.3.1.3 Railroad, Bridge, or Watercourse Crossings

There are no new railroad crossings included in the Proposed Project. Existing at-grade or elevated railroad crossings would be utilized during construction; at each of these crossings, temporary guard structures would be installed; these are addressed in Section 3.5.3.1.6 below.

No new bridges are included in the Proposed Project. Watercourse crossings are addressed above in Section 3.5.1.4.

3.5.3.1.4 Temporary Work Areas for Facility Installation, Modification, or Removal

Temporary work areas (also and interchangeably referred to as construction work areas) serve as temporary working areas for crews and where Proposed Project related equipment and/or materials are placed at or near each structure location. The activities that may be performed at any given temporary work area would include, but is not limited to, the following:

- Install TSP
- Install LWS pole
- Install LWS H-frame
- Remove existing structure (wood pole)
- Modify existing structure (wood pole)
- Install conductor and cable on existing, replacement, or new structure
- Splice conductor
- Substation modification
- Vegetation removal or trimming
- Surface grading, leveling, and/or compaction
- Benching

3.5.3.1.5 Excavations and Associated Equipment Work Areas

No excavations except those associated with the installation of LWS poles, installation of TSP foundations, installation of guy anchors, removal of existing LWS pole or TSP foundations, expansion of the Cal City Substation, installation of underground distribution duct banks, and installation of underground telecommunication cable, and telecommunication structures are included in the Proposed Project. Excavations for the installation of underground telecommunication cable would require an equipment work area extending approximately 10 feet on either side of the telecommunication cable route. If needed, excavations may be required within staging areas for installation of temporary distribution poles to deliver temporary power during construction.

3.5.3.1.6 Temporary Guard Structures

Guard structures are temporary facilities that would typically be installed at transportation, flood control, and utility crossings prior to conductor or cable installation activities. These structures are designed to stop the movement of a conductor or cable should it momentarily drop below a conventional stringing height. SCE estimates that approximately 28 guard structures may need to be constructed along the proposed route. The location of temporary guard structures is provided in Appendix A. Additional guard structures may be

required based on the actual conditions present during construction (e.g. new roads or new critical access points).

Typical guard structures are standard wood poles. Depending on the overall spacing of the conductors being installed, approximately two to four guard poles would be required on either side of a crossing. In some cases, the wood poles could be substituted with the use of specifically equipped boom trucks or, at highway crossings, temporary netting could be installed, if required. The guard structures would be removed after the conductor is secured into place.

For crossings of U.S. 395, State Route 58, and Burlington Northern Santa Fe railroad tracks, SCE would work closely with the applicable jurisdiction to secure the necessary permits to string conductor over the applicable infrastructure.

3.5.3.1.7 Pull-and-Tension/Stringing Sites

Pull-and-tension/stringing sites are those locations where the equipment necessary for installation of conductor and cable would be set-up and operated. The pull-and-tension/stringing sites associated with the Proposed Project would be temporary.

"Wire pull" is the term used to describe the length of any given continuous wire installation process between two selected points along the line. Wire pulls are selected based on a variety of factors, including availability of dead-end structures, conductor size, geometry of the line as affected by points of inflection, terrain, and suitability of stringing and splicing equipment set-up locations. On relatively straight alignments, typical wire pulls occur approximately every 12,000 feet on flat terrain. When the line route alignment contains multiple deflections or is situated in rugged terrain, the length of the wire pull is typically diminished. Generally, pull-and-tension/stringing sites would be in direct line with the direction of the overhead conductors and established at a distance equal to approximately three times the height of the adjacent structure. Pull-and-tension/stringing sites would require an approximately 300-foot by 200-foot work area. SCE estimates approximately 93 pull-and-tension/stringing sites each may be required along the Proposed Project alignment. Potential locations of proposed pull-and-tension/stringing sites are included in Appendix A.

Each conductor or cable installation operation consists of a puller set-up positioned in a pull-and-tension/stringing site located at one end of a wire pull, and a tensioner set-up with wire reel stand truck positioned in a pull-and-tension/stringing site at the other end of a wire pull. Pull-and-tension/stringing sites may also be utilized for splicing and field snubbing of the conductors. Field snubs (i.e., anchoring and dead-end hardware) would be temporarily installed to sag conductor wire to the correct tension at locations where stringing equipment cannot be positioned in back of a dead-end structure.

3.5.3.1.8 Splice Sites, Conductor and Overhead Groundwire Removal

The Project does not include the removal of splice sites, conductor or overhead groundwire.

3.5.3.1.9 Jack and Bore Pits, Drilling Areas and Pull-back Areas for Horizontal Directional Drills

The Proposed Project does not include the installation of any infrastructure underground that would require the use of jack and bore drilling or horizontal directional drilling.

3.5.3.1.10 Retaining Walls

Retaining walls and slope stability improvements may also be required for access road and/or subtransmission line components, such as during new access road construction, widening of existing access roads, repairing earthen slopes damaged by erosion, grading with significant cut and fill depths, and benched grading activities. Rehabilitation and construction of access and spur roads, repair and stabilization of slides, washouts, and other slope failures may include installing retaining walls or other means necessary to prevent future failures. It is typically preferable to use cut-and-fill slopes that are configured at slope ratios that are stable without using reinforcement. However, due to ROW limitations, sensitive resource avoidance, and existing topography, the Proposed Project may require the need for reinforced earthen slopes, permanent erosion control or an earth retaining system. Potential retaining wall locations are based on planning level assumptions, the number of retaining wall structures and locations would be identified during final engineering.

3.5.3.2 Work Area Disturbance

3.5.3.2.1 Dimensions of Each Work Area

The dimensions of each work area described above, including the maximum area that would be disturbed during construction, is shown in Table 3-6 below.

3.5.3.2.2 Temporary and Permanent Disturbance at each Work Area

Table 3-6 provides the temporary and permanent disturbance at each work area (in acres), and the total area of temporary and permanent disturbance for the entire Proposed Project (in acres) available at this time.

Table 3-6 Approximate Work Area Disturbance Areas

	Approximate Number/ Distance	Approximate Preferred Size (feet)[a]	Approximate Disturbance, Temporary, (acres)[b]	Approximate Disturbance, Permanent, (acres)[b]
Staging Areas[c]	17	Varies	215.7	0
Helicopter Landing Zones and Touchdown Areas[d]	17	Varies	0	0
Access Roads/Overland Travel	64.1 miles	Varies	122.9	192.1
Heavily Improved Access Road	34.3 miles	Varies	67.4	101.5
New Design Road	28.9 miles	Varies	53.9	87.6
Overland Travel Path	0.1 mile	Varies	0.1	0
Other[e]	0.8 mile	Varies	1.5	3.0
Railroad, Bridge, or Watercourse Crossings[f]	15	Varies	0	0
Temporary/Permanent Work Areas for Facility Installation, Modification, or Removal	1,433	Varies	272.2	10.3
Install TSP or LWS Pole[g]	1,148	100 x 100 (LWS) 200 x 200 (TSP)	261.7	8.0
Permanent O&M Structure Pads	32	Varies	0	2.3
Remove/Modify Existing Wood Pole	253	100 x 100	10.5	0
Cal City Substation General Disturbance[h]	1	1,100 x 760	4.6	4.3
Temporary Guard Structures	28	50 x 150	2.8	0

	Approximate Number/ Distance	Approximate Preferred Size (feet)[a]	Approximate Disturbance, Temporary, (acres)[b]	Approximate Disturbance, Permanent, (acres)[b]
Cable/Conductor Pull-and-Tension/Stringing Sites	93	300 x 200	74.7	0
Conductor/Cable Splicing	10 to 20	75 x 75	1.9	0
Total Temporary/Permanent Disturbance Area	–	–	694.9	206.7

[a] The dimensions listed above are preferred for construction efficiency; actual dimensions vary depending on project constraints
[b] Acreages provided are calculated based on current Proposed Project design. Where both temporary and permanent disturbance are anticipated, temporary disturbance area is not inclusive of permanent disturbance area. Where Proposed Project component disturbance areas overlap (e.g., access road and temporary/permanent work areas), disturbance was assigned to just one Proposed Project component to avoid accounting for disturbance more than once. Therefore, total temporary/permanent disturbance area represents approximate total Proposed Project footprint.
[c] Staging Area 1-4 and Staging Area 1-5, if selected, would only require up to 10 acres each of disturbance. However, since the exact location of this disturbance area within each potential staging area footprint is not known at this time, temporary disturbance accounts for potential disturbance of the entire staging area.
[d] Disturbance acreage for Helicopter Landing Zones and Touchdown Areas located within Staging Areas are included in Staging Areas disturbance totals.
[e] Includes existing disturbed area in which no access road grading is proposed, but temporary or permanent disturbance is anticipated due to ongoing use during Proposed Project construction and operation.
[f] Includes approximately 15 hardened wet crossings along existing and/or proposed access roads. Disturbance associated with these crossings is captured under access road disturbance area.
[g] Permanent impacts reflect pole locations with a 10-foot permanent disturbance buffer. Temporary impacts reflect limits of grading at pole locations, excluding access road grading and permanent disturbance areas.
[h] Temporary impacts reflect general disturbance area, excluding proposed staging areas and structure installation workspaces. Permanent impacts reflect expansion of Cal City Substation security fence line.

Table 3-7 presents the approximate permanent disturbance associated with each structure type, and approximate maximum permanent disturbance area (in acres).

Table 3-7 Permanent Disturbance Associated with Structures

	Proposed Project (approximate metrics)
Pole Diameter: LWS Pole TSP	 18 to 36 inches 24 to 72 inches
Foundation or Burial Depth: LWS Pole TSP	 6 to 10 feet 20 to 50 feet
Permanent Footprint per Pole: LWS Pole or TSP[1]	 0.007 acre
Number of Poles: LWS Pole or TSP	 1,148
Total Permanent Footprint for Poles	Approximately 8.0 acres

[1] Permanent footprint is based on a 10-foot radius from the center of the pole.

3.5.3.3 Temporary Power

Temporary electrical power and/or generators may be required at Proposed Project staging areas and would be determined based on the type of equipment/facilities being used at the staging areas. Temporary power at staging areas is described in greater detail in Section 3.5.2.2.4.

3.5.4 Site Preparation

3.5.4.1 Surveying and Staking

Prior to the start of structure installation activities, the location of each structure to be installed would be surveyed and staked. Conventional surveying techniques and equipment would be utilized.

3.5.4.2 Utilities

3.5.4.2.1 Underground Utility Identification Process

As part of the Proposed Project, prior to the start of activities that require excavation, SCE or its construction contractor would identify underground utilities by contacting DigAlert, conducting visual observations, conducting exploratory excavations (i.e., potholing), and/or using buried line locating equipment.

3.5.4.2.2 Relocating Existing Utilities

Existing underground utilities may be relocated as part of the Proposed Project. Existing third-party overhead utilities, and that are installed on poles to be modified or removed by the Proposed Project may be transferred to replacement poles as part of the Proposed Project or would be left in-place on existing poles.

3.5.4.2.3 Installing Temporary Power

As described in Section 3.5.2.2.4, temporary power or other utility lines may be installed at one or more staging area(s) as part of the Proposed Project. The process for installing temporary power would be determined by SCE or other utility service provider based on the staging area's utility service needs, but would generally include the installation of a temporary meter on a temporary structure, the temporary installation of one or more wood poles (to be installed in the same manner as guard structure poles), and the installation of temporary electrical cable from the meter to the load source(s) at the staging area(s).

3.5.4.3 Vegetation Clearing

3.5.4.3.1 Vegetation Clearing: Types Required

Vegetation and trees would be trimmed or removed as needed at or adjacent to construction work areas to facilitate the safe construction of the Proposed Project and to reduce fire hazards associated with construction activities. Only the minimum amount of vegetation necessary for the safe construction and operation of structures and facilities would be removed. Where feasible, construction work areas have been preferentially selected to minimize the trimming or removal of vegetation and/or trees. During road rehabilitation and construction activities, vegetation would be trimmed and/or removed within the access or spur road prism, as necessary. Where overland travel is feasible, vegetation would be trimmed while leaving the root structure intact, or vehicles would drive over the extant vegetation.

3.5.4.3.2 Vegetation Clearing: Temporary and Permanent Disturbance

The area of each vegetation community found along the Proposed Project alignment corridor is presented in Table 5.4-2 of Section 5.4, Biological Resources. The data in this table distinguish between previously developed areas (i.e., paved, graveled, or otherwise urbanized) and naturally vegetated areas. Known areas of temporary and permanent disturbance of each vegetation community associated with the Proposed

Project are presented in Table 5.4-2. Additional information is available in Section 5.4, Biological Resources.

3.5.4.3.3 Vegetation Clearing: Description and Types of Equipment

Vegetation removal would consist of "brushing" (i.e., shrubs and other low-lying vegetation would be trimmed and/or removed within the construction work area). Vegetation removal would generally be accomplished using a mower-type attachment mounted to a tractor; in some instances, areas would be brushed by individuals using heavy-duty "weed whacker" type equipment. Vegetation growing on the road surface would be removed by a motor grader during the blade-grading of roads to remove potholes, ruts, and other surface irregularities.

Where overland travel is feasible, vegetation would be trimmed while leaving the root structure intact, or vehicles would drive overland over the extant vegetation.

3.5.4.4 Tree Trimming and Removal

3.5.4.4.1 Tree Removal and Trimming: General Order 95-D

No tree trimming pursuant to General Order (G.O.) 95-D would be performed as part of the construction of the Proposed Project; such tree trimming (as necessary) is currently performed along sections of the Proposed Project alignment where SCE subtransmission and distribution lines currently exist as part of O&M activities. Any tree removal performed as part of the Proposed Project would be conducted solely to facilitate the safe construction of the Proposed Project or to reduce the fire hazards associated with construction activities.

3.5.4.4.2 Tree Removal and Trimming: Types, Locations, Numbers, and Sizes

Trees or portions of trees that encroach upon the access and spur road prism or on an overland travel route may be removed to facilitate the safe movement of construction equipment. Similarly, trees or portions of trees within or adjacent to staging areas and temporary work areas may be trimmed and/or removed; staging areas have been preferentially selected to minimize the trimming or removal of trees. The types, specific locations, approximate numbers, and size of trees that may need to be removed or trimmed substantially has not been determined at this time; additional information is available in Section 5.4, Biological Resources.

3.5.4.4.3 Tree Removal and Trimming: Potentially Protected Trees

Removal or substantial trimming of protected trees has not been determined at this time. However, protected western Joshua trees (*Yucca brevifolia* var. *brevifolia*) occur in the vicinity of the Proposed Project alignment. Based on surveys completed in support of this PEA and current Proposed Project design, six western Joshua trees occur within areas that may be temporarily disturbed by the Proposed Project. Potentially protected trees found along the Proposed Project alignment are addressed in Section 5.4 Biological Resources.

3.5.4.4.4 Tree Removal and Trimming: Types of Equipment

Tree removal or trimming, if necessary, would be accomplished utilizing such equipment as a dump truck, pick-up truck, chipper, stump grinder, and a bucket truck, among others. Hand tools used during tree removal would include chain saws and/or hand saws.

3.5.4.5 Work Area Stabilization

Work areas would be stabilized utilizing BMPs described in the SWPPPs developed and implemented for the Proposed Project; typical BMPs that may be used for work area stabilization are presented in Section 3.5.11.

Generally level areas are selected for staging areas; therefore, no slope stabilization issues are anticipated where terrain is flatter than 5 percent slope. The staging area would be compacted to at least 90 percent relative density and would be capable of supporting heavy vehicles. Rock could be placed on the surface of staging areas, where appropriate, to stabilize the soils.

During rehabilitation of access and spur roads, repair and stabilization of slides, washouts, and other slope failures may include installing retaining walls or other means necessary to prevent future failures. The type of structure to be used would be based on specific site conditions.

The new subtransmission structure locations and laydown/work areas would first be graded and/or cleared of vegetation as required to provide a reasonably level and vegetation-free surface for structure installation. Sites would be graded such that water would run toward the direction of the natural drainage. In addition, drainage would be designed to prevent ponding and erosive water flows that could cause damage to the structure foundations. The graded area would be compacted to at least 90 percent relative density and would be capable of supporting heavy vehicular traffic.

Erection of the structures may also require establishment of a permanent O&M structure pad where terrain is steeper than 5 percent slope. The dimensions of O&M structure pads would vary depending on location and terrain, but would generally occupy an area of approximately 40 feet by 70 feet and be located adjacent to each applicable structure within the laydown/work area used for structure assembly. The O&M structure pad may be cleared of vegetation and/or graded as necessary to provide a level surface for equipment operation. O&M structure pads may require permanent grading in order to accommodate slopes and daylights. The locations of proposed permanent O&M structure pads are provided in Appendix A. As needed, additional temporary crane pads or permanent O&M structure pads may be determined during final engineering for the Proposed Project and upon the selection of the appropriate construction methods to be used by SCE or its Contractor.

Benching of temporary work areas and pull-and-tension/stringing sites may be required to provide access for foundation construction, assembly, structure erection, and wire stringing activities during line construction. Benching is a technique in which an earth moving vehicle excavates a terraced access to structure locations in extremely steep and rugged terrain. Benching may also be used on an as-needed basis in areas to help ensure the safety of personnel during construction activities. SCE does not foresee the need for benching as part of the Proposed Project; however, the physical environment in which the Proposed Project would be constructed is dynamic, and thus this description of benching is included should the need for benching arise during construction.

3.5.4.6 Grading

Staging areas and construction work areas could have minor grading and/or grubbing (i.e., vegetation removal) as required to provide a reasonably level and vegetation-free surface. Staging areas and construction work areas would be graded such that water would run toward the direction of the natural drainage. In addition, drainage would be designed to prevent ponding and erosive water flows.

SCE would delineate temporary work areas adjacent to each structure location at which work would occur as part of the Proposed Project where terrain is less than 5 percent slope. Where the surface and vegetation conditions permit, construction crews would utilize overland travel approaches within these temporary work areas. Where overland travel is not feasible, the temporary work areas would be graded and/or cleared of vegetation as required to provide a reasonably level and vegetation-free surface. Temporary work areas would be graded such that water would run toward the direction of the natural drainage. In addition, drainage would be designed to prevent ponding and erosive water flows that could cause damage to new structure foundations or poles. The graded area would be compacted to at least 90 percent relative density and would be capable of supporting heavy vehicles.

3.5.4.6.1 Earth Moving or Substantial Grading Activities Description

Earth movement, grading, and clearing and grubbing is anticipated across all temporary and permanent disturbance areas along the proposed subtransmission lines, including temporary work areas, existing access road widening, and blading of proposed new access roads. Additionally, more substantial grading activities may be required for construction of new access roads and at permanent O&M structure pads. Estimated grading volumes are provided in Section 3.5.4.6.2, below While not currently included in preliminary engineering and design, removal and recompaction of all Proposed Project disturbance areas may occur if recommended by a geotechnical engineer.

In addition to the earth moving activities described above, earth moving and grading activities would occur at Cal City Substation. All soil at Cal City Substation is anticipated to be balanced on-site such that no import or export of material would be required.

3.5.4.6.2 Estimated Volumes of Grading

Table 3-8 summarizes the estimated detailed grading volumes associated with the Proposed Project based on current design and engineering. Cut and fill volumes have been provided for Proposed Project components for which detailed grading estimates have been prepared, including grading of new access roads and permanent O&M structure pads. Excess cut material is anticipated to be balanced within the Proposed Project site; organic material removed during clearing and grubbing activities may be hauled off-site as needed. Detailed grading quantities for construction work areas and blading of new and existing access roads have not been prepared at this time, as all soil from such activities is anticipated to be balanced on-site. It is anticipated that approximately 175,000 cy of material will be moved (cut and fill) during blading operations. Approximately 225,000 cy of material is anticipated to be moved (cut and fill during blading and detail grading operations). Import of clean fill material is not anticipated at this time, but may be necessary pending final engineering or if recommended by a geotechnical engineer due to site-specific soil conditions.

Table 3-8 Detailed Grading Volumes

Project Component	Estimated Cut (cubic yards)	Estimated Fill (cubic yards)	Estimated Import/Export (cubic yards)[1]
Proposed Kramer-Cal City 115 kV Subtransmission Line			
Detailed Grading (New Access Road and O&M Structure Pads)	15,000	15,000	0
Proposed Cal City-Edwards-Holgate 115 kV Subtransmission Line			
Detailed Grading (New Access Road and O&M Structure Pads)	10,000	10,000	0
Cal City Substation			
Detailed Grading	34,000	34,000	0

[1] For all Proposed Project scope elements, soil is currently anticipated to be balanced on-site, aside from removal/export of organic material generated from clearing and grubbing activities.

3.5.5 Transmission Line Construction (Above Ground)

3.5.5.1 Poles/Towers

3.5.5.1.1 Process and Equipment for Removing Poles, Towers, and Associated Foundations

Wood poles and the wood poles that comprise the vertical members of an H-frame structure would generally be removed utilizing a crane. The above-ground and below-ground portions of each pole would be removed. Ground crew would hand excavate at the base of the wood pole and hydraulic jacks would then be placed around the base of the pole; a crane would be attached to the pole, and the pole would then be jacked and lifted out and placed within the temporary work area or on a trailer. The wood pole would be transported by truck to a staging area, and then to an SCE facility for reuse or recycling.

If access to a given wood pole or H-frame is not present or the topography is not amenable to surface vehicle-supported construction, that pole or H-frame may be removed by helicopter. The removal would consist of the above-ground and below-ground portions of the pole(s). Crews would cut the pole approximately 4 feet above ground and fell this portion to the ground within the temporary work area in a controlled manner. The remaining above-ground and below-ground portions of the pole would be removed using hydraulic pole jacks and/or by hand-digging. The two portions of the pole would then be removed by helicopter; each portion would be placed on the ground within a previously disturbed area or on a trailer or flown to a helicopter landing zone. The hole left from removing the pole would be backfilled and compacted with soils that may be available as a result of the excavation for a new structure at that location, with excess soil from the area, or using imported fill as needed.

No LWS poles, TSPs, or LSTs are proposed for removal under the Proposed Project. Because wood poles are direct buried, removal of foundations is not anticipated.

3.5.5.1.2 Process and Equipment for Installing or Otherwise Modifying Poles and Towers

TSP Installation

TSP structures typically consist of multiple sections. The TSP sections would be placed at temporary work areas at each pole location. Depending on conditions at the time of construction, the top sections may come pre-configured, may be configured on the ground, or configured after pole installation with the necessary

cross arms, insulators, and wire stringing hardware. A crane would then be used to set each TSP base section on top of the previously prepared concrete pier or micro-pile foundation. Direct-buried TSPs would be installed similarly to LWS poles as described below. If existing terrain around the TSP location is not suitable to safely support crane activities, a temporary crane pad would be established within the temporary work area. Alternatively, TSPs may be set by helicopter. When the base section is secured, the subsequent section(s) of the TSP would be slipped together into place onto the base section by crane or helicopter. Hydraulic jacks may be temporarily mounted between pole sections in order to jack the pole sections together. The TSP sections may then be spot welded together for additional stability. Depending on the terrain and available equipment, the pole sections could also be pre-assembled into a complete structure prior to setting the pole.

LWS Pole/LWS H-Frame Installation/Wood Pole Installation

LWS poles would be installed using a direct-buried approach. Direct-buried LWS poles would require a hole to be excavated using either an auger, backhoe, or by hand. In some locations, corrugated steel, cardboard, or plastic forms may be placed to stabilize the excavation walls prior to installation of the pole. Excavated material would be used as described in Section 3.5.14. LWS poles consist of separate base and top sections and may be placed on the temporary work area at each pole location. Depending on conditions at the time of construction, the top sections may come preconfigured, may be configured on the ground, or configured after pole installation with the necessary cross arms, insulators, and wire-stringing hardware. The LWS poles would then be installed in the holes, typically by a line truck or crane. When the base section is secured, the top section(s) would be installed on top of it. Depending on the terrain and available equipment, the pole sections could also be assembled into a complete structure on the ground prior to setting the poles in place within the holes. LWS poles may also be installed by helicopter depending upon existing field conditions at the time of construction. The vertical components of LWS H-frames would be installed as described above. Following installation of the vertical components, the horizontal member of the LWS H-frame would be installed on the vertical poles using the same types of equipment utilized for installation of the vertical components.

Existing Pole Modification

The Proposed Project may include modifications of existing TSPs that are equipped to support a double circuit. The modifications would include installation of new mounting hardware to support the new conductor. Overhead fiber optic cable would be installed by attaching the fiber optic cable components onto new or modified existing cross arms. This work would be performed by crews that would gain access to the structures by foot or overland vehicle.

3.5.5.1.3 Foundation Installation

TSPs would be either installed on a drilled, poured-in-place, concrete foundation, installed on drilled micro-piles, or direct-buried. If a single concrete foundation is used, the hole would be drilled using truck or track-mounted excavators. Excavated material would be used as described in Section 3.5.14.

Following excavation of the foundations, steel-reinforced cages would be set, positioning would be survey verified, and concrete would then be poured. Foundations in soft or loose soil or those that extend below the groundwater level may be stabilized with drilling mud slurry. In this instance, mud slurry would be placed in the hole during the drilling process to prevent the sidewalls from sloughing. Concrete would then be pumped to the bottom of the hole, displacing the mud slurry. Depending on site conditions, the mud slurry brought to the surface would typically be collected in a pit adjacent to the foundation or vacuumed

directly into a truck to be reused or discarded at an appropriate off-site disposal facility. TSP foundations typically require an excavated hole approximately 5 feet to 10 feet in diameter and approximately 20 feet to 50 feet deep. TSPs would require approximately 15 to 154 cubic yards of concrete delivered to each structure location.

Where necessary, foundations may also be installed utilizing micropiles. Installation of micropiles would require the drilling of several smaller diameter holes (approximately 7-10, 8-inch holes) for each foundation. The holes would be drilled by a drilling rig or drilling attachment on an excavator or similar equipment. After drilling all the holes, each hole would be flushed with water or air to remove drill cuttings and loose material. Micropiles would then be installed by placing rebar in each hole with cement grout injected through grout tubes at the lowest point of each micropile, and the hole filled until viscous grout reaches the top of the casing. The micropiles would then be tied together, to act as a single unit foundation, in a reinforced concrete cap. Grout could be brought to each structure site dry and mixed at the site.

In some locations, TSPs may be direct-buried. In these locations, a hole would be excavated using either an auger or excavated with a backhoe. The space between the wall of the excavation and the TSP may be filled with native soil and concrete. Excavated material would be used as described in Section 3.5.14.

Conventional construction techniques would generally be used as described above for new foundation installation; no alternative foundation installation methods are anticipated to be used. In certain cases, equipment and material may be deposited at structure sites using helicopters or by workers on foot, and crews may prepare the foundations using hand labor assisted by hydraulic or pneumatic equipment, or other methods. During construction, concrete from existing concrete supply facilities would be used where feasible and use of a concrete batch plant is not anticipated.

Should groundwater be encountered during excavation or drilling for foundations, it would be discharged to the surface or pumped into a tank and disposed of at an off-site disposal facility in accordance with applicable laws.

3.5.5.1.4 Delivery and Assembly

TSPs and LWS poles and associated hardware would generally be delivered to each temporary work area overland by truck. In some locations where existing access or spur roads are not amenable to the overland delivery, TSP or LWS pole sections and associated hardware may be delivered to a temporary work area by helicopter. Depending on conditions at the time of construction, the top sections may come pre-configured (i.e., assembled at a staging area), may be configured on the ground, or configured after pole installation with the necessary cross arms, insulators, and wire stringing hardware.

3.5.5.1.5 Pole Topping

The Proposed Project may include pole topping where existing distribution and telecommunication lines are present. Where distribution underbuild is proposed, existing distribution infrastructure (e.g., distribution conductor, transformers) may be transferred onto the new subtransmission structures, leaving telecommunication lines temporarily in place on the existing distribution poles. In that case, the pole may be topped at the communication level (remove a portion of the existing distribution pole where it exists above the telecommunication line) until the existing telecommunication line is transferred to a new structure and the distribution pole can be completely removed. This is a temporary construction evolution, unless the pole will continued to be used for the telecom only.

3.5.5.2 Above-Ground and Underground Conductor/Cable

3.5.5.2.1 Process-Based Description

Wire stringing activities would be conducted in accordance with SCE common practices and similar to process methods detailed in the IEEE Standard 524-2003, *Guide to the Installation of Overhead Transmission Line Conductors*. To ensure the safety of workers and the public, safety devices such as traveling grounds, guard structures, radio-equipped public safety roving vehicles and linemen would be in place prior to the initiation of wire stringing activities. Advanced planning is required to determine circuit outages, pulling times, and safety protocols to ensure that the safe installation of wire is accomplished.

Wire stringing includes all activities associated with the installation of the primary conductors onto subtransmission line structures. These activities include the installation of conductor, telecommunication cable, insulators, stringing sheaves (rollers or travelers), vibration dampeners, weights, suspension, and dead-end hardware assemblies for the entire length of the route.

The following five steps describe typical wire stringing activities:

- **Step 1 – Planning:** Develop a wire stringing plan to determine the sequence of wire pulls and the set-up locations for the wire pull/tensioning/splicing equipment.
- **Step 2 – Sock Line Threading:** A bucket truck is typically used to install a lightweight sock line from structure to structure. The sock line would be threaded through the wire rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a conductor pull.

In areas where a bucket truck is unable to install a lightweight sock line, a helicopter would fly the lightweight sock line from structure to structure. The sock line would be threaded through the wire rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the roller of a particular set of spans selected for a conductor pull.

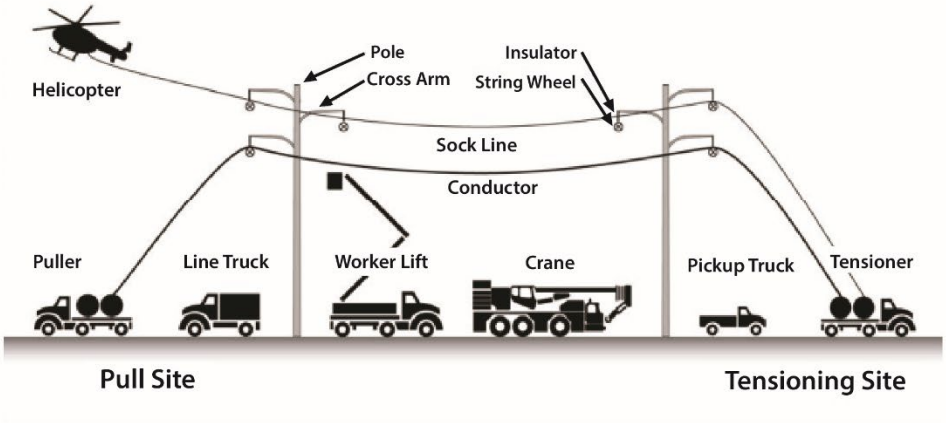
- **Step 3 – Pulling:** The sock line would be used to pull in the conductor pulling rope and/or cable. The pulling rope or cable would be attached to the conductor using a special swivel joint to prevent damage to the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel. A piece of hardware known as a running board would be installed to feed the conductor into the wire roller. This device keeps the conductor from wrapping during installation. The new conductor would be installed by utilizing conductor tensioning equipment at the conductor end of the pull.
- **Step 4 – Splicing, Sagging, and Dead-Ending:** Once the conductor is pulled in, if necessary, all mid-span splicing would be performed. Once the splicing has been completed, the conductor would be sagged to proper tension and dead-ended to structures.
- **Step 5 – Clipping-In:** After the conductor is dead-ended, the conductors would be secured to all tangent structures; a process called clipping in. Once this is complete, spacers would be attached between the conductors of each phase to keep uniform separation between each conductor.

3.5.5.2.2 Conductor and Cable Installation: Activity Locations

Conductor and fiber optic cable installation activities would occur in those portions of the Proposed Project alignment so-identified in Appendix A. Conductor and cable stringing and installation activities would occur at every pull-and-tension/stringing site, at every existing structure that would be removed, at every

existing structure that would be modified, and at every newly-installed structure within the new Kramer-Cal City 115 kV and Cal City-Edwards-Holgate 115 kV Subtransmission Line alignments. Figure 3-8 provides a diagram of a typical pull-and-tension/stringing site.

Figure 3-8 Typical Pull-and-Tension/Stringing Site Set-Up[12]



3.5.5.2.3 Conductor and Optical Groundwire Installation: Diagram of General Sequencing and Equipment Used

A diagram of the general equipment that would be used during the conductor and cable installation process is presented in Figure 3-8.

3.5.5.2.4 Conductor Installation: Splicing

Conductor

Conductor would be spliced using compression splices applied per manufacturer's instructions and specifications.

[12] A helicopter may be used to fly lightweight sock line from structure to structure in areas where a bucket truck is unable to install the line.

OPGW Installation

OPGW splicing includes the splicing of the inner optic fibers within the OPGW. The splice between two lengths of OPGW is contained within a splice box mounted on a subtransmission structure.

3.5.5.2.5 Conductor and Optical Groundwire Installation: Pull-and-Tension/Stringing Site Locations

The average distance between pull-and-tension/stringing sites along the Proposed Project alignment is 3.8 miles with a splice site located in between two pull-and-tension/stringing sites. The dimensions of each pull-and-tension site/stringing site would be approximately 300 feet by 200 feet and splicing sites would be 75 feet by 75 feet. Pull-and-tension/stringing sites may be located at existing dead-end structures, at points of inflection in the transmission line alignment, and according to the capacity of conductor reels. Generally, pull-and-tension/stringing sites would be in direct line with the direction of the overhead conductors being installed and established at a distance equal to approximately three times the height of the adjacent structure. The equipment that would be required at pull-and-tension/stringing sites includes a puller set-up positioned in a pull-and-tension/stringing site located at one end of a wire pull, and a tensioner set-up with wire reel stand truck positioned in a pull-and-tension/stringing site at the other end of a wire pull. The pull-and-tension/stringing sites used for conductor installation would also be used for OPGW installation.

3.5.5.2.6 Conductor and Optical Groundwire Installation: Underground Installation

No conductor or OPGW would be installed underground as part of the Proposed Project. Fiber optic cable would be installed underground at and in the vicinity of the existing Cal City, Kramer, and Edwards Substations and Holgate Switchyard as described in Section 3.5.5.3.

3.5.5.2.7 Conductor and Optical Groundwire Installation: Safety Precautions

Where conductor or OPGW are to be installed across a public roadway or a railroad, SCE would install guard structures on either side of the roadway or railroad or would make alternate arrangements as described in Section 3.5.5.4. Guard structures would be installed at all electrical structures and roads where required.

3.5.5.3 Telecommunications

OPGW would be installed along the new Kramer-Cal City 115 kV and Cal City-Edwards-Holgate 115 kV Subtransmission Lines. Overhead OPGW installed on new structures would be installed simultaneously with conductor as described above. ADSS fiber optic cable would be installed along 1,600 feet of the Cal City-Edwards-Holgate 115 kV Subtransmission Line, where it connects to Cal City Substation. Overhead ADSS fiber optic cable would be installed as described for conductor above.

Short sections of fiber optic cable would be installed underground at and adjacent to the existing Cal City, Kramer, and Edwards Substations and Holgate Switchyard (see Figure 3-6 for typical diagram). Cable would transition from an overhead configuration to an underground configuration through risers installed on new, replacement, or existing poles (known as getaway poles).

Where existing conduit or cable raceways within and adjacent to the substations and the switchyard are available, underground fiber optic cable would be installed in these structures. If existing conduit or raceways are not available within the substation, new conduit would be installed in trenches. New conduit would also be installed in trenches between the getaway pole(s) and the MEERs/telecommunications

rooms/telecommunications cabinets within each substation. Conduit trenches would be approximately 12 inches wide and 36 inches deep. New underground conduit and structures would typically be installed with a backhoe. PVC conduit would be placed in the trench and covered with a minimum of approximately 30 inches of concrete slurry, then backfilled and compacted (see Figure 3-6 for typical diagram). The fiber optic cable would be installed in an innerduct that protects and identifies the cable within the underground conduit and structures. To install the innerduct, it would first be pulled in the conduit using a pull rope and pulling machine or truck-mounted hydraulic capstan. Then the fiber optic cable would be pulled inside the innerduct using the same procedure.

Undergrounding would require excavation for installation of vaults or pull boxes at each end of the underground conduit. For each vault or pull box, a hole is excavated approximately 8 feet deep by approximately 6 feet long by approximately 6 feet wide. The vault or pull box would be lowered into place, connected to the conduits, and the hole would be backfilled with concrete slurry. One or more splice boxes would also be required on each getaway pole. SCE would install the fiber optic cable at the vaults and pull boxes and splice the cable segments, where it would transition from underground to overhead.

3.5.5.4 Guard Structures

Guard structures are temporary facilities that would typically be installed at transportation, flood control, and utility crossings prior to conductor and cable installation activities. Guard structures would be installed at all electrical structures and roads where required. These structures are designed to stop the movement of a conductor or cable should it momentarily drop below a conventional stringing height. SCE estimates that guard structures may need to be installed at 28 locations along the Proposed Project alignment.

Typical guard structures are standard wood poles with diameters of 12 to 18 inches at the base and burial depths of 5 to 7 feet. Depending on the overall spacing of the conductors being installed, approximately three to five guard poles would be required on either side of a crossing. Guard structure wood poles would be installed using a direct-buried approach. Direct-buried wood poles would require a hole to be excavated using either an auger or a backhoe, or with the use of hydraulic or pneumatic equipment (e.g., jackhammers, drills). In some locations, corrugated steel or plastic forms may be placed to stabilize the excavation walls prior to installation of the pole.

Following excavation of the pole hole, the wood pole would then be installed in the excavated or augured holes, typically by a line truck with an attached boom; the base would be secured by backfilling with the excavated material the interstitial space between the wall of the excavated or augured hole and the pole.

In some cases, the wood poles could be substituted with the use of specifically equipped boom trucks or, at highway crossings, temporary netting could be installed if required. The guard structures would be removed after the conductor is secured into place.

For crossings of U.S. 395, State Route 58, and Burlington Northern Santa Fe railroad tracks, SCE would work closely with the applicable jurisdiction to secure the necessary permits to string conductor over the applicable infrastructure.

3.5.5.5 Blasting

No areas where rocks, boulders, or other hard materials may interfere with grading or excavation activities have been identified at this time. As such, rock crushing and blasting operations during Proposed Project construction are not currently anticipated.

3.5.6 Transmission Line Construction (Below Ground)

No subtransmission infrastructure would be installed below ground as part of the Proposed Project.

3.5.6.1 Trenching

No below ground subtransmission line construction is included as part of the Proposed Project.

3.5.6.2 Trenchless Techniques (Microtunnel, Jack and Bore, Horizontal Directional Drilling)

No below ground subtransmission line construction is included as part of the Proposed Project.

3.5.7 Substation, Switching Stations, Gas Compressor Stations

No switching stations or gas compressor stations are included as part of the Proposed Project. The Proposed Project includes modifications at existing Cal City, Kramer, and Edwards Substations and Holgate Switchyard.

3.5.7.1 Installation or Facility Modification

3.5.7.1.1 Transformers/Electric Components

Cal City Substation Improvements

As part of the Proposed Project, the existing Cal City Substation would be expanded to the north and south, adding approximately 10 acres to the total facility area.[13] The entire area would be graded, compacted, and leveled to create a generally flat surface. The expansion area would be prepared for the installation of the new substation equipment, drainage improvements, and creation of staging areas.

After the expansion area is prepared, below-grade facilities would be installed. Below-grade facilities include, for example, some excavation activities for a concrete drainage channel, ground grid, cable trenches, equipment foundations, substation equipment foundations, conduits, duct banks, and vaults. As described previously in Section 3.5.5.1.3, existing concrete supply facilities would be used where feasible. Above-grade installation of substation facilities such as buses, capacitor banks, switchracks, disconnect switches, circuit breakers, transformers, steel support structures, fences, and the MEER would commence after the below-grade structures are in place. The transformers would be delivered by heavy-transport vehicles and installed on the transformer foundation. New telecommunication equipment would be routed to and installed to a communication room within the substation MEER.

Other Substation Improvements

At Edwards Substation, the existing switchrack would be reconfigured to add the new conductor. At Holgate Switchyard and Kramer Substation, new conductor would be connected to the existing racks. Modifications at each substation could include minor grading and foundation installation for expanded equipment, and installation of new fittings or structural reinforcement of the existing racks.

[13] The Proposed Project would expand the approximately 5-acre Cal City Substation by approximately 10 acres onto parcels acquired by SCE in 2022. A portion of the expanded substation property would accommodate the expanded substation footprint and security fence line; the remainder of the property would be used for drainage improvements and material staging.

3.5.7.1.2 Gas Components

No gas components would be installed or modified as part of the Proposed Project.

3.5.7.1.3 Control and Operation Buildings

As part of the Proposed Project, the existing telecommunications cabinet at Cal City Substation would be removed. New telecommunication equipment would be installed inside the new MEER. No control and operation buildings would be constructed or modified as part of the Proposed Project at Kramer Substation, Edwards Substation, or Holgate Switchyard.

3.5.7.1.4 Driveways

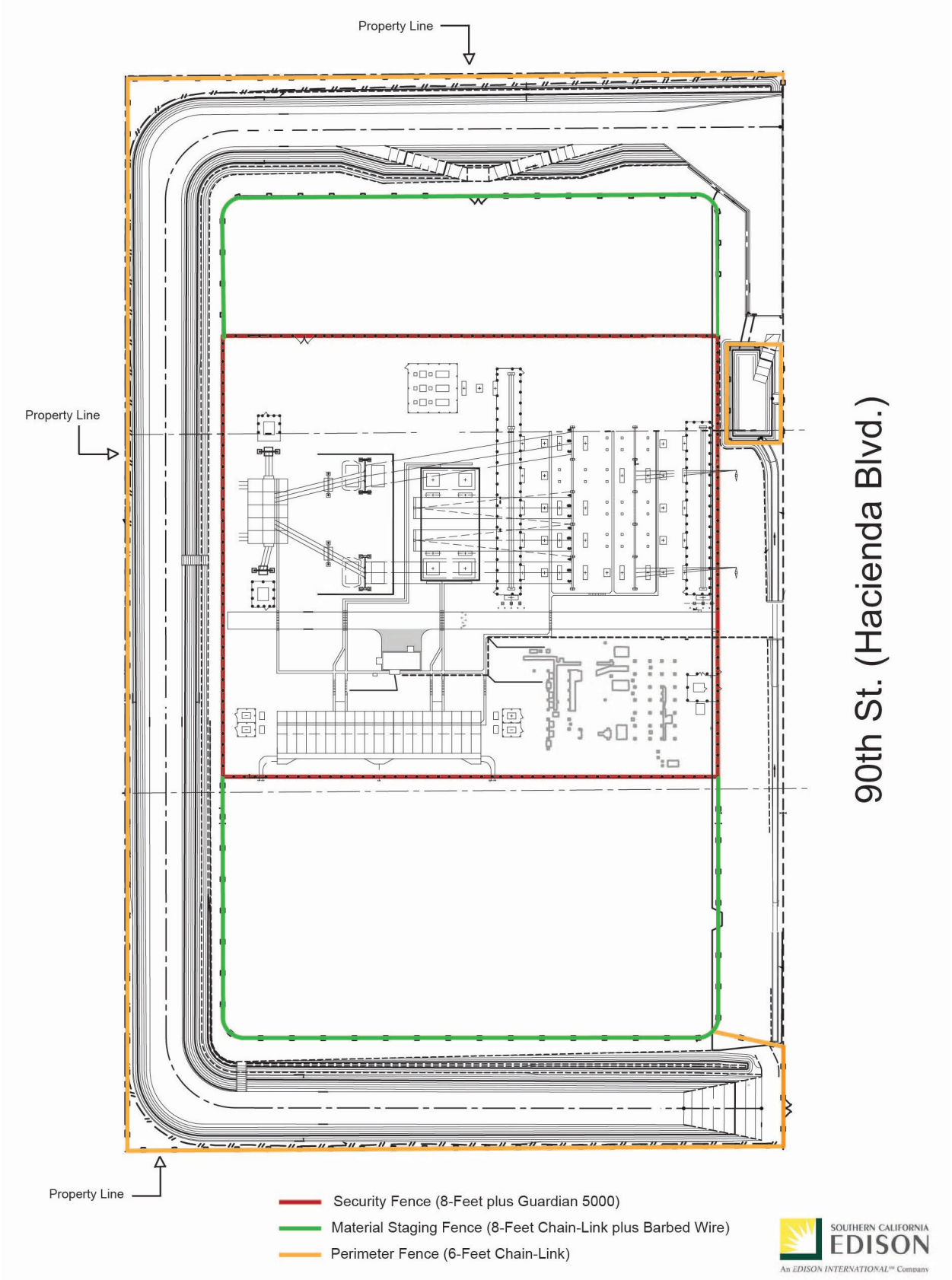
Access to the existing Cal City Substation would continue to be provided via 90th Street (formerly Hacienda Boulevard), which is an existing dirt road. As part of the Proposed Project, three driveways would be installed along 90th Street. One driveway would be the primary entrance at Cal City Substation. The primary driveway would be approximately 24 feet wide and approximately 105 feet long, with 2-foot-wide shoulders. The primary driveway may also have drainage appurtenances and 2-foot by 4-foot culvert crossings with energy dissipators, where necessary. The primary driveway would be asphalt concrete-paved and would extend from the edge of the access road to the substation gate. Two additional driveways would provide access to the new northern and southern parcels. Secondary access to Cal City Substation would be provided from the new northern parcel. The substation internal access roads would be paved and maintained by SCE to provide safe access for substation O&M activities. If road improvements are needed due to wearing and major erosion, pavement rehabilitation would be implemented to ensure safe access to the substation. No driveways would be constructed or modified as part of the Proposed Project at Kramer Substation, Edwards Substation, or Holgate Switchyard.

3.5.7.1.5 Fences

At Cal City Substation, a new 6-foot high galvanized, chain-link property fence would be installed around the northern, western, and southern perimeters of the approximately 15-acre property to restrict access to the property and associated drainage improvements on the site. Similar fencing would be installed around the proposed water quality basin. In addition, an 8-foot high galvanized, chain-link fence with an additional approximately 18-inch tall top guard affixed to the top would be installed inside of the property perimeter fence around and open areas located in the new northern and southern parcels, which may be used for material or equipment staging. Lastly, the proposed Cal City Substation facility would be enclosed on all sides by an 8-foot high security metal fence system with an additional approximately 18-inch tall top guard affixed to the top. Top guards may be composed of barbed wire, razor wire, or similar material pending final design. Figure 3-9 shows proposed fencing at the expanded Cal City Substation. One 28-foot primary gate would be placed at the main entrance, a 20-foot gate would be placed at the secondary entrances, and a 4- to 5-foot personnel walk-in gate would also be installed at the main entrance. These perimeter enclosure requirements are based on current SCE substation standards for employee and facility safety and security. Should homeland security requirements increase, more conservative perimeter enclosure standards may be required.

No fences would be constructed or modified as part of the Proposed Project at Kramer Substation, Edwards Substation, or Holgate Switchyard.

Figure 3-9 Cal City Substation Proposed Fencing



3.5.7.1.6 Gates

As part of the Proposed Project, one vehicular gate would be installed at the Cal City Substation, a pedestrian gate, and two vehicular access gates for the northerly and southerly parcels. An additional pedestrian gate would be installed for a separate enclosure to facilitate servicing of a portable toilet on the site. No gates would be installed or modified as part of the Proposed Project at Kramer Substation, Edwards Substation, or Holgate Switchyard.

3.5.7.1.7 Communication Systems (SCADA)

SCE would install new terminal equipment, channel multiplexer equipment, equipment cabling, and other telecommunication equipment devices within the existing MEERs or control buildings at the Kramer and Edwards Substations and Holgate Switchyard, or within the proposed MEER at Cal City Substation. This work would provide the required telecommunication circuit connection for subtransmission line protection relay equipment within the substations and switchyards. This work would occur generally within the substation/switchyard fence line on previously disturbed surfaces.

SCE would also install cabling between existing breakers to the existing or proposed control rooms/MEERs at each of the substations and switchyards and would install new relay and protection racks in those facilities. This work may require the use of a manlift or similar equipment to gain access to the connection points on the breakers.

3.5.7.1.8 Grounding Systems

The grounding system at Cal City Substation would be modified as part of the Proposed Project. At Edwards and Kramer Substations and Holgate Switchyard, telecommunication cable would be connected to the existing ground grid. Proposed OPGW would also be grounded along the alignment.

3.5.7.2 Civil Works

Civil work at Cal City Substation would include grading and drainage installation within the existing approximately 5-acre Cal City Substation property and the proposed property expansion area to the north and south (see Appendix A for a map depicting the existing property and proposed expansion at Cal City Substation). The graded area would be used for the expanded substation facility infrastructure, staging areas, spoils or borrow area, drainage devices, substation driveway and room to grade back to the existing surface. Prior to grading, the substation property would be cleared and grubbed. The proposed slope of the substation would be at a minimum of one percent from west to east.

Civil work at Cal City Substation would include construction of a new concrete-lined drainage channel, approximately 62 feet wide, that would extend along the southerly, westerly, and northerly sides of the expanded substation property. The 62-foot-wide channel would capture flows from the west and south off-site tributary area (run-on) and would route flows around the Proposed Project infrastructure, conveying flows to a rip rap area where a concrete wet crossing would allow a natural flow path outfall to an existing discharge point at the northeast corner of the property, on 90th Street. In the post-Proposed Project condition, sheet flow would be from west to east. A 5-foot-wide, 1-foot-deep concrete-lined channel would be constructed along the easterly side of the property between the fence and 90th Street. 2-foot by 4-foot concrete culverts would be installed under each proposed driveway. An approximately 100-foot-long, 50-foot-wide, and 5-foot-deep basin would be installed for water quality and runoff reduction. Existing terrain at Cal City Substation is relatively flat. Engineered spill containment structures are included at Cal City Substation as part of the Proposed Project for the six proposed transformers. Additionally, water would be

imported to the site for grading activities as needed. Applicable grading and drainage plans would be prepared and submitted to the City of California City for approval prior to construction.

3.5.8 Gas Pipelines

No gas pipelines are included as part of the Proposed Project.

3.5.9 Gas Storage Facilities

No gas storage facilities are included as part of the Proposed Project.

3.5.10 Public Safety and Traffic Control

3.5.10.1 Public Safety

3.5.10.1.1 Public Safety Considerations

Construction of the Proposed Project would pose few public safety considerations. Routine construction activities are proposed as part of the Proposed Project; much of the Proposed Project alignment traverses lands that are remote and rural, and the population density along the Proposed Project alignment is very low and generally non-urbanized.

Public safety considerations during construction could include: ramifications from spills of fuels or hazardous materials; work being performed along public roadways; movement of additional construction equipment along public roadways; use of helicopters; and direct effects from deenergized conductor being dropped on persons or property during wire stringing activities. A number of measures would be implemented during the Proposed Project to address these public safety considerations; these are described throughout Chapter 5, and include, for example:

- Development and implementation of one or more SWPPPs to ensure, in part, that fuels and hazardous materials are used and handled according to applicable regulations, and to ensure efficient and effective response to spills.
- Development and implementation, if necessary, of a Spill Prevention, Control, and Countermeasures (SPCC) Plan to ensure that fuels are stored appropriately and to ensure efficient and effective response to spills.
- Development and implementation of a Hazardous Materials Management Plan (HMMP) to ensure that materials are managed according to applicable regulations.
- Development and implementation of a Traffic Control/Management Plan, as may be required under a ministerial permit, to mitigate public safety impacts from construction along public roadways and to ameliorate potential impacts from the movement of construction equipment along public roadways.
- Development and implementation of a Helicopter Use and Safety Plan and, if required, a Congested Area Plan to address use of helicopters in areas where the public are present.
- Installation of guard structures or use of specially equipped trucks during wire stringing activities where public roadways are crossed by the Proposed Project alignment. Guard structures would be installed at all electrical structures and roads where required.

3.5.10.1.2 Procedures for Managing Work Sites in Urban Areas

No portion of the Proposed Project is located in an urban area.

3.5.10.1.3 Public Access Restrictions

To ensure public safety during construction of the Proposed Project, the public would be restricted from entering or transiting construction work areas and staging areas and would also be excluded from those areas of the alignment where overhead cable installation activities are underway. Public access restrictions would be maintained during the duration of construction activities at a given location.

3.5.10.2 Traffic Control

3.5.10.2.1 Traffic Control Procedures

Construction activities completed within public street ROW would require the use of a traffic control service, and all lane closures would be conducted in accordance with applicable requirements. SCE would follow its standard safety practices, including installing appropriate traffic control devices between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. SCE would follow the recommendations in the *California Temporary Traffic Control Handbook* regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code (California Joint Utility Traffic Control Committee 2018).

3.5.10.2.2 Location, Process, and Timing for Closing Sidewalks, Lanes, Roads, Trails, Paths, or Driveways

The locations, process, and timing for the closing of sidewalks, lanes, roads, trails, paths, or driveways to manage public access is discussed in Section 5.17, Transportation. Overhead cable installation activities would require the temporary closures or roads, lanes of roads (if the entire road does not need to be closed), and associated sidewalks or pedestrian paths. SCE would obtain encroachment permits from the local jurisdictions and Caltrans, as appropriate, for lane or roadway closures. Closures of private driveways would be coordinated with the individual landowners.

The Proposed Project alignment crosses recreational paths and trails; the locations of these paths and trails are presented in Section 5.16, Recreation. SCE would coordinate with the relevant jurisdiction to coordinate closure of paths and trails if necessary.

3.5.10.2.3 Temporary Detour Routes

No temporary detour routes or locations have been identified for the Proposed Project at this time.

3.5.10.2.4 Traffic Control Plan

A Traffic Control Plan for the Proposed Project would be developed in support of ministerial encroachment permit applications, if any such permits are required and if such a Plan is required by the permitting jurisdiction.

3.5.10.3 Security

Staging areas, as described above, would be fenced, and may be illuminated for security purposes. Security personnel may either patrol the staging areas periodically or may be stationed at staging areas. Security at staging areas would be emplaced for the duration that a given staging area is in-use. Security measures generally would not be employed at construction work areas unless overnight equipment or material storage

is required. In these instances, temporary fencing and security patrols may be implemented for the duration of activities at a given work area.

3.5.10.4 Livestock

No livestock fencing or guards would be installed as part of the Proposed Project to prevent livestock from entering Proposed Project areas.

3.5.11 Dust, Erosion, and Runoff Controls

3.5.11.1 Dust

During construction, migration of fugitive dust from the construction sites would be limited by control measures set forth by the Eastern Kern County Air Pollution Control District and the Mojave Desert Air Quality Management District. Such measures include, but are not limited to, the following BMP[14] that may be implemented to manage fugitive dust:

- **BMP-WE-1, Wind Erosion Control.** The construction team will apply water or other chemical dust suppressants as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives.

3.5.11.2 Erosion

In addition to BMP-WE-1 described in Section 3.5.11.1 above, the following BMPs[14] may be implemented to manage erosion:

- **BMP-EC-1, Scheduling.** The construction team shall reduce the discharge of pollutants to storm drain facilities caused by construction activities by scheduling activities in a manner that will limit exposure of disturbed soils to wind, rain, non-storm water run-off, and storm water run-on and run-off.
- **BMP-EC-2, Preservation of Existing Vegetation.** The construction team will protect and preserve existing vegetation in work areas as long as practicable before disturbing them. The construction team shall also preserve and protect existing vegetation adjacent to work areas. This protection and preservation of such vegetation will serve to control erosion and filter out sediment.
- **BMP-EC-3, Hydraulic Mulch.** The construction team will implement this BMP, if necessary, to disturbed soil areas requiring temporary protection until permanent stabilization is established, and disturbed areas that will be re-disturbed following an extended period of inactivity.
- **BMP-EC-4, Hydroseeding.** The construction team will implement this BMP, if necessary, to disturbed soil areas requiring temporary protection until permanent stabilization is established, and disturbed areas that will be re-disturbed following an extended period of inactivity.
- **BMP-EC-5, Soil Binders.** The construction team will implement this BMP, if necessary, to disturbed soil areas requiring short term temporary protection. Because soil binders can often be incorporated into the work, they are a good alternative to mulches in areas where grading activities will soon resume. Soil binders are also suitable for use on stockpiles. Non-toxic soil binders, equivalent or better in efficiencies than the California Air Resources Board (CARB)-approved soil binders, shall be applied per the manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions. Soil binders will be non-toxic and MSDS will be present at site.

[14] BMPs included herein are based on California Stormwater Quality Association's 2019 California Stormwater Best Management Practices Handbook.

- **BMP-EC-6, Straw Mulch.** The construction team will implement this BMP, if necessary, to disturbed soil areas requiring temporary protection until permanent stabilization is established, and disturbed areas that will be re-disturbed following an extended period of inactivity. Straw mulch will be certified weed free.
- **BMP-EC-7, Geotextiles and Mats.** The construction team will implement one or more of these measures to stabilize disturbed soil areas (stockpiles, slopes, embankments, conveyances, etc.) and protect these soils from erosion by rain, wind or storm water run-on and run-off where applicable to reduce soil erosion from wind and rain. Plastic micro-filament matting will not be used, only natural fiber mats to prevent trapping of birds and reptiles.
- **BMP-EC-8, Wood Mulch.** The construction team will implement this BMP, if necessary, to disturbed soil areas requiring temporary protection until permanent stabilization is established, and disturbed areas that will be re-disturbed following an extended period of inactivity. Wood mulch shall be untreated.
- **BMP-EC-15, Soil Preparation and Roughening.** The construction team will implement this BMP to assess and prepare surface soils for other BMP installation. This can include soil testing (for seed base, soil characteristics, or nutrients), as well as roughening surface soils by mechanical methods (including sheepsfoot rolling, track walking, scarifying, stair stepping, and imprinting) to prepare soil for additional BMPs, or to break up sheet flow. Soil preparation can also involve tilling topsoil to prepare a seed bed and/or incorporation of soil amendments, to enhance vegetative establishment.
- **BMP-EC-16, Non-Vegetative Stabilization.** The construction team will utilize non-vegetative stabilization methods for temporary or permanent stabilization of areas prone to erosion; this would be used only where vegetative options are not feasible.

3.5.11.3 Runoff

The following BMPs[14] may be implemented to manage storm water runoff and sediment:

- **BMP-SE-4, Check Dam.** The construction team will implement this BMP to reduce scour and channel erosion by reducing flow velocity and increasing residence time within the channel, allowing sediment to settleSE-5, Fiber Rolls. The construction team will implement this BMP to eliminate the erosion of slopes. The rolls are widely used to prevent sediment from running off site.
- **BMP-SE-6, Gravel Bag Berm.** The construction team will implement this BMP to eliminate erosion of slopes. This BMP is particularly useful with steep slopes and a high potential for runoff.
- **BMP-SE-7, Street Sweeping and Vacuuming.** The construction team will implement this BMP when soils and miscellaneous debris are tracked from the construction site to areas outside the site. This measure prevents sediments from reaching the drop inlets and stormwater system, and prevents unsafe driving conditions.
- **BMP-SE-10, Storm Drain Inlet Protection.** The construction team will implement this BMP if any runoff from the construction site drains directly into a drop inlet. The protection will prevent debris and soils from clogging drop inlets and storm drain systems.
- **BMP-TC-1, Stabilized Construction.** The construction team will implement this BMP to remove all construction site soil and miscellaneous debris prior to leaving the site. The BMP will depend on the soil, site, and type of surface outside the staging area.
- **BMP-TC-2, Stabilized Construction Roadway.** A stabilized construction roadway is a temporary access road. It is designed for the control of dust and erosion created by vehicular tracking.

- **BMP-WM-3, Stockpile Management.** The construction team will implement this BMP whenever there are stockpiles of asphalt, concrete, wood, or soil. This includes temporary stockpiles and stockpiles existing for periods longer than one working day.

3.5.12 Water Use and Dewatering

3.5.12.1 Water Use

Construction of the Proposed Project is estimated to require approximately 476 acre-feet of water; this water would be consumed over the approximately 24-month construction duration. Water would be used for dust control, ground compaction, restoration activities, and in the construction of TSP foundations.

SCE would preferentially utilize recycled or reclaimed water if and when such water is available; at this time, the volume of recycled or reclaimed water that would be available for purchase is unknown. However, if the full volume of water needed for the Proposed Project is available for purchase at competitive rates, SCE would solely utilize recycled or reclaimed water for the Proposed Project.

If recycled or reclaimed water is not available in sufficient quantities to supply the entirety of the Proposed Project's water demand, SCE would purchase water from commercial purveyors to supplement the volumes of recycled or reclaimed water available. Given the nature of water resources in the Proposed Project area, water purchased from commercial purveyors could be sourced from either surface water or groundwater resources. Construction water supply may be sourced directly from nearby hydrants along the Proposed Project alignment into water trucks or stored in elevated tanks at Proposed Project staging areas.

3.5.12.2 Dewatering

During installation of TSPs or LWS poles, shallow groundwater may be encountered. In these instances, excavations would be dewatered using one or more pumps and the water would be either discharged on-site to the surface (if so permitted) or would be stored in Baker tanks or similar equipment prior to disposal off-site; Baker tanks or similar equipment would be emplaced on the temporary work area established for new structure installation. Dewatering water may also be used for dust control.

3.5.13 Hazardous Materials and Management

3.5.13.1 Hazardous Materials

3.5.13.1.1 Types, Uses, and Volumes

Construction of the Proposed Project would require the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents (see Table 3-9). These would be used to power internal combustion engines, to lubricate internal combustion engines and other construction equipment and hardware, and for cleaning purposes. All hazardous materials would be stored, handled, and used in accordance with applicable regulations. Safety Data Sheets would be made available at the construction site for all crew workers. The volumes of these materials that would be consumed or used during construction have not been determined at this time. However, based on the anticipated volume of hazardous liquid materials, such as fuel, that would be stored and dispensed at one or more staging areas, an SPCC Plan could be required (in accordance with 40 C.F.R. Parts 112.1-112.7) depending on contractor requirements.

Table 3-9 Types, Uses and Volumes of Hazardous Materials

Hazardous Material Type	Use	Volume
Diesel	Engine fuel	680,918
Gasoline	Engine fuel	203,885
Jet A	Engine fuel	115,896
Lubricants/Hydraulic Fluids	Engine and equipment lubrication/ Powering hydraulic equipment	44,240
Miscellaneous Construction Fluids (solvents, etc.)	Cleaning/lubricating hardware, etc.	2,212

Notes:
Diesel and gasoline volumes developed through air quality modeling analysis.
Lubricants/hydraulic fluids consumption assumed at 5 percent of non-aviation fuel consumption.
Miscellaneous construction fluid volumes assumed at 5 percent of Lubricants/Hydraulic Fluids volume.

3.5.13.1.2 Herbicides or Pesticides

No herbicides or pesticides are planned to be used during construction.

3.5.13.1.3 Pre-Existing Hazardous Waste

If pre-existing hazardous waste is encountered during construction, it would be removed, managed, and disposed as described in the HMMP developed and implemented per APM HAZ-1 or as described in the Soil Management Plan developed and implemented per APM HAZ-3 (see Section 3.11).

3.5.13.2 Hazardous Materials Management

3.5.13.2.1 BMPs: Transporting, Storing, and Handling

The following BMPs[14] would be followed for transporting, storing, and handling hazardous materials:

- **BMP-NS-9, Vehicle and Equipment Fueling.** The construction team will implement this BMP when fueling of equipment occurs on site. The equipment should be monitored before and after fueling. This will prevent any fuel from reaching the construction site soils and possible groundwater. Diapers, pans, or tarps will be used under fueling areas. Spill kits will be on-site at fueling locations. Fueling areas will be located at least 100 feet from drainages.
- **BMP-WM-1, Material Delivery and Storage.** The construction team will implement this BMP to prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials on-site, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.
- **BMP-WM-2, Material Use.** The construction team will implement this BMP to prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use on-site, and training employees and subcontractors.
- **BMP-WM-4, Spill Prevention and Control.** The construction team will implement this BMP to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

3.5.13.2.2 BMPs: Incidental Leak or Spill

The following BMPs[14] would be followed in the event of an incidental leak or spill of hazardous materials:

- **BMP-WM-4, Spill Prevention and Control.** The construction team will implement this BMP to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.
- **BMP-WM-6, Hazardous Waste Management.** The construction team will implement this BMP to prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.
- **BMP-WM-7, Contaminated Soil Management.** The construction team will implement this BMP to prevent or reduce the discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly.

3.5.13.2.3 Hazardous Substance Control and Emergency Response Plan/ Hazardous Waste and Spill Prevention Plan

Hazardous materials management during construction of the Proposed Project would be guided by an HMMP, which would be developed prior to construction as specified in APM HAZ-1 (see Section 3.11).

3.5.14 Waste Generation and Management

3.5.14.1 Solid Waste

3.5.14.1.1 Solid Waste Streams

Construction of the Proposed Project would result in generation of various solid wastes including metals, wood poles, wood pallets, cardboards/papers (e.g., from material packaging), worker-generated solid waste (e.g., food and food packaging), and organic waste (e.g., removed vegetation).

3.5.14.1.2 Solid Waste Management

Solid waste generated during construction of the Proposed Project would be collected at the point of creation, transported to a staging area, and then temporarily stored at a staging area as the solid waste awaits salvage, recycling, and/or disposal. Solid wastes would be sorted, and recyclable and non-recyclable materials would be stored separately at the staging areas. No treatment of solid wastes would occur at any Proposed Project construction work area or staging area. Solid wastes would be transported off-site using SCE-approved transporters and disposed of at one or more SCE-approved disposal facilities or at an industrial-scale recycling facility. Organic waste would be removed from the Proposed Project alignment and disposed off-site. Soils generated from Proposed Project activities—including but not limited to grading, blading, or excavations associated with installation of new structures, construction of new or improvements to existing access roads, and expansion of Cal City Substation—would be balanced on-site along the Proposed Project alignment. Contaminated soil, if encountered, would be disposed of as described in Section 3.5.14.3.

3.5.14.1.3 Estimated Mass of Solid Waste

A primary source of waste associated with the Proposed Project is anticipated to be wood poles removed along segments where distribution underbuild is proposed, as well as adjacent to Cal City Substation and Holgate Switchyard. Approximately 253 wood poles identified for removal, modification, or replacement may require disposal, generating an estimated 1,325 cubic yards or 506 tons of solid waste[15]. Wood poles would be disposed of as described in Section 3.5.14.3.

3.5.14.1.4 Solid Waste Recycling Potential

SCE estimates that the entire mass of the removed structures would be recycled. SCE estimates that, at a minimum, three-quarters of the mass of metallic hardware and fittings and miscellaneous solid waste would be recycled.

3.5.14.1.5 Solid Waste Disposal and Recycling Facilities

The final disposition site of recyclable materials has not been determined at this time as the selection of such site may depend upon market conditions at the time of construction. Appropriate disposal facilities for non-metallic recyclable materials and non-recyclable materials are available at the Boron Sanitary Landfill (located south of Boron in unincorporated Kern County), California City Recycling and Transfer Station (located in City of California City), McKittrick Waste Treatment Site (located in McKittrick), Mojave-Rosamond Sanitary Landfill (located south of Mojave in unincorporated Kern County), Ridgecrest Recycling & Sanitary Landfill (located west of Ridgecrest in unincorporated Kern County), and Tehachapi Sanitary Landfill (located east of Tehachapi in unincorporated Kern County).

3.5.14.2 Liquid Waste

3.5.14.2.1 Liquid Waste Streams

Sanitary waste is the only liquid waste planned to be generated during construction of the Proposed Project. No other liquid wastes (e.g., drilling muds, contaminated waters) are expected to be generated by the Proposed Project.

3.5.14.2.2 Liquid Waste Management

Portable toilets would be provided for on-site use by construction workers; sanitary waste would be collected, contained, and stored in these portable toilets prior to disposal by a licensed sanitation contractor. Sanitary waste would be treated at a wastewater treatment plant.

3.5.14.2.3 Liquid Waste Volume

The volumes of liquid waste generated across the Proposed Project alignment would be commensurate with the number of workers on site during construction (i.e., an average of approximately 97 workers). It is estimated that approximately 31,475 gallons of liquid waste would be generated during construction of the Proposed Project.[16]

[15] Assumes an average diameter of 18 inches and a height of approximately 80 feet per pole. Mass is assumed at approximately two tons per wood pole.
[16] Assume 2 liters (0.52 gallons) per construction worker per day; 70 workers; 6 day workweek; up to 24 month construction schedule.

3.5.14.2.4 Liquid Waste Disposal Facilities

It is anticipated that sanitary waste would be transported to, and treated at, the City of California City Wastewater Treatment Plant, Rosamond Water Treatment Plant, or Lancaster Water Reclamation Plant.

3.5.14.3 Hazardous Waste

3.5.14.3.1 Potentially Hazardous Waste Streams and Management

Only small volumes of hazardous waste are anticipated to be generated during construction of the Proposed Project. These hazardous wastes would generally include empty fuel, lubricant, or cleaning solvent containers and materials contaminated with fuels, lubricants, or cleaning solvents (e.g., rags, drip pans). A low potential exists for contaminated soil or groundwater to be encountered during excavation or other ground-disturbing activities.

The existing wood poles or portions of wood poles removed for the Proposed Project would be returned to a staging area, and either reused by SCE, returned to the manufacturer, disposed of in a Class I hazardous waste landfill, and/or disposed of in the lined portion of a Regional Water Quality Control Board (RWQCB)-certified landfill or equivalent facility.

All hazardous waste would be stored, handled, and used in accordance with applicable regulations. Safety Data Sheets would be made available at the construction site for all crew members. SCE crews and/or SCE's construction contractor would implement proper hazardous waste management activities, which would include preparation and implementation of a Proposed Project-specific HMMP as specified in APM HAZ-1 (see Section 3.11). The plan would include safety information regarding the transport, use, and disposal of hazardous waste. In addition, all transport, use, and disposal of hazardous waste would be in compliance with applicable laws, rules, and regulations.

To address contaminated soil or groundwater, SCE would develop and implement a Soil Management Plan per APM HAZ-3 (see Section 3.11). The Plan would direct that, if encountered, contaminated soil would be segregated, sampled, and tested to determine appropriate disposal options. If the soil is classified as hazardous, it would be properly managed on location and transported in accordance with the U.S. Department of Transportation regulations using a Uniform Hazardous Waste Manifest to a Class I Landfill or other appropriate soil treatment or recycling facility, as approved by SCE. If potentially contaminated groundwater is encountered, then groundwater samples would be collected and tested to determine appropriate treatment and disposal. Hazardous waste would be transported and disposed of in accordance with applicable rules, regulations, and SCE standard protocols designed to protect the environment, workers, and the public.

3.5.14.3.2 Volumes of Hazardous Waste

Only small volumes of hazardous waste are anticipated to be generated during construction of the Proposed Project.

3.5.14.3.3 Locations of Appropriate Disposal Facilities

The final disposition location of hazardous wastes would be determined by the construction contractor immediately prior to or during construction to SCE-approved facility. One or more of the following SCE-approved facilities may be used:

- Clean Harbors, Buttonwillow, LLC, 2500 West Lokern Road, Buttonwillow, CA 93206
- Kettleman Hills, 35251 Old Skyline Rd, Kettleman City, CA 93239

Old oil-filled equipment used in support of the Proposed Project may also be transported to SCE's Shop Services and Instrumentation Division's facility in Westminster, CA for maintenance, repair, and disposal, as necessary.

3.5.15 Fire Prevention and Response

3.5.15.1 Fire Prevention and Response Procedures

SCE would implement standard fire prevention protocols during construction activities and comply with applicable laws and regulations. Construction areas would be grubbed/trimmed of vegetation and graded before the staging of equipment, and in such areas where overland travel may occur, dry vegetation would also be trimmed; such activities would minimize the potential for vehicles or equipment to start a fire. Furthermore, SCE would prepare a Fire Management Plan that all personnel working on the Proposed Project would be required to adopt. The Fire Management Plan is intended to ensure compliance with applicable laws and regulations and outlines responsibilities for management, fire patrol, supervisors, and all personnel working on the Proposed Project. Appendix H includes an outline of the Fire Management Plan for the Proposed Project.

In the event that the National Weather Service issues a Red Flag Warning during construction of the Proposed Project, additional measures would be implemented to address smoking and fire rules, storage and parking areas, the use of gasoline-powered tools, the use of spark arresters on construction equipment, road closures, the use of a fire guard, fire suppression tools, fire suppression equipment, and training requirements.

3.5.15.2 Fire Breaks

No new permanent fire breaks (i.e., areas cleared of vegetation) would be developed as part of the Proposed Project. Areas around new structures would be maintained per the applicable standards in CPUC G.O.128.

No areas would be cleared of vegetation solely for the purposes of creating a temporary fire break. In areas where hot work (e.g., welding) would be performed, or where equipment would be staged and operated where hot surfaces (e.g., exhaust systems) could come in contact with extant vegetation, such vegetation would be cleared or trimmed. This vegetation clearing or trimming would be contained within the construction work area identified for that given location.

3.6 Construction Workforce, Equipment, Traffic, and Schedule

3.6.1 Construction Workforce

3.6.1.1 Number of Construction Crew Members

Based on the workforce estimates provided in Table 3-10, SCE anticipates a minimum total of approximately 17 construction personnel and a maximum total of approximately 140 construction personnel working on a worst case day, including construction workers as well as clerical, safety, and management personnel. On average, approximately 97 construction personnel would work on any given day.

3.6.1.2 Crew Deployment

The estimated deployment and number of crew members would vary depending on factors such as material availability, resource availability, and construction scheduling. In general, construction efforts would occur in accordance with accepted construction industry standards. Construction would be performed by SCE construction crews and/or contractors. If SCE construction crews are used, they typically would be based at SCE's local facilities, (e.g., service centers, substations) or temporary staging areas set up for the Proposed Project. Contractor construction personnel would be managed by SCE construction management personnel and based out of the contractor's existing staging area or temporary staging areas set up for the Proposed Project.

3.6.1.3 Activities to be Undertaken

The different types of activities to be undertaken during construction, the number of crew members for each activity, and number and types of equipment expected to be used for each activity are presented in Table 3-10 for subtransmission and telecommunication components of the Proposed Project and Table 3-11 for the substation component.

3.6.2 Construction Equipment

A tabular list of the types of equipment expected to be used during construction of the Proposed Project, including the horsepower of each type of equipment, is presented in Table 3-10 for subtransmission and telecommunication components of the Proposed Project and Table 3-11 for the substation component.

3.6.3 Construction Traffic

3.6.3.1 Transportation of Crews and Equipment

Construction equipment would be transported to and from construction work areas along the Proposed Project alignment by being driven (in the case of self-propelled vehicles) or towed (in the case of equipment that is not self-propelled) along public roadways and along the existing network of access roads.

Construction crews would be transported to and from construction work areas along the Proposed Project alignment in construction vehicles (i.e., pick-up trucks or other self-propelled vehicles) or by helicopter.

Along the Proposed Project alignment, it is likely that many pieces of construction equipment would be left at work areas overnight and on off-days (e.g., holidays) rather than being driven to and from construction work areas each day.

3.6.3.2 Vehicle Types, Numbers, and Hours of Operation

Information on the vehicle type, number of vehicles, and estimated hours of operation per day, week, and month for each construction activity are presented in Table 3-10 for subtransmission and telecommunication components of the Proposed Project and Table 3-11 for the substation component.

3.6.3.3 Vehicle Miles Traveled

The estimated number of vehicle trips and vehicle miles traveled for each construction activity is presented in Section 5.17, Transportation.

Table 3-10 Subtransmission Construction Equipment and Workforce

Primary Equipment Description	Estimated Equipment Horsepower (HP)	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day	Approximate Start Date	Approximate End Date
Staging Areas								
1-Ton Truck, 4x4	300	Diesel	4	16	597	NA	3/2/2026	2/26/2028
R/T Forklift	96	Diesel	4			4		
Generator	45	Diesel	4			8		
Water Truck	350	Diesel	4			NA		
Civil Crew (Road Work, Foundations, Ducts)								
1-Ton Truck, 4x4	300	Diesel	7	20	299	NA	3/2/2026	2/27/2027
Backhoe/Front Loader	125	Diesel	4			4		
Track Type Dozer	350	Diesel	2			8		
Motor Grader	148	Diesel	2			8		
Lowboy Truck/Trailer	500	Diesel	1			NA		
3/4-Ton Truck, 4x4	275	Gasoline	7			NA		
Boom/Crane Truck	367	Diesel	1			4		
Auger Truck/Drill Rig	83	Diesel	2			6		
Water Truck	350	Diesel	2			NA		
Excavator	172	Diesel	1			4		
Dump Truck	350	Diesel	1			NA		
Concrete Mixer Truck	425	Diesel	7			NA		
Civil Crew (Road Maintenance)								
Motor Grader	148	Diesel	1	4	298	8	3/1/2027	2/26/2028
Water Truck	350	Diesel	1			NA		
1-Ton Truck, 4x4	300	Diesel	1			NA		
Structure Installation								
3/4-Ton Truck, 4x4	275	Gasoline	7	42	101	NA	6/1/2026	9/30/2026
Boom/Crane Truck	367	Diesel	7			6		
Flat Bed Pole Truck	400	Diesel	1			NA		
Water Truck	350	Diesel	2			NA		
Backhoe/Frontloader	125	Diesel	4			8		
Manlift/Bucket Truck	250	Diesel	14			8		
1-Ton Truck, 4x4	300	Diesel	7			NA		
Compressor Trailer	60	Diesel	1			4		
R/T Crane	367	Diesel	7			8		
Jet A Fuel Truck	300	Diesel	1			NA		

Primary Equipment Description	Estimated Equipment Horsepower (HP)	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day	Approximate Start Date	Approximate End Date
Helicopter Support Truck	300	Diesel	1			NA		
Light or Medium Duty Helicopter	NA	Jet A	1			6		
Install Conductor/Cable								
3/4-Ton Truck, 4x4	275	Gasoline	7	42	235	NA	10/1/2026	7/14/2027
1-Ton Truck, 4x4	300	Diesel	7			NA		
Manlift/Bucket Truck	250	Diesel	14			8		
Boom/Crane Truck	367	Diesel	7			8		
Dump Truck	350	Diesel	1			NA		
Wire Truck/Trailer	82	Diesel	2			8		
Sock Line Puller	82	Diesel	2			8		
Bull Wheel Puller	82	Diesel	1			8		
Hydraulic Rewind Puller	82	Diesel	1			8		
Static Truck/ Tensioner	82	Diesel	2			8		
Backhoe/Front Loader	125	Diesel	4			4		
Track Type Dozer	350	Diesel	2			8		
Water Truck	350	Diesel	2			NA		
Jet A Fuel Truck	300	Diesel	1			NA		
Helicopter Support Truck	300	Diesel	1			NA		
Light or Medium Duty Helicopter	NA	Jet A	1			8		
Conductor Splicing Rig	82	Diesel	1			8		
Fiber Splicing Lab	82	Diesel	1			8		
Cable Splicing								
Manlift/Bucket Truck	250	Diesel	1	3	31	9	7/15/2027	8/19/2027
Splice Lab Truck	350	Diesel	1			NA		
Foreman Truck	300	Diesel	1			NA		
Restoration								
1-Ton Truck, 4x4	300	Diesel	2	7	81	NA	8/20/2027	11/27/2027
Backhoe/Front Loader	125	Diesel	1			8		
Motor Grader	148	Diesel	1			4		
Water Truck	350	Diesel	1			NA		
Drum Type Compactor	100	Diesel	1			4		
Lowboy Truck/Trailer	500	Diesel	1			NA		

NA = not applicable

Table 3-11 Substation Construction Equipment and Workforce

Primary Equipment Description	Estimated Equipment Horsepower (HP)	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Approximate Start Date	Approximate End Date
Cal City Substation Civil Crew (Site Grading)								
Water Truck	350	Diesel	6	6	80	NA	3/2/2026	6/26/2026
Tractors/Backhoe	85	Diesel	2	2	80	5		
Grader	148	Diesel	2	2	60	5		
Dump Trucks	370	Diesel	4	4	60	NA		
Compactor	75	Diesel	3	3	70	5		
980 Loader/Scraper	275	Diesel	3	3	70	7.5		
Survey Truck	345	Gasoline	1	2	30	NA		
Soils Test Crew Truck	345	Gasoline	1	2	60	NA		
3/4 Crew Pick-up Truck	345	Gasoline	3	8	120	NA		
Cal City Substation Civil Crew (Channel Install and Additions)								
Water Truck	350	Diesel	2	2	80	NA	6/29/2026	10/30/2026
Tractors/Backhoe	85	Diesel	2	2	80	5		
Grader	148	Diesel	2	2	60	5		
Dump Trucks	370	Diesel	4	4	60	NA		
Compactor	75	Diesel	1	1	70	5		
980 Loader/Scraper	275	Diesel	1	1	40	7.5		
Excavator	172	Diesel	1	2	40	7.5		
Survey Truck	345	Gasoline	1	2	70	NA		
Soils Test Crew Truck	345	Gasoline	1	2	60	NA		
3/4 Crew Pick-up Truck	345	Gasoline	4	8	80	NA		
Cal City Substation Civil Crew (Foundation)								
Driller	83	Diesel	2	4	80	7.5	7/6/2026	12/31/2026
3/4 Crew Pick-up Truck	345	Gasoline	3	8	120	NA		
14-ton Crane	270	Diesel	2	4	60	7.5		
Dump Trucks	370	Diesel	4	4	80	NA		
Tractors/Backhoe	85	Diesel	2	2	80	7.5		
Forklift	174	Diesel	2	2	100	5		

Primary Equipment Description	Estimated Equipment Horsepower (HP)	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Approximate Start Date	Approximate End Date
Ditch Digger	13	Diesel	1	1	80	5		
Generator	13.5	Diesel	2	0	20	7.5		
Cal City Substation Electrical Crew								
Truck Crane	367	Diesel	2	2	60	7.5	1/4/2027	10/1/2027
Foreman Truck	345	Gasoline	1	1	180	NA		
Manlifts	60	Diesel	4	4	140	7.5		
5-Ton Truck	220	Gasoline	1	1	100	NA		
3/4 Crew Pick-up Truck	345	Gasoline	4	10	180	NA		
14-ton Crane	270	Diesel	2	2	80	7.5		
Forklift	174	Diesel	2	2	120	5		
150 Ton Crane	367	Diesel	1	1	40	7.5		
Cal City Substation Maintenance Crew								
3/4 Crew Pick-up Truck	345	Gasoline	1	2	40	NA	7/19/2027	9/10/2027
Gas/Processing Trailer	NA	NA	1	0	30	7.5		
Cal City Substation Test Crew								
3/4 Crew Pick-up Truck	345	Gasoline	1	2	40	NA	7/19/2027	9/10/2027
Cal City Substation Test Crew and Wireman (Cutover)								
3/4 Crew Pick-up Truck	345	Gasoline	1	2	40	NA	9/13/2027	10/8/2027
3/4 Crew Pick-up Truck	345	Gasoline	1	2	40	NA		
Cal City Substation Demolition – Test Crew								
3/4 Crew Pick-up Truck	345	Gasoline	1	2	10	NA	10/18/2027	10/29/2027
3/4 Crew Pick-up Truck	345	Gasoline	1	4	10	NA		
Cal City Substation Demolition – Maintenance Crew								
3/4 Crew Pick-up Truck	345	Gasoline	1	2	10	NA	10/18/2027	10/29/2027
Gas/Processing Trailer	NA	NA	1	0	10	7.5		

Primary Equipment Description	Estimated Equipment Horsepower (HP)	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Approximate Start Date	Approximate End Date
Cal City Substation Demolition – Electrical Crew								
Truck Crane	367	Diesel	2	2	20	7.5	11/1/2027	12/31/2027
Foreman Truck	345	Gasoline	1	1	60	NA		
Manlifts	60	Diesel	4	4	40	7.5		
3/4 Crew Pick-up Truck	345	Gasoline	4	10	60	NA		
14-ton Crane	270	Diesel	2	4	15	7.5		
Forklift	174	Diesel	2	2	60	5		
150 Ton Crane	367	Diesel	1	2	10	7.5		
Cal City Substation Demolition – Civil Crew								
3/4 Crew Pick-up Truck	345	Gasoline	3	8	60	NA	1/3/2028	3/24/2028
Dump Trucks	370	Diesel	4	4	60	NA		
Tractors/Backhoe	85	Diesel	3	3	60	7.5		
Forklift	174	Diesel	2	2	60	5		
Holgate Switchyard Civil Crew								
3/4 Crew Pick-up Truck	345	Gasoline	4	10	20	NA	4/26/27	5/4/27
Tractors/Backhoe	85	Diesel	1	1	20	5		
Ditch Digger	13	Diesel	1	1	10	5		
Dump Trucks	370	Diesel	1	1	20	NA		
Holgate Switchyard Electrical Crew								
3/4 Crew Pick-up Truck	345	Gasoline	4	10	20	NA	5/5/27	5/28/27
14-ton Crane	270	Diesel	1	2	15	5		
Manlifts	60	Diesel	1	1	15	7.5		
Forklift	174	Diesel	1	1	20	5		
Gas/Processing Trailer	N/A	N/A	1	0	5	7.5		
Kramer Substation Civil Crew (Foundations)								
3/4 Crew Pick-up Truck	345	Gasoline	4	8	45	NA	3/15/27	4/30/27
14 Ton Crane	270	Diesel	1	1	10	7.5		
Dump Trucks	370	Diesel	1	1	40	NA		
Tractors/Backhoe	85	Diesel	1	1	40	7.5		

Primary Equipment Description	Estimated Equipment Horsepower (HP)	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Approximate Start Date	Approximate End Date
Forklift	174	Diesel	1	1	40	5		
Ditch Digger	13	Diesel	1	1	20	5		
Kramer Substation Electrical Crew								
Foreman Truck	345	Gasoline	1	1	90	NA	5/3/27	9/24/27
Manlifts	60	Diesel	2	2	80	7.5		
3/4 Crew Pick-up Truck	345	Gasoline	4	10	90	NA		
14-ton Crane	270	Diesel	1	3	60	7.5		
Forklift	174	Diesel	1	1	60	5		
Gas/Processing Trailer	NA	NA	1	0	5	7.5		
Edwards Substation Civil Crew (Foundations)								
Truck Drill Rig	130	Diesel	1	2	8	7.5	2/1/2027	4/2/27
3/4 Crew Pick-up Truck	345	Gasoline	6	13	60	NA		
14 Ton Crane	270	Diesel	1	1	30	7.5		
Dump Trucks	370	Diesel	2	2	40	NA		
Tractors/Backhoe	85	Diesel	1	1	40	7.5		
Forklift	174	Diesel	1	1	50	5		
Ditch Trencher	13	Diesel	1	1	40	5		
Edwards Substation Electrical Crew								
Manlifts	60	Diesel	2	2	60	7.5	4/5/27	10/8/2027
3/4 Crew Pick-up Truck	345	Gasoline	7	17	80	NA		
14-ton Crane	270	Diesel	1	2	35	7.5		
Forklift	174	Diesel	1	1	60	5		
150 Ton Crane	300	Diesel	1	2	20	7.5		
Gas/Processing Trailer	NA	NA	1	0	8	7.5		

NA = not applicable

3.6.4 Construction Schedule

3.6.4.1 Proposed Construction Schedule

SCE anticipates that construction of the Proposed Project would take approximately 18 to 24 months.[17] Construction would commence following CPUC, BLM, and DoD approval, final engineering, procurement activities, land acquisitions, and receipt of all applicable permits. The proposed construction start date (e.g., month and year) for each Proposed Project activity is presented in Table 3-12.

Table 3-12 Proposed Construction Schedule

Proposed Project Activity	Approximate Duration (months)	Approximate Start Date
PTC	22	March 2023
Final Engineering	12	May 2025
Rights-of-Way/Property Acquisition	18	June 2025
Acquisition of Required Permits	12	March 2025
Construction	24	March 2026
Cleanup[1]	4	November 2027
Proposed Project Operational	N/A	March 2028

[1] Cleanup activities may overlap with Proposed Project construction.

3.6.4.2 Construction Sequencing

The potential sequencing of construction activities is not known at this time and dependent on final engineering and design. However, it is anticipated that some activities may be performed concurrently; for instance, pull-and-tension/stringing sites may be established at the same time as guard structures are being installed, and the restoration of disturbed areas may occur at the same time as staging area demobilization and restoration is occurring. Further, work could occur on one or more components simultaneously.

3.6.4.3 Total Duration of Construction Activities

The approximate duration of each construction activity is presented in Table 3-12.

3.6.4.4 Seasonal Considerations

Seasonal considerations may affect the ability of SCE or its contractors to perform construction activities along the Proposed Project alignment. These considerations include variable winter weather which could force halts to construction during rain events; construction halts during nesting bird season; and species-specific disturbance restrictions. SCE has taken these considerations into account to the extent that future actions outside of SCE's control can be addressed.

3.6.5 Work Schedule

3.6.5.1 Anticipated Work Schedule

To the extent feasible, construction activities would generally occur between 6:00 am and 7:00 pm, Monday through Saturday or during the hours established in local ordinances and/or in any ministerial permits obtained. The anticipated work schedule may also vary in winter months when construction activities are

[17] The proposed construction schedule does not account for unforeseen Project delays, including but not limited to those due to inclement weather and/or stoppage necessary to protect biological resources (e.g., nesting birds).

generally concluded prior to sunset. However, at limited times some construction along the Proposed Project alignment may be required or completed outside these hours. The dates and locations of such work has not been determined at this time.

3.6.5.2 Construction Durations

The total duration of construction activities at a given type of work area would vary; however, approximate durations are presented below.

3.6.5.2.1 Helicopter Landing Zones and Touchdown Areas

Helicopter landing zones established in staging areas would be utilized during the period when that staging area is necessary to support construction in the area. This could run from six to 24 months, depending upon final construction sequencing.

A given helicopter touchdown area within a given wire pull would be used during the duration of the conductor/cable installation activities. A given wire pull is anticipated to have a construction duration of approximately 14 days.

3.6.5.2.2 Temporary Work Areas Duration

For all activities at a temporary work area, the work area would be established, including vegetation clearing/trimming as necessary; this activity would generally be performed in approximately one day. The specific construction activities at any given temporary work area would vary depending on the activity to be performed, as described below.

3.6.5.2.3 Conductor Removal

The Project does not include removal of conductor.

3.6.5.2.4 Structure Removal

Removal of an existing pole would generally be completed in approximately one day.

3.6.5.2.5 Tubular Steel Pole Installation

Installing the TSP foundation would generally be performed over approximately 2 or 3 consecutive days. The concrete foundation would then be allowed to set for 7 days before testing to confirm the foundation meets all necessary specifications. Testing is completed every seven days until the appropriate test result is achieved to commence TSP erection. Installation of the TSP on the foundation would require several consecutive days of work at any given location.

3.6.5.2.6 Lightweight Steel Pole Installation

LWS poles would generally be installed over a period of one to two consecutive days at any given location.

3.6.5.2.7 Conductor Installation

Conductor installation would generally occur over a period of three non-consecutive days. On one day, crews would string a pulling rope or cable through sheaves installed on new TSPs or LWS poles and install new insulators and other fittings. On another day, the new conductor and cable would be pulled through the

sheaves. On the third day of work at a given temporary work area, crews would sag and clip-in the new conductors and OPGW. Note that the approximately three days of work at a given temporary work area would not be performed consecutively; these three days of work would occur over an approximate 14-day period.

3.6.5.2.8 Structure Modification

Modifications to an existing pole would generally be performed in a single day.

3.6.5.2.9 Temporary Guard Structures Duration

Construction activities at any temporary guard structure location would occur on two non-consecutive days. On one day, crews would install the temporary guard structure at a given location. This guard structure would then remain in-place until conductoring/cabling activities in that area are completed. At that time, crews would remove the temporary guard structure at the given location; this activity would occur generally in a single day.

3.6.5.2.10 Pull-and-Tension/Stringing Sites

The construction duration at a pull-and-tension/stringing site located at the end of a portion of subtransmission line would be approximately 10 days. The construction duration at a pull-and-tension/stringing site not located at the end of a portion of subtransmission line would be approximately 20 days; this accounts for the durations to complete wire pulls on both sides of the pull-and-tension/stringing site. These durations do not include any site preparation work (e.g., clearing vegetation, preparing the surface) that may be needed; such site preparation work is estimated to require 2 days per pull-and-tension/stringing site.

3.6.5.2.11 Staging Area Activity Duration

Work at a given staging area would occur during the period when that staging area is necessary to support construction in the area. The duration of use for a given staging area could run from six to 24 months, depending upon final construction sequencing.

3.6.5.2.12 Substations

Work at a given substation or switchyard would occur for the duration of construction described in Table 3-12.

3.7 Post-Construction

3.7.1 Configuring and Testing

Energizing the new lines is the final step in completing the subtransmission construction. Portions of the existing lines may be de-energized during the construction period in order to connect the new conductor in that portion to the existing system. To reduce the need for electric service interruption, de-energizing and re-energizing the existing lines may occur at night when electrical demand is low. Relays would be reprogrammed and tested at all substations the switchyard.

3.7.2 Landscaping

Landscaping installation is not currently anticipated as part of the Proposed Project.

3.7.3 Demobilization and Site Restoration

3.7.3.1 Demobilization

Demobilization activities would vary for staging areas and construction work areas. For construction work areas, where no stationary equipment or materials would be located and where no intensive surface preparation occurred, mobile equipment would be removed from the construction work area, any and all construction-related materials (e.g., packaging, trash) would be removed, and construction-related temporary BMPs would be removed if they are not necessary for planned restoration work. The construction work area would then be subject to restoration and final stabilization as described below.

At staging areas, all stationary equipment (e.g., office trailers, generators) and remaining construction-related material would be removed, as would all mobile equipment not needed for demobilization of the staging area. The staging area would then be returned to its pre-construction condition or would be subject to restoration as described below.

3.7.3.2 Site Restoration

SCE would clean up all areas that would be temporarily disturbed by construction of the Proposed Project (which may include temporary access roads, staging areas, construction work areas, pull-and-tension/stringing sites, and splicing sites) to as close to pre-construction conditions as feasible, following the completion of construction of the Proposed Project.

If restoration and/or revegetation occurs within sensitive habitats, a habitat restoration and/or revegetation plan(s) would be developed by SCE with the appropriate resource agencies and implemented after construction is complete. Additional information pertaining to the habitat restoration and/or revegetation plan(s) can be found in Section 5.4, Biological Resources.

3.7.3.2.1 Restoring Natural Drainage Patterns

Natural drainages, if impacted during construction of the Proposed Project, would be returned to pre-Proposed Project contours upon completion of the work. Recontouring would restore the pre-existing hydrological function to the system. Further, SCE would obtain all necessary permits and authorizations, including those from the USACE, the RWQCB, and CDFW prior to construction in drainages. SCE would comply with all conditions of approval identified in permits and authorizations. Restoration of natural drainage patterns outside of drainages would be accomplished by restoring, in-place, temporarily disturbed areas to pre-Proposed Project contours.

3.7.3.2.2 Recontouring Disturbed Soil

Temporarily disturbed areas would be restored in-place to their approximate pre-Proposed Project contours.

3.7.3.2.3 Removing Construction Debris

Construction debris would be removed from construction work areas and staging areas throughout the duration of the Proposed Project. Construction debris would be removed in light-duty vehicles (e.g., pick-up trucks) and heavy-duty vehicles (e.g., in dump trucks, on flatbed trailers).

3.7.3.2.4 Vegetation

As would be described in the SWPPP(s) that would be developed for the Proposed Project, construction work areas and staging areas would be stabilized following construction; such stabilization could include seeding disturbed areas. As described in Section 3.7.3.2, where construction of the Proposed Project disturbs sensitive habitats, restoration and/or revegetation would be performed in those areas after construction is complete consistent with habitat restoration and/or revegetation plan(s) developed by SCE with the appropriate resource agencies. Additional information pertaining to the habitat restoration and/or revegetation plan(s) can be found in Section 5.4, Biological Resources.

3.7.3.2.5 Permanent and Semi-Permanent Erosion Control Measures

Permanent erosion control measures, if required for the Proposed Project pending final engineering, would be restored in-place to their approximate pre-construction condition to the extent feasible. Final stabilization erosion control measures would be emplaced following demobilization and as part of site restoration activities; typical BMPs that may be installed during the restoration phase are those presented in Section 3.5.11.

3.7.3.2.6 Restoration of All Disturbed Areas and Access Roads

As would be described in the SWPPP(s) that would be developed for the Proposed Project, construction work areas and staging areas would be stabilized following construction; such stabilization could include seeding disturbed areas.

As described in Section 3.7.3.2, where construction of the Proposed Project disturbs sensitive habitats, restoration, and/or revegetation would be performed in those areas after construction is complete consistent with habitat restoration and/or revegetation plan(s) developed by SCE with the appropriate resource agencies. Additional information pertaining to the habitat restoration and/or revegetation plan(s) can be found in Section 5.4, Biological Resources.

Access and spur roads would not be restored; these access and spur roads are, and would continue to be, utilized during O&M-related activities.

No damage to sidewalks is anticipated as part of the Proposed Project. Few sidewalks are crossed by the Proposed Project alignment; where sidewalks are located, any guard structures installed in these areas would be set-back from the roadway for, among other purposes, avoiding damage to sidewalks.

No damage to agricultural infrastructure is anticipated as part of the Proposed Project. If agricultural infrastructure is present during construction, SCE would coordinate with landowners to either avoid agricultural infrastructure or to have such infrastructure relocated by the landowner to avoid damage.

Landscaping located on private parcels within SCE's easement may be trimmed or removed per the terms of SCE's easements over said parcels if such trimming or removal is authorized under the easements. Such landscaping would not be restored as part of the Proposed Project. Any landscaping located outside of

SCE's easements that is damaged during construction of the Proposed Project would be restored, or suitable compensation for the damage made, as determined during negotiations between SCE and the landowner.

The Proposed Project would be constructed parallel to Rudnick Boulevard, which is an existing City of California City Designated Trail, and multiple other roads used for off-highway vehicle activities in the vicinity of Twenty Mule Team Parkway. Public trails would be restored to their approximate pre-construction condition to the extent feasible following the completion of construction. Some of SCE's existing access roads may be used by the public as trails. As stated above, no extant access roads would be restored.

3.7.3.2.7 Road Repaving and Striping

No road repaving or striping would be required as part of the Proposed Project.

3.8 Operation and Maintenance

SCE currently performs O&M activities as described below at existing substations and the switchyard and along existing SCE ROW that are included as part of the Proposed Project. In addition to regular O&M activities, SCE conducts a wide variety of emergency repairs in response to emergency situations such as damage resulting from high winds, storms, fires, and other natural disasters, and accidents. Such repairs could include replacement of downed structures or lines, or re-stringing conductors. Emergency repairs could be needed at any time.

Ongoing O&M activities are necessary to ensure reliable service, as well as the safety of the utility worker and the general public, as mandated by the CPUC. SCE facilities are subject to Federal Energy Regulatory Commission jurisdiction. SCE transmission facilities are under operational control of the California Independent System Operator.

3.8.1 Regulations and Standards

The subtransmission lines included as part of the Proposed Project would be maintained in a manner consistent with CPUC G.O. 95 and G.O. 128 as applicable along with federal, state, and local regulations. These G.O.s contain the ruling standards for the operation and maintenance of transmission lines in California.

SCE's 2022 Updated Wildfire Mitigation Plan is provided in Appendix I. No special procedures for wildfire management, beyond those addressed in the plan or required by regulation, are included as part of the Proposed Project.

3.8.2 System Controls and Operation Staff

3.8.2.1 Systems and Methods

The systems and methods used for monitoring and control of the substations/switchyard, and subtransmission, and telecommunication lines included as part of the Proposed Project would not be changed as a result of the Proposed Project. Normal operation of the substations and lines would be controlled remotely through SCE's control systems, and manually in the field as required. All existing substations/switchyard that would be modified by the Proposed Project are unmanned and would continue to function as remotely controlled substations/switchyard. SCE maintains an Energy Management System

(EMS) that allows it to monitor and respond to alarms as the system status changes. All workstation users have the ability to perform supervisory control of remote station equipment within their jurisdictional area.

Remote substations and switchyard with supervisory control are equipped with a Programmable Logic Controller (PLC) integrated with Substation Automation System (SAS) or Remote Terminal Unit (RTU). All automatic functions and data acquisition are performed by the SAS or RTU. When a station is supervisory controlled, controllable points can be initiated from the switching center with operational jurisdiction.

3.8.2.2 New Full-Time Staff

No additional personnel would be required for O&M activities. The Proposed Project would increase O&M vehicle trips to the project area by approximately 60 vehicle trips per year.

3.8.3 Inspection Programs

3.8.3.1 Existing and Proposed Inspection Programs

3.8.3.1.1 Existing Substations

The existing inspection programs implemented for substations and the switchyard included as part of the Proposed Project would not be changed as a result of the Proposed Project. Substation and switchyard personnel perform station inspections in unmanned substations and the switchyard when there is an indication of trouble. For transformers, substation and switchyard personnel perform yearly visual inspection and yearly dissolved gas analysis and fluid quality oil test on all oil-filled compartments in accordance with G.O. 174 Rules for Electric Utility Substations, which sets forth requirements for electric substation facilities regarding inspections. For circuit breakers and station batteries and chargers, personnel perform yearly visual inspection. Personnel also perform Predictive Maintenance Assessment inspection of entire substations/switchyard by means of visual, infrared thermography and ultrasonic inspection every five years for Cal City Substation, Edwards Substation, and Holgate Switchyard, and every three years for Kramer Substation.

3.8.3.1.2 Subtransmission and Telecommunication Lines

The existing inspection programs implemented for the subtransmission and telecommunication lines within the Proposed Project Area would be expanded to include new subtransmission and telecommunication lines as part of the Proposed Project. SCE inspects subtransmission overhead facilities in a manner consistent with G.O. 165 a minimum of once per year via ground and/or aerial observation, but inspections usually occur more frequently based on system reliability. The proposed telecommunication lines would be located on subtransmission overhead facilities and would be similarly inspected.

3.8.3.2 Enhanced Inspections

The Proposed Project alignment is not located in a High Fire Threat District. Therefore, enhanced inspections as described in Section 5.3.4, Asset Management and Inspections, of SCE's *2022 Wildfire Mitigation Plan Update* (Appendix I) would not be applicable.

3.8.3.3 Inspection Processes

G.O. 165 inspections are performed via ground and/or aerial observation. No new access would be required for future inspections beyond access proposed for construction of the Proposed Project; ground-based inspections would be performed using the existing and proposed network of access and spur roads.

3.8.4 Maintenance Programs

3.8.4.1 Existing and Proposed Maintenance Programs

3.8.4.1.1 Existing Substations

The existing maintenance programs implemented for substations and the switchyard included as part of the Proposed Project would not be changed as a result of the Proposed Project. Routine circuit breaker and disconnect switching operations at remotely controlled stations would normally be performed by remote control on orders by the responsible switching center. Substation personnel are responsible for maintaining the correct status of all lines and equipment under their jurisdiction.

3.8.4.1.2 Subtransmission Lines

The proposed subtransmission lines would be maintained in a manner consistent with CPUC G.O. 95 and G.O. 128 as applicable. Normal operation of the lines would be controlled remotely through SCE control systems, and manually in the field as required. Maintenance would occur as needed and could include activities such as repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, replacing poles, tree trimming, brush and weed control, and access road maintenance. Most regular O&M activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs done to existing facilities, such as repairing or replacing existing poles, could occur in undisturbed areas. Existing conductors could require re-stringing to repair damages. Some pull-and-tension/stringing site locations could be in previously undisturbed areas and at times, conductors could be passed through existing vegetation on route to their destination.

Insulators could require periodic washing with water to prevent the buildup of contaminants (e.g., dust, salts, droppings, smog, condensation) and reduce the possibility of electrical arcing which can result in circuit outages and potential fire. Frequency of insulator washing is region specific and based on local conditions and build-up of contaminants. Replacement of insulators, hardware, and other components is performed as needed to maintain circuit reliability.

Though attempts would be made to utilize previously disturbed areas to the greatest extent possible, pole locations and/or staging areas may be in previously undisturbed areas and would result in ground and/or vegetation disturbance. In some cases, new access is created to remove and replace an existing pole. Wood pole testing and treating is a necessary maintenance activity conducted to evaluate the condition of wood structures both above and below ground level. Intrusive inspections require the temporary removal of soil around the base of the pole, usually to a depth of approximately 12 to 18 inches, to check for signs of deterioration. Roads and trails are utilized for access to poles. For impact prevention, all soil removed for intrusive inspections would be reinstalled and compacted at completion of the testing.

Maintenance of conductors could include re-stringing to repair damages. Some pulling site locations could be in previously undisturbed areas and at times, conductors could be passed through existing vegetation on route to their destination.

In some cases, poles do not have existing access roads and are accessed on foot, by helicopter, or by creating temporary access areas. O&M related helicopter activities could include transportation of transmission line workers, delivery of equipment and materials to structure sites, structure placement, hardware installation, and conductor or OPGW stringing operations. Helicopter landing areas may be located in places where access by road is infeasible. In addition, helicopters may land within SCE ROWs, which could include landing on access or spur roads.

3.8.4.2 Scheduled Maintenance or Facility Replacement

With the exception of the maintenance discussed above in Section 3.8.4.1, there is no scheduled maintenance associated with the substations/switchyard or subtransmission, distribution, or telecommunication lines included as part of the Proposed Project. Replacement of equipment to be installed as part of the Proposed Project at the end of its useful life would be performed generally as described in this section.

3.8.4.3 Parts and Materials Requiring Regular Maintenance

With the exception of the regular maintenance discussed above in Section 3.8.4.1, there is no regular maintenance associated with the substations/switchyard or subtransmission or telecommunication lines included as part of the Proposed Project. Regular maintenance of parts or materials installed as part of the Proposed Project would be performed generally as described in this section or performed on an as-needed basis.

3.8.4.4 Access Road Maintenance

Routine access road maintenance is conducted on an annual and/or as-needed basis. Road maintenance includes maintaining a vegetation-free corridor (to facilitate access and for fire prevention) and blading to smooth over washouts, eroded areas, and washboard surfaces as needed. Access road maintenance could include brushing (i.e., trimming or removal of vegetation) approximately 2 to 5 feet beyond berms or the road edge when necessary to keep vegetation from intruding into the roadway. Road maintenance would also include cleaning ditches, moving, and establishing berms, clearing, and making functional drain inlets to culverts, culvert repair, clearing and establishing water bars, and cleaning and repairing over-side drains. Access road maintenance includes the repair, replacement, and installation of storm water diversion devices on an as-needed basis.

3.8.4.5 Maintenance for Surface or Color Treatment

New subtransmission structures to be installed under the Proposed Project are not anticipated to have surface or color treatments. The proposed MEER at Cal City Substation may require periodic reapplication of tan or ivory coating. Such reapplication would occur as needed.

3.8.4.6 Cathodic Protection Maintenance

No cathodic protection systems are installed on or for the existing structures along the Proposed Project alignment, and no new cathodic protection system would be installed as part of the Proposed Project. Therefore, no maintenance of cathodic protection systems is currently, or would be, performed.

3.8.4.7 Landscape Maintenance

Landscaping requiring ongoing maintenance is not currently anticipated.

3.8.5 Vegetation Management Programs

3.8.5.1 Vegetation Management Programs

Regular tree pruning must be performed to be in compliance with existing state and federal laws, rules, and regulations and is crucial for maintaining reliable service, especially during severe weather or disasters. Tree pruning standards for distances from overhead lines have been set by the CPUC (G.O. 95, Rule 35), PRC Section 4293, CCR Title 14, Article 4, and other government and regulatory agencies. SCE's standard approach to tree pruning during O&M is to remove at least the minimum required by law plus one years' growth (species dependent).

SCE maintains vegetation-free access roads, helipads, and clearances around electrical lines. Further, clearance of brush and weeds around structures as may be required by applicable regulations on ROWs is necessary for fire protection. A 10-foot radial clearance around non-exempt poles (as defined by CCR Title 14, Article 4) is maintained in accordance with PRC Section 4292.

3.8.5.2 Enhanced Vegetation Management

The Proposed Project alignment is not located in a High Fire Threat Area. Therefore, enhanced vegetation management would not be conducted for this Proposed Project.

3.9 Decommissioning

3.9.1 Decommissioning

SCE presently has no plans to abandon the subtransmission, telecommunication, distribution, or substation facilities included as part of the Proposed Project, and there are no reasonably foreseeable plans for the disposal, recycling, or future abandonment of any of the facilities included as part of the Proposed Project.

3.10 Anticipated Permits and Approvals

3.10.1 Anticipated Permits and Approvals

The necessary federal, state, and regional discretionary permits that may be required for the Proposed Project are listed in Table 3-13. Ministerial permits, including encroachment permits from state or local agencies, are not listed in Table 3-13.

3.10.2 Right-of-Way or Easement Applications

Application for new permanent Right-of-Way Grants over federal and state lands would be submitted by SCE following submittal of its Permit to Construct Application to the CPUC.

SCE would apply for and obtain TUPs over public lands for construction work areas located outside its existing ROW grants; such TUPs would be applied for and obtained prior to construction.

- Right-of-Entry Permits will be secured from BLM and CDFW for pre-construction work.
- SCE will acquire temporary licenses/site approvals from DoD for temporary construction work areas.
- SCE will acquire new Right-of-Way Grants from BLM as needed, following proposed routes.
- SCE will acquire new easements from CDFW and DoD as needed, following proposed routes.

3.11 Applicant Proposed Measures

SCE will implement the APMs listed in Table 3-14 during construction of the Proposed Project. Within Chapter 5, the basis for selecting a particular APM and how the APM would reduce the impacts of the Proposed Project are described. SCE has carefully considered each CPUC Draft Environmental Measure identified in Chapter 5 of this PEA Checklist and has indicated that CPUC Draft Environmental Measures will be applied where applicable.

3.12 Project Description Graphics, Mapbook, and GIS Requirements

3.12.1 Graphics

Diagrams as detailed in the CPUC Guidelines are found in Chapter 3, Chapter 5, and in Appendix A of this PEA document.

3.12.2 Mapbook

Proposed Project GIS data includes all information identified in the CPUC Guidelines requirements for mapbooks.

3.12.3 GIS Data

GIS data is provided under separate electronic cover.

3.12.4 GIS Requirements

Information regarding each pole that would be installed or removed is included in the GIS provided under separate electronic cover.

3.12.5 Natural Gas Facilities GIS Data

No natural gas facilities are included as part of the Proposed Project. The Proposed Project would be constructed in the vicinity of and would intersect existing natural gas facilities, as demonstrated on Figure 5.9-4 in Section 5.9, Hazards, Hazardous Materials, and Public Safety.

Table 3-13 Anticipated Permits and Approvals

Agency	Permit	Regulation	Protected Resource	Trigger	Application Process	Timing
U.S. Department of the Interior, Bureau of Land Management	Right-of-Way Grant	Federal Land and Policy Management Act/NEPA	Federal Lands	Use of federal lands managed by the BLM for a transmission line. Typically constituted a Major Federal Action which, in turn, triggers NEPA analysis.	Right-of-Way Application: Contact the BLM office with management responsibility. Obtain an application form "Application for Transportation and Utility Systems and Facilities on Federal Lands." Arrange a pre-application meeting with a BLM Realty Specialist or appropriate staff member. Submit completed application to the appropriate BLM office. If it is determined that NEPA is required, either an EA or EIS would be prepared. The NEPA document may be prepared jointly with the CEQA document.	BLM attempts to review completed applications within 60 days of submittal. Full timing is often dependent upon what level of NEPA analysis is required. An EA is typically 9-12 months, and an EIS is generally 18 months. The NEPA process may occur concurrently with the CEQA process.
U.S. Department of the Interior, U.S. Fish and Wildlife Service	Programmatic Biological Opinion (*Biological Opinion for Activities in the California Desert Conservation Area [FWS-KRN/SBD/INY/LA/IMP/RIV-17B0532-17F1029])* coverage	Federal Endangered Species Act	Federally Listed Species	Potential impact to a federally listed threatened or endangered species	Activity Request Form prepared and submitted to the BLM. The report includes description of the proposed project, acres of habitat anticipated to be affected, and a list of proposed conservation and management actions that will be implemented. Results of desert tortoise protocol surveys will be appended to the Activity Request Form.	For projects affecting more than 10 acres of habitat or that will involve ongoing impacts to desert tortoises associated with transportation, the USFWS' Division Chief will respond within 30 days by signing and returning the Activity Request Form. The BLM will not authorize or implement such projects until it receives notification from the USFWS. Separate coverage under the existing U.S. Department of Defense BO for activities on EAFB

Agency	Permit	Regulation	Protected Resource	Trigger	Application Process	Timing
						(*Biological Opinion for Operations and Activities at Edwards Air Force Base, California [8-8-14-F-14]*) may require separate coordination. If the Proposed Project does not qualify for coverage under the Department of Defense BO, separate Section 7 consultation may be required.
Department of Defense – Edwards Air Force Base	Easement Acquisition			Use of federal lands managed by the Department of Defense for a transmission line. Typically constituted a Major Federal Action which, in turn, triggers NEPA analysis.	AF813 and Easement Acquisition: Submit an AF813 Request for Environmental Impact Analysis. Arrange a pre-application meeting with a Edwards Air Force Base. Submit Easement request to Edwards Air Force Base Realty Department. Environmental Baseline Survey may be required for Easement. If it is determined that NEPA is required, either an EA or EIS would be prepared. The NEPA document may be prepared jointly with the CEQA document.	Full timing is often dependent upon what level of NEPA analysis is required. An EA is typically 9-12 months, and an EIS is generally 18 months. The NEPA process may occur concurrently with the CEQA process. Easement acquisition will depend on levels of review required by Edwards Air Force Base.
California Department of Fish and Wildlife (CDFW)	Section 1600-1617, Lake and Stream Bed Alteration Agreement (LSAA)	California Fish and Game Code (CFGC)	All perennial, intermittent, and ephemeral rivers, streams, and lakes in the state	Required if a project will: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river,	The information required for the LSAA application generally consists of a project description, description of proposed activities within CDFW jurisdictional features, location and acreage of impacts to CDFW jurisdictional features, grading/earth moving quantities, anticipated restoration activities, and avoidance and	The typical timeline for issuance of an LSAA is approximately three to six months from the time the application is deemed complete and depending upon the level of impact to CDFW jurisdiction. The initial review period for CDFW is 30 days, in

Agency	Permit	Regulation	Protected Resource	Trigger	Application Process	Timing
				stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream or lake.	minimization measures that will be implemented by the project.	which time the application will be deemed complete of incomplete. If the application is deemed incomplete, CDFW will request additional information necessary to complete the application. Once the application has been deemed complete, CDFW has 60 days to review the information and prepare the draft agreement. Once the draft agreement is issued, the project applicant must review, sign, and return it to CDFW for the agreement to be valid. Additionally, CDFW is required to review the CEQA document for consistency and therefore the Notice of Determination must be filed before the LSAA will be issued.
	California Fish and Game Code 2080.1 Consistency Determination	California Fish and Game Code (CFGC)	State Listed Species	Required if the project may result in take of species that are both federally and state-listed (e.g., desert tortoise)	Applicant requests that CDFW review the programmatic BO issued by the USFWS to the BLM to determine if conservation measures listed in the BO also meet state policies for the protection of state-listed species.	CDFW has 30 days from the receipt of the request to review the BO and issue a determination.
	California Fish and Game Code 2081 Take Permit	California Fish and Game Code (CFGC)	State Listed Species	Required if the project may result in take of a state-only listed endangered or	Submit application to CDFW and identify mitigation measures to reduce, avoid, and minimize the potential for take	Timeline for authorization is approximately 30 to 90 days depending on the

Agency	Permit	Regulation	Protected Resource	Trigger	Application Process	Timing
				threatened species (e.g., Mohave ground squirrel, western Joshua tree)		species involved and the complexity of the project.
State Water Resources Control Board (SWRCB)/ Regional Water Quality Control Board (RWQCB)	Section 402 National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) Coverage	Clean Water Act, Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ	Waters of the United States	Required if a project will disturb 1 acre or more of soil	The SWRCB CGP process requires project proponents to notify the SWRCB of the construction activity by providing a Notice of Intent, developing a SWPPP, and implementing water quality monitoring activities as required.	Once the Permit Registration Documents (PRDs) have been submitted to the SWRCB and the permit fee payment has been made, it takes approximately one week to obtain the Waste Discharger Identification Number (WDID). Soil disturbing activities may not commence until the WDID is obtained.
	Waste Discharge Requirement (WDR)	Title 27, California Code of Regulations (CCR), section 20005 et seq. Title 27, CCR, section 20005 et seq.	Non-federally jurisdictional wetlands and waterways	Dredge and fill activities in non-federally jurisdictional wetlands and waterways	The WDR application requires similar information to that required for the LSAA application, including a project description. At the request of the RWQCB, a restoration plan may be required.	Preparation of the WDR application may occur concurrently with preparation of the LSAA application. Issuance of the WDR occurs approximately three to six months from the time the application is deemed complete, depending on the level of impacts to waters of the state. Since RWQCB is also required to review the CEQA document for consistency, permits cannot be issued until the Notice of Determination is filed.

Table 3-14 Applicant Proposed Measures

APM Number	Description	Justification
AES-1	**Glare and Color Contrast Reduction for Subtransmission Structures and Conductors.** To reduce potential significant impacts associated with glare and color contrast for components of the Proposed Project, the finish on all new subtransmission structures will be non-reflective, such as steel that has been galvanized and treated to create a dulled finish or color treated or other functionally equivalent product/process. These types of finishes are designed to reduce light reflection and color contrast and help blend the structures into the landscape setting. All new subtransmission conductors shall be non-specular and non-reflective and the insulators shall be non-reflective and non-refractive to help reduce glare and minimize contrast with the surrounding environment.	Reduce impacts to glare and color contrast,
AES-2	**Substation Visual Treatments.** To minimize potential significant aesthetic impacts associated with expansion of Cal City Substation, the applicant will prepare a surface treatment plan for the aboveground non-steel structural elements associated with the substation. Colors will be selected according to their ability to reduce the aesthetic impact of the substation and ancillary infrastructure. All color finishes will be flat and non-reflective. The applicant will consult with the City of California City prior to the submittal of the plan to the California Public Utilities Commission (CPUC) 60 days prior to start of construction for comments and approval.	Reduce impacts to aesthetic resources.
AIR-1	**Tier 4 Construction Equipment**: All construction equipment with rating between 100 and 750 hp will be required to use engines compliant with EPA Tier 4 non-road engine standards. In the event a Tier 4 engine is not available for any off-road construction equipment with rating at or higher than 100 hp, that documentation of the unavailability will be provided.	Reduce NOx emissions.
AIR-2	**Dust Control**: During construction, fugitive dust will be controlled by implementing the following measures: ▪ Surfaces disturbed by construction activities will be covered or treated with a dust suppressant or water until the completion of activities at each site of disturbance. ▪ Inactive, disturbed (e.g., excavated or graded areas) soil and soil piles will be sufficiently watered or sprayed with a soil stabilizer to create a surface crust, or will be covered. ▪ Drop heights from excavators and loaders will be minimized to a distance of no more than 5 feet. Vehicles hauling soil and other loose material will be covered with tarps or maintain at least 6 inches of freeboard. ▪ Vehicles will adhere a speed limit of 15 miles per hour on Proposed Project-specific construction routes and within temporary work areas.	Reduce impacts to air quality
NOI-1	SCE shall employ the following noise-control techniques, at a minimum, to reduce construction noise exposure at noise-sensitive receptors during construction: ▪ Construction activities shall be confined to daytime, weekday and weekend hours established by Kern County, San Bernardino County, and the City of California City. In the event construction is required beyond those hours, SCE will notify the appropriate local agency or agencies regarding the description of the work, location, and anticipated construction hours. ▪ Construction equipment shall use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.	Reduce impacts to air quality, energy, greenhouse gases, and noise.

APM Number	Description	Justification
	▪ Stationary noise sources (e.g., generators, pumps) and staging areas shall be shielded by an enclosure, temporary sound walls, acoustic blankets, or other barrier where noise levels are above 80 dBA at sensitive receptor locations. Heights and specifications of noise barriers will be designed to reduce construction noise to below 80 dBA (FTA 2006). ▪ Construction traffic and helicopter flight shall be routed away from residences and schools. ▪ Unnecessary construction vehicle use and idling time shall be minimized. If a vehicle is not required for use immediately or continuously for construction activities, its engine shall be shut off.	
BIO-GEN-1	**Pre-construction Biological Clearance Surveys and Monitoring.** Pre-construction clearance surveys will be performed by a qualified biologist (i.e., a biologist with the requisite education and experience to address specific resources), which may be chosen from a previously approved CPUC approved biologist, to avoid or minimize impacts on special-status plants and wildlife species, habitat, nesting birds and other sensitive biological resources in areas with the potential for resources to be present. Sensitive resources identified during the clearance survey will be either: ▪ Flagged for avoidance; ▪ Moved to outside impact areas; ▪ Avoided by implementing procedures to avoid impacts to individuals while impacting habitat (e.g., burrows, dens, etc.); ▪ Or documented based on permit authorizations. Specific details on the pre-construction survey requirements may be found within measures for each individual species. Where special-status species (e.g., reptiles, birds, mammals, and bat roosts) or unique resources (defined by regulations and local conservation plans) are known to occur and there is a potential for significant impacts, qualified biologists will monitor construction activities to ensure that impacts to special-status species, sensitive vegetation types, wildlife habitat, and unique resources are avoided and minimized.	Reduce impacts to biological resources generally
ENV-GEN-1 WEAP	**Worker's Environmental Awareness Training Program**. All workers on the Proposed Project site shall be required to attend a Worker's Environmental Awareness Training Program (WEAP). Training shall inform all construction personnel of the resource protection and avoidance measures as well as procedures to be followed upon the discovery of environmental resources. The WEAP training will include, at a minimum, the following topics so crews will understand their obligations: ▪ ESA boundaries ▪ Housekeeping (Trash and equipment cleaning) ▪ Safety ▪ Work stoppage ▪ Communication Protocol ▪ Consequences of non-compliance	Reduce impacts to natural and cultural resources generally
BIO-AVI-2	***Nesting Bird Management Plan***. SCE shall prepare a Nesting Bird Management Plan (NBMP) in coordination with the CPUC, Bureau of Land Management (BLM), CDFW, and USFWS. The NBMP shall describe methods to minimize potential Proposed Project effects to nesting birds and avoid any potential for unauthorized take. Proposed Project-related disturbance including construction and pre-construction activities shall not proceed within 300 feet of active nests of common bird species or 500 feet of active nests of raptors or special-status bird species (except for golden eagle as described in APM BIO-AVI-4) until approval of the NBMP by the CPUC and BLM in consultation with the CDFW and USFWS.	Reduce impacts to nesting birds

APM Number	Description	Justification
	NBMP Content. The NBMP shall include: (1) definitions of default nest avoidance buffers for each species or group of species, depending on characteristics and conservation status for each species; (2) a notification procedure for buffer distance reductions should they become necessary; (3) a rigorous monitoring protocol, including qualifications of monitors, monitoring schedule, and field methods, to ensure that any Proposed Project-related effects to nesting birds will be minimized; and (4) a protocol for documenting and reporting any inadvertent contact or effects to birds or nests. The paragraphs below describe the NBMP requirements in further detail. **Background.** The NBMP shall include the following: 1. A summary of applicable state and federal laws and regulations, including definition of what constitutes a nest or active nest under state and federal law. 2. A procedure for amendment of the NBMP, should there be changes in applicable state or federal regulations. 3. A list of bird species potentially nesting on or near the ROW or other work areas, indicating approximate nesting seasons, nesting habitat, typical nest locations (e.g., ground, vegetation, structures, etc.), tolerance to disturbance (if known) and any conservation status for each species. This section will also note any species that do not require avoidance measures (e.g., rock pigeons). 4. A list of the types of Proposed Project construction activities that may occur during nesting season, with a short description of the noise and physical disturbance resulting from each activity. 5. Clearing of any vegetation, site preparation in open or barren areas, or other Proposed Project related activities that may adversely affect breeding birds shall be scheduled outside the nesting season, as feasible. **Pre-construction Nest Surveys.** Pre-construction nest surveys will be conducted prior to any construction activities scheduled during the breeding period. For the Proposed Project, the breeding period will be defined as January 1 through August 31. The NBMP shall describe the proposed field methods, survey timing, and qualifications of field biologists. Field biologist qualifications will be subject to review by the CPUC and BLM. The avian biologists conducting the surveys shall be experienced bird surveyors and familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). Nest surveys will focus on visual searches for nest locations and observations of bird activities and movement to detect nesting activity (e.g., carrying nest materials or food, territorial displays, courtship behavior). Surveys shall be conducted in accordance with the following guidelines. 1. Surveys shall cover all potential nesting habitat within the ROW or other work areas within 500 feet of these areas for raptors and 300 feet for non-raptors. 2. Pre-construction surveys shall be conducted for each work area, no longer than 10 days prior to the start of construction activity. On the first day of construction at any given site, a qualified Avian Biologist will perform a pre-construction "sweep" to identify any bird nests or other resources that may have appeared since the 10-day survey. 3. SCE shall provide the CPUC and BLM a report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity of the surveyor(s); a list of species observed; and electronic data identifying nest locations and the boundaries of buffer zones. The electronic data set will be updated following each preconstruction nest survey throughout the nesting season. The format and contents of this report will be described in the draft NBMP and will be subject to review and approval by the CPUC and BLM.	

APM Number	Description	Justification
	Nest Buffers and Acceptable Activities. The NBMP shall specify measures to delineate buffers on the work site, to consist of clearly visible marking and signage. Buffer locations shall be communicated to the construction contractor and shall remain in effect until formally discontinued (when each nest is no longer active). In addition, the NBMP shall specify measures to ensure the buffers are observed, including a direct communication and decision protocol to stop work within buffer areas. In some cases, active nests may be found while work is underway. Therefore, the NBMP shall include a protocol for stopping ongoing work within the buffer area, securing the work site, and removing personnel and equipment from the buffer. The NBMP shall describe proposed measures to avoid take or adverse effects to nests, such as buffer distances from active nests. These measures shall be based on the specific nature of the bird species and conservation status, and other pertinent factors. The NBMP will identify bird species (or groups of species) that are relatively tolerant or intolerant of human activities and specify smaller or larger buffer distances as appropriate for each species. If no information is available to specify a buffer distance for a species, then the NBMP shall specify 300 feet as a standard buffer distance, and 500 feet for raptors and, special-status species. Nest management for listed threatened or endangered species will be prescribed in a USFWS Biological Opinion, CDFW Incidental Take Permit, or both. All applicable avoidance measures, including buffer distances, must be continued until nest monitoring (below) confirms that the nestlings have fledged and dispersed, or the nest is no longer active. For each special-status species potentially nesting within or near Proposed Project work areas, the NBMP shall specify applicable buffers and any additional nest protection measures, specialty monitoring, or restrictions on work activities, if needed. The NBMP shall identify acceptable work activities within nest buffers (e.g., pedestrian access for inspection or BMP repair) including conditions and restrictions, and any monitoring required. The NBMP shall include pictorial representation showing buffer distances for ground buffers, vertical helicopter buffers, and horizontal helicopter buffers for nests near the ground and nests in towers. **Nest Buffer Modification or Reduction.** At times, SCE or its contractor may propose buffer distances different from those approved in the NBMP. Buffer adjustments shall be reviewed and recommended by a qualified avian biologist, who has been approved by the CPUC and BLM in consultation with the CDFW and USFWS. The NBMP shall provide a procedure and timing requirements for notifying the CPUC, BLM, CDFW, and USFWS of any planned adjustments to nest buffers. Separate and distinct procedures will be provided for special-status birds. The NBMP will list the information to be included in buffer reduction notifications in a standardized format. **Nest Deterrents.** The NBMP shall describe any proposed measures or deterrents to prevent or reduce bird nesting activity on Proposed Project equipment or facilities, such as buoys, visual or auditory hazing devices, bird repellents, securing of materials, and netting of materials, vehicles, and equipment. It shall also include timing for installation of nest deterrents and field confirmation to prevent effects to any active nest; guidance for the contractor to install, maintain, and remove nest deterrents according to product specifications; and periodic monitoring of nest deterrents to ensure proper installation and functioning and prevent injury or entrapment of birds or other animals. In the event that an active nest is located on Proposed Project facilities, materials or equipment, SCE will avoid disturbance or use of the facilities, materials or equipment (e.g., by red-tag) until the nest is no longer active.	

APM Number	Description	Justification
	Communication. The NBMP shall specify the responsibilities of construction monitors in regards to nests and nest issues, and specify a direct communication protocol to ensure that nest information and potential adverse impacts to nesting birds can be promptly communicated from nest monitors to construction monitors, so that any needed actions can be taken immediately. The NBMP shall specify a procedure to be implemented following accidental disturbance of nests, including wildlife rehabilitation options. It also shall describe any proposed measures, and applicable circumstances, to prevent take of precocial young of ground-nesting birds such as killdeer or quail. For example, chick fences may be used to prevent them from entering work areas and access roads. Finally, the NBMP will specify a procedure for removal of inactive nests, including verification that the nest is inactive and a notification/approval and approval process prior to removal. **Monitoring.** SCE shall be responsible for monitoring the implementation, conformance, and efficacy of the avoidance measures (above). The NBMP shall include specific monitoring measures to track any active bird nest within or adjacent to project work areas, bird nesting activity, project-related disturbance, and outcome of each nest. For nests with reduced buffers, SCE shall monitor each nest until nestlings have fledged and dispersed or until the nest becomes inactive. Nests with default buffers do not require further monitoring once construction work is completed in the area. New nests discovered after work completion in an area will not require monitoring. In addition, monitoring shall include pre-construction surveys, daily sweeps of work areas and equipment, and any special monitoring requirements for particular activities (tree trimming, vegetation removal, etc.) or particular species (noise monitoring, etc.). Nest monitoring shall continue throughout the breeding season during each year of the project's construction activities. **Reporting.** Throughout the construction phase of the project, nest locations, project activities in the vicinity of nests (including helicopter traces), and any adjustments to buffer areas shall be updated and available to CPUC monitors on a daily basis in the Field Reporting Environmental Database (FRED). All buffer reduction notifications and prompt notifications of nest-related non-compliance and corrective actions will be made via email to CPUC monitors. In addition, the NBMP shall specify the format and content of nest data to be provided in regular monitoring and compliance reports. At the end of each year's nest season, SCE will submit an annual NBMP report to the CPUC, BLM, CDFW, and USFWS. **Implementation locations**: Project-wide	
BIO-AVI-3	***Burrowing Owl*** **Pre-construction Survey.** A pre-construction, focused burrowing owl survey will be conducted no more than 30 days prior to initial start of construction within habitat to determine if any occupied burrows are present. If occupied burrows are found, adequate buffers shall be established around burrows. Adequate buffers will be determined by a Project Avian Biologist based upon field conditions and resource agency guidelines for wintering burrows and breeding season burrows. **Prepare Burrowing Owl Management Plan**. SCE will develop a Burrowing Owl Management Plan for the Proposed Project. The Plan will include information related to: 1. Assessment of burrow suitability; 2. Replacement burrows; 3. Methods for relocation; 4. Monitoring and reporting;	Reduce impacts to burrowing owl individuals and habitat

APM Number	Description	Justification
	5. Implementation locations. **Conduct Surveys and Avoidance for Burrowing Owl.** Burrowing owl surveys shall be conducted in accordance with the most current CDFW guidelines (CDFG, 2012; or updated guidelines as they become available). SCE shall take measures to avoid impacts to any active burrowing owl burrow within or adjacent to a work area. The default buffer for a burrowing owl burrow is 300 feet for ground construction, and 300 feet horizontal and 200 feet vertical for helicopter construction. The Nesting Bird Management Plan will specify a procedure for adjusting this buffer, if needed. Binocular surveys may be substituted for protocol field surveys on private lands adjacent to the Proposed Project site only when SCE has made reasonable attempts to obtain permission to enter the property for survey work but was unable to obtain such permission. If active burrowing owl burrows are located within Proposed Project work areas, SCE may passively relocate the owls, by preparing and implementing a Burrowing Owl Passive Relocation Plan, as described below. SCE shall prepare a draft Burrowing Owl Passive Relocation Plan for review and approval by CPUC and BLM in consultation with CDFW and USFWS prior to the start of any ground-disturbing activities. No passive relocation of burrowing owls shall be permitted during breeding season, unless a qualified biologist verifies through noninvasive methods that an occupied burrow is not occupied by a mated pair, and only upon authorization by CDFW. The Plan shall include, but not be limited to, the following elements: **Assessment of Suitable Burrow Availability**. The Plan shall include an inventory of existing, suitable, and unoccupied burrow sites within 300 feet of the affected project work site. Suitable burrows will include inactive desert kit fox, ground squirrel, or desert tortoise burrows that are deep enough to provide suitable burrowing owl nesting sites, as determined by a qualified biologist. If two or more suitable and unoccupied burrows are present in the area for each burrowing owl that will be passively relocated, then no replacement burrows will need to be built. **Replacement Burrows.** For each burrowing owl that will be passively relocated, if fewer than two suitable unoccupied burrows are available within 300 feet of the affected Proposed Project work site, then SCE shall construct at least two replacement burrows within 300 feet of the affected project work site, or in suitable locations within ¼ mile when suitable locations within 300 feet are not available. Burrow replacement sites shall be in areas of suitable habitat for burrowing owl nesting, and subject to minimal human disturbance and access. The Plan shall describe measures to ensure that burrow installation or improvements will not affect sensitive species habitat or any burrowing owls already present in the relocation area. The Plan shall provide guidelines for creation or enhancement of at least two natural or artificial burrows for each active burrow within the project disturbance area, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFW guidelines (CDFG, 2012; or more current guidance as it becomes available) and shall be approved by the CPUC, BLM, CDFW, and USFWS. **Methods.** Provide detailed methods and guidance for passive relocation of burrowing owls, outside the breeding season. An occupied burrow may not be disturbed during the nesting season (generally, but not limited to, February 1 to August 31), unless a qualified biologist determines, by non-invasive methods, that it is not occupied by a mated pair. Passive relocation will include installation of one-way doors on burrow entrances that will let owls out of the burrow but will not	

APM Number	Description	Justification
	let them back in. Once owls have been passively relocated, burrows will be carefully excavated by hand and collapsed by, or under the direct supervision, of a qualified biologist. **Monitoring and Reporting.** Describe monitoring and management of the replacement burrow site(s), and provide a reporting plan. The objective shall be to manage the relocation area for the benefit of burrowing owls, with the specific goal of maintaining the functionality of the burrows for a minimum of two years. Monitoring reports shall be available to the CPUC and BLM on a weekly basis. **Implementation locations**: Project-wide	
BIO-HERP-1	***Desert Tortoise*** **Pre-construction Surveys/Construction Monitoring.** Prior to initial ground-disturbing activities, a biological monitor under the supervision of a USFWS- or CDFW-approved biologist—with experience monitoring and handling desert tortoise—will conduct a pre-activity survey in all work areas within potential desert tortoise habitat, plus an approximately 100-foot buffer. All desert tortoise burrows within the pre-activity survey area (including desert tortoise pallets) will be prominently flagged at that time so that they may be avoided during work activities. An approved biologist will be onsite to monitor vegetation removal and grading and provide regular inspections of all other construction activities within desert tortoise habitat. The approved biologist will have the authority to halt all non-emergency actions (as soon as safely possible) that may result in harm to the desert tortoise and will assist in the overall implementation of APMs for the tortoise. In the event a desert tortoise is encountered in the work area, all work will cease and the approved biologist will be contacted. Work will not commence until the animal has voluntarily moved to a safe distance away from the work area. If it does not move on its own within 15 minutes, an authorized biologist may remove and relocate the animal to a safe location if authorized under existing permit conditions. No tortoise will be handled except under authorization from the USFWS and CDFW. Encounters with desert tortoise will be documented and provided to the appropriate wildlife resource agencies. In the event a dead or injured desert tortoise is observed, the approved biologist will be responsible for notifying SCE's Herpetologist and reporting the incident to the wildlife resource agencies. **Avoid and Minimize Impacts**. All Proposed Project activities located within areas identified as desert tortoise habitat shall implement the following avoidance and minimization measures: 1. Under Vehicle Checks. Desert tortoises commonly seek shade during the hottest times of the day. Employees working within the geographic range of this species will be required to check under their equipment or vehicles before they are moved. If desert tortoises are encountered, the vehicle will not be moved until the tortoise has voluntarily moved away from the equipment or vehicle. 2. Disposal of Trash. Trash and food items will be contained in closed containers and removed daily to reduce attractiveness to opportunistic predators, such as common ravens (*Corvus corax*), coyotes (*Canis latrans*), and feral dogs (*Canis lupus familiaris*). 3. Pets Prohibited. Employees will not bring pets or other animals to the Proposed Project area, unless the animal is ADA compliant.	Reduce impacts to Mojave Desert Tortoise individuals and habitat

APM Number	Description	Justification
	4. Vehicle Travel. During construction-related activities, motor vehicles will be limited to maintained roads, designated routes, and areas identified as being permanently or temporarily affected by construction within the Proposed Project footprint. Motor vehicle speeds will not exceed 15 miles per hour on Proposed Project-specific construction routes and temporary work areas within habitat for desert tortoise. 5. Trapped Animal Prevention. All auger holes, trenches, pits, or other steep-sided excavations that may pose a hazard to desert tortoise will be either constructed with escape ramps (earthen or wooden) or securely covered when unattended to prevent entrapping animals. At the start and end of each workday, and just before backfilling, all excavations will be inspected for trapped animals. If found, trapped animals will be removed by the qualified biologist and relocated to outside the Project footprint, as required in all applicable permits or habitat conservation plans. **Coordinate with Agencies**. SCE will obtain take coverage and consult with the USFWS, CDFW, and/or land management agencies. In addition to obtaining the necessary permits and authorizations, which may include conducting protocol surveys as required by the agencies, the Proposed Project will be included in SCE's programmatic raven management plan upon completion of construction to minimize the effects of raven predation on desert tortoises as a result of SCE infrastructure.	
BIO-MAM-1	***Mohave Ground Squirrel*** **Coordinate with CDFW.** SCE intends to apply for a State Incidental Take Permit (ITP) for Mohave ground squirrel through the California Department of Fish and Wildlife (CDFW). In collaboration with CDFW, SCE will develop construction minimization measures and habitat conservation measures during the 2081(b) ITP consultation. Permit conditions that will be implemented include, but are not limited to: 1. Relocation plan. An MGS relocation plan will be developed by SCE and approved by CDFW prior to the beginning of Proposed Project activities in identified MGS habitat. The relocation plan will include, but not be limited to, survey methods, timing, burrow excavation methods and implementation area, release locations, and identification of wildlife rehabilitation or veterinary facilities for injured animals. The designated biologist will be responsible for the capture, handling, and relocation of MGS. 2. Designated biologist. A qualified MGS biologist authorized by CDFW to handle MGS will be on-site or available for a same day response when Proposed Project activities occur in identified MGS habitat. 3. Biological monitors. Qualified biological monitors will monitor all construction activities in occupied habitat and areas adjacent to occupied habitat. The qualified biologist will have the authority to stop all activities with the potential to impact MGS. The qualified biologist will immediately contact the designated biologist for guidance in the event MGS are encountered. Work will not resume in that area until appropriate measures have been implemented. 4. Pre-construction surveys. Prior to initial ground-disturbing activities, a qualified MGS biologist will conduct pre-construction surveys within identified MGS habitat areas. The preconstruction surveys will identify MGS individuals or burrows for avoidance. 5. Burrow avoidance. A qualified biologist will demarcate [e.g., flagging, signage, fencing, construction maps, etc.] avoidance areas around MGS burrows as needed to prevent impacts. 6. Exclusion Fencing. Temporary Exclusion Fencing may be used to avoid MGS burrows or exclude MGS from work areas when necessary. The designated biologist will oversee exclusion fencing installation to ensure there are no impacts to MGS. The integrity of the exclusion fencing will be checked regularly and repaired as needed.	Reduce impacts to MGS individuals and habitat

APM Number	Description	Justification
	7. Vehicle Travel. During construction-related activities, motor vehicles will be limited to maintained roads, designated routes, and areas identified as being permanently or temporarily affected by construction within the Proposed Project footprint. Motor vehicle speeds along Proposed Project-specific construction routes and temporary work areas within MGS habitat will not exceed 15 miles per hour. 8. Trapped animal prevention. All auger holes, trenches, pits, or other steep-sided excavations that may pose a hazard to MGS will be either constructed with escape ramps (earthen or wooden) or securely covered when unattended to prevent entrapping animals. At the start and end of each workday, and just before backfilling, all excavations will be inspected for trapped animals. Any MGS found will be allowed to escape unimpeded. If an MGS is trapped and does not leave on its own, the designated biologist will move the animal according to the ITP conditions. 9. Cover Materials. All pipes or other construction materials or supplies shall be covered or capped in storage or laydown areas at the end of each workday to prevent entrapping animals. No pipes or tubing of sizes or inside diameters ranging from 3 to 10 inches shall be left open either temporarily or permanently. All pipes or other construction materials shall be inspected for wildlife prior to moving or installing. If present, MGS will be allowed to leave on their own accord or will be removed by the designated biologist according to the ITP conditions. 10. Trash disposal. Trash and food items will be contained in closed containers and removed daily to reduce attracting predators. 11. Pets Prohibited. Employees will not bring pets or other animals to the Proposed Project area, unless the animal is ADA compliant.	
BIO-MAM-2	***Desert Kit Fox*** **Preconstruction Surveys**. Surveys for desert kit fox shall be conducted within 14 days prior to the start of construction. The survey area shall include the Proposed Project disturbance areas plus a 300-foot buffer during the breeding season (February 1 through April 30) and a 100-foot buffer outside the breeding season. Potentially occupied burrows in Proposed Project disturbance areas and the survey buffer shall be mapped and Qualified Biologist(s) shall utilize tracking stations and/or wildlife cameras to determine whether the burrows are occupied. If a burrow is determined to be occupied by desert kit fox or other special-status mammal species during the breeding season, the burrow shall be demarcated with a 300-foot buffer. If a burrow is determined to be occupied outside the breeding season it shall be demarcated with a 100-foot buffer. Burrows determined to be unoccupied shall be demarcated with a 50-foot buffer. If occupied burrows are found in Proposed Project disturbance areas and cannot be avoided, Qualified Biologist(s) shall passively relocate the occupying animals through the use of one-way doors at burrow entrances that allow the animals to leave on their own. Once vacant, burrows shall be excavated by hand and collapsed. Passive relocation will be avoided from February 1 through April 30 and shall not occur while young are in the burrow and still dependent upon their parents. The CDFW shall be consulted prior to any relocation of desert kit fox during the breeding season. Additionally, the following measure will be implemented to minimize the likelihood of distemper transmission: ▪ Any documented kit fox mortality shall be reported to the CDFW within 24 hours of identification. If a dead kit fox is observed, it shall be retained and protected from scavengers until the CDFW determines if the collection of necropsy samples is justified.	Reduce impacts to desert kit fox individuals and habitat

APM Number	Description	Justification
BIO-RES-1	**Develop and Implement Habitat Restoration Plan (HRP)**. Temporary impacts to regulated species' habitats, plant species, and vegetation communities shall be restored. Regulated species and vegetation communities include all species designated as threatened, endangered or rare, sensitive, or of concern by resource or land agencies. Species and vegetation communities that require restoration will be determined by the resource agencies through the permitting process. Temporary impacts to all other categories of land such as private lands or disturbed areas (e.g., agricultural lands, existing roads, OHV trails, grazing areas, trash/dump site, etc.) shall only be subject to the requirements of the Storm Water Pollution Prevention Plan (SWPPP) and the Invasive Plant Management Plan (IPMP, APM BIO-RES-2). No additional goals, objectives, or success criteria regarding habitat condition are required for these sites. SCE shall develop and implement a Habitat Restoration Plan (HRP). SCE will consult with appropriate agencies during development of the HRP and implement the HRP in conjunction with applicable permit conditions and mitigation measures. The HRP shall be submitted to the CPUC and BLM for review and approval prior to the start of construction. Invasive plant management will be performed in conjunction with the HRP per the Invasive Plant Management Plan (BIO-RES-2). **Habitat Restoration Plan**. For all revegetation or restoration sites, the HRP shall include: 1. Restoration goals and objectives based on vegetation type and jurisdictional status of each site. 2. Quantitative restoration success criteria. 3. Implementation details as applicable. Details may include topsoil stockpiling and handling, postconstruction site preparation, soil decompaction and recontouring, planting and seeding palettes to include only native, locally sourced materials with confirmed ability to produce from suppliers, all or other suitable season-season planting or seeding dates. 4. Maintenance details, which may include weeding, irrigation or hand-watering schedule and equipment, and erosion control. 5. Monitoring and Reporting, specifying monitoring schedule and data collection methods throughout establishment of vegetation with key indicators of successful or unsuccessful progress, and quantitative criteria values to objectively determine success or failure at the conclusion of the monitoring period. 6. Adaptive management procedures such as reseeding, re-planting, drainage repairs, adjustments to irrigation schedule, and repair or remediation of sites to meet success criteria on schedule. For species and vegetation communities with permit requirements including wetlands and riparian habitats, the goal of the HRP will be to restore plant species, habitat values, or vegetation communities. For restoration sites the goals, objectives, and success criteria specified in the HRP will include native species cover and species richness compatible with the specific vegetation and habitat type. If an unforeseen catastrophic event (e.g., flood, fire, or other event beyond SCE control damages a restoration site within the monitoring period, SCE will assess adjacent areas to adjust maintenance activities and success standards in coordination with the agencies. In all areas, seed and/or potted nursery stock of locally native species will be used. The list of plants observed during botanical surveys of the Proposed Project area will be used as a guide to site-specific plant selection, additional appropriate species may be included.	Restore native habitat

APM Number	Description	Justification
	Monitoring of the restoration sites will continue annually until HRP success criteria are achieved. SCE will be responsible for implementing adaptive management as needed. For all restoration areas, SCE will provide annual reports to the CPUC and BLM to verify the total vegetation acreage subject to restoration, areas that have been completed, and areas still outstanding. The annual reports will also include a summary of the restoration and adaptive management activities for the previous year, success criteria progress and completion, and any adjustments to planned activities, for the upcoming year.	
BIO-RES-2	**Develop Invasive Plant Management Plan.** SCE shall prepare and implement an Invasive Plant Management Plan (IPMP). This plan shall include measures designed to avoid the introduction and spread of new nonnative invasive plant species (invasive plants) and minimize the spread of existing invasive plants resulting from Proposed Project activities. The IPMP must meet BLM's requirements for NEPA disclosure and analysis if herbicide use is proposed for the project. The IPMP shall be submitted to the CPUC and BLM for review and approval prior to the start of construction. For the purpose of the IPMP, invasive plants shall include plants that (1) are invasive and rated high or moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006), or (2) aid and promote the spread of wildfires (such as *Bromus tectorum* (cheatgrass), *Brassica tournefortii* (Sahara mustard), and *Bromus madritensis* spp. *rubens* (red brome)) or (3) identified by BLM as special concern. The IPMP will be implemented throughout project pre-construction, construction, and restoration phases. **Invasive Plant Management Plan.** The IPMP will include the information defined in the following sections: **Assessment.** An assessment of the Proposed Project's potential to cause spread or the introduction of invasive plants into new areas, or to introduce new invasive plants into the ROW. This section will list known and potential invasive plants occurring on the ROW and in the Proposed Project region and identify threat rankings and potential for Proposed Project-related occurrence or spread for each species. This section will identify control goals (e.g., eradication, suppression, or containment) for invasive plants of concern with potential to occur on the ROW. **Pre-construction Invasive Plant Inventory.** SCE shall inventory all invasive plants of concern in areas (both within and outside the ROW) subject to Proposed Project-related vegetation removal/disturbance, "drive and crush," and ground-disturbing activity. The invasive plants inventory area shall also include vehicle and equipment access routes within the ROW and all Proposed Project staging and storage yards. Invasive plants of concern shall be mapped by area of occurrence and percent cover. The map will be updated with new occurrences at least once a year. **Pre-construction Invasive Plants Treatment.** Invasive plant infestations identified in the pre-construction invasive plants inventory shall be evaluated to identify potential for Proposed Project-related spread and potential benefits (if any) of pre-construction treatment. Pre-construction treatment will consider the specific invasive plants, potential seed banks, or other issues. The IPMP will identify any infestations to be controlled or eradicated prior to Proposed Project construction. Control and follow-up monitoring of pre-construction invasive plants treatment sites will follow methods identified in appropriate sections of the IPMP. **Prevention.** The IPMP will specify methods to minimize potential transport of new invasive plant seeds onto the ROW, or from one section of the ROW to another. The ROW may be divided into "weed zones," based on invasive plants of	Avoid and minimize introduction of noxious and invasive weeds.

APM Number	Description	Justification
	concern in the ROW. The IPMP will specify inspection procedures for construction equipment entering the Proposed Project area. Vehicles and equipment may be inspected and cleaned at entry points to specified sections of the ROW, and before leaving work sites where invasive plants of concern must be contained locally. Off road construction equipment shall be inspected to ensure it is free of any dirt or mud that could contain invasive plant seeds, roots, or rhizomes, and the tracks, outriggers, tires, and undercarriage will be carefully washed, with special attention being paid to axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/brush guard assemblies. Other construction vehicles (e.g., pick-up trucks) that will be frequently entering and exiting the site will be inspected and washed on an as-needed basis. Tools such as chainsaws, hand clippers, pruners, etc., shall be cleaned of dirt and mud before entering Proposed Project work areas. All vehicles will be washed off-site when possible. If off-site washing is infeasible, on-site cleaning stations (including air washing) will be set up at specified locations to clean equipment before it enters the work area. Wash stations will be located away from native habitat or special-status species occurrences. Wastewater from cleaning stations will not be allowed to run off the cleaning station site. When vehicles and equipment are washed, a daily log must be kept stating the location, date and time, types of equipment, methods used, and personnel present. The log shall contain the signature of the responsible crewmember. Written or electronic logs shall be available to BLM and CPUC monitors on request. Erosion control materials (e.g., straw bales) must be certified free of invasive plant seed ("weed-free") before they are brought onto the site. The IPMP must prohibit on-site storage or disposal of mulch or green waste that may contain invasive plant material. Mulch or green waste will be removed from the site in a covered vehicle to prevent seed dispersal and transported to a licensed landfill or composting facility. The IPMP will specify guidelines for any soil, gravel, mulch, or fill material to be imported into the Proposed Project area, transported from site to site within the Proposed Project area, or transported from the project area to an off-site location, to prevent the introduction or spread of invasive plants to or from the Proposed Project area. **Monitoring.** The IPMP shall specify methods to survey for invasive plants of concern during pre-construction, construction, and restoration phases; and shall specify qualifications of specialists responsible for invasive plant monitoring and identification. It must include a monitoring schedule to ensure timely detection and immediate control of new invasive plant infestations to prevent further spread. Surveying and monitoring for invasive plant infestations shall occur at least two times per year, to coincide with the early detection period for early season and late season invasive plants. The monitoring section shall also describe methods for post-eradication monitoring to evaluate success of control efforts and any need for follow-up control. **Control.** The IPMP must specify manual and chemical invasive plant control methods to be employed. The IPMP shall include only invasive plant control measures with a demonstrated record of success for target invasive plants, based on the best available information. The plan shall describe proposed methods for promptly scheduling and implementing control activity when any Proposed Project-related invasive plant infestation is located (e.g., located on a Proposed Project disturbance site), to ensure effective and timely invasive plant control. Invasive plant infestations must be controlled or eradicated as soon as possible upon discovery, and before they go to seed, or when appropriate with the goal to prevent	

APM Number	Description	Justification
	further spread. All proposed invasive plant control methods must minimize disturbance to native vegetation, limit ingress and egress to defined routes, and avoid damage to any environmentally sensitive areas (ESAs) identified within or adjacent to the ROW. New infestations by invasive plants of concern will be treated at a minimum of once annually until eradication, suppression, or containment goals are met. Invasive plant occurrences can be considered eradicated when no new seedlings or resprouts are observed for three consecutive years, or a single season where new seedlings or resprouts are observed in reference populations but not at the control site. Invasive plant control efforts may cease when eradication is complete. Manual control shall specify well-timed removal of invasive plants or their seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the Kern County and San Bernardino County Agricultural Commissioners if such guidelines are available. The chemical control section must include specific and detailed plans for any herbicide use. It must indicate where herbicides will be used, which herbicides will be used, and specify techniques to be used to avoid drift or residual toxicity to native vegetation or special-status plants, consistent with BLM's Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM, 2007) and National Invasive Species Management Plan (NISC, 2008). All herbicide applications will follow U.S. Environmental Protection Agency label instructions and will be in accordance with federal, state, and local laws and regulations. Only state and BLM-approved herbicides may be used. Herbicide treatment will be implemented by a Licensed Qualified Applicator. Herbicides shall be applied in accordance with product labels and applicator licenses. Herbicides shall not be applied during or within 24 hours of high confidence predicted rain. Only water-safe herbicides shall be used in riparian areas or within channels (engineered or not) where they could run off into downstream areas. Herbicides shall not be applied in high wind conditions. **Reporting Schedule and Contents.** The IPMP shall specify reporting schedule and contents of each report.	
BIO-BOT-1	**Special-status Herbaceous Plants.** SCE shall avoid, minimize or mitigate impacts to any state or federally listed or California Rare Plant Rank (CRPR) 1 or 2 herbaceous plants that may be located on the Proposed Project disturbance areas or surrounding buffer areas. **Pre-construction Survey.** Pre-construction clearance surveys in areas where special-status plant species potentially occur will be performed by a qualified biologist (i.e., a biologist with the requisite education and experience to address specific resources), which may be chosen from a previously approved CPUC approved biologist, to avoid or minimize impacts on special-status plants. Disturbance free buffers for herbaceous species shall be 25-ft from the individual and/or occurrence boundary. These buffers shall be established from the previously conducted focused surveys and preconstruction survey results. If a smaller buffer is required, SCE shall develop and implement site-specific monitoring plan to minimize direct impacts to the species. The plan will be submitted to the CPUC for review and approval. In the event of a discovery of previously undescribed species, the boundary of the occurrence (defined by CNDDB as all individuals within a ¼ mile of each other) will be flagged, avoided, and monitored as discussed above and the CPUC, CDFW, and/or USFWS will be notified.	Avoid and minimize impacts to special-status plants.

APM Number	Description	Justification
	Focused Survey. For construction areas where special-status plant species potentially occur and focused surveys have not occurred, focused surveys will take place prior to construction. Focused surveys will be conducted consistent with methodology described in the Proposed Project Biological Technical Report. **Restoration and Mitigation.** SCE will implement the following activities; other conflicting permit conditions will supersede the activities below. 1. Coordinate with Agencies. Agencies shall approve any impacts to special-status plants. Impacts in excess of 10% of any occurrence, or other percentage required by agency regulations on lands under their jurisdiction, shall be restored or mitigated. 2. Habitat Restoration and Revegetation. A Habitat Restoration Plan (HRP) shall address topsoil, plant or propagules salvage, and restoration. A Habitat Mitigation and Management Plan (HMMP) shall address mitigation. Approval of the HRP by appropriate agencies is required before impacts to special-status plant occurrences are allowed. A draft HMMP will be submitted to the appropriate agencies prior to impacts to special-status plants. For more information see APM BIO-RES-1. 3. Salvage. If required by agency regulations on lands under their jurisdiction, SCE shall consult with a qualified restoration ecologist or horticulturist regarding the feasibility and likely success of salvage efforts for each species. If salvage is feasible, based on prior success with similar species, SCE shall include salvage methods in the HRP. For special-status plants, the goal shall be to preserve existing populations or establish new populations. The HRP will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether a species is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or propagules, to retain intact soil conditions and maximize success; (e) details regarding storage of plants or propagules for each species; (f) location of the proposed recipient site, and detailed site preparation and plant introduction techniques, as applicable; (g) a description of the irrigation, and other maintenance activities, as applicable; (h) success criteria, including specific timeframe for survivorship of each species; and (i) a detailed monitoring program, commensurate with the HRP goals. Invasive plant control for special-status plants will be addressed in the Invasive Plant Management Plant (IPMP, APM BIO-RES-2). 4. Off-site compensation. Where restoration is not feasible, SCE shall provide compensation lands consisting of habitat occupied by the impacted CRPR 1 or 2 ranked plant occurrences at a 1:1 ratio of acreage for any occupied habitat affected by the Proposed Project. Occupied habitat will be calculated on the Proposed Project site and on the compensation lands as including each special-status plant occurrence. If compensation is selected as a means of mitigating special-status plant impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands. Compensation for these impacts may be “nested” or “layered” with compensation for habitat loss. **Agency Coordination.** Annual construction monitoring reports shall be submitted to the CPUC and BLM. Reports shall include, but not be limited to, number of plants impacted, details of plants or propagules salvaged, stored, and transplanted (salvage and transplanting locations, species, number, size, condition, etc.); adaptive management efforts implemented (date, location, type of treatment, results, etc.); and evaluation of success of transplantation. After construction, salvage status will be described in the HRP annual report.	

APM Number	Description	Justification
	In the event of an unexpected discovery of a new species or previously undocumented occurrence, the same steps will be used as discussed above. In addition, when there is an unexpected discovery of a new species, the CPUC and CDFW and/ or BLM will be notified.	
BIO-BOT-2:	**Special-status Perennial Plants and Other Species.** SCE shall avoid, minimize or mitigate impacts to western Joshua tree (*Yucca brevifolia* var. *brevifolia*). **Pre-construction Survey.** Pre-construction surveys will be conducted by a qualified specialist to identify any western Joshua trees in the Proposed Project area. Where western Joshua trees are known to occur, all work shall occur outside an appropriate buffer to avoid individual western Joshua trees, seeds, and seedbank as agreed to by CDFW. If impacts that would result in take cannot be avoided, SCE will obtain a Section 2081(b) ITP from CDFW if the species is CESA listed or a candidate for listing, and will implement additional measures pursuant to the ITP. Buffer reductions may occur with the implementation of appropriate ITP measures. A qualified botanist/arborist monitor, with the authority to halt work, shall be present whenever work occurs within reduced buffers for Joshua tree as required by CDFW. **Compensatory Restoration.** If an ITP for western Joshua tree is obtained, then compensation for impacts to western Joshua tree will be addressed through the permit conditions.	Avoid and minimize impacts to special-status plants.
WET-1	**Avoid and/or Minimize Impacts to Jurisdictional Waters, Wetlands, and Riparian Habitats**. The Proposed Project shall avoid and/or minimize impacts to all state jurisdictional waters, wetlands, and riparian habitat that occur within the Proposed Project area where feasible. All grading, fill, staging of equipment, infrastructure construction or removal, and all other construction activities shall be designed, sited, and conducted outside of state and federally jurisdictional waters, wetlands, and riparian habitat. The implementation of appropriate Best Management Practices (BMPs) (e.g., silt fencing, straw wattles, secondary containment, avoiding fueling within 100 feet of jurisdictional waters, etc.) shall be utilized to ensure that indirect impacts to jurisdictional waters, wetlands and riparian areas are avoided or minimized. BMPs are also necessary to reduce the risk of an unintended release of sediment or other material into jurisdictional waters. New and upgraded roadways shall use at-grade type stream crossings unless installation or repair of culverts is required. Stockpiled and bermed sediment will be redistributed or removed from the site so as not to alter flows. New poles shall be sited outside stream channels. If permanent impacts to waters, wetlands, and riparian habitats are unavoidable, they shall be mitigated at a minimum of a 1:1 ratio, or at a ratio determined by the applicable Resource Agencies (i.e., U.S. Army Corps of Engineers, the State Water Resources Control Board/Regional Water Quality Control Boards, and California Department of Fish and Wildlife). Temporary impacts to jurisdictional waters shall be returned to pre-existing contours upon completion of the work.	Avoid and/or, minimize impacts to jurisdictional waters, wetlands, and riparian habitats.
CUL-1	**Develop a Cultural Resource Management Plan (CRMP).** SCE shall prepare and submit for approval a Cultural Resource Management Plan (CRMP) to guide all cultural resource management activities during Proposed Project construction. Management of cultural resources shall follow all applicable federal and state standards and guidelines for the management of historic properties/historical resources. The CRMP shall be submitted to CPUC and BLM for review and approval at least 90 days prior to the start of construction. The CRMP shall be prepared by a qualified archaeologist who meets the Secretary of Interior's standards for archaeology and include, but not be limited to, the following sections: ▪ Cultural Resources Management Plan: The CRMP shall define and map all known NRHP- and CRHR-eligible properties in or within 100 feet (30.5 meters) of the Proposed Project APE/API. A cultural resources protection plan	Reduce impacts to cultural resources generally.

APM Number	Description	Justification
	shall be included that details how NRHP- and CRHR-eligible properties will be avoided and protected during construction. Measures shall include, at a minimum, designation and marking of Environmentally Sensitive Areas (ESAs), archaeological monitoring, personnel training, and reporting. The plan shall also detail which avoidance measures will be used, where and when they will be implemented, and how avoidance measures and enforcement of ESAs will be coordinated with construction personnel. ▪ Cultural Resource Monitoring and Field Reporting: The CRMP shall detail procedures for archaeological monitoring and Tribal participation, define the reporting matrix, and establish criteria for when the monitoring effort should increase or decrease if monitoring results indicate that a change is warranted. The CRMP shall also include guidelines for monitoring in areas of high sensitivity for the discovery of buried NRHP- and/or CRHR-eligible cultural resources, burials, cremations, tribal cultural resources, or sacred sites. ▪ Unanticipated Discovery Protocol: The CRMP shall detail procedures for temporarily halting construction, defining work stoppage zones, notifying stakeholders (e.g., agencies, Native Americans, utilities), and assessing NRHP and/or CRHR eligibility in the event unanticipated discoveries are encountered during construction. It shall include methods, timelines for assessing NRHP and/or CRHR eligibility, formulating mitigation plans, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be reviewed by tribal stakeholders and approved by CPUC prior to implementation. ▪ Data Analysis and Reporting: The CRMP shall detail methods for data analysis in a regional context, reporting of results within one year of completion of field studies, curation of artifacts and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by CPUC and dissemination of reports to appropriate repositories.	
CUL-2	**Avoid Environmentally Sensitive Areas (ESA).** SCE shall perform cultural resource surveys for any portion of the Proposed Project APE not yet surveyed (e.g., new or modified staging areas, pull sites, or other work areas). Cultural resources discovered during surveys will be subject to APM CUL-1 (Develop CRMP). Where operationally feasible, all NRHP- and CRHR-eligible resources shall be protected from direct project impacts by project redesign (i.e., relocation of the line, ancillary facilities, or temporary facilities or work areas). In addition, all historic properties/historical resources shall be avoided by all project construction, operation and maintenance, and restoration activities, where feasible. Avoidance measures shall include, but not be limited to, fencing off ESAs for the duration of the Proposed Project or as outlined in the CRMP.	Reduce impacts to ESAs.
CUL-3	**Train Construction Personnel**. Prior to initiating construction, all construction personnel shall be trained by a qualified archaeologist regarding the recognition of possible buried cultural resources (i.e., prehistoric and/or historical artifacts, objects, or features) and paleontological resources (i.e., fossils), and protection of these resources during construction. Training shall also inform all construction personnel of the procedures to be followed upon the discovery of cultural materials. All personnel shall be instructed that unauthorized removal or collection of artifacts is a violation of federal and state laws. Any excavation contract (or contracts for other activities that may have subsurface soil impacts) shall include clauses that require construction personnel to attend a Worker's Environmental Awareness Training Program (WEAP). The WEAP will include the Proposed Project's potential for the post-discovery review of archaeological deposits, how to operate adjacent to and avoid all ESAs, and procedures to treat post-discovery reviews.	Reduce any impacts to potentially eligible cultural resources.

APM Number	Description	Justification
CUL-4	**Conduct Construction Monitoring.** Archaeological monitoring shall occur as outlined in the CRMP. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historic and prehistoric resources that could occur within the Proposed Project areas. The qualifications of the principal archaeologist and monitors shall be approved by the CPUC and BLM. Monitoring reports shall be submitted to the CPUC on a monthly basis. A Tribal Participant may be required at culturally sensitive locations in consultation with the CPUC and/or as outlined in the CRMP.	Reduce any impacts to potentially eligible cultural resources.
CUL-5	**Properly Treat Human Remains**. SCE shall follow all federal and state laws, statutes, and regulations that govern the treatment of human remains. All work in the vicinity of a find will cease within a 200-foot radius of the remains, the area will be protected to ensure that no additional disturbance occurs. Should inadvertent discovery of human remains be made on federal lands, the federal agency and County Coroner (California Health and Safety Code 7050.5(b)) shall be notified immediately. If the remains are determined to be Native American or if Native American cultural items pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) are uncovered, the remains shall be treated in accordance with the provisions of NAGPRA (43 CFR 10) and the Archaeological Resources Protection Act (43 CFR 7). If the remains are not on federal land, the County Coroner and CPUC shall be notified immediately and the remains shall be treated in accordance with Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and Public Resources Code Section 5097.98. SCE shall assist and support the BLM and DoD as appropriate, in all required NAGPRA and Section 106 actions, government to-government consultations with Native Americans, agencies, and consulting parties as requested by the BLM, DoD, or CDFW. SCE shall comply with and implement all required actions and studies that result from such consultations.	Reduce any impacts to human remains.
PAL-1	**Develop Paleontological Resource Mitigation and Monitoring Plan.** SCE shall prepare a Paleontological Resources Mitigation and Monitoring Plan (PRMMP) to guide all paleontological management activities during project construction. The PRMMP shall be submitted to the CPUC and BLM for review and approval at least 90 days prior to the start of construction. The PRMMP shall be prepared by a qualified paleontologist, based on SVP (2010) guidelines, and meet all regulatory requirements. The qualified paleontologist shall have a Master's Degree or Ph.D. in paleontology, have local paleontology knowledge, and shall be familiar with paleontological procedures and techniques. The PRMMP will include, but not be limited to, the following sections: ▪ Paleontological Resource Monitoring and Reporting: Detail monitoring procedures and methodologies, which shall require a qualified paleontological monitor for all construction-related ground disturbance that reach approximate depths for significant paleontological resources in sediments with a high paleontological sensitivity (i.e, Quaternary older alluvium and Tropico Group [lower], granitic fanglomerate and sandstone). Sediments with no (i.e., Saddleback Basalt and quartz monzonite) will not require monitoring. Paleontological monitors shall meet standard qualifications per the SVP (2010). ▪ Unanticipated Discovery Protocol: Detail procedures for temporarily halting construction, defining work stoppage zones, notifying stakeholders, and assessing the paleontological find for scientific significance. If indicators of potential microvertebrate fossils are found, screening of a test sample shall be carried out as outlined in SVP (2010). ▪ Data Analysis and Reporting: Detail methods for data recovery, analysis in a regional context, reporting of results within one year of completion of field studies, curation of all fossil specimens in an accredited museum repository approved by the CPUC and BLM and dissemination of reports to appropriate repositories.	Reduce or avoid any impacts to paleontological resources.

APM Number	Description	Justification
PAL-2	**Train Construction Personnel**. Prior to the initiation of construction, all construction personnel shall be trained, regarding the recognition of possible buried paleontological resources (i.e., fossils) and protection of all paleontological resources during construction. Training shall inform all construction personnel of the procedures to be followed upon the discovery of paleontological materials. All personnel shall be instructed that unauthorized removal or collection of fossils is a violation of Federal and State laws. Any excavation contract (or contracts for other activities that may have subsurface soil impacts) shall include clauses that require construction personnel to attend a Worker's Environmental Awareness Training Program (WEAP). The WEAP will include the project's potential for inadvertently exposing buried paleontological resources, how to operate adjacent to and avoid any potential Environmentally Sensitive Area, and procedures to treat unanticipated discoveries.	Reduce or avoid any impacts to paleontological resources.
PAL-3	**Conduct Paleontology Resources Construction Monitoring.** Paleontological monitoring shall be conducted by a qualified paleontologist familiar with the types of resources that could occur within the project area. Monitoring reports shall be submitted to the CPUC and BLM on a monthly basis.	Reduce or avoid any impacts to paleontological resources.
HAZ-1	SCE will prepare and implement a HMMP/Hazardous Materials Business Plan during project construction. The program will outline proper hazardous materials handling, use, storage, and disposal requirements, as well as hazardous waste management procedures. This plan will be developed to ensure that all hazardous materials and wastes will be handled and disposed of according to applicable rules and regulations. The HMMP will address: the types of hazardous materials to be used during the project, hazardous materials storage, employee training requirements, hazard recognition, fire safety, first aid/emergency medical procedures, hazardous materials release containment/control procedures, hazard communication training, personal protective equipment (PPE) training, and release reporting requirements. It will also include fueling and maintenance procedures for helicopters and construction equipment	Reduce hazardous materials and hydrology related impacts
HAZ-2	A Soil Management Plan will be developed and implemented for the Proposed Project. The Soil Management Plan will provide guidance for the proper handling, on-site management, and disposal of impacted soil that may be encountered during construction activities.	Reduce hazardous materials-related impacts
HAZ-3	Prior to construction, SCE shall consult with the FAA regarding helicopter flight plans that will take place during construction. This consultation will would include, but not be limited to: ▪ Providing locations of helicopter construction staging and work areas ▪ Establishing designated flight corridors between staging and work areas ▪ Means to ensure external load operations avoid occupied structures and roadways ▪ Locations of traffic control where external load operations will cross public roadways ▪ Locations where Congested Area Plans may be required for filing with the FAA ▪ Identifying any flight restrictions recommended/required by the FAA The results of this coordination will be provided to the CPUC.	Reduce impacts from helicopter activities.
HAZ-4	All workers on the project site shall be required to attend a Worker's Environmental Awareness Training Program (WEAP). The training shall inform all construction personnel of the UXO avoidance measures, including general precautions as well as specific procedures to be followed upon the discovery of UXO. The WEAP training will include, at a minimum, the following topics so crews will understand their obligations: ▪ Safety and situational awareness in areas where UXO are likely to be encountered	Reduce safety hazard from UXOs.

APM Number	Description	Justification
	▪ Identification of UXO ▪ Work stoppage and work area evacuation ▪ Communication protocol ▪ Treatment of UXO, including avoiding disturbance of the UXO and flagging the item with a visible marker, if it may be done safely ▪ Consequences of non-compliance	
REC-1	When temporary closures to recreational areas are necessary for construction activities, SCE will coordinate those closures with recreational facility owners.	Reduce impacts to recreational facilities.
TCR-1	**Tribal Monitoring.** An archaeological monitor, and tribal monitor that is culturally affiliated with the project area, may be present for ground-disturbing activities within or directly adjacent to identified tribal cultural resources. The archaeological and tribal monitors will consult the Cultural Resource Management Plan (CRMP; APM CUL-1) to determine when to increase or decrease the monitoring effort should the monitoring results indicate a change is warranted. Monitoring reports shall be prepared and submitted to the CPUC on a monthly basis.	Reduce or avoid any impacts to tribal cultural resources.
TCR-2	**Tribal Engagement Plan.** A tribal engagement plan shall be prepared, which will detail how Native American tribes will be engaged and informed throughout the Proposed Project. The tribal engagement plan will be included in the CRMP (APM CUL-1).	Reduce or avoid any impacts to tribal cultural resources.