

California Public Utilities Commission

Collinsville 500/230 kV Substation Project

Draft Environmental Impact Report

Volume 1

November 2025

PANORAMA ENVIRONMENTAL, INC.

California Public Utilities Commission

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PANORAMA ENVIRONMENTAL, INC.

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ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
AAM	annual arithmetic mean
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC	alternating current
ACS	American Chemical Society
ACSS	aluminum-conductor steel-supported
ADLS	aircraft detection lighting system
ADT	average daily trips
AEF	annual emission factor
AFB	Air Force Base
AFY	acre feet per year
AG	Solano County Agriculture zoning
AGL	above ground level
AIA	airport influence area
AL	Contra Costa County Agricultural Lands
ALUC	Airport Land Use Commission
ANSI	American National Standards Institute
API	Area of Potential Impacts
APLIC	Avian Power Line Interaction Committee
APM	Applicant Proposed Measure
AQMIS	Air Quality and Meteorological Information System
ASA	Abandoned Shipwreck Act
ASCE	American Society of Civil Engineers/Structural Engineering Institute
ATP	Active Transportation Plan
AWOIS	(NOAA) Automated Wrecks and Obstructions Information System

ACRONYMS AND ABBREVIATIONS

BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BASMAA	Bay Area Stormwater Management Agencies Associates
BAU	business-as-usual
BCC	USFWS Birds of Conservation Concern
BCDC	San Francisco Bay Conservation and Development Commission
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BNSF	The Burlington Northern & Santa Fe
BOR	Bureau of Reclamation
CAA	Clean Air Act
CAISO	California Independent System Operator
CALFED	California Bay-Delta Program
CALFIRE	California Department of Forestry and Fire Protection
CAP	criteria air pollutant
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CATA	California Air Toxics Assessment
CATTCH	California Temporary Traffic Control Handbook
CBC	California Building Code
CBDA	California Bay-Delta Authority
CCC	California Coastal Commission
CCCHMP	Contra Costa County Hazard Mitigation Plan
CCCTA	Central Contra Costa Transit Authority
CCR	California Noise Exposure Regulations

ACRONYMS AND ABBREVIATIONS

CCR	California Code of Regulations
CCTA	Contra Costa Transportation Authority
CCWD	Contra Costa Water District
CDE	California Department of Education
CDFG	California Department of Fish and Game
CDFTA	California Department of Tax and Fee Administration
CDFW	The California Department of Fish and Wildlife
CDOC	California Department of Conservation
CDPR	California Department of Pesticide Regulation
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
CERS	California Environmental Reporting System
CESA	California Endangered Species Ac
CFPP	Construction Fire Prevention Plan
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH4	methane
CHMIRS	California Hazardous Material Incident Report System
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CLO	Cornell Lab of Ornithology
CM	Construction Measure
CMA	Congestion Management Agency
CMP	Solano Congestion Management Program

CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO2	carbon dioxide
CORRACTS	Corrective Action Report List
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRS	Congressional Research Service
CRS	cultural resources specialist
CSLC	California State Lands Commission
CTP	Solano Comprehensive Transportation Plan
CUPA	Certified Unified Program Agency
CVC	California Vehicle Code
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CWPP	Solano County Community Wildfire Protection Plan
DBW	California Division of Boating and Waterways
DDT	dichlorodiphenyltrichloroethane
DHS	California Department of Health Services
DMMO	San Francisco Bay Dredge Material Management Office
DMR	Division of Mine Reclamation
DNL	day-night equivalent sound level
DOD	Department of Defense

ACRONYMS AND ABBREVIATIONS

DOE	Department of Energy
DOT	Department of Transportation
DPC	Delta Protection Commission
DPEM	Disaster Preparedness and Emergency Management
DPS	distinct population segment
DSC	Delta Stewardship Council
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EBRPD	East Bay Regional Park District
ECCCFPD	East Contra Costa County Fire Protection District
ECCTA	Eastern Contra Costa County Transit Authority
EFZ	Earthquake Fault Zone
EHC	Environmental Health Criteria
EHD	Department of Resource Management Environmental Health Division
EIA	Energy Information Administration
EIR	Environmental Impact Report
ELF	Static and Extremely Low-Frequency
EMA	California Emergency Management Agency
EMF	electric and magnetic fields
EMI	electromagnetic interference
EN2	Energy Efficiency
ENC	NOAA's Electronic Navigation Chart
EOP	Solano County Emergency Operations Plan
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute, Inc
ESA	federal Endangered Species Act

ESU	evolutionarily significant units
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FMMP	Farmland Mapping and Monitoring Program
FMP	Electric and Magnetic Fields Management Plan
FOCA	Federal Office Civil Aviation
FPD	Fire Protection District
FRAP	Fire and Resource Assessment Program
FRED	Field Reporting Environmental Database
FTA	Federal Transit Administration
GHG	greenhouse gas
GIE	gas-insulated equipment
GIS	Geographic Information System
GO	CPUC General Order
GPS	global positioning system
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWP	global warming potential
H2S	hydrogen sulfide
HCD	California Department of Housing and Community Development
HCP	Habitat Conservation Plan

HDD	horizontal directional drilling
HDPE	high-density polyethylene
HFTD	CPUC High Fire Threat District
HMBP	Hazardous Materials Business Plan
HMIS	Hazardous Materials Inventory Statement
HMMP	Hazardous Materials Management Plan
HMP	Hazard Mitigation Plan
HMPB	Hazardous Materials Business Plan
HMTA	Hazardous Materials Transportation Act
HPTP	Historic Properties Treatment Plan
HRA	health risk assessment
HSAA	Carpenter-Presley-Tanner Hazardous Substance Account Act
HVAC	Heating, ventilation, and air conditioning
HVDC	high voltage direct current
IARC	International Agency for Research on Cancer
ICLEI	International Council for Local Environmental Initiatives
IEEE	Institute of Electrical and Electronics Engineers
IEPR	Integrated Energy Policy Report
INA	Information Not Available
IPC	integrated pest control
IPCC	International Panel on Climate Change
IPMP	Integrated Pest Management Plan
IWMB	Integrated Waste Management Board
JPA	Joint Powers Authority
KOP	key observation point
LAN	Local Area Network

LCI	Governor's Office of Land Use and Climate Innovation
LCU	landscape character unit
LEA	local enforcement agency
LGP	low ground pressure
LHMP	Local Hazard Mitigation Plan
LID	low impact development
LMP	Land Management Plan
LOS	level of service
LPP	Local Protection Program
LRA	local responsibility area
LSAA	Lake and Streambed Alteration Agreement
LSIWA	Lower Sherman Island Wildlife Area
LSP	lattice steel pole
LSPGC	LS Power Grid California, LLC
LST	lattice steel tower
LTPP	Long-Term Procurement Plan
LTS	less than significant
LTSM	less than significant with mitigation
LUCP	Travis AFB Land Use Compatibility Plan
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
MCE	Marin Clean Energy
MHTL	mean high tide line
MIRTA	Military Installations, Ranges, and Training Areas
MLLW	Mean Lower Low Water
MMPA	Marine Mammal Protection Act

MMRP	Mitigation Monitoring and Reporting Plan
MMTCO	million metric tons carbon dioxide
MPO	metropolitan planning organization
MRP	Municipal Regional Stormwater Permit
MRR	Mandatory Reporting of Greenhouse Gas Emissions
MRZ	mineral resource zones
MSCP	Multiple Species Conservation Program
MSE	mechanically stabilized earth
MUTCD	California Manual on Uniform Traffic Control Devices
MVA	megavolt-ampere
N2O	nitrous Oxide
NAAQS	National Ambient Air Quality Standard
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American origin, the Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NCCPA	Natural Community Conservation Plan Act
NCIC	North Central Information Center
NCP	National Contingency Plan
NEC	National Electrical Code
NECPA	National Energy Conservation Policy Act
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NERC	National Energy Regulatory Commission
NESC	National Electrical Safety Code
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association

NHMLAC	Natural History Museum of Los Angeles County
NHPA	National Historic Preservation Act
NIH	National Institute of Environmental Health Science
NMFS	National Marine Fisheries Service
NMPS	National Pipeline Mapping System
NO2	nitrogen dioxide
NOAA	U.S. National Oceanic and Atmospheric Administration
NOD	Notice of Determination
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPMS	U.S. Department of Transportation (DOT) National Pipeline Mapping System
NPS	National Park Service
NR3	National Ambient Air Quality Standards Regulatory Review and Rulemaking
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSF	National Science Foundation
NTP	Normal Temperature and Pressure
NWIC	Northwest Information Center
NWP	Nationwide Permit
O3	ozone
OA	Operational Area
OAL	maximum Overall Length
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHP	California State Office of Historic Preservation

OHWM	ordinary high water mark
OMR	Office of Mine Reclamation
OPGW	optical ground wire
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
OTM	OSHA Technical Manual
PDWW	Public Drinking Water Watch
PEA	Proponent's Environmental Assessment
PHMSA	Department of Transportation Pipeline and Hazardous Materials Safety Administration
PHSA	Department of Transportation Pipeline and Hazardous Materials Safety Administration
PM	particulate matter
PM2.5	particulate matter 2.5 microns or less in diameter
PM10	particulate matter 10 microns or less in diameter
PMU	phaser measurement unit
PPC	Pittsburg Power Company
PPV	Peak Particle Velocity
PRC	Public Resources Code
PTC	Permit to Construct
PTS	Post-traumatic Stress
PUC	California Public Utilities Code
PVC	polyvinyl chloride
QSD	Qualified SWPPP Developer
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act

RHA	Rivers and Harbors Act
RHNA	Regional Housing Needs Allocation
RISE	Reclamation Information Sharing Environment
ROG	reactive organic gases
ROW	right-of-way
RPP	Regional Priority Plan
RPS	renewable portfolio standard
RSMR	regionally significant mineral resource
RTPC	Regional Transportation Planning Committee
RWQCB	Regional Water Resource Control Board
SACDOT	Sacramento County Department of Transportation
SARA	Superfund Amendments and Reauthorization Act
SAV	Submerged aquatic vegetation
SB	Senate Bill
SCADA	supervisory control and data acquisition
SCS	sustainable communities strategy
SCWA	Solano County Water Agency
SDC	seismic design category
SDS	safety data sheets
SDWIS	Safe Drinking Water Information System
SEMS	Superfund Enterprise Management System Archive
SF6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SGMA	Sustainable Groundwater Management Act
SHMP	State Hazard Mitigation Plan
SIP	California State Implementation Plan

SLC	California State Lands Commission
SLF	Sacred Lands File
SMAQMD	Sacramento Municipal Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SMP	Suisun Marsh Plan
SMPP	Suisun Marsh Protection Plan
SMPRP	Suisun Marsh Habitat Management, Preservation, and Restoration Plan
SMUD	Sacramento Municipal Utility District
SO2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures Plan
SR	State Route
SRA	state responsibility area
SRCD	Suisun Resource Conservation District
SRRE	Source Reduction and Recycling Element
SSC	Species of Special Concern
STA	Solano Transportation Authority
SVAB	Sacramento Valley Air Basin
SVGB	Sacramento Valley Groundwater Basin
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAFB	Travis Air Force Base
TAG	Transportation Analysis Guidelines
THPO	Tribal Historic Preservation Officer
TIMF	Transportation Impact Mitigation Fee
TR22	tier III or IV off-road engines
TR9	Transportation Demand Management

TRANSPLAN	Contra Costa County transportation planning committee
TSCA	Federal Toxic Substances Control Act and Resource Conversation and Recovery Act
TSP	tubular steel pole
USACE	U.S. Army Corps of Engineers
USCG	Coast Guard
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	unexploded ordnance
VCP	Voluntary Cleanup Program
VMT	vehicle miles traveled
VPD	vehicles per day
VRTR	Visual Resources Technical Study
WAN	Wide Area Network
WBWG	Western Bat Working Group
WEAP	Worker Environmental Awareness Program
WHO	World Health Organization
WMP	wildfire mitigation plan
WOTUS	waters of the U.S.
WQC	water quality certification
WRA	Wind Resource Area
WUI	Wildland Urban Interface
YSAQMD	Yolo-Solano Air Quality Management District
ZEV	zero-emission vehicles

ES Executive Summary

ES.1 Introduction

LS Power Grid California, LLC (LSPGC), filed an application for a certificate of public convenience and necessity (CPCN) from California Public Utilities Commission (CPUC) on July 30, 2024, to construct and operate the Collinsville 500/230 kV Substation Project in Solano, Sacramento, and Alameda counties (Proposed Project). The Proposed Project was identified as a needed upgrade to the California electrical grid in the California Independent System Operator (CAISO) 2021-2022 Transmission Plan. The need for the Proposed Project was reaffirmed in the CAISO 2024-2025 Transmission Plan.

The Proposed Project includes the following components:

- A new 500/230 kV substation, herein referred to as the proposed LSPGC Collinsville Substation.
- Two self-supporting segments of new 500 kV conductor and structures roughly parallel along the approximately 1.2-mile interconnection route (or "loop") between the proposed LSPGC Collinsville Substation and Pacific Gas and Electric Company's (PG&E) existing Vaca Dixon-Tesla 500 kV Transmission Line, resulting in the addition of approximately 2.5 miles of new 500 kV transmission lines. PG&E would install and/or modify transposition structures at four locations along PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line.
- A new approximately 6-mile-long, double-circuit 230 kV transmission line to connect the proposed LSPGC Collinsville Substation to PG&E's existing Pittsburg Substation, with approximately 4.5 miles of submarine cables running beneath the Sacramento-San Joaquin River Delta waterways. The submarine cables would be buried to a depth of approximately 6 to 15 feet below the sediment surface and run between the northern shore of the Sacramento River, traveling generally southwest until reaching a proposed onshore underground utility vault located just south of the southern shore of the Sacramento River near PG&E's existing Pittsburg Substation.
- Extension of PG&E's existing 12 kV Peabody 2107 Circuit distribution line to the proposed LSPGC Collinsville Substation.
- Two new telecommunications paths to the proposed LSPGC Collinsville Substation—a new microwave tower would be constructed and owned by PG&E at the substation and a new fiber optic path consisting of two fiber optic cables for redundancy would be installed between existing fiber in the City of Pittsburg and the proposed substation.

- Modifications to PG&E's existing Pittsburg, Vaca Dixon, and Tesla substations to support the proposed substation interconnection. All PG&E substation modifications would occur within the existing substation footprints.
- Three new transposition structures and replacing two existing lattice steel poles (LSPs) with one new three-pole dead-end tubular steel pole (TSP) structure along PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line

The Proposed Project, for the purpose of this California Environmental Quality Act (CEQA) analysis, includes the components that would be constructed and operated by both LSPGC and PG&E. The CPUC will use the information in this CEQA document to inform its decision whether to grant or deny the LSPGC application to construct and operate the LSPGC Collinsville 500/230 kV Substation Project. The two new segments of 500 kV transmission line, extension of the 12 kV distribution line, three new transposition structures, new microwave tower, modifications at the existing PG&E substations are analyzed in this CEQA document as part of the whole of the Project but are not part of LSPGC's application for a CPCN; PG&E is not an applicant. The PG&E work associated with the Proposed Project and covered in this EIR would be authorized or notified separately pursuant to CPUC General Order 131-E, while LSPGC's work would be authorized pursuant to CPUC General Order 131-D[1].

Based on the analysis in the Draft EIR and the substantial evidence supporting the analysis, it has been determined that the Proposed Project would result in significant and unavoidable impacts on air quality, biological resources, cultural resources, energy, greenhouse gases, land use, noise, and tribal cultural resources. The Project mitigation measures applicable to LSPGC and PG&E, the applicant-proposed measures (APMs; applicable only to LSPGC's portion of the Project) and the PG&E construction measures (CMs; applicable only to PG&E's portion of the Project) included in this EIR would reduce the remaining environmental impacts to less than significant. Based on this, and the whole for the record at the time of Project approval, the CPUC will need to consider the adoption of a Statement of Overriding Considerations acknowledging the significant and unavoidable impacts and weighing it against the Project benefits (CEQA Guidelines section 15093). With this, adoption of the EIR would satisfy the requirements of CEQA.

ES.2 Purpose and Use of the Draft EIR

CEQA Guidelines Section 15124(d) requires that an EIR contains a statement briefly describing the intended uses of the EIR. This Draft EIR is an informational document that examines and discloses the potential impacts of the Proposed Project and alternatives so that decision-makers and the public can consider the potential environmental consequences of a decision on the

[1] LSPGC's application for a CPCN was initially filed in July 2024 when GO 131-D was in effect. Therefore, LSPGC's portion of the Proposed Project will be permitted under GO 131-D. All filings after January 30, 2025, are subject to GO 131-E requirements, therefore, PG&E's portion of the Proposed Project will be permitted under GO 131-E.

requested CPCN. The CPUC will rely on this EIR, along with other information in the formal record, in deciding whether to approve, approve with modifications, or deny the request for CPCN. Trustee and responsible agencies with permitting authority over the Proposed Project are identified in Section 2.12: Potential Permits and Approvals. These other agencies also may rely on this EIR to support their decision making process.

ES.3 Project Objectives

ES.3.1 LSPGC Project Objectives

LSPGC has defined objectives for the Proposed Project in its CPCN application as follows:

- Meet CAISO's policy-driven need for the Proposed Project to address a number of identified transmission constraints on the Cayetano-North Dublin 230 kV Line, Lone Tree-USWP-JRW-Cayetano 230 kV Line, and Las Positas-Newark 230 kV Line and provide an additional supply from the 500 kV system into the northern Greater Bay Area.
- Meet the functional specifications set forth by CAISO for the Collinsville 500/230 kV Substation and 230 kV transmission lines located near or adjacent to the existing PG&E Vaca Dixon-Tesla 500 kV Line. Close proximity to the existing PG&E 500 kV transmission line corridor would reduce the length of the 500 kV transmission interconnection lines, thereby reducing the right-of-way (ROW) requirements and the potential for significant environmental impacts.
- Achieve commercial operation by June 2028 in order to address critical reliability issues within the transmission system, such as high voltage under non-peak conditions and voltage that varies significantly on a daily basis.
- Improve and maintain the reliability of the transmission grid by addressing overloads on the Cayetano-North Dublin 230 kV Line, Lone Tree-USWP-JRW-Cayetano 230 kV Line, and Las Positas-Newark 230 kV Line and increase deliverability of renewable power by building and operating a facility that would help keep transmission voltages within specified parameters, reduce transmission losses, increase reactive margin for the system bus, increase transmission capacity, provide a higher transient stability limit, increase damping of minor disturbances, and provide greater voltage control and stability.
- Facilitate deliverability of load from existing and proposed renewable generation projects in the northern Greater Bay Area and corresponding progress toward achieving California's RPS goals in a timely and cost-effective manner by California utilities.
- To the extent practicable, locate the Proposed Project on land that is or has previously been disturbed, is in an existing ROW or adjacent to existing utility uses, or would otherwise minimize environmental impacts in a manner consistent with prudent transmission planning.
- Construct and operate the facility with safety as a top priority.

- Meet the Proposed Project need in a safe, cost-effective manner and consistent with
- LSPGC's cost containment agreement in the Approved Project Sponsor Agreement.
- Comply with and assist CAISO in meeting applicable Reliability Standards and Criteria developed by North American Electric Reliability Corporation, Western Electricity Coordinating Council, and CAISO.
- Design and construct the Proposed Project in conformance with LSPGC's standards, the National Electric Safety Code, and other applicable national and state codes and regulations.

ES.3.2 Basic Project Objectives

Project objectives under CEQA are defined in order to allow proper consideration of alternatives to the Proposed Project. Having taken into consideration the detailed objectives above, the CPUC developed basic project objectives in coordination with LSPGC. These objectives are used by the CPUC to define and evaluate a range of reasonable alternatives to the Proposed Project. The evaluation of alternatives in the EIR provides information on whether each alternative could feasibly accomplish most or all of these project objectives. The basic project objectives are as follows:

- Meet the CAISO policy-driven need established for the project in its Transmission Plans by:
  - Relieving stress on the 230 kV line in the Contra Costa region and providing grid support for East Bay area.
  - Reliably and economically supporting increased energy demand in the greater Bay Area
  - Facilitating deliverability of generation and energy storage resources in the Solano area, progressing California's renewable energy goals.
  - Achieving commercial operation by June 2028 consistent with the timeline and policy goals included in the 2021-2022 Transmission Plan and reinforced by the 2024-2025 Transmission Plan[2].

The determination of whether to eliminate or retain alternatives in the EIR considered the alternative's ability to meet the basic project objectives as defined by CPUC.

ES.4 Overview of Project Impacts

ES.4.1 Significant and Unavoidable Impacts

Section 15126.2(a) of the CEQA Guidelines requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less-than-significant levels. As

[2] Alternatives that would result in delays, but would otherwise meet project objectives, are determined to meet most project objectives.

analyzed in Section 4: Environmental Analysis, the Proposed Project would result in twelve significant and unavoidable impacts in nine resource areas as summarized in Table ES-1. These impacts would remain significant and unavoidable even with the implementation of mitigation measures.

Table ES-1 Summary of Significant and Unavoidable Impacts for the Proposed Project

Resource Area	Significant and Unavoidable Impacts
Air Quality	**Impact AQ-2**: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable or state ambient air quality standard.
Biological Resources	**Impact BIO-1D:** Have substantial adverse effects, either directly or through habitat modifications, on any bird species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
Cultural Resources	**Impact CUL-1:** Cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5. **Impact CUL-2:** Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5. **Impact CUL-3:** Disturb any human remains, including those interred outside of dedicated cemeteries.
Energy	**Impact EN-2:** Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.
Greenhouse Gas Emissions	**Impact GHG-2:** Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.
Land Use and Planning	**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.
Minerals	**Impact MIN-1:** Result in the loss of availability of a known mineral resource that would be of value to the region and the residence of the state. **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.
Noise	**Impact NOI-1:** Result in the 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.
Tribal Cultural Resources	**Impact TCR-1:** Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: (i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

ES.4.2Summary of Project Impacts and Mitigation Measures

Table ES-2, summarizes the environmental impacts of the Proposed Project and mitigation measures that, if adopted, would avoid or substantially reduce potential significant impacts of the Proposed Project, as well as applicable LSPGC applicant proposed measures (APMs) and PG&E construction measures (CMs) for each environmental impact. The analysis of each Proposed Project impact is provided on a resource-by-resource basis in Section 4 of this Draft EIR.

Table ES-2 Summary of Impacts and Mitigation Measures

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Aesthetics				
Impact AES-1: In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	NA	NA	No measure required	NI
Impact AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	NA	NA	No measure required	NI
Impact AES-3: In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	APM AES-1: Staging Area Maintenance and Restoration APM BIO-2*: Develop and Implement Restoration Plan APM GEO-1: Geological Hazards and Disturbance to Soils	CM AES-1: Aesthetics	No measure required	LTS
Impact AES-4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	APM BIO-12: Project Lighting	CM BIO-11: Construction Hours and Lighting	No measure required	LTS

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Agriculture and Forestry Resources				
Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use?	NA	NA	No measure required	NI
Impact AG-2: Conflict with existing zones for agricultural use, or a Williamson Act contract?	APM AG-1: Landowner Coordination APM BIO-2*: Develop and Implement Restoration Plan	CM AG-1: Landowner Coordination	MM AG-1: Agricultural Mitigation	LTSM
Impact AG-3: Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	NA	NA	No measure required	NI
Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use?	NA	NA	No measure 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?	APM AG-1: Landowner Coordination APM BIO-2: Develop and Implement Restoration Plan	CM AG-1: Landowner Coordination	MM AG-1: Agricultural Mitigation	LTSM
Air Quality				
Impact AQ-1: Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan?	APM AIR-2: Dust Control	CM AIR-2: Fugitive Dust Control	MM AQ-1: Fugitive Dust Control	LTSM

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	APM AIR-1: Tier 4 Construction Equipment APM AIR-2*: Fugitive Dust Control	CM AIR-1: Tier 4 Construction CM AIR-2*: Fugitive Dust Control	MM AQ-2: Watercraft Emission Reduction	SU
Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations?	APM AIR-1: Dust Control	CM AIR-1: Tier 4 Construction	No measure required	NI
Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	NA	NA	No measure required	NI
Biological Resources				
Impact BIO-1A: Have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-1: Avoid Environmentally Sensitive Areas APM BIO-5*: Pre-Construction Plant Surveys (Superseded by MM BIO-1) APM FIRE-1: Construction Fire Prevention Plan	CM BIO-16: Erosion and Sediment Control BMPs CM AIR-2*: Fugitive Dust Control CM HAZ-1: Hazardous Substance Control and Emergency Response CM FIRE-1: Fire Risk Management	MM BIO-1: Avoidance and Minimization of Impacts on Special-Status Plants MM BIO-2: Habitat Restoration MM BIO-3: Invasive Plant Management	LTSM
Impact BIO-1B: Have a substantial adverse effect, either directly or through habitat modifications, on any amphibian species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the	APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training APM BIO-9: Trapped Animal Prevention APM BIO-11: Pre-Construction Wildlife Surveys	CM BIO-1: Vernal Pool and Waters Avoidance. CM BIO-3: Worker's Environmental Awareness Training CM BIO-9: Trapped Animal Prevention CM FIRE-1: Fire Risk Management	MM BIO-4: Special-Status Amphibians and Vernal Pools MM BIO-5: Pre-Construction Surveys and	LTSM

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM FIRE-1: Construction Fire Prevention Plan		Biological Monitoring	
Impact BIO-1C: Have a substantial adverse effect, either directly or through habitat modifications, on any reptile species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-1: Avoid Environmentally Sensitive Areas APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training APM BIO-4: Delineation of Sensitive Resources APM BIO-9: Trapped Animal Prevention APM BIO-11: Pre-Construction Wildlife Surveys APM FIRE-1: Construction Fire Prevention Plan	CM BIO-1: Vernal Pool and Waters Avoidance CM BIO-3: Worker's Environmental Awareness Training CM BIO-4: Delineation and Avoidance of Sensitive Habitat Features CM BIO-9: Trapped Animal Prevention CM FIRE-1: Fire Risk Management	MM BIO-3: Invasive Plant Management MM BIO-5: Pre-Construction Surveys and Biological Monitoring MM BIO-6: Alameda Whipsnake Avoidance	LTSM
Impact BIO-1D: Have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-11: Pre-Construction Wildlife Surveys APM BIO-12: Project Lighting APM BIO-14*: Burrowing Owl APM BIO-15: Wetland Birds APM FIRE-1: Construction Fire Prevention Plan	CM BIO-12*: Nesting Birds CM FIRE-1: Fire Risk Management	MM BIO-3: Invasive Plant Management MM BIO-7: Nesting Bird Management MM BIO-8: Burrowing Owl MM BIO-9: Swanson's Hawk MM BIO-10: Golden Eagle MM BIO-11: Minimization of	SU

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
			Avian Interactions with Transmission Lines	
Impact BIO-1E: Have a substantial adverse effect, either directly or through habitat modifications, on any invertebrate species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-8: Vehicle Travel APM FIRE-1: Construction Fire Prevention Plan	CM BIO-1: Vernal Pool and Waters Avoidance CM BIO-8: Vehicle Travel CM FIRE-1: Fire Risk Management	MM BIO-3: Invasive Plant Management MM BIO-4: Special-Status Amphibians and Vernal Pools MM BIO-12: Crotch's Bumble Bee Avoidance Procedure MM BIO-13: Monarch Butterfly	LTSM
Impact BIO-1F: Have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-11: Pre-Construction Wildlife Surveys APM AES-1: Staging Area Maintenance and Restoration APM FIRE-1: Construction Fire Prevention Plan	CM BIO-11: Construction Hours and Lighting CM FIRE-1: Fire Risk Management	MM BIO-3: Invasive Plant Management MM BIO-5: Pre-Construction Surveys and Biological Monitoring MM BIO-14: San Joaquin Kit Fox Avoidance Procedures	LTSM

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
			MM BIO-15: Salt Marsh Harvest Mouse Avoidance MM BIO-16: American Badger	
Impact BIO-1G: Have a substantial adverse effect, either directly or through habitat modifications, on any marine mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training APM BIO-18: In-Water Work Window APM BIO-19: Intake Screening APM BIO-20: Invasive Species Management for In-Water Work APM BIO-21: Aquatic Sediment Screening and Testing APM BIO-22: Aquatic Spill Prevention and Control	NA	MM BIO-17: Invasive Marine Species Control Plan	LTSM
Impact BIO-1H: Have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training APM BIO-18: In-Water Work Window APM BIO-19: Intake Screening APM BIO-20: Invasive Species Management for In-Water Work APM BIO-21: Aquatic Sediment Screening and Testing	NA	MM BIO-17: Invasive Marine Species Control Plan MM BIO-18: Compensatory Mitigation for Permanent Impacts to Benthic Habitat	LTSM

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
	APM BIO-22: Aquatic Spill Prevention and Control APM BIO-23: Overwater Concrete Casting			
Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-1: Avoid Environmentally Sensitive Areas APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training APM BIO-4: Delineation of Sensitive Resources APM BIO-5*: Pre-Construction Plant Surveys APM FIRE-1: Construction Fire Prevention Plan	CM BIO-2: Revegetation CM BIO-3: Worker's Environmental Awareness Training CM BIO-4: Delineation and Avoidance of Sensitive Habitat Features CM BIO-5: Special-Status Plant Species CM FIRE-1: Fire Risk Management	MM BIO-2: Habitat Restoration MM BIO-3: Invasive Plant Management MM BIO-19: Sensitive Natural Plant Communities	LTSM
Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	APM FIRE-1: Construction Fire Prevention Plan	CM FIRE-1: Fire Risk Management	MM BIO-3: Invasive Plant Management MM HYD-1: Aquatic Resource Delineation Avoidance Minimization and Mitigation	LTSM
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	NA	NA	MM BIO-5: Pre-Construction Surveys and Biological Monitoring	LTSM

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
wildlife corridors, or impede the use of native wildlife nursery sites?			MM BIO-7: Nesting Bird Management MM BIO-11: Minimization of Avian Interactions with Transmission Lines MM BIO-12: Crotch's Bumble Bee Avoidance Procedure MM BIO-13: Monarch Butterfly MM BIO-15: Salt Marsh Harvest Mouse Avoidance MM BIO-18: Compensatory Mitigation for Permanent Impacts to Benthic Habitat	
Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	NA	CM BIO-11: Construction Hours and Lighting.	MM BIO-1: Avoidance and Minimization of Impacts on	LTSM

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
			Special Status Plants MM BIO-2: Habitat Restoration MM BIO-3: Invasive Plant Management MM BIO-17: Invasive Marine Species Control Plan MM BIO-18: Compensatory Mitigation for Permanent Impacts to Benthic Habitat MM BIO-19: Sensitive Natural Plant Communities MM HYD-1: Aquatic Resource Delineation, Avoidance, Minimization, and Mitigation	
Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or	NA	NA	MM BIO-3: Invasive Plant Management	LTSM

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
other approved local, regional, or state habitat conservation plan?				
Cultural Resources				
Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	APM CUL-1: Worker's Environmental Awareness Program APM CUL-2: Avoid Environmentally Sensitive Areas APM CUL-3: Inadvertent Discoveries APM CUL-4: Paleolandform Testing	CM CUL-1: Worker Awareness Training CM CUL-2: Flag and Avoid Known Resources CM CUL-3*: Unanticipated Cultural Resources Discoveries	MM CUL-1: Subsurface Resource Testing, Monitoring, and Reporting MM CUL-2: Inadvertent Discoveries	SU
Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	APM CUL-1: Worker's Environmental Awareness Program APM CUL-2: Avoid Environmentally Sensitive Areas APM CUL-3: Inadvertent Discoveries APM CUL-4: Paleolandform Testing	CM CUL-1: Worker Awareness Training CM CUL-2: Flag and Avoid Known Resources CM CUL-3*: Unanticipated Cultural Resources Discoveries (Superseded by MM CUL-2)	MM CUL-1: Subsurface Resource Testing, Monitoring, and Reporting MM CUL-2: Inadvertent Discoveries	SU
Impact CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries?	NA	NA	MM CUL-1: Subsurface Resource Testing, Monitoring, and Reporting	SU

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Energy				
Impact EN-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	APM AIR-1: Tier 4 Construction Equipment	CM AIR-1: Tier 4 Construction Equipment CM NOI-1: Employ Noise-Reducing Construction Practices during Temporary Construction Activities	No measure required	LTS
Impact EN-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	NA	NA	MM UT-1: Protect SMUD Buried Infrastructure from Construction Loads	SU
Geology, Soils, and Paleontological Resources				
Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, 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.	NA	NA	No measure required	NI
Strong seismic ground shaking?	NA	NA	No measure required	NI
Seismic-related ground failure, including liquefaction?	NA	NA	No measure required	NI

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Landslides?	NA	NA	No measure required	NI
Impact GEO-2: Result in substantial soil erosion or the loss of topsoil?	APM GEO-1: Geological Hazards and Disturbances to Soils	CM GEO-1: Minimize Construction in Soft or Loos Soils	No measure 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?	NA	NA	No measure required	NI
Impact GEO-4: Be located on expansive soil creating substantial direct or indirect risks to life or property?	NA	NA	No measure required	LTS
Impact GEO-5: Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	NA	NA	No measure required	NI
Impact GEO-6: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	APM PALEO-1: WEAP Training APM PALEO-2: Paleontological Monitoring	CM PALEO-1: Worker Awareness Training CM PALEO-2: Paleontological Monitoring	MM GEO-1: Paleontological Resources Mitigation and Monitoring Program	LTSM
Greenhouse Gas Emissions				
Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	APM GHG-1: Greenhouse Gas Emissions Reduction During Construction	CM GHG-1: Greenhouse Gas Emissions Reduction During Construction	No measure required	LTS

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	NA	NA	No mitigation is feasible	SU
Hazards, Hazardous Materials, and Public Safety				
Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training APM BIO-22: Aquatic Spill Prevention and Control	CM HAZ-1: Hazardous-Substance Control and Emergency Response CM HAZ-2: Worker Environmental Awareness	No measure required	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?	APM BIO-21: Aquatic Sediment Screening and Testing	NA	No measure required	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?	APM PUB-1: School Access	NA	No measure required	LTS
Impact HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	NA	NA	No measure 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,	NA	NA	No measure required	LTS

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
would the project result in a safety hazard or excessive noise for people residing or working in the project area?				
Impact HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	APM TRA-2: Road and Lane Closure Plans	CM TRA-2: Coordinate Road Closures with Emergency Service Providers	No measure 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?	APM FIRE-1: Construction Fire Prevention Plan	CM FIRE-1: Fire Risk Management	MM FIRE-1: Wildfire Management Plan	LTSM
Impact HAZ-8: Create a significant hazard to the public or environment through the transport of heavy materials using helicopters?	APM HAZ-1: Air Transit Coordination	CM HAZ-3: Air Transit Coordination	No measure required	LTS
Impact HAZ-9: Expose workers or the public to excessive shock hazards?	NA	NA	No measure required	LTS
Hydrology and Water Quality				
Impact HYD-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	APM BIO-3: Worker's Environmental Awareness Program APM BIO-10: Delineation of Work Areas APM BIO-21: Aquatic Sediment Screening and Testing APM BIO-22: Aquatic Spill Prevention and Control APM GEO-1: Geological Hazards and Disturbance to Soils	CM BIO-3: Worker's Environmental Awareness Training CM BIO-4: Delineation and Avoidance of Sensitive Habitat Features CM BIO-17: Erosion and Sediment Control BMPs CM BIO-18: Soil Stockpiling CM GEO-1: Minimize Construction in Soft or Loose Soils	No measure required	LTS

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
	APM HYD-1: Utilize In-Water Sediment Containment during Open Trenching in Marine Environments	CM HYD-1: Micro-Site Distribution Poles CM HYD-2: Prepare and Implement a Storm Water Pollution Prevention Plan		
Impact HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	NA	NA	No measure required	LTS
Impact HYD-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 a substantial erosion or siltation on- or off-site;	NA	NA	No measure required	LTS
substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	NA	NA	No measure required	LTS
Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows?	APM BIO-3: Worker's Environmental Awareness Program APM BIO-22: Aquatic Spill Prevention and Control	CM BIO-3: Worker's Environmental Awareness Training	No measure required	LTS
impede or redirect flood flows?	NA	NA	No measure required	LTS

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Impact HYD-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	NA	NA	No measure required	LTS
Impact HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	NA	NA	No measure required	LTS
Land Use and Planning				
Impact LU-1: Physically divide an established community?	NA	NA	No measure Required	NA
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?	APM BIO-1: Avoid Environmentally Sensitive Areas APM BIO-4: Delineation of Sensitive Resources APM BIO-18: In-Water Work Window APM BIO-19: Intake Screening APM BIO-20: Invasive Species Management for In-Water Work APM BIO-21: Aquatic Sediment Screening and Testing APM BIO-22: Aquatic Spill Prevention and Control APM HYD-1: Utilize In-Water Sediment Containment during Open Trenching in Marine Environments	CM AG-1: Landowners Coordination	MM AG-1: Agricultural Mitigation MM BIO-2: Habitat Restoration	SU

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Mineral Resources				
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?	NA	NA	MM MIN-1: Coordinate with Mineral Lease Holders	SU
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?	NA	NA	MM MIN-1: Coordinate with Mineral Lease Holders	SU
Noise				
Impact NOI-1: Result in 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?	APM PUB-1: School Access	CM NOI-1: Employ Noise-Reducing Construction Practices during Temporary Construction Activities	MM NOI-1: Helicopter Use Limitations in Solano County MM NOI-2: Construction Acoustic Barrier Installation at Collinsville Substation Site MM NOI-3: Construction Hours Limitation at Transposition Sites in Solano County MM NOI-4: Construction Hours Limitations for the	SU

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
			Telecommunication Interconnection Lines MM NOI-5: Construction Hour Restriction at Transposition Site D	
Impact NOI-2: Result in generation of excessive groundborne vibration or groundborne noise levels?	NA	NA	No measure required	LTS
Impact NOI-3: 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, expose people residing or working in the project area to excessive noise levels?	NA	NA	No measure required	NI
Population and Housing				
Impact POP-1: Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	NA	NA	No measure required	NI
Impact POP-2: Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	NA	NA	No measure required	NI

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Public Services				
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 Other	APM FIRE-1: Construction Fire Prevention Plan APM TRA-2: Road and Lane Closure Plan APM PUB-1: School Access	CM FIRE-1: Fire Risk Management CM TRA-1: Temporary Traffic Controls CM TRA-2: Coordinate Road Closures with Emergency Service Providers	No measure required	LTS
Recreation				
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?	NA	NA	No measure 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?	NA	NA	No measure required	NI
Impact REC-3: Reduce or prevent access to a designated recreation facility or area?	APM REC-1: Access Restrictions in the Delta	NA	No measure required	LTS

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
	APM TRA-2: Road and Lane closure Plan			
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?	APM REC-1: Access Restrictions in the Delta		No measure required	LTS
Impact REC-5: Damage recreational trails or facilities?	APM REC-1: Access Restrictions in the Delta		No measure required	LTS
Transportation				
Impact TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	APM HAZ-1: Air Transit Coordination APM TRA-2: Road and Lane Closure Plan APM-PUB-1: School Access APM REC-1: Access Restrictions in the Delta	CM HAZ-3: Air Transit Coordination CM TRA-1: Temporary Traffic Controls CM TRA-2: Coordinate Road Closures with Emergency Service Providers	MM TRA-1: Transit Notification MM TRA-2: Helicopter Safety	LTSM
Impact TRA-2: Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	NA	NA	No measure 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)?	APM HAZ-1: Air Transit Coordination APM PUB-1: School Access APM TRA-1: Navigational Study APM TRA-2: Road and Lane Closure Plan	CM HAZ-3: Air Transit Coordination CM TRA-1: Temporary Traffic Controls CM TRA-2: Coordinate Road Closures with Emergency Service Providers	MM TRA-1: Transit Notification MM TRA-2: Helicopter Safety MM TRA-3: Post-Construction Road Repairs	LTSM

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
	APM REC-1: Access Restrictions in the Delta			
Impact TRA-4: Result in inadequate emergency access?	APM TRA-2: Road and Lane Closure Plan	CM TRA-1: Temporary Traffic Controls CM TRA-2: Coordinate Road Closures with Emergency Service Providers	No measure required	LTS
Tribal Cultural Resources				
Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: (i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance	APM CUL-1: Worker's Environmental Awareness Program APM CUL-2: Avoid Environmentally Sensitive Areas APM CUL-3: Inadvertent Discoveries APM CUL-4: Paleolandform Testing	CM CUL-1: Worker Awareness Training CM CUL-2: Flag and Avoid Known Resources CM CUL-3*: Unanticipated Cultural Resources Discoveries	MM CUL-1: Subsurface Resource Testing, Monitoring, and Reporting MM CUL-2: Inadvertent Discoveries	SU

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
of the resource to a California Native American tribe.				
Utilities and Service Systems				
Impact UT-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?	NA	CM HYD-2: Prepare and Implement a Storm Water Pollution Prevention Plan	MM UT-1: Protect SMUD Buried Infrastructure from Construction Loads	LTSM
Impact UT-2: Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	NA	NA	No measure required	LTS
Impact UT-3: Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	NA	NA	No measure required	LTS
Impact UT-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?	NA	NA	No measure required	LTS
Impact UT-5: Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	APM GHG-1: Greenhouse Gas Emissions Reduction During Construction	CM GHG-1: Greenhouse Gas Emissions Reduction During Construction	No measure required	LTS

Environmental Impact	LSPGC APMs	PG&E CMs	Mitigation Measures	Significance Determination
Impact UT-6: Induce voltage on an existing natural gas pipeline in a manner that would result in the physical degradation of the pipeline?	NA	NA	MM UT-2: Pipeline AC Interference Control	LTSM
Wildfire				
Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan?	APM TRA-2: Road and Lane Closure Plan	CM TRA-2: Coordinate Road Closures with Emergency Service Providers	No measure required	LTS
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?	APM FIRE-1: Construction and Fire Prevention Plan	CM BIO-15: Prohibitions CM FIRE-1: Fire Risk Management	MM FIRE-1: Wildfire Management Plan	LTSM
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?	APM FIRE-1: Construction and Fire Prevention Plan	CM BIO-15: Prohibitions CM FIRE-1: Fire Risk Management	MM FIRE-1: Wildfire Management Plan	LTSM
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?	APM FIRE-1: Construction and Fire Prevention Plan	CM BIO-15: Prohibitions CM FIRE-1: Fire Risk Management	NA	LTS

LTS = less than significant

LTSM = less than significant with mitigation

NA = not applicable

S = significant

SU = significant and unavoidable

ES.5 Overview of Alternatives to the Project

CEQA requires that an EIR analyze a reasonable range of alternatives to the project that could feasibly attain the basic objectives of the project while substantially reducing or eliminating significant environmental effects. CEQA also requires that an EIR evaluate a "no project" alternative to allow decision-makers to compare the impacts of approving a project with the impacts of not approving the project. The alternatives development and screening process, alternatives eliminated from further consideration, and alternatives considered in the EIR are described in greater details in Section 3: Description of Alternatives.

ES.5.1 Alternatives Eliminated from Further Consideration

Consistent with CEQA Guidelines Section 15126.6, the CPUC eliminated the potential alternatives listed below from detailed consideration in this EIR if they failed to meet the screening criteria outlined in Section 3.3: Alternatives Screening Methodology:

- Collinsville Substation South of Talbert Lane
- Collinsville Substation East of Talbert Lane
- Collinsville Substation on Industrial Zoned Land
- Collinsville Substation North of Pittsburg Substation
- Collinsville Substation South of Pittsburg Substation
- Route Relocation Outside of BCDC Jurisdiction
- In-river Transition Structure
- 500 kV Interconnection Lines on a Single Set of Structures
- 230 kV Submarine Segment – Full Horizontal Directional Drilling (HDD) Installation
- 230 kV Submarine Segment – Partial HDD Installation
- Reduced Activity Level for In-Water Work

ES.5.2 Alternatives Considered in the EIR

The CPUC initially considered and then carried forward the following six alternatives for more detailed evaluation:

- Alternative 1: Collinsville Substation North of Talbert Lane
- Alternative 2: Collinsville Substation East of Wind Energy Substations
- Alternative 3: 500 kV Interconnection Lines on Entirely TSPs
- Alternative 4: 230 kV Overhead Segment Alternative Route
- Alternative 5: 230 kV Submarine Segment Alternative Rote
- Alternative 6a/6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh Protection Plan Management Areas
- No Project Alternative

ES.5.3 Comparison of Alternatives

Section 4: Environmental Analysis includes a detailed evaluation of the impacts of the alternatives within each environmental resource area under CEQA. The following methodology was used to identify, evaluate, and compare alternatives in this EIR:

- **Step 1: Identification of Alternatives.** A screening process was used to evaluate alternatives to the Proposed Project (refer to Appendix C: Alternatives Screening Report). The screening process identified six feasible alternatives that would achieve all or most of the basic project objectives (refer to Appendix C and Section 3: Description of Alternatives).
- **Step 2: Determination of Environmental Impacts.** The environmental impacts of the Proposed Project and the six alternatives were evaluated for each resource topic presented in Section 4: Environmental Impact Analysis. The significant and unavoidable impacts that would occur from the Proposed Project are presented in Table 6.3-1 in Section 6: Comparison of Alternatives. The significant impacts that would be created and/or eliminated by the alternatives are summarized in Section 6.4. It is noted that the six alternatives only replace certain segments of the Proposed Project and require combination with the remaining segments of the Proposed Project or other alternatives to form a complete functional alternative to the Proposed Project. As a result, an "area of analysis" was developed to determine the Proposed Project impacts for only the corresponding segment(s) that would be replaced by the alternative. For example, the comparable "area of analysis" for a substation site alternative would include the substation site and all associated infrastructure that would be modified by the alternative including the 500 kV interconnection transmission lines, 12 kV distribution line, 230 kV overhead segment, and temporary staging areas and access roads.
- **Step 3: Comparison of Proposed Project and Alternatives.** The environmental impacts of the Proposed Project were compared to those of each alternative to determine the environmentally superior alternative. To evaluate the various alternatives in comparison to the Proposed Project, the Proposed Project impacts within the "area of analysis" were compared to the alternative impacts, as identified in the impact analysis in Section 4: Environmental Impact Analysis. The alternative with the least environmental impacts is identified as "1(preferred)" within that resource area. Numeric rankings (i.e., 2 and 3) indicate progressively greater impacts with higher numeric rankings (e.g., 3 indicates more impacts than 2). Where two or more alternatives have relatively equal impacts in the area of analysis, they are noted as "1(equally preferred)" or are assigned equal number rankings. The Proposed Project was then compared to the No Project Alternative.
- **Step 4: Determination of Environmentally Superior Alternative.** Determining an environmentally superior alternative requires balancing many environmental factors. In order to identify the environmentally superior alternative, the impacts in each resource area were identified and compared within each respective area of analysis in detailed comparison tables in Section 6.4. The environmentally superior

alternative reflects the combination of superior alternative components or segments. The tables present a preference ranking and a brief explanation of the ranking for each environmental resource area. If an alternative is not considered preferred for any resource area and there are no significant unavoidable impacts, it is not ranked and it is stated that there is no preference for the alternative in terms of that resource area. The comparisons presented in this section highlight situations where an alternative route or component would create impacts in one area as a consequence of avoiding impacts to another area.

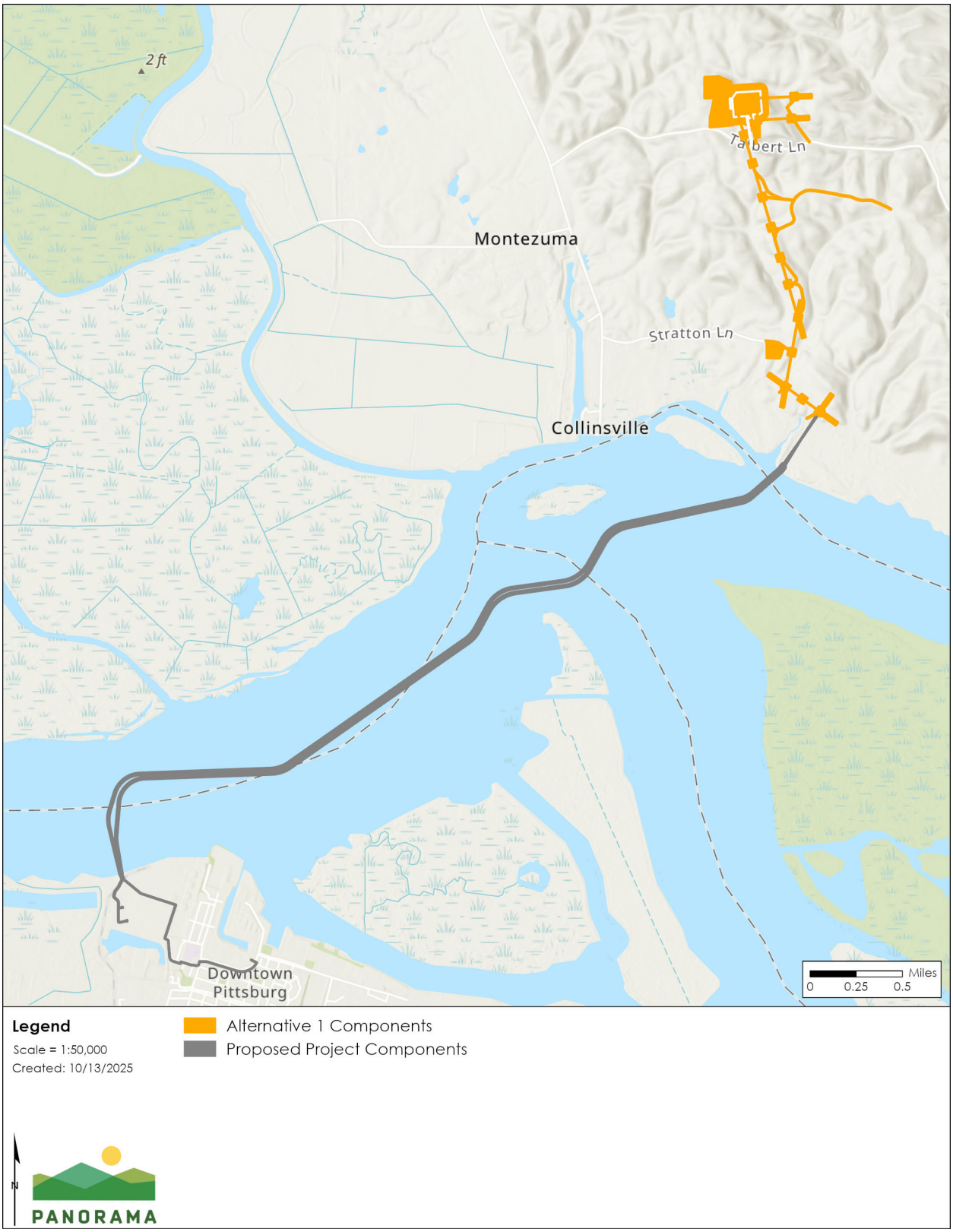
Section 6: Comparison of Alternatives includes comparison of each of the six project alternatives and the No Project Alternative with the Proposed Project.

ES.6 Environmentally Superior Alternatives

The CEQA Guidelines define the environmentally superior alternative, as that alternative with the least adverse impacts on the project area and its surrounding environment. The No Project Alternative is considered the environmentally superior alternative for CEQA purposes because it would avoid most of the Proposed Project significant and unavoidable impacts but would result in significant and unavoidable impacts from conflicts with state policy and plans for integration of renewable energy because the No Project Alternative would impair the ability to deliver renewable energy into the San Francisco Bay Area. The No Project Alternative impacts on energy and greenhouse gases would be significant and unavoidable. The No Project Alternative would also fail to meet the basic objectives of the Project. Because the environmentally superior alternative is the No Project Alternative, the EIR also must identify an environmentally superior alternative from among the other alternatives.

The environmentally superior alternative that meets the basic project objectives is Alternative 1 + Proposed Project in remaining areas as shown on Figure ES-1. Alternative 1 is environmentally to the Proposed Project in the comparable area of analysis and would avoid significant and unavoidable impacts on biological resources (Impact BIO-1D), energy (Impact EN-2), and greenhouse gases (Impact GHG-2) due to installation of much shorter 500 kV interconnection lines on TSPs only. Alternative 1 would also avoid significant and unavoidable impacts on land use (Impact LU-2) due to relocation of the substation and associated infrastructure outside of the Suisun Marsh Priority Habitat Management Area, and Alternative 1 would avoid significant and unavoidable impacts on noise (Impact NOI-1) due to relocation of the substation and associated construction noise away from sensitive receptors. Alternative 3 is also environmentally superior to the Proposed Project within the comparable area of analysis; however, Alternative 1 would relocate and modify the 500 kV interconnection transmission lines and the Alternative 1 500 kV interconnection transmission lines would be environmentally superior to Alternative 3. Alternative 1 + Proposed Project in remaining areas would still result in seven significant and unavoidable impacts including impacts on air quality (Impact AQ-2), cultural resources (Impact CUL-1, CUL-2, and CUL-3), mineral resources (Impact MIN-1 and MIN-2), and tribal cultural resources (Impact TCR-1).

Figure ES-1 Environmentally Superior Alternative – Alternative 1 + Proposed Project



Additional information received in or developed during the agency and public review period for the Draft EIR, or during the Project approval process, could affect the balancing of the respective benefits and consequences of the alternatives. Accordingly, while a preliminary determination has been made that Alternative 1 + Proposed Project in remaining areas would be the Environmentally Superior Alternative, it would be premature to formally designate it as such at this stage. The preliminary determination of the Environmentally Superior Alternative will be confirmed or corrected in the Final EIR.

ES.7 Areas of Controversy

Any of the environmental issues considered during scoping or in this Draft EIR could become an issue of controversy. All comments received during the scoping period are included in the Scoping Report, which is included as Appendix B to this Draft EIR. Issues identified as potential areas of controversy relate to:

- Aesthetics
- Agricultural resources
- Air quality
- Biological resources
- Cultural resources
- Greenhouse gases
- Hazards and hazardous materials
- Hydrology and water quality
- Land use
- Mineral resources
- Noise
- Transportation
- Tribal cultural resources
- Utilities and service systems
- Wildfire
- Cumulative impacts

ES.8 Issues to be Resolved

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR identify issues to be resolved, which includes the choice among alternatives and whether or how to mitigate significant impacts. The following major issues are to be resolved:

- Determine whether the EIR adequately described the environmental impacts of the Project.
- Choose among alternatives.
- Determine whether the recommended mitigation measures should be adopted or modified.

- Determine whether additional mitigation measures need to be applied to the Project.
- Determine whether the need for the Proposed Project outweighs the significant and unavoidable impacts of the project or alternative selected, if so, prepare a statement of overriding considerations.

1 Introduction

1.1 Proposed Project Overview

LS Power Grid California, LLC (LSPGC), a wholly owned subsidiary of LS Power that was established to own and operate transmission projects in California, filed an application for a certificate of public convenience and necessity (CPCN; A2407018) with the California Public Utilities Commission (CPUC) to construct and operate the Collinsville 500/230 Kilovolt (kV) Substation Project (Proposed Project). The Proposed Project addresses multiple overloads on the 230 kV corridor between PG&E's existing Contra Costa and Newark substations. The Proposed Project would also provide additional supply from the 500 kV Vaca-Dixon Transmission System into the northern Greater Bay Area (Bay Area) to increase reliability in the area, as well as advance additional renewable energy generation in the Bay Area.

The California Independent System Operators (CAISO) 2021-2022 Transmission Plan identified the Proposed Project as a needed upgrade to the California electric grid (CAISO 2022).[1] The 2021-2022 Transmission Plan was based on the requirement to add approximately 1,000 megawatts of new resources per year in the state over the 10-year planning period. CAISO's Policy-Driven Need Assessment identified the Proposed Project as necessary to ensure deliverability of resources to meet policy goals and resource adequacy needs of the State. The Policy-Driven Need Assessment is an iterative process, encompassing three studies: a reliability assessment, an on-peak deliverability assessment, and an off-peak deliverability assessment. The key objectives of the Policy-Driven Need Assessment are to assess the transmission impacts of portfolio resources, identify necessary upgrades to ensure reliability and minimize excessive curtailment, and inform future portfolio development. The CAISO 2024-2025 Transmission Plan reaffirmed the need for the Proposed Project and found the Proposed Project would also integrate wind energy from out of state as well as support increased load in the Bay Area(CAISO 2025).

CAISO's analysis, conducted through an open and stakeholder-inclusive planning process, led to the identification of the need for the Proposed Project to mitigate thermal overloading of the Cayetano-North Dublin 230 kV Transmission Line under N-2 conditions, Lone Tree-USWP-JRW-Cayetano 230 kV Transmission Line under normal (N-0) conditions, and Las Positas-Newark 230 kV Transmission Line under N-2 conditions, which are limiting the deliverability of renewable and energy storage portfolio resources (CAISO 2022). As a result, the need for a new 500/230 kV substation and double-circuit 230 kV transmission line was identified

[1] The Pittsburg 115 kV Bus Reactor identified in CAISO's 2022-2023 Transmission Plan is not part of the Proposed Project. The 115 kV Bus Reactor would be permitted and built separately by PG&E.

specifically to address multiple overloads on the 230 kV corridor between Contra Costa and Newark substations under N-0, N-1, and N-2 contingency conditions,[2] and to provide additional supply from the 500 kV system into the Bay Area to increase reliability to the area and advance additional renewable generation in the northern area.

In April 2024, 2023-2024 Transmission Plan was approved by CAISO, and it identified the Collinsville 230 kV Reactor Project as a needed near-term policy driven upgrade to the proposed Collinsville-Pittsburg 230 kV transmission lines. The Collinsville 230 kV Reactor Project includes two 20-ohm series reactors per phase, to be located within the proposed LSPGC Collinsville Substation fence line and would be constructed concurrently with the Collinsville 500/230 kV Substation Project. As such, LSPGC included the components associated with the Collinsville 230 kV Reactor Project as part of the Collinsville Substation 500/230 kV Substation Project's PEA. However, because the Collinsville 230 kV Reactor Project is considered a separate project by CAISO (approved in different Transmission Plans) it would be processed through a separate application and proceeding with the CPUC but is included in the CPUC's CEQA analysis for the Proposed Project as it would be located within the footprint of the Collinsville Substation.

The main components of the Proposed Project include the following:

- Constructing a new 500/230 kV substation, herein referred to as the proposed LSPGC Collinsville Substation.
- Constructing two self-supporting segments of new 500 kV conductor and structures roughly parallel along the approximately 1.2-mile interconnection route (or "loop") between the proposed LSPGC Collinsville Substation and Pacific Gas and Electric Company's (PG&E) existing Vaca Dixon-Tesla 500 kV Transmission Line, resulting in the addition of approximately 2.5 miles of new 500 kV transmission lines. PG&E would install and/or modify transposition structures at four locations along PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line.
- Constructing a new approximately 6-mile-long, double-circuit 230 kV transmission line to connect the proposed LSPGC Collinsville Substation to PG&E's existing Pittsburg Substation, with approximately 4.5 miles of submarine cables running beneath the Sacramento-San Joaquin River Delta waterways. The submarine cables would be buried to a depth of approximately 6 to 15 feet below the sediment surface and run between the northern shore of the Sacramento River, traveling generally southwest until reaching a proposed onshore underground utility vault located just south of the southern shore of the Sacramento River near PG&E's existing Pittsburg Substation.

[2] Normal or N-0 conditions refer to when the electric system is functioning normally and is not experiencing outages. N-1 contingency refers to the first contingency, or an outage occurring to a single component (e.g., a transformer or transmission circuit) of the electric system. N-2 contingency refers to when an outage occurs to two components of the electric system (CAISO 2021).

- Extending and connecting PG&E's existing 12 kV Peabody 2107 Circuit distribution line to the proposed LSPGC Collinsville Substation.
- Constructing two new telecommunications paths to the proposed LSPGC Collinsville Substation—a new microwave tower would be constructed and owned by PG&E at the substation and a new fiber optic path consisting of two fiber optic cables for redundancy would be installed between existing fiber in the City of Pittsburg and the proposed substation.
- Modifying PG&E's existing Pittsburg, Vaca Dixon, and Tesla substations to support the proposed substation interconnection. All PG&E substation modifications would occur within the existing substation footprints.
- Installing three new transposition structures and replacing two existing lattice steel poles (LSPs) with one new three-pole dead-end tubular steel pole (TSP) structure along PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line

1.1.1 Proposed Project Location

The Proposed Project facilities would be in portions of Alameda[3], Contra Costa (including the city of Pittsburg), Sacramento, and Solano counties in California.[4] Entirely new facilities are proposed in Solano and Contra Costa counties. Project activities within Alameda County would be limited to modifications of PG&E's existing Tesla Substation. The Proposed Project would occur in primarily unincorporated areas with the exception of project features that occur within and surrounding PG&E's existing Pittsburg Substation within the city of Pittsburg. The locations of the Proposed Project is shown on maps provided in Section 2 and Appendix A.

1.1.2 Current Land Uses

The current land uses around the proposed LSPGC Collinsville Substation site include undeveloped areas (e.g., Suisun Marsh and the Delta), utility operations, residences, wind farms, and agricultural lands. The proposed substation site is also within the Collinsville-Montezuma Hills Wind Resource Area in Solano County, which is an area used primarily for energy facilities and farming. New rights-of-way (ROWs) would be required for all transmission lines, and land rights would be acquired by LSPGC for the proposed Collinsville Substation. PG&E's existing Pittsburg Substation is surrounded by industrial land uses bordered by recreational areas, low- and medium-density residential areas, and commercial land uses.

[3] Modifications to PG&E's existing Tesla Substation in Alameda County would occur within the substation fence line and would not require ground-disturbing activities.

[4] The Proposed Project would cross a portion of the Sacramento River within the Sacramento County boundary. The Proposed Project would not cross parcels in Sacramento County.

1.1.3 LSPGC Project Objectives

The LSPGC Project objectives are as follows:

- Meet CAISO's policy-driven need for the Proposed Project to address a number of identified transmission constraints on the Cayetano-North Dublin 230 kV Line, Lone Tree-USWP-JRW-Cayetano 230 kV Line, and Las Positas-Newark 230 kV Line and provide an additional supply from the 500 kV system into the northern Greater Bay Area.
- Meet the functional specifications set forth by CAISO for the Collinsville 500/230 kV Substation and 230 kV transmission lines located near or adjacent to the existing PG&E Vaca Dixon-Tesla 500 kV Line. Close proximity to the existing PG&E 500 kV transmission line corridor would reduce the length of the 500 kV transmission interconnection lines, thereby reducing the right-of-way (ROW) requirements and the potential for significant environmental impacts.
- Achieve commercial operation by June 2028 in order to address critical reliability issues within the transmission system, such as high voltage under non-peak conditions and voltage that varies significantly on a daily basis.
- Improve and maintain the reliability of the transmission grid by addressing overloads on the Cayetano-North Dublin 230 kV Line, Lone Tree-USWP-JRW-Cayetano 230 kV Line, and Las Positas-Newark 230 kV Line and increase deliverability of renewable power by building and operating a facility that would help keep transmission voltages within specified parameters, reduce transmission losses, increase reactive margin for the system bus, increase transmission capacity, provide a higher transient stability limit, increase damping of minor disturbances, and provide greater voltage control and stability.
- Facilitate deliverability of load from existing and proposed renewable generation projects in the northern Greater Bay Area and corresponding progress toward achieving California's RPS goals in a timely and cost-effective manner by California utilities.
- To the extent practicable, locate the Proposed Project on land that is or has previously been disturbed, is in an existing ROW or adjacent to existing utility uses, or would otherwise minimize environmental impacts in a manner consistent with prudent transmission planning.
- Construct and operate the facility with safety as a top priority.
- Meet the Proposed Project need in a safe, cost-effective manner and consistent with
- LSPGC's cost containment agreement in the Approved Project Sponsor Agreement.
- Comply with and assist CAISO in meeting applicable Reliability Standards and Criteria developed by North American Electric Reliability Corporation, Western Electricity Coordinating Council, and CAISO.
- Design and construct the Proposed Project in conformance with LSPGC's standards, the National Electric Safety Code, and other applicable national and state codes and regulations.

1.1.4 Basic Project Objectives

Project objectives under CEQA are defined in order to allow proper consideration of alternatives to the Proposed Project. Having taken into consideration the detailed objectives above, the CPUC developed basic project objectives in coordination with LSPGC. These objectives are used by the CPUC to define and evaluate a range of reasonable alternatives to the Proposed Project. The evaluation of alternatives in the EIR provides information on whether each alternative could feasibly accomplish most or all of these project objectives. The basic project objectives are as follows:

- Meet the CAISO policy-driven need established for the project in its Transmission Plans by:
  - Relieving stress on the 230 kV line in the Contra Costa region and providing grid support for East Bay area.
  - Reliably and economically supporting increased energy demand in the greater Bay Area
  - Facilitating deliverability of generation and energy storage resources in the Solano area, progressing California's renewable energy goals.
  - Achieving commercial operation by June 2028 consistent with the timeline and policy goals included in the 2021-2022 Transmission Plan and reinforced by the 2024-2025 Transmission Plan[5].

The determination of whether to eliminate or retain alternatives in the EIR considered the alternative's ability to meet the basic project objectives as defined by CPUC.

1.2 Environmental Review Process

1.2.1 CEQA Process and Lead Agency

This EIR has been prepared pursuant to:

- CEQA (Public Resources Code [PRC] § 21000 et seq.);
- Amended Guidelines for Implementation of the California Environmental Quality Act (CEQA Guidelines) (14 California Code of Regulations [CCR] § 15000 et seq.); and
- CPUC CEQA Rule 2.4 on CEQA compliance.

The purpose of CEQA is to ensure informed governmental decisions by identifying ways to avoid or reduce environmental damage through feasible mitigation or project alternatives, and to provide public disclosure (CEQA Guidelines Section 15002 (a)(1)-(4)). CPUC is the lead agency for review of the Proposed Project under CEQA because it has the principal responsibility for determining whether to approve or deny the Proposed Project (i.e., it must decide whether to approve or deny the CPCN). Under CEQA, an EIR is required if substantial

[5] Alternatives that would result in delays, but would otherwise meet project objectives, are determined to meet most project objectives.

evidence supports a fair argument that a project may have a significant impact, even if other substantial evidence indicates that the impact will not be significant. As the Lead Agency, the CPUC determined that an EIR was the appropriate level of environmental review for the Proposed Project.

The CPUC has prepared this EIR for the purpose of examining the direct and indirect environmental impacts associated with the Proposed Project, feasible mitigation measures, and alternatives that would reduce or avoid the Proposed Project's significant effects, prior to making a discretionary decision on the CPCN application. This EIR does not make a recommendation regarding the approval or denial of the project. The CPUC cannot approve a project that will have significant impacts or limit the choice of alternatives or mitigation measures before the CEQA review is complete.

The purpose of the EIR is to:

- Inform both the CPUC's decisionmakers and the public about the environmental effects of the Proposed Project and its alternatives
- Give the public an opportunity to comment on significant environmental issues
- Describe the existing environmental conditions in the vicinity of the Proposed Project
- Identify and analyze each significant effect on the environment resulting from the Proposed Project
- Identify feasible measures to mitigate each significant effect
- Identify potentially feasible alternatives to the Proposed Project that would meet most of its basic objectives while avoiding or reducing its significant environmental effects

1.2.2 Environmental Analysis

This EIR analyzes the potential environmental impacts associated with the Proposed Project and alternatives and identifies mitigation measures that could minimize or prevent those potential environmental impacts. The following environmental resources were considered in evaluating the potential effects of the Proposed Project:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural resources
- Energy
- Geology and Soils
- 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

1.3 Agency Use of this Document

Section 15124(d) of the CEQA Guidelines requires that an EIR contains a statement briefly describing the intended uses of the EIR. The CEQA Guidelines indicate that the EIR should identify the ways in which the Lead Agency and any responsible agencies would use this document in their approval or permitting processes. The following discussion summarizes the roles of the agencies and the intended uses of the EIR.

1.3.1 California Public Utilities Commission Process

Pursuant to Article XII of the Constitution of the State of California, the CPUC is charged with the regulation of investor-owned public utilities, including LSPGC. This EIR describes and analyzes the environmental impacts that would result from implementation of the Proposed Project and explores a range of alternatives that would reduce the Proposed Project's significant adverse impacts. The EIR will be considered by the CPUC, in conjunction with other information developed in the CPUC's formal record, prior to acting on LSPGC's application for a CPCN for construction, operation and maintenance of the Proposed Project. Should the CPUC decide to certify the Final EIR, it must make the findings set forth in CEQA Guidelines Section 15090(a). Namely, the CPUC would have to certify that the EIR:

- Complies with CEQA;
- Reflects the lead agency's independent judgment and analysis; and
- Was presented to the decision-making body, which reviewed and considered the information in the Final EIR before approving the project.

After considering and certifying the EIR, the lead agency may then decide whether to approve the project. If the CPUC approves a project with significant unavoidable environmental impacts, it must adopt a Statement of Overriding Considerations explaining why the project's benefits outweigh its significant environmental impacts, which would be included in the CPUC's decision on the application.

1.3.2 State Trustee and Responsible Agencies

Several other State agencies may rely on the information in this EIR to inform their decisions over issuance of specific permits related to project construction, operation, and maintenance. The California Department of Fish and Wildlife (CDFW), California State Lands Commission (CSLC), San Francisco Bay Conservation and Development Commission (BCDC), Solano County (through delegated authorities under the Suisun Marsh Preservation Act), and State Water Resources Control Board (SWRCB) would issue discretionary permits for the project and would rely on the information in this EIR to support their decision making process.

1.4 Public Review and Comment

1.4.1 Scoping

The scoping process refers to an early and open process undertaken by a lead agency to determine the scope of issues to be addressed and to identify the significant issues related to the Proposed Project. During the scoping process, the public is invited to submit comments on the scope of the analysis for the environmental document to be prepared for the project under CEQA. The scoping process is intended to identify public concerns and define issues that may be controversial. The Proposed Project's Scoping Report is available at the following CPUC webpage:

https://ia.cpuc.ca.gov/environment/info/panoramaenv/collinsville/index.html

Notice of Preparation of an Environmental Impact Report

The CPUC issued an NOP on January 7, 2025, to inform the public and agencies of its intention to prepare an EIR. The NOP also solicited comments on the scope of the EIR during a 30-day scoping period, which began on January 7, 2025, and ended on February 6, 2025.

The CPUC mailed approximately notices to individuals, organizations, elected officials, tribes, and federal, state, and local agencies during scoping. Members of the public residing within 300 feet of the Proposed Project alignment, parties who requested notification, and contacts previously notified by LSPGC, received post cards by mail to indicate the start of the scoping period, methods to provide scoping comments, and a link to the scoping meeting. Twenty-four tribes were contacted between December of 2024 and February of 2025 to invite them to participate in the scoping process. Tribes were contacted first by mail, then by email and sent follow-up emails as necessary. The agencies and tribes that were contacted during the scoping process are documented in the Scoping Report (Appendix B)

Scoping Meeting

In addition to soliciting written scoping comments through public notifications, the CPUC held a public scoping meetings to solicit comments for consideration in determining the scope of the EIR. The scoping meeting was held on January 21, 2025 via Zoom. Scoping period notices, including the date and virtual scoping meeting link, were provided to residents within 300 feet of the project alignment, parties who requested notification, and contacts previously notified by the LSPGC via post card. Other methods of notification included the CPUC project information website at:

https://ia.cpuc.ca.gov/environment/info/panoramaenv/collinsville/index.html

At the scoping meeting, the CPUC described the Proposed Project and the potential environmental impacts that would be addressed in the EIR. The CPUC accepted verbal and written comments, however no attendees provided verbal or written comments during the scoping meeting. Fourteen attendees participated in the scoping meeting.

Scoping Comments

The complete scoping comments as well as a summary of scoping comment topics are provided in Appendix B: Scoping Report. Scoping comments applicable to environmental resource topics are discussed at the beginning of the applicable resource section in Sections 4.1 through 4.20 of this EIR.

1.4.2 Comments on the EIR

The EIR is being circulated to local, State, and federal agencies and to interested individuals who may wish to review and comment on the report. Written comments may be submitted to the CPUC during the 45-day public review period. Written and verbal comments on the EIR will be accepted via regular mail and e-mail and at public meetings. All comments received will be addressed in a Response to Comments document, which, together with this EIR, will constitute the Final EIR for the Proposed Project.

Written comments need to be submitted by U.S. mail, fax, or email to:

California Public Utilities Commission
Attn: Collinsville 500/230 kV Substation Project
c/o Panorama Environnemental, Inc.
717 Market Street, Suite 400, San Francisco, CA 94103
collinsville@panoramaenv.com

An public workshop on the EIR will be held:

November 18, 2025
3:00 p.m. to 5:00 p.m.
Web access: https://us02web.zoom.us/j/84704287366

1.5 Reader's Guide to this EIR

1.5.1 CEQA Process and Lead Agency

This EIR has been organized into the following sections:

- **Acronyms and Abbreviations.** This section follows the Table of Contents.
- **Glossary.** This section follows the Table of Contents.
- **Executive Summary.** Provides a summary description of the Proposed Project, the alternatives, their respective environmental impacts, and the environmentally superior alternative. This section also provides a summary table of the impacts and mitigation measures of the Proposed Project and alternatives.
- **Section 1: Introduction.** Provides an overview of the project background, lists the project objectives, briefly describes the Proposed Project, and outlines the CEQA process and agency use of this EIR.
- **Section 2: Project Description.** Presents an in-depth description of the Proposed Project, including construction details and methods.

- **Section 3: Description of Alternatives.** Provides a summary of the alternatives screening and evaluation process and describes the alternatives selected for analysis in the EIR.
- **Section 4: Environmental Impact Assessment.** Provides an analysis and assessment of impacts and mitigation measures for the Proposed Project and alternatives, including the No Project Alternative. This section contains a discussion of the environmental setting, regulatory environment, and impacts for each environmental issue area (e.g., Air Quality, Biological Resources, etc.) including cumulative impacts. Mitigation measures are identified for significant impacts.
- **Section 5: Other CEQA Considerations.** Provides a discussion of electrical interference, potential energy impacts, growth-inducing effects, significant environmental effect that cannot be avoided, and irreversible environmental changes.
- **Section 6: Comparison of Alternatives.** Provides a discussion of the relative advantages and disadvantages of the Proposed Project and the alternatives evaluated and identifies the CEQA environmentally superior alternative.
- **Section 7: List of Preparers.** Identifies the preparers of the EIR and the public agencies consulted during preparation of the EIR.
- **Section 8: Mitigation Monitoring and Reporting Plan.** Provides a discussion of the CPUC's mitigation monitoring and reporting plan requirements for the project as approved by the CPUC. This section includes LSPGC applicant proposed measures (APMs), PG&E construction measures (CMs), and mitigation measures that must be implemented as part of the Proposed Project, actions required to implement these measures, monitoring requirements, applicable locations, and timing of implementation for each measure.

The following appendices are included with the EIR:

- **Appendix A: Detailed Project Route Maps.** Provides detailed locations of all Proposed Project components on an aerial map base including all access roads, workspaces, and staging yards.
- **Appendix B: Scoping Report.** Provides a summary of scoping completed for the project and comments received from the public and agencies.
- **Appendix C: Alternatives Screening Report.** Provides a screening and evaluation of alternatives to the Proposed Project and identifies the rationale for alternatives that were carried forward in the EIR.
- **Appendix D: Aesthetic Resources Supporting Information.** Provides existing view photographs and visual simulations for selected key observation points considered for visual simulation and analysis of aesthetics impacts in the EIR.
- **Appendix E: Air Quality and Greenhouse Gas Supporting Information.** Includes emissions calculations and assumptions spreadsheets.
- **Appendix F: Biological Resources Supporting Information.** Provides biological reports prepared for the project used to support the impact analysis in the EIR.

- **Appendix G: Cultural Resources Supporting Information.** Provides non-confidential versions of cultural reports prepared for the project used to support the impact analysis in the EIR.
- **Appendix H: Delta Plan Consistency Analysis.** Provides an analysis of Delta Plan measures and the Proposed Project consistency with those measures to support the impact analysis in the EIR.
- **Appendix I: Noise Supporting Information.** Includes noise calculation spreadsheets used to support the impact analysis in the EIR.
- **Appendix J: Native American Heritage Commission Letters.** Provides letters from the Native American Heritage Commission identifying the results of sacred land file searches and the names and contact information of Native American tribes traditionally and culturally affiliated with the Proposed Project area.

2 Project Description

2.1 Overview

This section describes the Proposed Project facilities and activities in detail, including the existing and proposed transmission system and project components that would be installed or modified as well as construction, operation and maintenance, and decommissioning procedures. In addition, this section also identifies anticipated permits and approvals that would be required to implement the project as well as measures intended to address potential environmental impacts that are incorporated into the Proposed Project, including LSPGC *applicant proposed measures* (APMs) and PG&E *construction measures* (CMs).

As discussed in Section 1: Introduction, LSPGC's Proposed Project would require PG&E to modify and extend their existing facilities to establish the interconnection of LSPGC's proposed facilities. Therefore, all of PG&E's activities associated with the interconnection of LSPGC's proposed facilities are described in detail in the Project Description, and the potential environmental impacts are evaluated consistently in the EIR. The information presented in this Project Description was developed based on LSPGC's PEA and application materials as well as through direct coordination with PG&E.

The Proposed Project is divided into segments that represent distinct components and/or geographic areas within which either LSPGC or PG&E would construct, own, and operate said components, and the discussion and analysis in the EIR are organized by these components. These components which are discussed in detail in Section 2.3 comprise the following:

- LSPGC Collinsville 500/230 kV Substation (Collinsville Substation)
- LSPGC Collinsville-Pittsburg 230 kV Transmission Line (comprising an overhead segment, submarine segment, and underground segment)
- LSPGC telecommunication interconnection lines[1]
- PG&E 500 kV interconnection lines
- PG&E 500 kV transposition sites
- PG&E 12 kV distribution line
- PG&E telecommunication yard (immediately adjacent to the LSPGC Collinsville Substation)

[1] The Proposed Project would include multiple telecommunications paths and equipment. Telecommunications equipment that would be collocated are described with the primary project components. The LSPGC telecommunication lines interconnection is discussed separately because it would not be collocated with other project components.

- Modification of PG&E substations (Pittsburg Substation, Vaca Dixon Substation, and Tesla Substation)

The Proposed Project components, including the existing PG&E facilities that would be modified, are identified in Figure 2-1. The proposed new alignments are shown in greater detail in Figure 2-2 and Appendix A: Detailed Route Maps.

2.2 Existing and Proposed Transmission System

2.2.1 Existing Transmission System

The Proposed Project is located within an existing regional transmission system that provides electricity to the greater Bay Area. The existing transmission system in the Proposed Project area includes, but is not limited to, the following components owned and operated by PG&E:

- Vaca Dixon 500/230 kV Substation (Vaca Dixon Substation)
- Pittsburg 230/115 kV Substation (Pittsburg Substation)
- Tesla 500/230 kV Substation (Tesla Substation)
- Vaca Dixon-Tesla 500 kV Transmission Line[2]

A schematic diagram of these existing system transmission system components is provided in Figure 2-3. LSPGC does not have any existing facilities in the Proposed Project area.

2.2.2 Proposed Transmission System

The Proposed Project would improve reliability and advance the supply of additional generation to the existing 500 kV system and address transmission limitations identified by CAISO in the base portfolio components—the Cayetano-North Dublin 230 kV Transmission Line, Lone Tree-USWP-JRW-Cayetano 230 kV Transmission Line, and Las Positas-Newark 230 kV Transmission Line—by providing an additional supply path to the greater Bay Area. As part of the Proposed Project, two new single-circuit 500 kV transmission lines to be constructed and operated by PG&E would be extended to interconnect PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line to the proposed LSPGC Collinsville Substation (i.e., the PG&E 500 kV interconnection lines). Additionally, the proposed double-circuit LSPGC Collinsville-Pittsburg 230 kV Transmission Line would connect the proposed LSPGC Collinsville Substation to PG&E's existing Pittsburg Substation. These facilities would create a loop for reliability. A schematic diagram of the proposed system line is provided in Figure 2-4.

The proposed LSPGC Collinsville Substation would be rated at 4,000 *ampere* (A). The proposed LSPGC Collinsville-Pittsburg 230 kV Transmission Line would be rated at 1,740 A during normal conditions and 3,278 A under long-term emergency conditions (i.e., 4 hours or longer).

[2] This line is a part of California's high-voltage alternating current (AC) transmission network, facilitating bulk power transfer from the northern part of the state to load centers in the Bay Area and Central California.

Figure 2-1 Proposed Project Overview

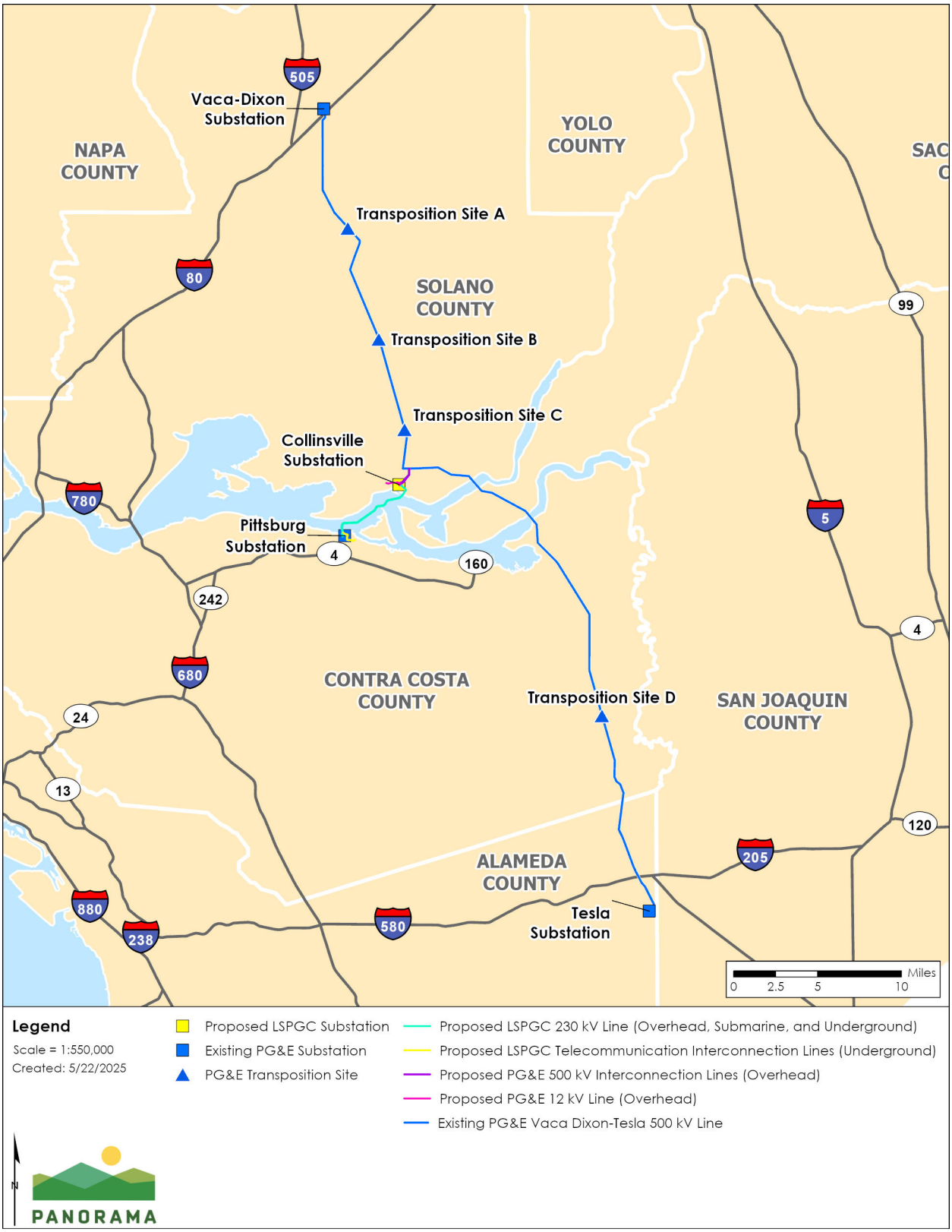


Figure 2-2 Proposed Project Alignments

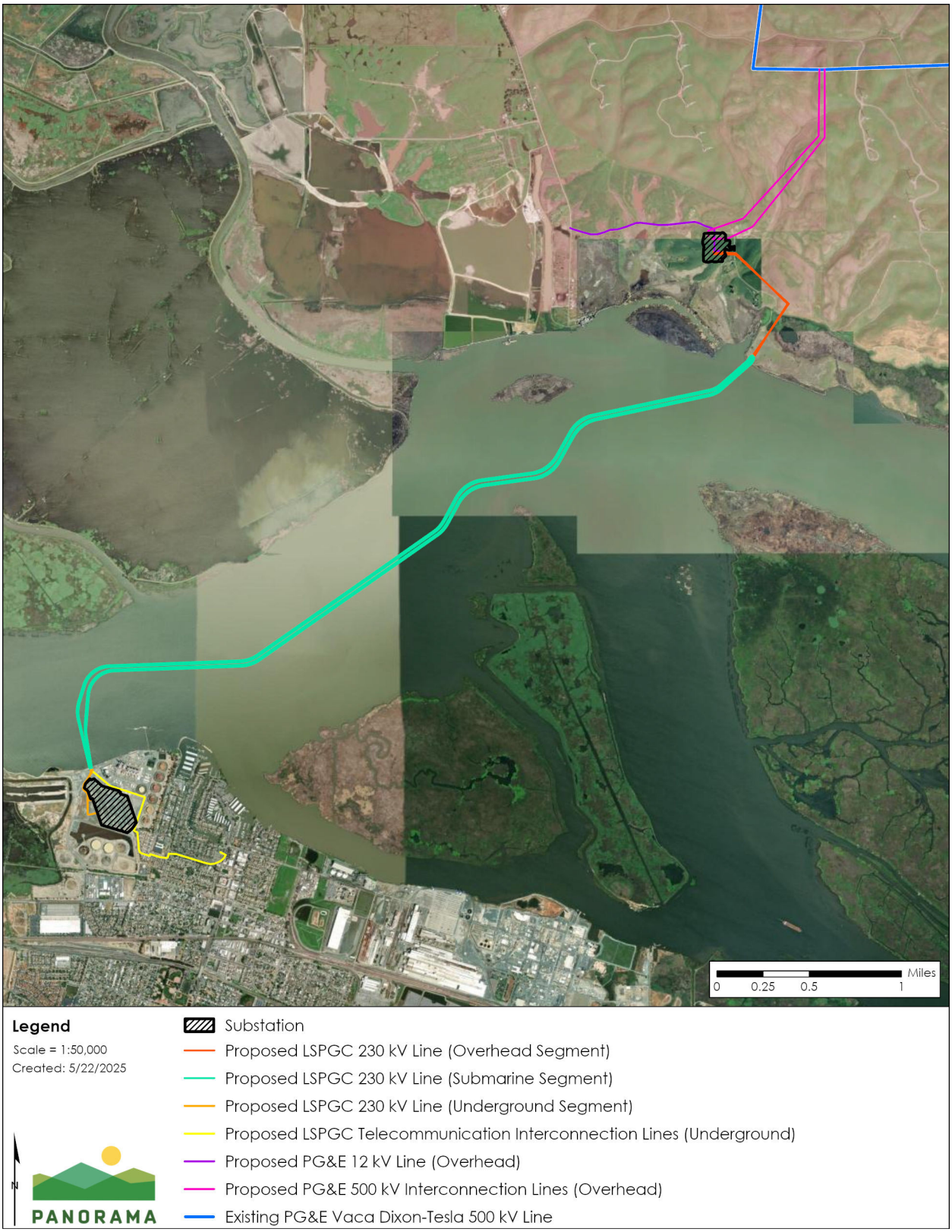


Figure 2-3 Existing System Line Diagram

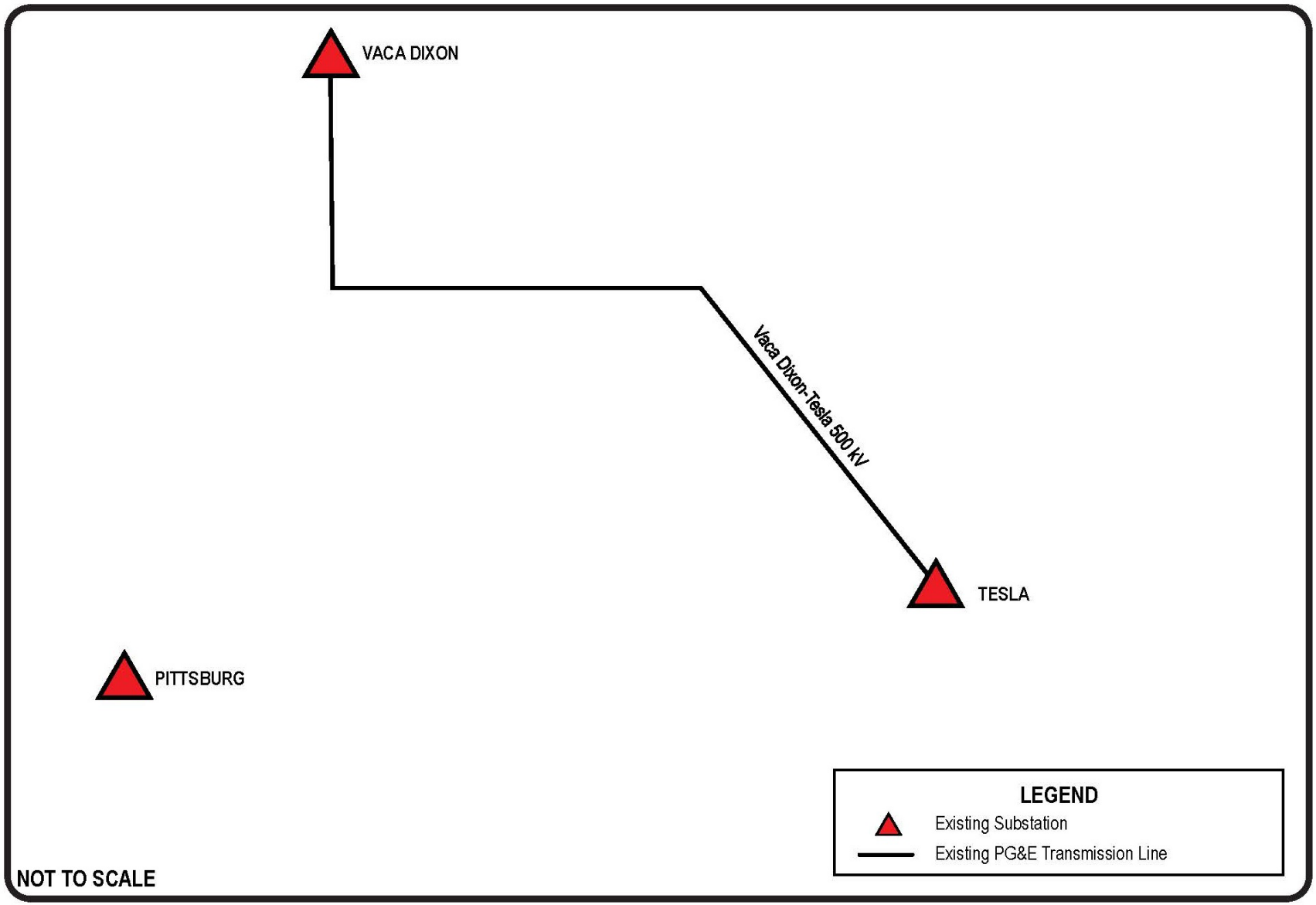
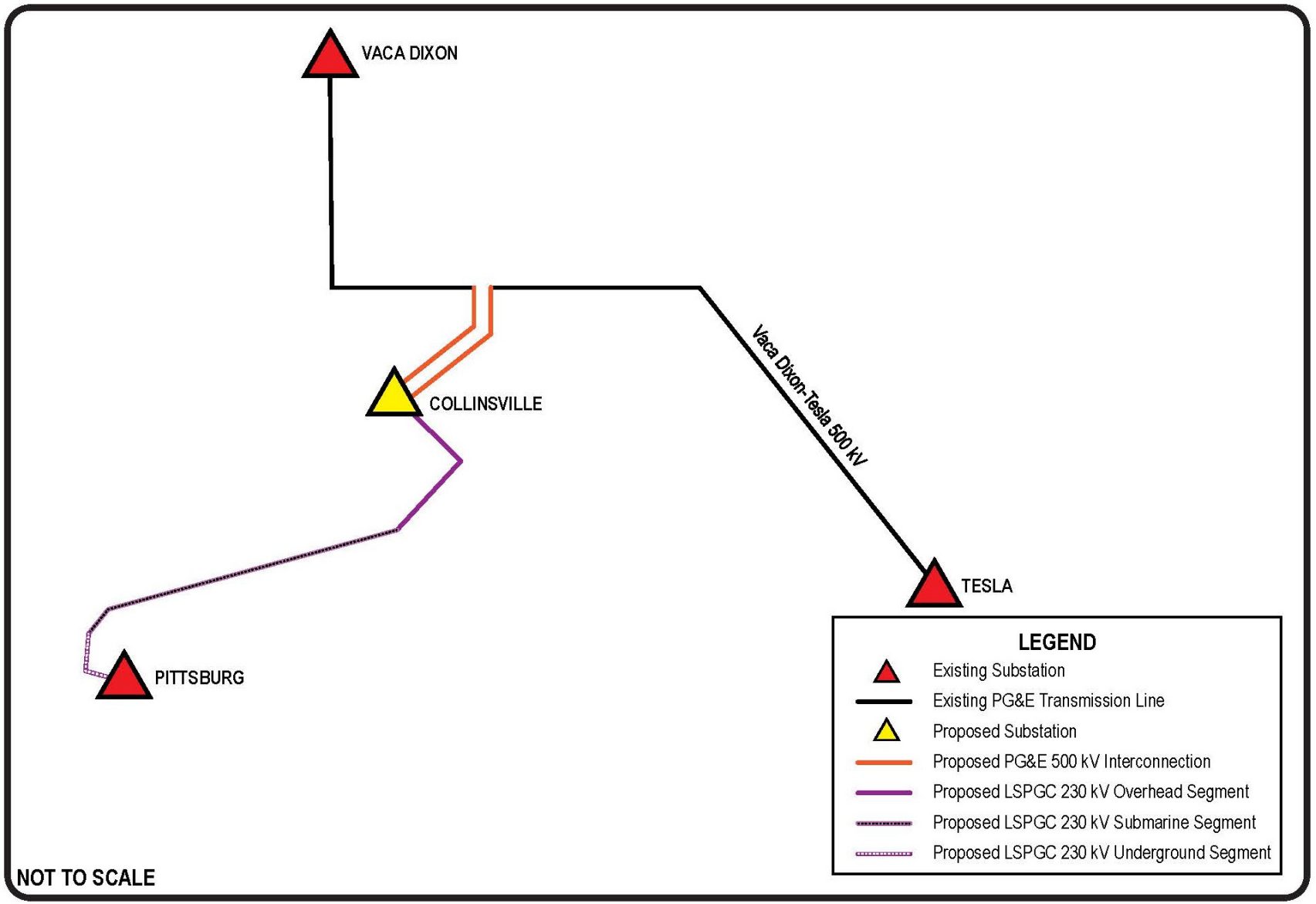


Figure 2-4 Proposed System Line Diagram



The PG&E 500 kV interconnection lines' expected minimum line capacity would be 2,100 A under normal conditions and 3,500 A under longer term emergency conditions. While the Proposed Project is expected to increase the transmission capability and reliability of the surrounding system, it is not expected to increase the capacity of the existing facilities.

The same customers would be served by the proposed system as the existing system.

2.3 Project Components

This section describes the LSPGC and PG&E Proposed Project components. According to LSPGC and PG&E, the information presented is based on approximately 60 percent completion of the engineering design for each party's components. This being the case, the information in this section is based on preliminary engineering designs and is subject to change based on additional and/or final engineering designs; further studies to be performed by PG&E; regulatory requirements; conditions on the ground; and/or ongoing coordination discussions among LSPGC, PG&E, CPUC, and CAISO.

All project components would be designed and maintained to comply with applicable state and federal regulations, including but not limited to CPUC GO 95 and GO 128. GO 95 sets forth comprehensive rules for the design, construction, maintenance, and inspection of overhead electric supply and communication lines, and specifies requirements for clearances, strength, and other technical standards. GO 128 provides rules for the design, construction, and maintenance of underground electric supply and communication systems.

2.3.1 LSPGC Project Components

LSPGC Collinsville Substation (Initial Buildout)

The initial buildout of the proposed LSPGC Collinsville Substation would be a *breaker-and-a-half* (BAAH) configuration with two 500/230 kV transformer banks, two 230 kV bays with six circuit breakers, and two 500 kV bays with six circuit breakers. The ultimate configuration, per the CAISO specifications for future buildout, includes adding two 500 kV bays with six circuit breakers and three 230 kV bays with nine circuit breakers. Each 500/230 kV transformer bank would consist of three single-phase 500 *megavolt-ampere* (MVA) transformers, providing 1,500 MVA. A 3,000 A, 16.1-ohm series capacitor would be installed at the proposed LSPGC Collinsville Substation, on PG&E's existing Vaca Dixon-Telsa 500 kV transmission line. The proposed LSPGC Collinsville Substation would contain 500 kV *gas-insulated switchgear* (GIS), 230 kV GIS, and associated facilities, occupying an approximately 11-acre fenced area within an approximately 12.7-acre substation footprint. Additional activities on the site, including the use of a staging area, would require grading and temporary disturbance (refer to Table 2-8).

The proposed LSPGC Collinsville Substation[3] would include the following components:

- Lightning shielding masts
- 500 kV GIS with six 500 kV *sulfur hexafluoride* (SF_6) gas-insulated circuit breakers and associated disconnect switches, current transformers, and voltage transformers
- One 500 kV series capacitor
- 500 kV surge arresters
- 500 kV SF_6 gas-insulated bus
- 230 kV GIS with six 230 kV SF_6 gas-insulated circuit breakers and associated disconnect switches, current transformers, and voltage transformers
- 230 kV surge arresters
- 230 kV group-operated disconnect switches
- 230kV potential transformers
- 230 kV station service transformers
- 230 kV SF_6 gas-insulated bus
- Two 230 kV 20-ohm series reactors
- Seven single-phase step-down mineral oil-immersed type autotransformers:
  - Nominal (L-L) voltage: 525 kV to 235 kV
  - Operating (L-L) voltage: 525 kV to 235 kV
  - 300/375/500 MVA (per phase)
- *Optical ground wire* (OPGW) fiber cables for the 230 kV telecommunications line
- A *supervisory control and data acquisition* (SCADA) system consisting of fully redundant servers, power supplies, and ethernet *local area network* (LAN) and *wide area network* (WAN) connections, routers, firewalls, and switches
- Two dead ends for the 500 kV transmission lines
- Two dead ends for the 230 kV transmission line
- *Heating, ventilation, and air conditioning* (HVAC) equipment

The substation would also include four enclosures, as summarized in Table 2-1. Personnel would be able to enter the GIS and control enclosures for construction and maintenance purposes. All substation control enclosures would be painted a non-reflective, American National Standards Institute 70 light grey or similar neutral tone. All other substation components, including the substation security fencing, would have a non-reflective finish to the extent that such components are commercially available.

[3] LSPGC would acquire the sulfur hexafluoride (SF_6) insulated equipment prior to the phase-out dates listed in Tables 1 and 2 in Title 17, section 95352 of the California Code of Regulations (CCR). The earliest phase-out date that would apply to the proposed LSPGC Collinsville Substation would be January 1, 2027. As noted in Table 2-10, Proposed Construction Schedule, construction of the Proposed Project would commence in May 2026, before the earliest potentially applicable phase-out date.

Table 2-1 Collinsville Substation Enclosure Summary

Enclosure	Approximate Dimensions	Construction method	Location
500 kV GIS enclosure	110 feet long by 46 feet wide by 37 feet high	Constructed on site	North of the transformers in the substation yard
500 kV control enclosure	45 feet long by 46 feet wide by 10 feet high	Constructed on site	Adjacent to the 500 kV GIS Enclosure
230 kV GIS enclosure	90 feet long by 40 feet wide by 37 feet high	Constructed on site	South of the transformers in the substation yard
230 kV control enclosure	40 feet long by 40 feet wide by 10 feet high	Constructed on site	Adjacent to the 230 kV GIS enclosure

Source: (LS Power Grid California, LLC 2025)

All major terminal equipment (e.g., power transformers, series capacitors, GIS enclosures) would be installed on concrete foundations. Each transformer would have an oil-containment system consisting of an impervious, lined, and open or stone-filled sump area around the transformer. The maximum amount of oil required for the transformers would be approximately 28,000 gallons for each of the seven single-phase transformers. Transformer oil containment basins would be designed to contain the oil volume of the transformers plus inundation from a 25-year, 24-hour storm event. The oil-containment basins would include a sump pump system with the ability to remove water from the basins and separate it from any spilled oil, allowing the basins to be drained in a manner similar to that of other water drainage on the substation site. The oil-containment basins would be approximately 55 feet long, 35 feet wide, and 6 feet deep, with a sump pit measuring approximately 2 feet long, 2 feet wide, and 6 feet deep. The proposed Collinsville Substation would also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. Secondary containment would be constructed around and under the battery racks.

The tallest structure within the proposed LSPGC Collinsville Substation would be approximately 90 feet tall. The general arrangement of the substation is shown in Figure 2-5. The preliminary substation grading plan and detention basin is shown in Figure 2-6. Figure 2-7 provides a substation profile diagram and the approximate heights of various equipment.

A shared driveway would be installed connecting to Stratton Lane east of the substation site, providing LSPGC with access to the substation and separate PG&E access to the telecommunication yard, as discussed in Section 2.3.2. The access gates for the substation and telecommunication yard would open approximately 24 feet wide. The substation security fencing would be a Valmont SafeFence (or similar) constructed of fiber-reinforce polymer with a

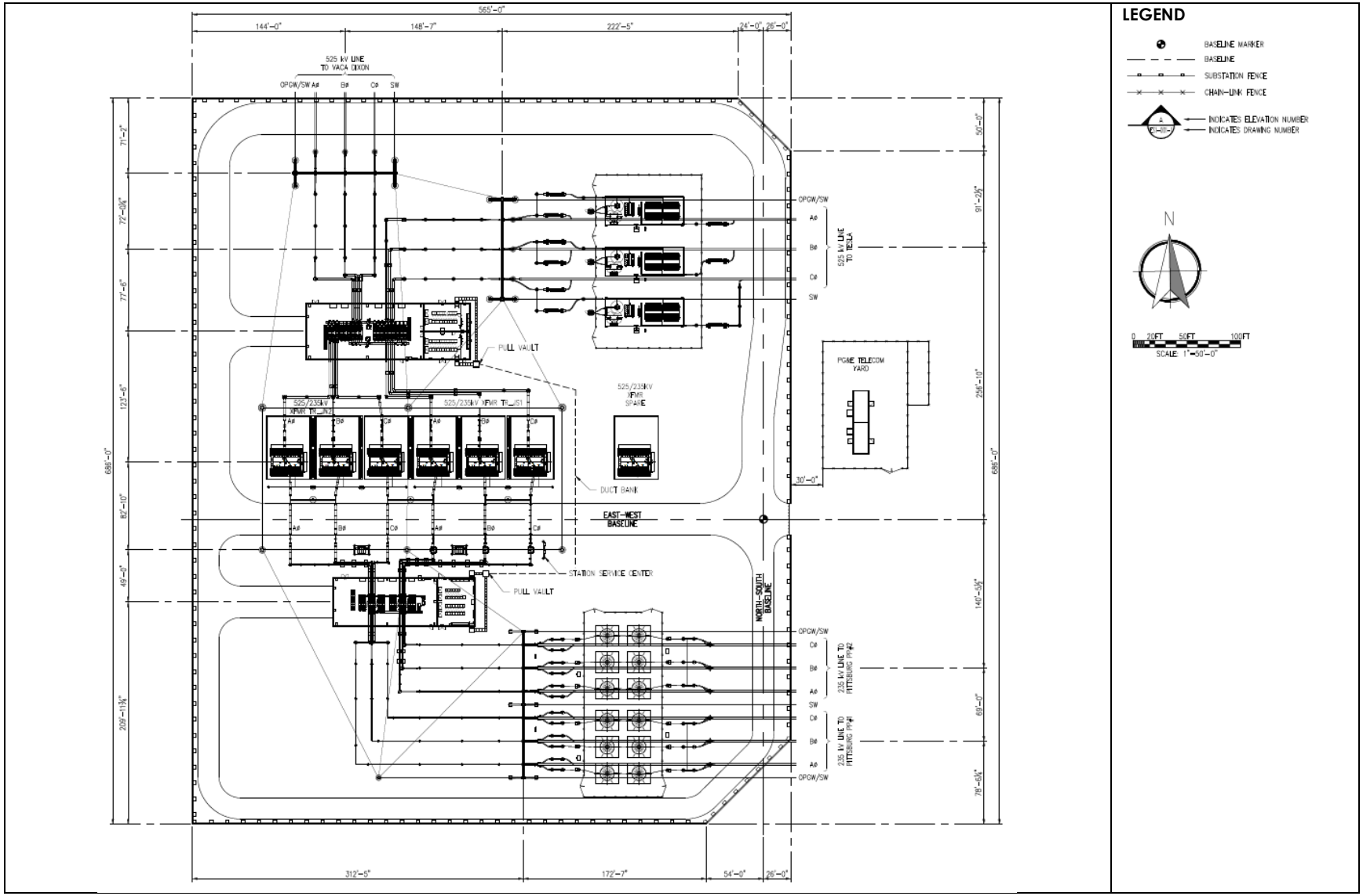
non-reflective finish and neutral earth-tone colors,[4] to the extent materials are commercially available. The access gates would be constructed with a non-reflective dulled grey galvanized steel to the extent materials are commercially available.

The perimeter of the proposed LSPGC Collinsville Substation would have a physical security system that would consist of a prefabricated interlocking security wall that would be 10 feet tall with an additional 1-foot barbed-wire extension at the top. As required by 29 CFR 1910.303(e) (part of OSHA's General Industry Electrical Standards) caution signage must be posted at substations (as well as mental-enclosed switchgear, transformers, pull boxes and connection boxes) to notify the public of potential electrical dangers. The proposed LSPGC Collinsville Substation physical security would be designed in accordance with NERC CIP requirements with 24-hour monitoring, response, and control through the LSPGC control center and staff. The perimeter security wall would have one gate integrated with electronic access card readers. The proposed LSPGC Collinsville Substation design would include indoor and outdoor physical security cameras placed throughout the site. The security cameras would be routed through a network video recorder located in the WAN control panel and communicated to the LSPGC control center for monitoring.

Lighting would be installed and would conform to the NESC requirements and other applicable outdoor lighting codes. The facility would not require 24-hour illumination. Motion detection photocell lighting would be used to provide safety lighting at a level sufficient for safe entry and exit of the substation and control equipment enclosure. Additional manually controlled lights would be provided to ensure a safe working environment. Lighting would be shielded and pointed downward to minimize glare onto surrounding habitat.

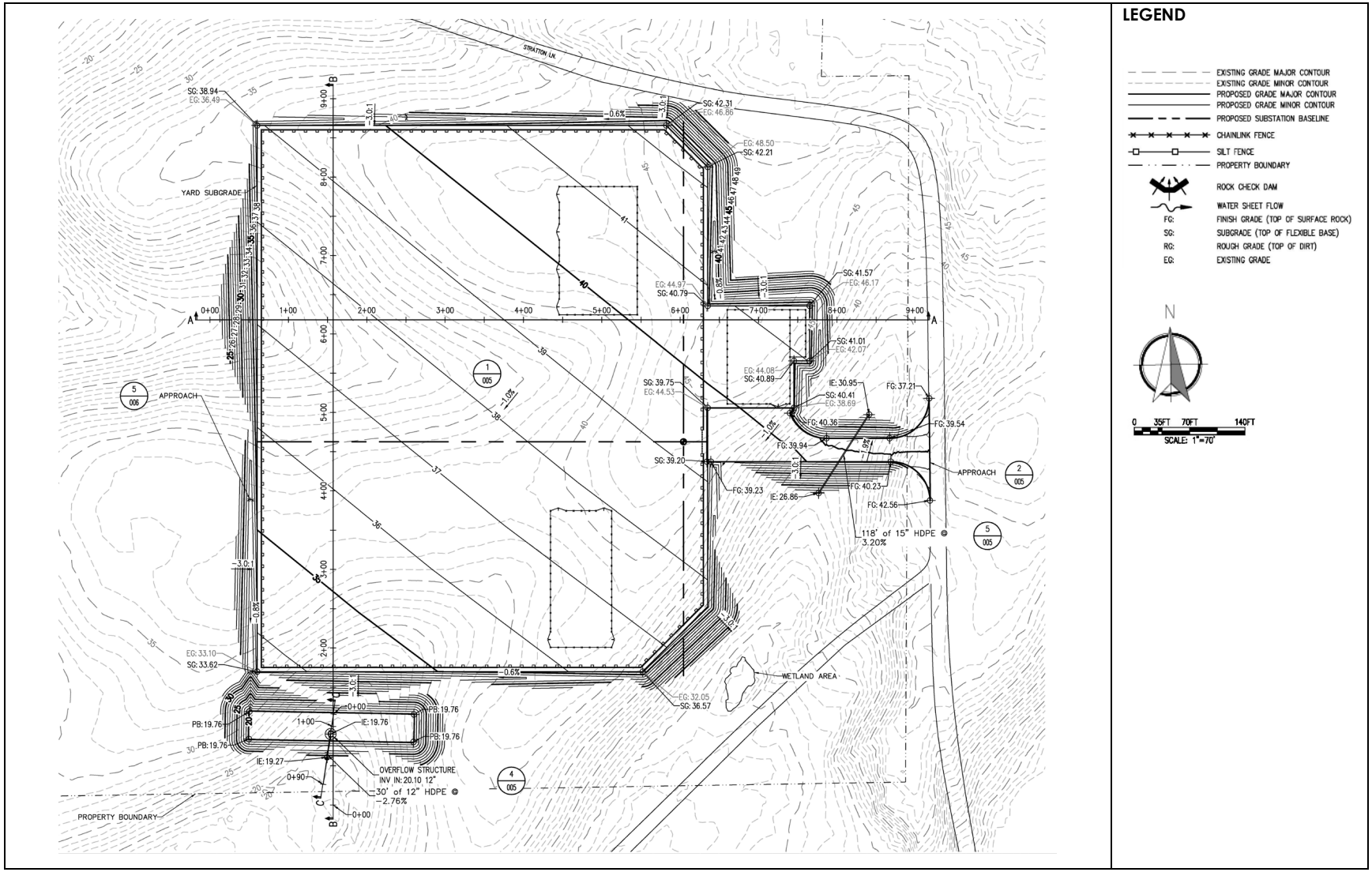
[4] The anticipated manufacture color of the substation security fence is Brown SW9092, which was selected in coordination with LSPGC's visual specialist to best reduce visual contrast between the substation and the natural surroundings.

Figure 2-5 Proposed LSPGC Collinsville Substation General Arrangement



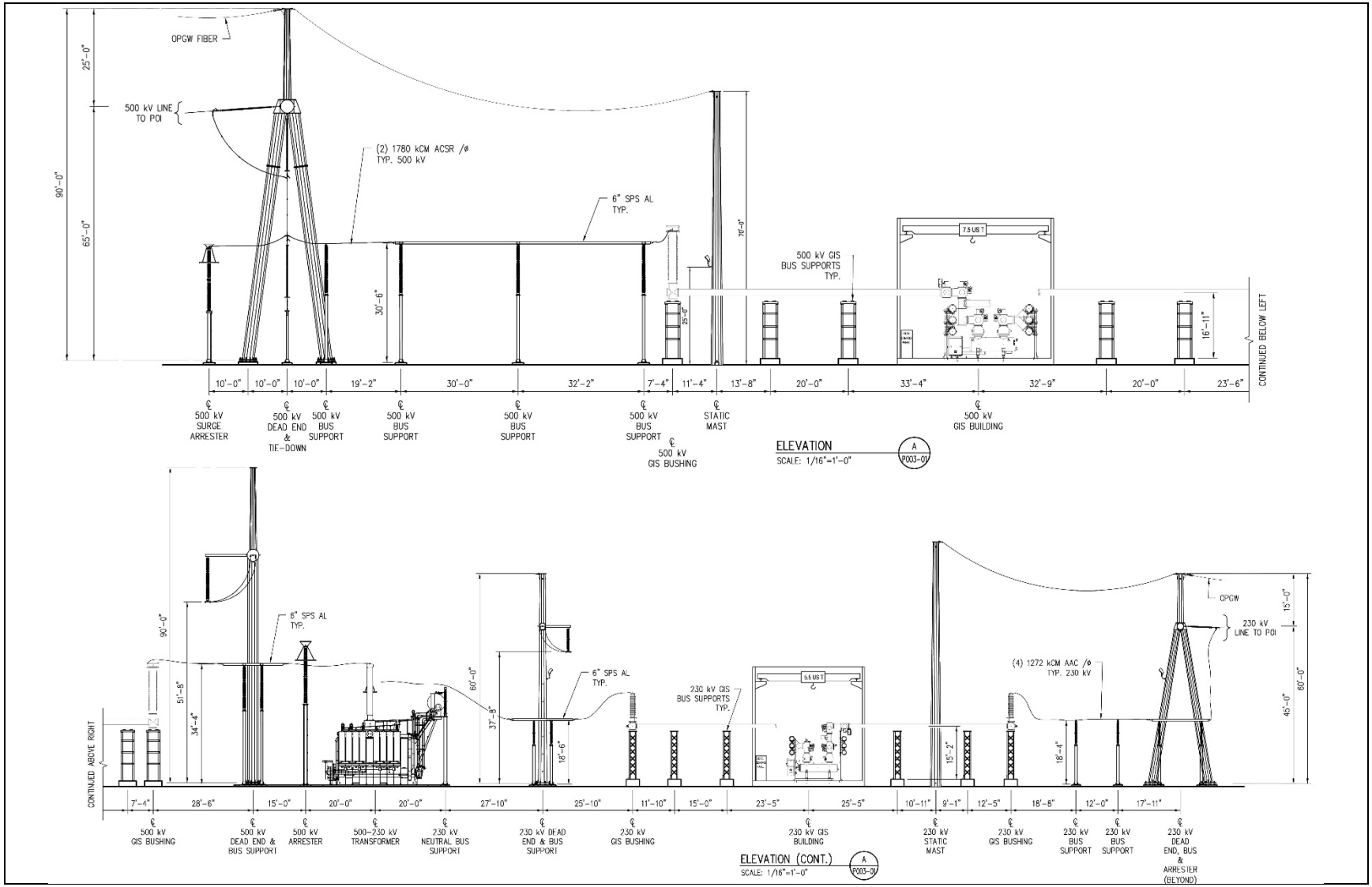
Source: (LS Power Grid California, LLC 2025)

Figure 2-6 Proposed LSPGC Collinsville Substation Preliminary Grading Plan



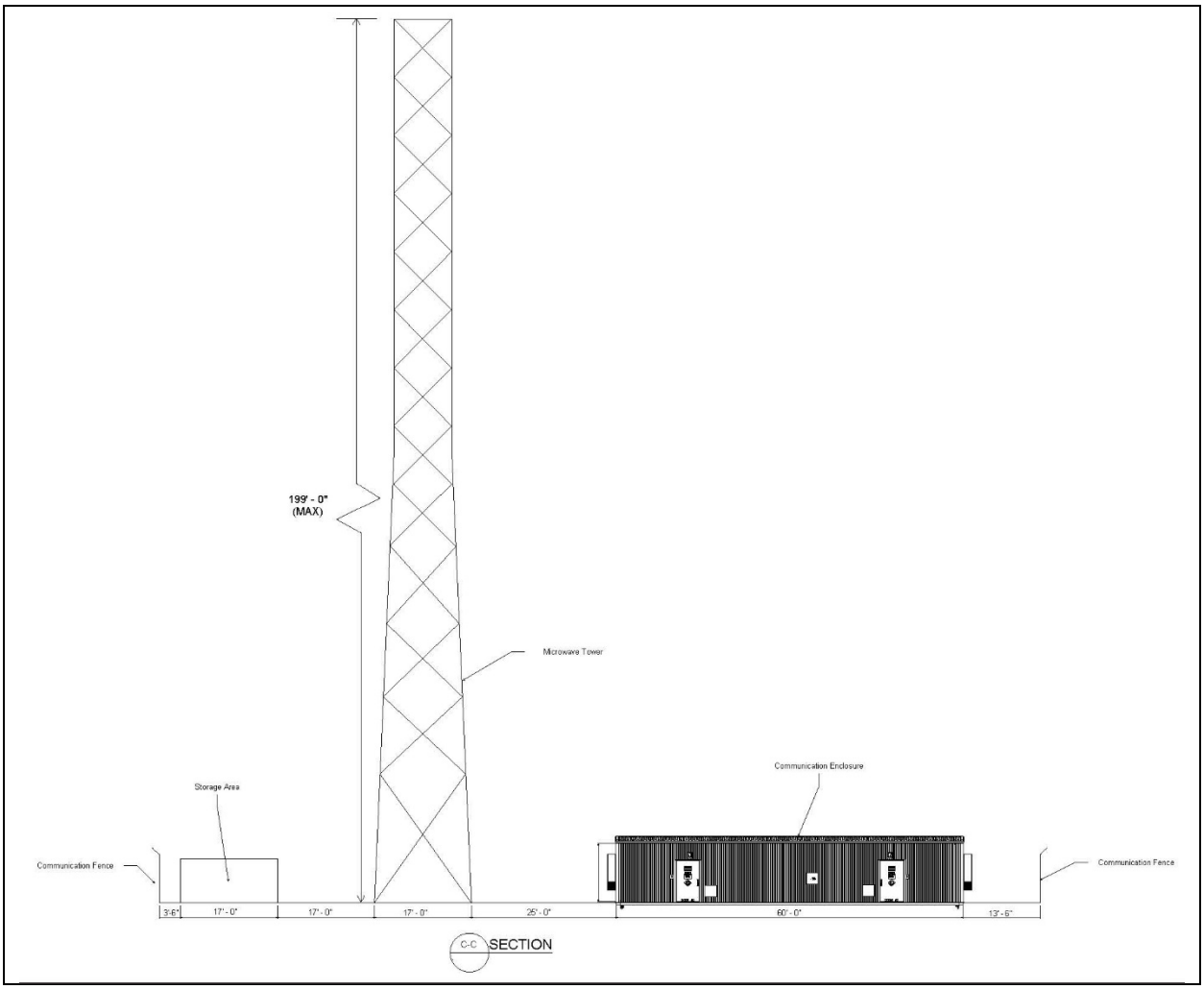
Source: (LS Power Grid California, LLC 2025)

Figure 2-7 Proposed LSPGC Collinsville Substation Profile Diagram



Source: (LS Power Grid California, LLC 2025)

Figure 2-8 Proposed PG&E Telecommunication Yard Profile Diagram



Source: (LS Power Grid California, LLC 2025)

The proposed LSPGC Collinsville Substation would be primarily powered by station service transformers located within the facility that would step down the voltage from the low-voltage (230 kV) side of the station power transformers. An overhead (12 kV) electric distribution line would be installed extending from an existing PG&E distribution line to provide backup power for the substation (refer to Section 2.3.2). The proposed LSPGC Collinsville Substation would also be equipped with lead-acid batteries to provide backup power for monitoring, alarm, protective relaying, instrumentation and control, and emergency lighting during power outages. A manual disconnect switch allowing for a mobile generator to be connected would be installed for the control enclosures. This mobile generator backup would only be used in a catastrophic emergency where both transmission and distribution power fail. The mobile generator would not be stored on site and would be rented or obtained, as needed, during emergency scenarios. The on-site auxiliary equipment (e.g., control room HVAC, communication equipment, and lighting) would be the primary draw of operational electricity.

It is assumed that the on-site demand for the site would be 44 kilowatts (kW), resulting in an annual demand of approximately 385,4000 kilowatt-hours.[5]

The proposed substation site would require permanent land rights to be acquired by LSPGC, which include approximately 28.3 acres of a 61.05-acre parcel (Parcel ID: 0090-12-0300). The substation site would include permanent substation features, a driveway, the PG&E telecommunication yard, and temporary workspaces.

While LSPGC is not currently planning future modifications to the Proposed Project components described under the initial buildout, the substation parcel includes sufficient space to accommodate future expansion of the substation, if needed. Any future modification of the proposed Collinsville Substation would be determined by CAISO planning or as needed by interconnection agreements and would be subject to separate CPUC review in accordance with GO 131.

LSPGC Collinsville-Pittsburg 230 kV Transmission Line

The proposed double-circuit LSPGC Collinsville-Pittsburg 230 kV Transmission Line would be approximately 5.8 miles long and constructed between the proposed LSPGC Collinsville Substation and PG&E's existing Pittsburg Substation. The transmission line would consist of the following three subsegments, which are described in detail in the following sections:

- **Overhead segment:** This segment would be constructed on *tubular steel pole* (TSP) structures for approximately 1.0 mile between the proposed LSPGC Collinsville Substation and the proposed overhead riser structures located near the northern shore of the Sacramento-San Joaquin River Delta (Delta).
- **Submarine segment:** This segment would be directly buried in the riverbed for approximately 4.5 miles, starting at the previously described overhead riser structures located near the northern shore of the Delta, and would travel generally southwest until reaching a proposed onshore underground utility vault located just south of the southern shore of the Delta near PG&E's existing Pittsburg Substation.
- **Underground segment:** This segment would be installed within two proposed underground duct banks. Each would be approximately 0.3-mile-long between the previously described onshore underground utility vault until reaching proposed riser structures located adjacent to PG&E's existing Pittsburg Substation.

No future expansion and/or extension is planned for the proposed LSPGC Collinsville-Pittsburg 230 kV Transmission Line.

LSPGC 230 kV Overhead Segment

The approximately 1.0-mile-long overhead segment of the LSGPC 230 kV transmission line would connect the proposed LSPGC Collinsville Substation to the submarine segment. The

[5] On-site electrical demand was determined by estimating the HVAC equipment requirements for each GIS enclosure. This equipment is assumed to be the primary load during operation.

overhead segment would be constructed on approximately eight new TSP structures, including six pier-mounted or direct embedded TSP structures and two pier-mounted TSP overhead riser structures. At the overhead riser structures, the line would transition the overhead conductors to submarine cables. The typical dimensions for each structure are listed in Table 2-2. Drawings illustrating TSP structure and riser structure designs typical of those to be installed are provided as Figure 2-9 and Figure 2-10.

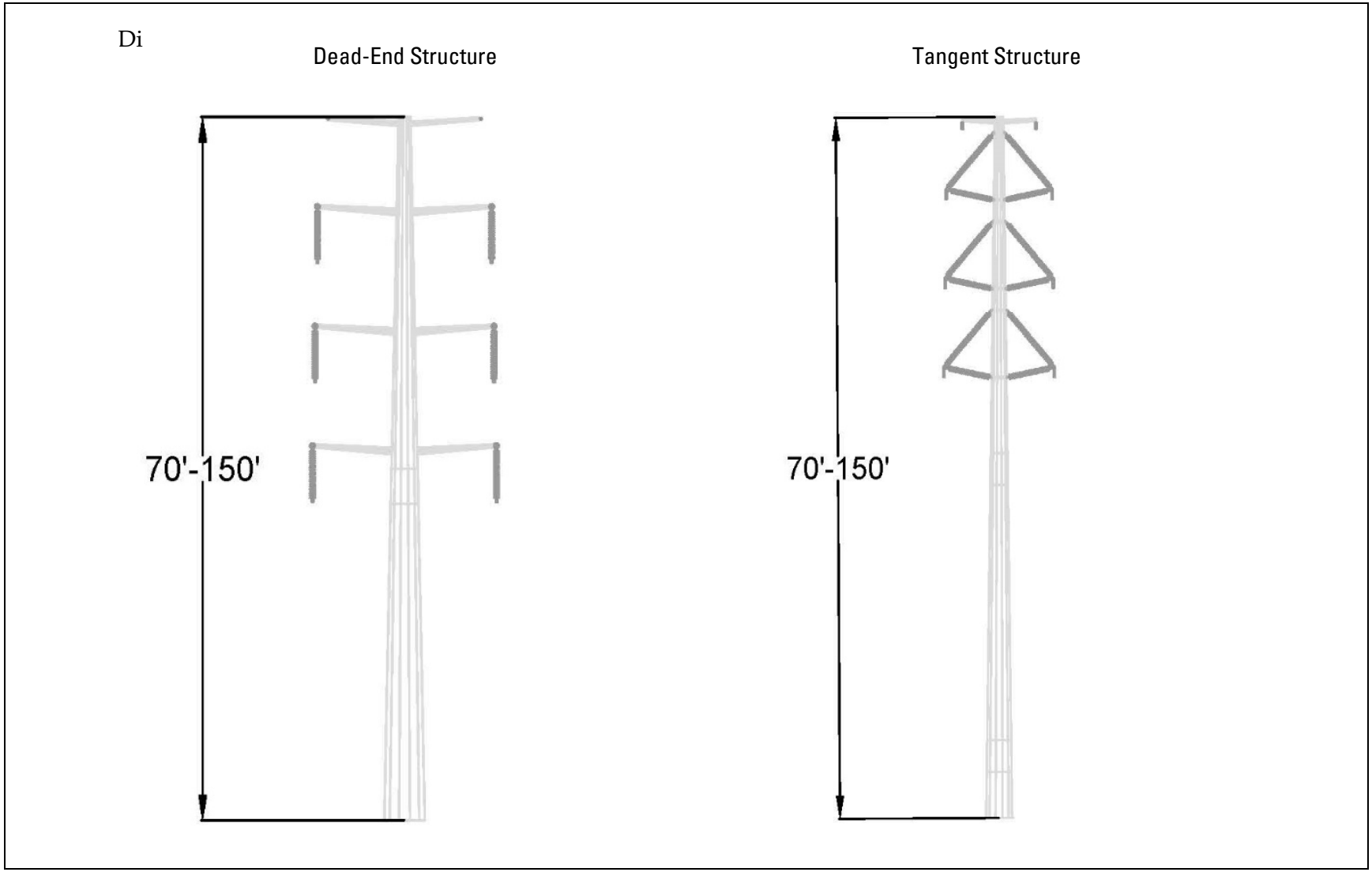
Approximately two TSP structures would have a vertical double-circuit orientation. The two deadend structures and the overhead riser structures would each utilize a vertical single-circuit configuration. In locations where the line angle is relatively straight, the proposed TSPs would be directly buried, with the bottom of each pole supported by approximately 6 inches of gravel at the base of the hole and then backfilled with concrete. Where the line angle changes or additional support is required, the proposed TSPs would be mounted on drilled pier foundations, typically between 15 and 50 feet deep. The overhead riser structures would be mounted on drilled pier foundations approximately 55 feet deep.

The structures associated with this segment would have a non-reflective finish and would be a neutral gray color to the extent that equipment and components with non-reflective finish are commercially available. Construction activities associated with the overhead transmission structures and conductors are described in Section 2.5.3.

Preliminarily, it is anticipated that *aluminum-conductor steel-supported* (ACSS) conductors, with a cross-sectional area of 1351.5 *kilo circular mils* (kcmil) configured in trapezoidal-shaped strands (i.e., ACSS/TW "Martin"), would be installed on the structures. It is anticipated that the conductors would have a typical horizontal spacing of 18 inches per phase.[6] The minimum line to ground clearance would be 33 feet.

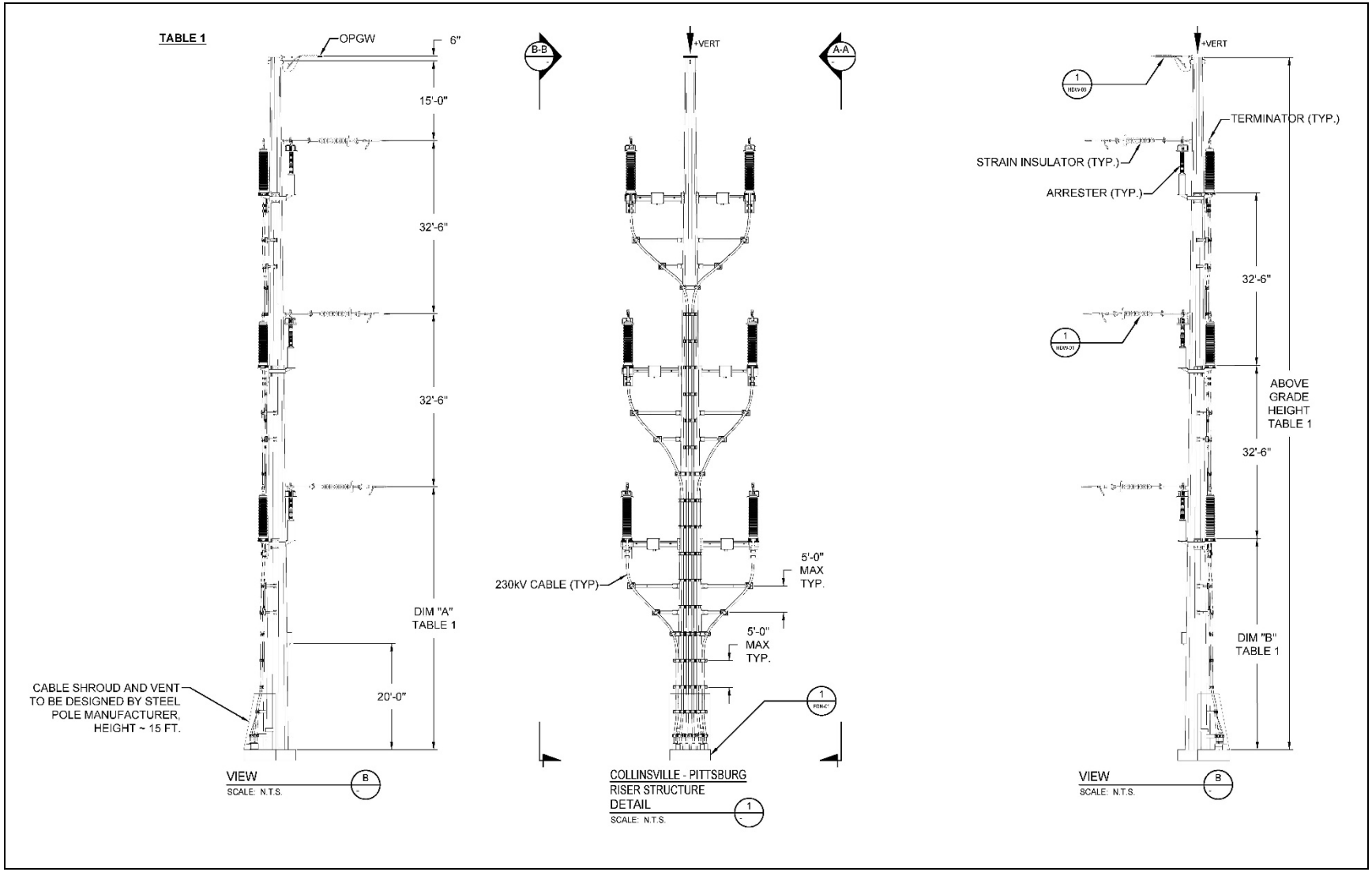
[6] kcmil (1,000 circular mils [cmils]) is a quantity of measure for the size of a conductor; kcmil wire size is the equivalent cross-sectional area in thousands of cmils. A cmil is the area of a circle with a 0.001-inch diameter.

Figure 2-9 Diagram of Typical Tubular Steel Poles for the LSGPC 230 kV Overhead Segment



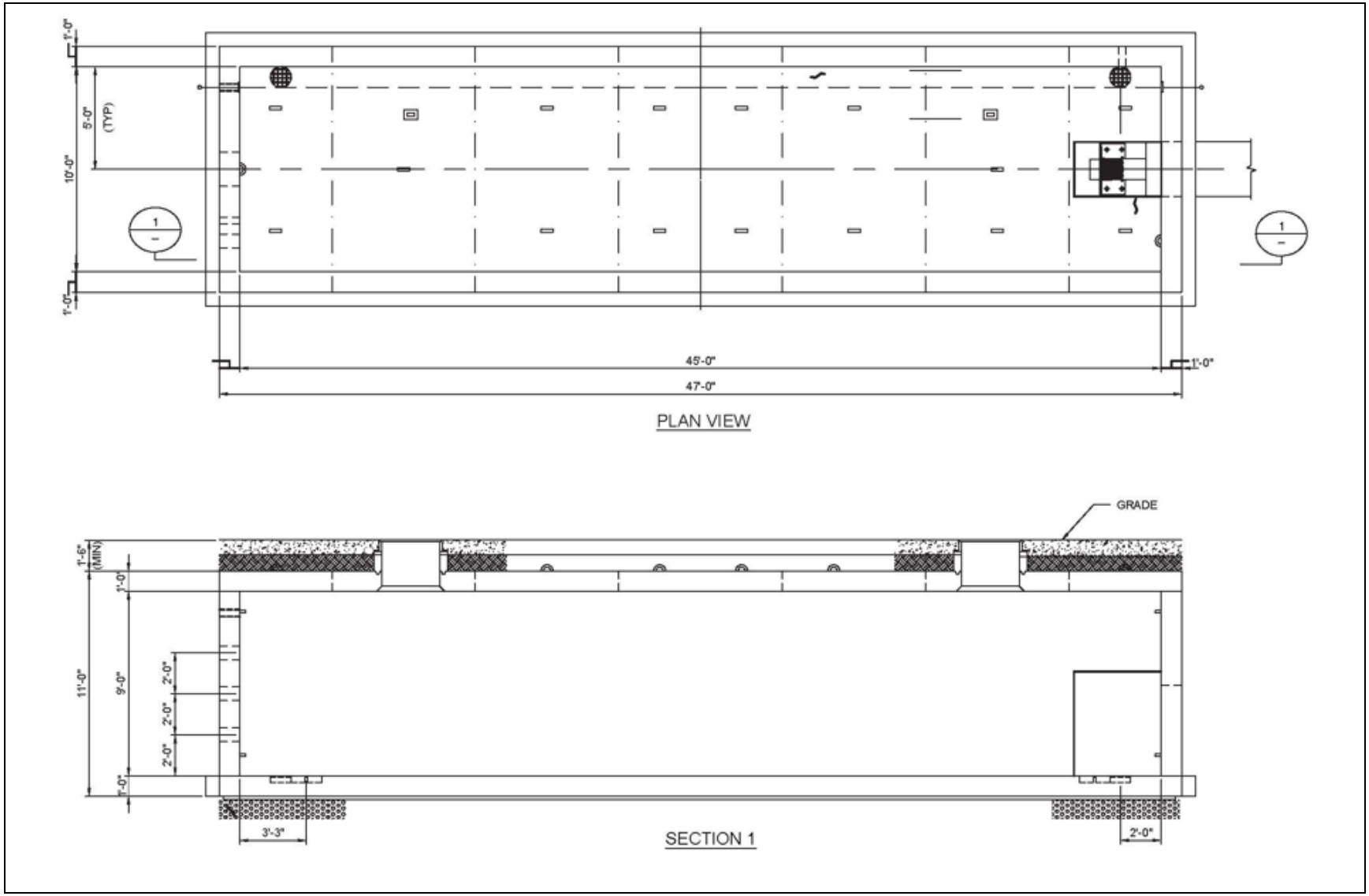
Source: (LS Power Grid California, LLC 2025)

Figure 2-10 Diagram of Typical Riser Structures for the LSGPC 230 kV Overhead Segment



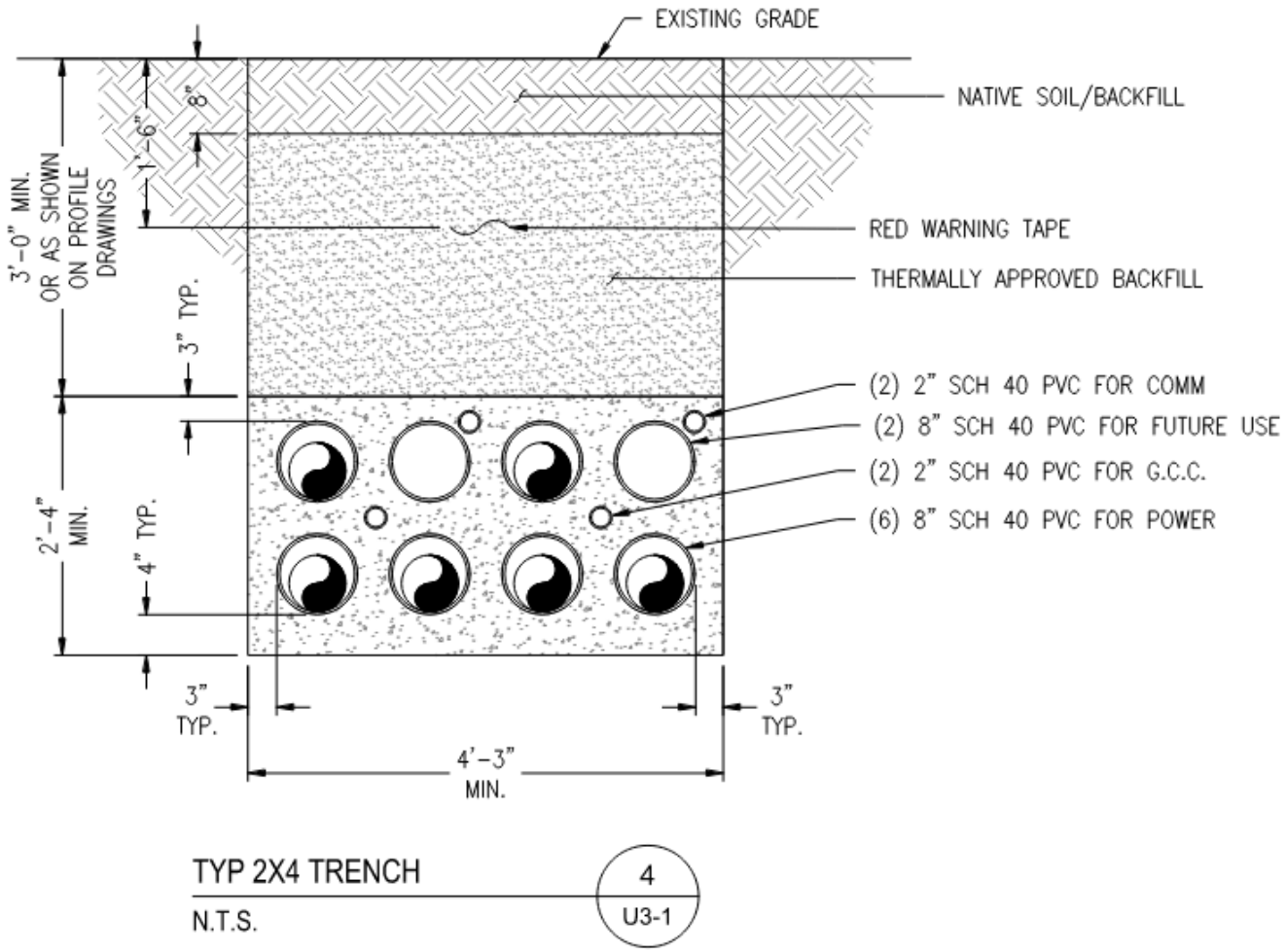
Source: (LS Power Grid California, LLC 2025)

Figure 2-11 Diagram of a Typical Utility Vault for the LSGPC 230 kV Underground Segment



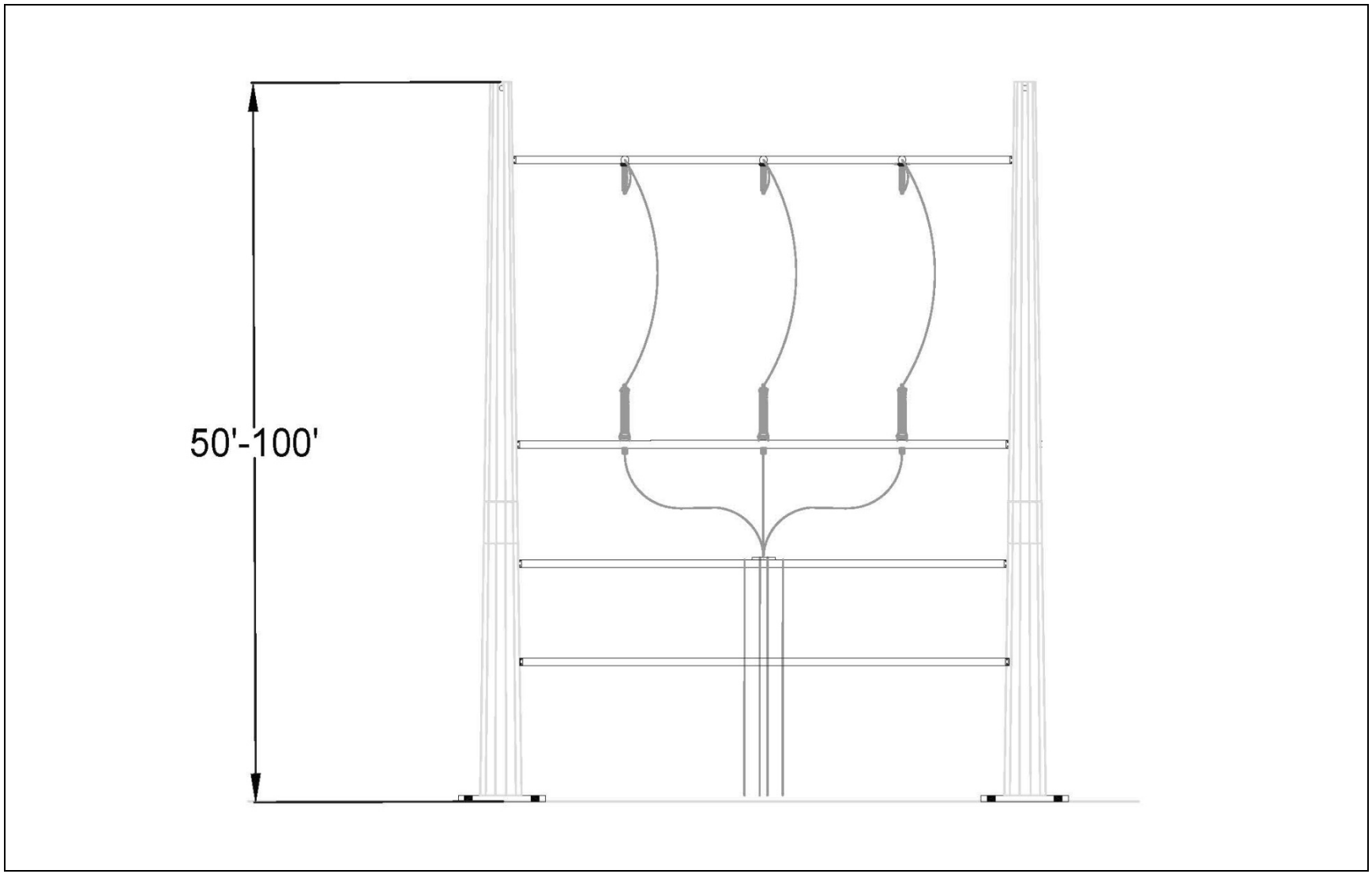
Source: (LS Power Grid California, LLC 2025)

Figure 2-12 Diagram of a Typical Duct Bank for the LSGPC 230 kV Underground Segment



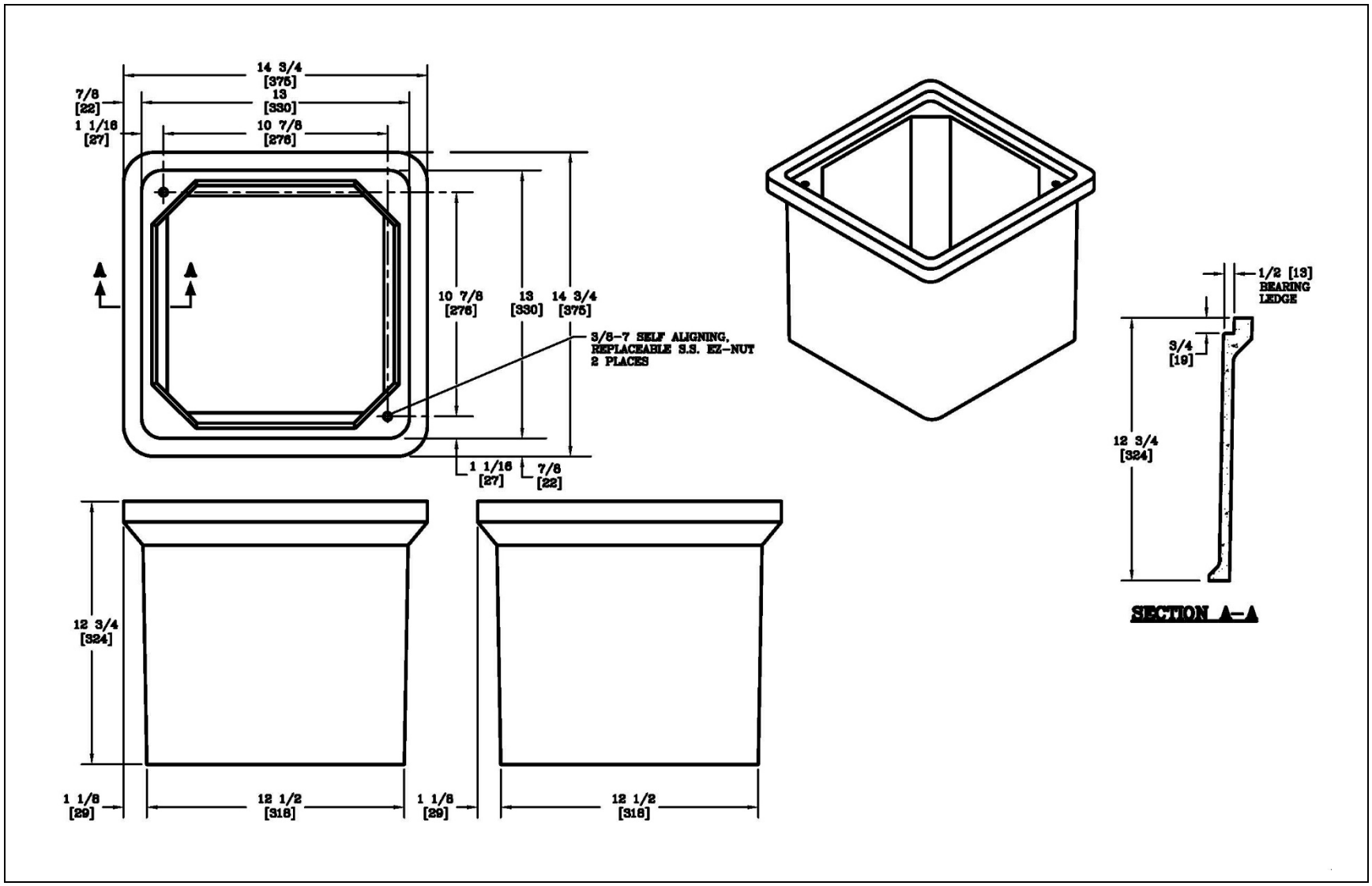
Source: (LS Power Grid California, LLC 2025)

Figure 2-13 Diagram of a Typical Riser Structure for the LSGPC 230 kV Underground Segment



Source: (LS Power Grid California, LLC 2025)

Figure 2-14 Diagram of Typical Handholes for the LSGPC Telecommunication Interconnection Lines



Source: (LS Power Grid California, LLC 2025)

LSPGC 230 kV Submarine Segment

The approximately 4.5-mile-long submarine segment of the LSGPC 230 kV transmission line would begin at the overhead riser structures, where four submarine cables would be directly buried between the proposed overhead riser structures approximately 250 feet north of the Delta and a proposed underground utility vault approximately 80 feet south of the southern shore of the Delta.

The submarine cables would be buried approximately 6 to 15 feet below the sediment surface of the Delta waterway, or as specified by engineering and/or permitting agency requirements, to protect them from mechanical damage. The U.S. Army Corps of Engineers (USACE) maintains two navigational channels crossed by the proposed submarine segment, including the San Joaquin Ship Channel and the Sacramento Deep Water Ship Channel. These channels are maintained at a depth of 30 and 35 feet, respectively. The existing channel depths along the submarine segment crossing locations range between 35 and 90 feet to the riverbed; therefore, the installation of submarine segment cables in the sediment of the riverbed at a depth of 6 feet or greater would be below the maintained navigational channel depths.

LSPGC would install the submarine segment cables in the sediment of the riverbed consistent with the USACE requirements which include achieving minimum burial depths that vary based on location and utilizing cable protection methods where necessary. The USACE's anticipated minimum burial depths are 15 feet or greater within navigational channels, 10 feet or greater outside navigational channels, and 6 feet or greater in other areas (i.e., shallow areas near the shores). In the event that the required burial depth cannot be met using the proposed construction methods, then alternate cable protection measures would be implemented as necessary (e.g., placement of concrete mattresses on the riverbed). A concrete mattress would be approximately 8-feet wide by 20-feet-long (per cable) and would be placed over areas where the cable cannot otherwise meet the required depth. The concrete mattresses are prefabricated and contain hooks which allow for placement. The navigation channels and submarine cable target depths are identified in Appendix A: Detailed Route Maps.

The submarine cables would terminate at an onshore underground utility vault, completing the submarine segment. The cables would typically be spaced approximately 30 to 90 feet apart to reduce mutual heating and provide safe construction clearances and sufficient space to allow for cable repair and abandonment in place, as described in more detail in Section 2.9.2.

Construction activities associated with the submarine segment are described in Section 2.5.3.

LSPGC 230 kV Underground Segment

The approximately 0.3-mile-long underground segment of the LSPGC 230 kV transmission line would begin at the southern onshore underground utility vault where the submarine cables would transition to underground transmission cables. The proposed underground segment would involve the construction of an onshore underground utility vault (see Figure 2-11) and two underground duct banks (see Figure 2-12), varying in size, to connect the 230 kV transmission line to two new riser structures (TSP H-frame) located directly adjacent to PG&E's

existing Pittsburg Substation (see Figure 2-13). The duct banks would be approximately 1,100 feet and 1,635-feet in length, respectively. The utility vault would be an area comprised of four separate transition joint bays each measuring approximately 45 feet long, 10 feet wide, and 8 feet deep. It would be installed within an excavation that would allow a minimum 36 inches of cover.

The underground duct banks would typically be comprised of eight 8-inch and three 2-inch *polyvinyl chloride* (PVC) conduits encased in concrete. Each duct bank would be approximately 6 feet wide and 2.5 feet tall. A typical drawing of the proposed underground duct bank is included in Figure 2-11. Up to six underground cables per circuit (up to two cables per phase) would be installed inside of the 8-inch PVC conduits, with at least one spare. Each 230 kV underground conductor would be approximately 5 to 6 inches in diameter and contain a copper conductor surrounded by layers of binding tape, metallic sheaths, XLPE insulation, and protected by a thick *high-density polyethylene* (HDPE) jacket. The duct banks would connect to two new riser structures. The riser structures will contain switches that will differentiate ownership between LSPGC and PG&E. Each riser structure would be constructed using a TSP H-frame measuring approximately 50 feet long and 50 to 85 feet tall (see Figure 2-13). Each riser structure would be set on drilled pier foundations.

LSPGC Telecommunication Interconnection Lines

The Proposed Project would involve installing two separate telecommunication paths to the proposed LSPGC Collinsville Substation. The first path would involve constructing a new microwave tower at the PG&E Collinsville telecommunication yard for operation of the 500 kV system (discussed in Section 2.3.2). The second path would originate within the City of Pittsburg, where the underground telecommunication interconnection lines would be installed for approximately 1.2 miles and connect with telecommunication lines collocated with the proposed 230 kV transmission line. The alignments of the proposed telecommunication interconnection lines are shown in Appendix A: Detailed Route Maps.

Where the underground telecommunication interconnection lines would be installed, two new underground fiber optic cables would be installed for redundancy generally within existing streets using the *horizontal directional drilling* (HDD) method of construction to connect a series of handholes. The handholes would be prefabricated and measure approximately 15 inches square at the surface level and 13 inches deep. They would be installed at grade and used to facilitate installation and splicing of the fiber. Figure 2-14 depicts the handholes that would be used.

A new fiber hub would be installed adjacent to the Pittsburg Substation and the new utility vault associated with the underground segment of the proposed LSPGC 230 kV transmission line. The fiber hub and an approximately 5-foot-by-5-foot enclosure would be used to splice the fiber optic cables to the cables installed as part of the submarine segment. From that point, one telecommunication path would continue along the underground segment until reaching the Pittsburg Substation and one would continue along the submarine segment until reaching the overhead riser structures. From the overhead riser structures, a two OPGW would be installed

along the overhead segment above the primary conductors until reaching the Collinsville Substation, completing the second telecommunication path.

The fiber optic cables for the LSPGC telecommunication interconnection lines would be installed and operated by one or more third-party telecommunications providers.

2.3.2 PG&E Project Components

PG&E 500 kV Interconnection Lines

Two approximately 1.2-mile-long single-circuit 500 kV overhead transmission line extensions (i.e., the proposed PG&E 500 kV interconnection lines) would be constructed to interconnect PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line to the proposed LSPGC Collinsville Substation.

Construction of the proposed PG&E 500 kV interconnection lines would require the removal of one existing lattice steel tower (LST) and the construction of approximately 10 single-circuit LSTs and four new three-pole TSP structures between PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line and the proposed LSPGC Collinsville Substation. The LSTs would be mounted on pier foundations and similar in design to those used along PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line. The three-pole TSP structures would also be mounted on pier foundations. Three-pole dead-end TSP structures may be utilized where necessary in place of LSTs if loading conditions exceed the standard LST design; however, this is not anticipated. A drawing representing the design typical of the LSTs and three-pole TSP structures anticipated to be used for the proposed PG&E 500 kV interconnection lines is provided as Figure 2-15 and Figure 2-16, and the typical dimensions associated with these structures are provided in Table 2-2.

PG&E would follow applicable standards of the NESC pertaining to anti-corrosion/cathodic protection, pending final design and engineering of the interconnections.

PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line is not outfitted with telecommunication lines, and there are no plans to add any as part of the Proposed Project; therefore, no telecommunication lines would be installed along the PG&E 500 kV interconnection lines.

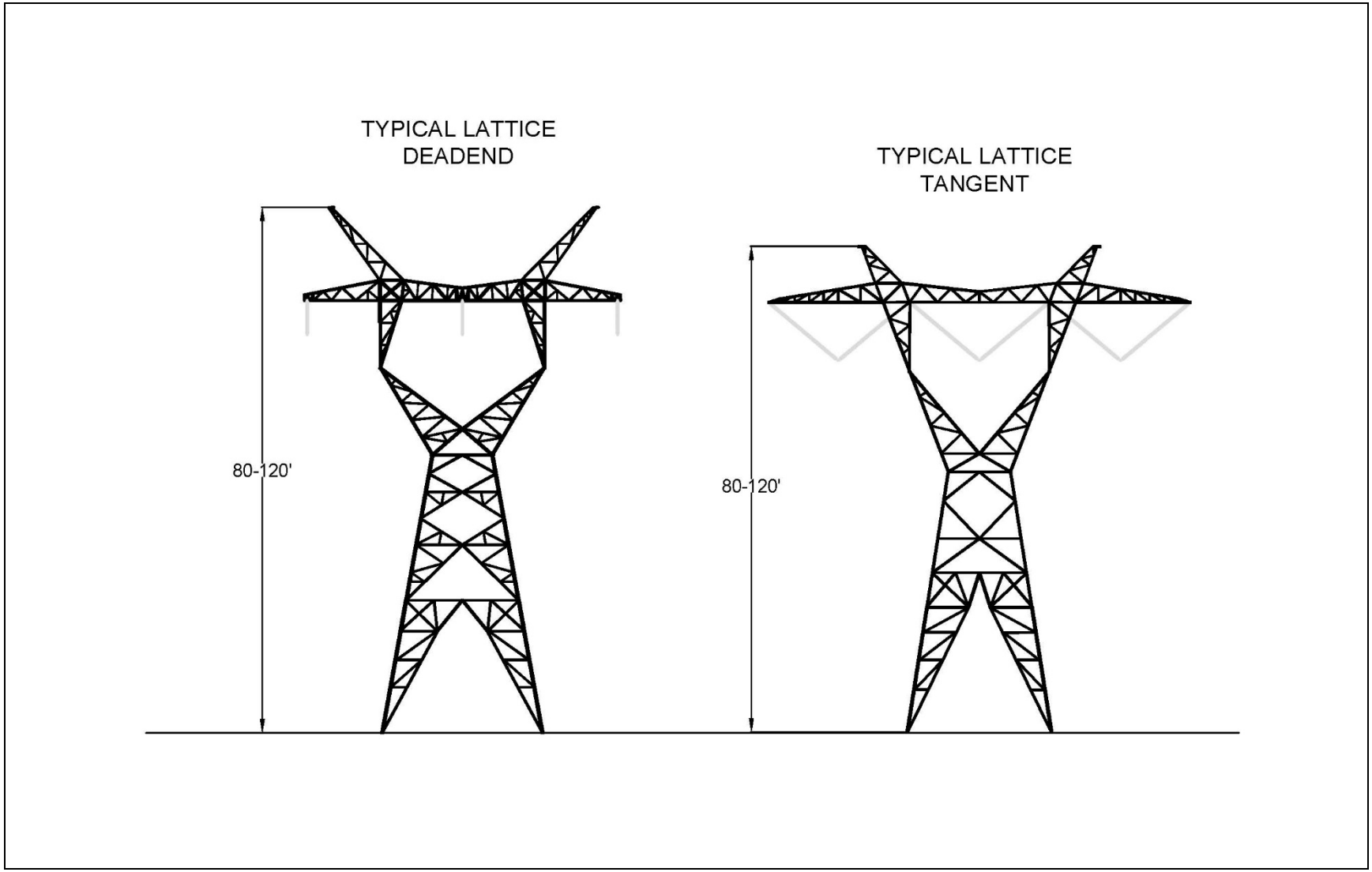
PG&E 500 kV Transposition Sites

PG&E would install, modify, or replace 500 kV structures at four transposition sites located along PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line. These sites are referred to as transposition sites A, B, C, and D and are shown in Appendix A: Detailed Route Maps. The PG&E activities and locations of the transposition are summarized as follows:

- **Transposition Site A:** Install one three-pole TSP transposition structure, access two existing LSTs, and modify conductor connecting to the structures. Transposition site A is in unincorporated Solano County east of Box R Ranch Road.
- **Transposition Site B:** Install one three-pole TSP transposition structure, access two existing LSTs, and modify conductor connecting to the structures. Transposition site B is in unincorporated Solano County north and south of Mauds Lane.
- **Transposition Site C:** Remove two existing lattice steel poles (LSP) and replace two adjacent existing lattice steel towers (LST) with two three-pole TSPs. Transposition site C is in unincorporated Solano County north of Montezuma Hills Road and south of Birds Landing Road.
- **Transposition Site D:** PG&E would install one three-pole TSP transposition structure, access two existing LSTs, and modify conductor connecting to the structures. Transposition site D is near the Census Designated Place of Byron in Contra Costa County north and south of Kellogg Creek Road.

The new transposition structures would all be three-pole TSP structures mounted on pier foundations and similar in design to those used along PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line. A drawing of the design typical of the proposed three-pole TSP transposition structures is provided as Figure 2-17, and the typical dimensions associated with these structures are provided in Table 2-2.

Figure 2-15 Diagram of Typical Lattice Steel Structures for the PG&E 500 kV Interconnection Lines



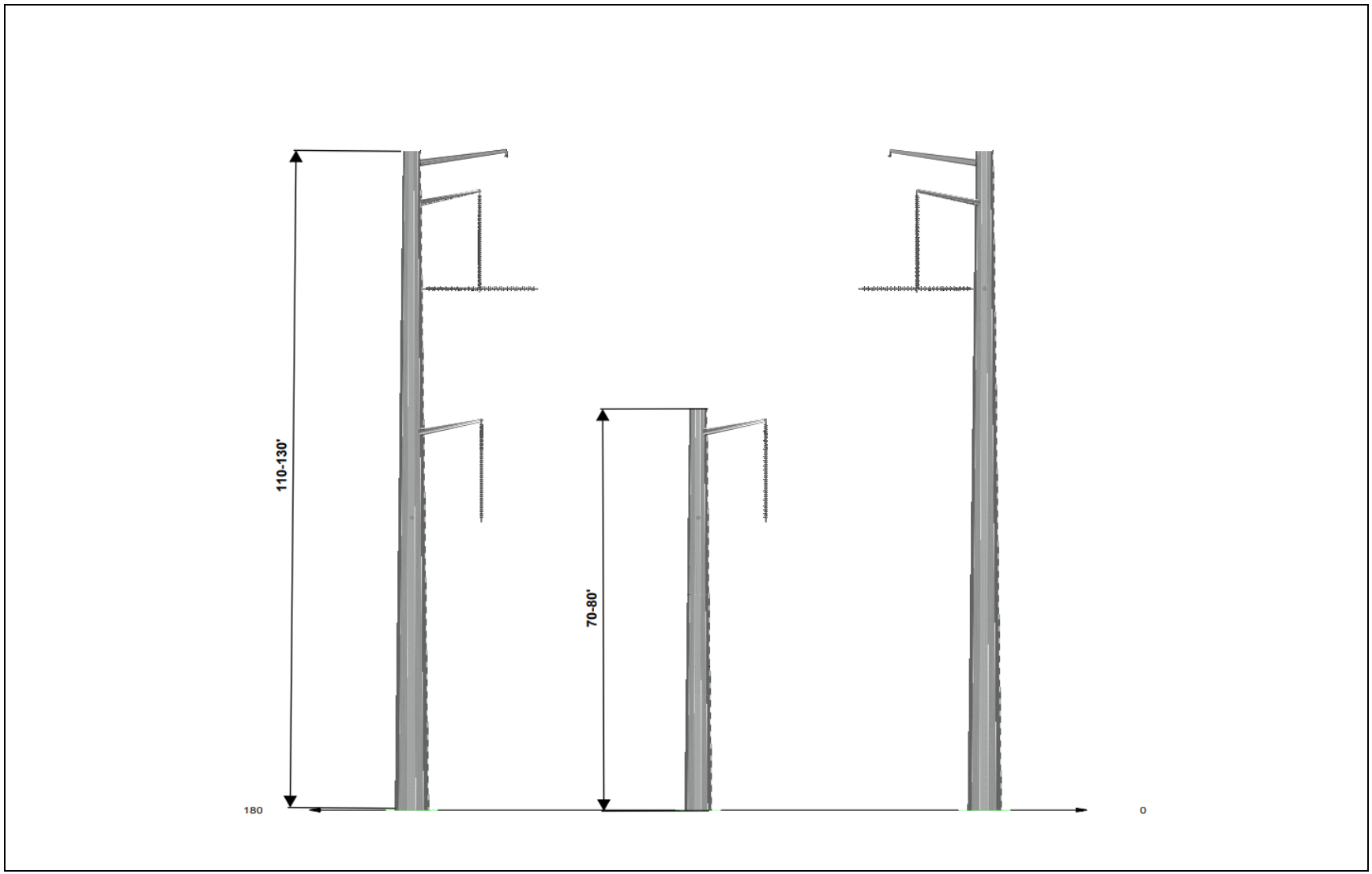
Source: (LS Power Grid California, LLC 2025)

Figure 2-16 Diagram of Typical Three-Pole Tubular Steel Poles for the PG&E 500 kV Interconnection Lines



Source: (LS Power Grid California, LLC 2025)

Figure 2-17 Diagram of Typical Three-Pole Tubular Steel Poles for the PG&E 500 kV Transposition Structures



Source: (LS Power Grid California, LLC 2025)

PG&E 12 kV Distribution Line

An overhead 12 kV distribution line would be installed connecting an existing PG&E distribution line (Peabody 2107 Circuit) to the Collinsville Substation to provide backup power for the substation during operation; however, power from the distribution line would also be used to support construction of the substation. The proposed distribution line would be installed from Collinsville Road and would extend east and parallel to Stratton Lane until reaching the substation. The distribution line extension would be approximately 0.9-mile long and installed on approximately 20 new wood poles, as shown in Appendix A: Detailed Route Maps.

PG&E Telecommunication Yard

A PG&E telecommunication yard would be constructed immediately east of the proposed Collinsville Substation (see Figure 2-5), where a PG&E-owned microwave tower and communications equipment enclosures would be installed for the 500 kV telecommunication line paths. The microwave tower would be up to 199 feet tall. The communication enclosures would be prefabricated and would be up to approximately 60 feet long by 15 feet wide by 8 feet high. A profile diagram of the communication yard equipment is provided as Figure 2-8. The telecommunication yard would include a separate fence and gate for PG&E access via the shared driveway connecting Stratton Lane east of the proposed Collinsville Substation. The telecommunication yard fence would be similar to the proposed Collinsville Substation fence and is expected to be an approximately 10-foot-tall wall or expanded metal fence barrier with top guard constructed of fiber-reinforce polymer. The fence would have a non-reflective finish and neutral earth-tone color. The access gate for the telecommunication yard would open approximately 24 feet wide. The telecommunication yard and driveway are shown in Figure 2-6.

The footprint of the telecommunication yard would be approximately 0.3 acre. The acreage of permanent and temporary ground disturbance has been incorporated with the Collinsville Substation, unless otherwise specified. The telecommunication yard would be placed within the boundaries of the approximately 28.3-acre area land rights that would be acquired by LSPGC for the Collinsville Substation site. LSPGC would complete the site grading for the PG&E telecommunication yard as part of the substation construction. PG&E would install the telecommunication yard fence and equipment.

Table 2-2 Summary of Proposed Transmission, Distribution, and Telecommunication Line Segments

Segment	ROW width (feet) [a]	Approximate length (miles)	Typical structure spacing (feet)	Structure type	Structure installation	Structure quantity	Approximate permanent disturbance area per structure (square feet)	Typical aboveground height (feet) [b]	Typical base size (feet)	Typical foundation diameter (feet)	Typical embedment depth (feet)
LSPGC 230 kV transmission line, overhead segment	100 to 230	1.0	800 to 1,300	Dead-end TSP	Pier foundation	4	314	70 to 150	NA	12	20 to 50
				Tangent TSP	Pier foundation or direct bury	2	314	70 to 150	NA	6	15 to 25
				Riser structure	Pier foundation	2	314	120 to 140	10	10	55
LSPGC 230 kV transmission line, submarine segment	170 to 700	4.5	NA [c]	NA	NA	NA	NA	NA	NA	NA	NA
LSPGC 230 kV transmission line, underground segment	10	0.6 [d]	n/a	Riser structure	Pier foundation	2	314	50 to 100	NA	6	25 to 40
LSPGC telecommunication interconnection lines	5	1.2	10 to 1,050	Handhole	Direct bury	27	1	0	1	1	1 to 2
			n/a	Fiber hub	Concrete foundation	1	25	NA	NA	NA	4
PG&E 500 kV interconnection lines	150 to 350	2.5 [e]	800 to 1,500	LST	Pier foundation	10	1,650	90 to 155	50	4 to 6	20 to 40
				Three-pole dead-end TSPs	Pier foundation	4	1,650	70 to 150	8	6 to 10	20 to 40
PG&E 500 kV transposition structures	200	NA	500 to 800	Three-pole trans-position TSPs	Pier foundation	3	1,650	120	50	6 to 10	20 to 40
				Three-pole dead-end TSPs	Pier foundation	2	1,650	145	50	6 to 10	20 to 40
PG&E 12 kV distribution line	20	0.9	275	Wood	Direct bury	20	314	40	NA	3 to 4	6 to 10

Notes:

[a] Typical widths have been provided; however, ROW would vary along each alignment, as appropriate. Final ROW widths would be determined during final engineering.

[b] Base size refers to the approximate area that a structure footing/pad would occupy, if different from the foundation diameter. Values are only provided for structures where the base size would be greater than the foundation area such as for LSTs.

[c] The four submarine cables would be spaced approximately 50 to 90 feet apart.

[d] The underground segment would include two separate duct banks. Each duct bank would be approximately 0.3-mile long.

[e] Two separate lines would be installed for the 500 kV interconnection. Each line would be approximately 1.2 miles long.

NA: not applicable

Source: (LS Power Grid California, LLC 2025)

PG&E Substation Modifications

PG&E Pittsburg Substation

PG&E's existing Pittsburg Substation would be modified by shifting line position and bus work, installing a set of 115 kV reactors, and modifying electrical equipment to facilitate the connection of the proposed LSPGC Collinsville-Pittsburg 230 kV Transmission Line. All modifications would occur within the existing fence line. Two existing lines would be relocated from each bus to adjacent empty bays to allow for the proposed LSPGC 230 kV transmission line. Fiber optic cables collocated with the LSPGC 230 kV transmission line would be pulled into the communication facility to serve as a second communication path. At the substation, a set of 115 kV reactors would be installed on two of the buses due to increased fault duties and to facilitate energization of the proposed LSPGC Collinsville Substation. Indoor work would include the installation of telecommunication infrastructure to accommodate the new fiber optic cables and installation of a new *phaser measurement unit* (PMU). A new sustainable modular protection line and breaker relays on the modular protection automation and control buildings would be installed.

All modifications would occur within the existing fence line. Modifications within existing substations may include underground facilities. A summary of PG&E's existing substation dimensions is provided in Table 2-3.

Table 2-3 Summary of Existing PG&E Substation Dimensions

Substation name	Approximate size (acres)	Approximate length (feet)	Approximate width (feet)
Pittsburg Substation	28.7	1,820	1,050
Vaca Dixon Substation	66.8	4,000	1,925
Tesla Substation	75.9	2,060	2,040

Source: (LS Power Grid California, LLC 2025)

PG&E Vaca Dixon Substation

Modifications to PG&E's existing Vaca Dixon Substation would involve modifying the line relays in addition to potential series capacitor modifications. A power line carrier would be removed, and the series capacitor banks would be modified to have two equal steps of 5.625 ohm. A microwave system would be established as a redundant communication path. Indoor work at the Vaca Dixon Substation would include upgrades to line relays, replacement of the existing PMU system, adjusting one fiber optic circuit within the substation to accommodate any relay or PMU replacements/modifications, and installation of microwave telecommunications equipment.

PG&E Tesla Substation

Modifications at the Tesla Substation would involve modifying the line relays and removal of a power line carrier. Indoor work would require upgrades to line relays, replacing the existing

PMU system, pulling one fiber optic circuit, and installing fiber telecommunication equipment. The Tesla Substation and proposed modifications are located within Alameda County.

2.4 Landownership, Rights-of-Way, and Easements

2.4.1 Land Ownership

The proposed LSPGC Collinsville Substation, overhead and underground segments of the LSPGC Collinsville-Pittsburg 230 kV Transmission Line, PG&E 500 kV interconnection lines, PG&E 500 kV transposition sites, and PG&E 12 kV distribution line would be constructed on lands that are owned privately or by utilities. The LSPGC 230 kV transmission line submarine segment would be located on lands that are owned by the state, the City of Pittsburg, and private landowners. The proposed LSPGC telecommunication interconnection lines would be constructed on lands that are owned privately and by the City of Pittsburg. PG&E owns the existing approximately 38.4-acre parcel where PG&E's existing Pittsburg Substation is located as well as the parcels where PG&E's existing Vaca Dixon and Tesla substations are located.

2.4.2 Existing Rights-of-Way or Easements

LSPGC does not have any existing ROWs or easements in the Proposed Project area. PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line is located within an approximately 200-foot-wide ROW where it would extend to the proposed PG&E 500 kV interconnection lines. The proposed PG&E 500 kV transposition structures would be installed within PG&E's existing ROW. PG&E does not have any other existing ROWs or easements in the Proposed Project area.

2.4.3 New or Modified Rights-of-Way or Easements

LSPGC Project Components

LSPGC would obtain the necessary permanent ROWs and easements from each landowner to accommodate the proposed LSGPC project facilities. The parcel where the proposed LSPGC Collinsville Substation would be located on is 61.05 acres (Parcel ID: 0090-12-0300) which extends north and south of Stratton Lane. The proposed LSPGC Collinsville Substation would require approximately 28.3 acres of permanent new land within this parcel to be obtained to accommodate the proposed LSPGC Collinsville Substation facility and the PG&E telecommunication yard, including all considerations for site grading, fencing, staging areas, equipment, internal circulation, and other operational considerations. The width of the ROWs for the LSPGC Collinsville-Pittsburg 230 kV Transmission Line and telecommunication interconnection lines would vary from 5 feet to 700 feet, as shown in Table 2-2. The proposed LSPGC telecommunication interconnection lines would be constructed and operated by third-party telecommunications providers. It is anticipated that these parties would utilize the road franchise and/or would obtain additional ROW, as needed, for the extension of their system and connection to the proposed LSPGC Collinsville Substation. The approximate ROW areas that are proposed for the PG&E lines are shown in Appendix A: Detailed Route Maps.

PG&E Project Components

PG&E would secure new rights for the installation of the proposed PG&E 500 kV interconnection lines that would extend onto the proposed LSPGC Collinsville Substation property by negotiating agreements with each landowner. PG&E's typical ROW widths for their Proposed Project transmission and distribution lines would vary, as shown in Table 2-2. The approximate ROW areas that are proposed for the PG&E lines are shown in Appendix A: Detailed Route Maps. No development restrictions or existing structures are located within the new easement locations.

Temporary Rights-of-Way or Easements

Temporary construction easements would be required for temporary construction areas (e.g., staging areas and pulling sites) and temporary access roads located outside of the permanent easements that would be acquired by LSPGC and PG&E. All temporary construction areas that would support the construction of the proposed LSPGC Collinsville Substation would be located on the parcel for which LSPGC would acquire rights. All temporary easements would be secured by negotiating with landowners.

2.5 Construction

This section includes an overview of the typical methods that would be used for construction of the Proposed Project.

2.5.1 Construction Access

The Proposed Project would be accessed using existing paved and unpaved roads, new permanent access roads, and temporary access roads, as summarized in Table 2-4. Construction traffic and existing roads used to access project areas are described in Section 2.7.3.

Table 2-4 Access Road Summary

Type [a]	Description	Approximate total length	Typical width	Approximate total area [b]
Existing roads	Unpaved, dirt or gravel roads traversing undeveloped areas primarily used for agricultural purposes or wind farm access; no improvements are anticipated	1.6 miles	20 to 36 feet	7.0 acres
New permanent access roads	New gravel driveway for the proposed LSPGC Collinsville Substation	300 feet	20 feet	0.2 acres
	Other types of new permanent access roads	NA	20 feet	NA
New temporary access roads	Temporary construction access roads that would be bladed to create a safe path for equipment across primarily undeveloped land or wind farms to access structure locations	5.0 miles	16 feet	9.7 acres

Notes:

[a] Values for access roads are included for both LSPGC and PG&E project components. Existing paved roads would also be used for project access; however, these are not identified as a separate category because no changes are proposed, and no disturbance is expected to occur. Key paved public roads that would be used for access are described in Section 2.5.6.

[b] Access roads for the Proposed Project overlap with other work areas and project features. The disturbance area associated with the access roads would be considerably less than the total area once the overlap with other work areas is removed. Additional information about disturbance is provided in Section 2.5.2.

Source: (LS Power Grid California, LLC 2025)

Existing Access Roads

The Proposed Project area contains an existing network of paved and unpaved access roads that would be used during construction, operation, and maintenance. Existing paved roads are typically maintained by the local county or city while unpaved roads are typically on private lands within existing undeveloped areas or that were established to provide access to existing wind farms or PG&E's existing transmission infrastructure. Refer to Section 2.7.3 for information on construction traffic and the primary existing roads that would be used to access the project site.

Existing paved roads would not typically require improvements prior to use. Existing unpaved roads may require minor improvements, typically within the existing road prism, to allow for the safe travel of construction vehicles and equipment. These improvements could include minor grading, vegetation trimming/removal, and/or the application of road base. Road widening is not proposed as the existing roads are of adequate width (approximately 20 to 36 feet) to allow passing. Refer to Section 2.5.6 for information on traffic controls that would be implemented where construction traffic occurs on existing access roads.

Incidental damage to existing roads is not expected from Proposed Project activities. Should incidental road damage occur, the roads would be restored to pre-construction conditions or better as required by applicable permits and/or landowner agreements.

New Temporary Access Roads

Where existing access is not available and surface conditions are suitable, approximately 16-foot-wide temporary access roads would be established during construction to access construction areas. Prior to use, vegetation would be removed, and the area may be lightly bladed to establish a safe path for construction equipment and vehicles. Extensive grading, compaction via a vibratory roller and/or road base placement would not be required along temporary access roads. Timber mats would be strategically placed in areas with soft ground conditions on an as-needed basis and would be restricted to parts of access roads or work areas with soft ground conditions. Temporary access roads are shown in Appendix A: Detailed Route Maps. Following construction, all temporary access roads would be restored to pre-construction conditions, as described in Section 2.8.2.

New Permanent Access Roads

A new, approximately 300-foot-long, 20-foot-wide driveway would be constructed to access the proposed LSPGC Collinsville Substation and PG&E telecommunication yard via Stratton Lane

on the east side of the substation. The location of the proposed new driveway is depicted in Figure 2-6 and in Appendix A: Detailed Route Maps. No other permanent access roads are proposed.

Watercourse Crossings

The Proposed Project would be located primarily on existing agricultural land or lands being used as wind farms. Although watercourses have been identified within the Proposed Project area, the project facilities have been positioned so that all watercourses would be avoided during construction of the terrestrial Proposed Project components[7] and would be spanned by the proposed overhead lines. In the unlikely event that a jurisdictional watercourse may need to be crossed due to unanticipated events, the necessary permits would be obtained from applicable agencies.

Timber mats may be required in wetlands near the north shore of the Delta to establish construction access for landfall of the proposed submarine segment of the proposed LSPGC Collinsville-Pittsburg 230 kV Transmission Line. Following construction, the timber mats would be removed. Any timber mats that would be placed within jurisdictional waters would be permitted in accordance with appropriate federal and state regulations. LSPGC would secure all required permits prior to the placement of any timber mats and would adhere to all permit conditions.

The use of culverts or steel plates may be necessary under limited circumstances to establish construction access, such as but not limited to where temporary access roads would cross engineered drainage ditches, natural drainages, ephemeral pools, or wetlands.

Helicopter Access

Light-duty helicopter use is anticipated to support construction of the Proposed Project components located north of the Delta. These activities may include transportation of construction workers, delivery of equipment and materials to temporary construction areas, hardware installation, and/or installation/removal of overhead conductor/cable. In addition, a heavy-duty helicopter is anticipated to support construction of the proposed PG&E 500 kV interconnection lines structures. Helicopter use is anticipated to support the construction or replacement of proposed PG&E 500 kV transpositions structures at PG&E transposition sites C and D.

Helicopter takeoff and landing areas would be located within each pulling site and staging area. Each landing zone would be approximately 200 feet by 200 feet. In addition, local public and/or private airports or airstrips may be used to support helicopter operations. The proposed LSPGC Collinsville Substation, PG&E 500 kV interconnection lines, and LSPGC 230 kV transmission line overhead segment would be located approximately 12 miles southeast of the Travis Air Force Base and approximately 10 miles southwest of the Rio Vista Municipal Airport. PG&E transposition site C is approximately 6 miles east of Travis Air Force Base and approximately

[7] The terrestrial Proposed Project components include all components except for the submarine segment of the proposed LSPGC 230 kV Collinsville-Pittsburg Transmission Line.

9 miles west of Rio Vista Municipal Airport. PG&E transposition site D is located south of the Delta in Contra Costa County. Byron Airport is located approximately 3.5 miles southwest of PG&E transposition site D. Stockton Metropolitan Airport is approximately 20 miles east of PG&E transposition site D and Rio Vista Municipal Airport is approximately 22 miles north. Helicopter refueling would typically occur off site at local airports or airstrips; however, refueling at staging areas may also occur.

Helicopter operators would coordinate flight paths from local airports or airstrips with local air traffic control, as appropriate. Once in the vicinity of the Proposed Project, helicopters would follow flight paths that generally follow the Proposed Project alignment. It is anticipated that the light-duty helicopter use would involve a Hughes 500, Bell 429, MD 600 N, or similar model. The heavy-duty helicopter use would involve a CH-47D Chinook, Sikorsky S61, Sikorsky S64, or similar model. As required, a Helicopter Plan would be prepared and a Congested Area Plan pursuant to Title 14, section 133.33(d) and Title 77 of the CFR would be developed with the Federal Aviation Administration (FAA) Flight Standards District Office in Sacramento, which has jurisdiction over the Proposed Project area.

2.5.2 Construction Work Areas

Staging Areas

It is anticipated that up to approximately six staging areas would be used by both LSPGC and PG&E to support construction activities associated with the Proposed Project, as summarized in Table 2-5. Four staging areas would be in the Collinsville area in Solano County at and adjacent to the proposed substation site and the PG&E 500 kV interconnection lines. Two staging areas would be located adjacent to PG&E's existing Pittsburg Substation in the City of Pittsburg. The staging areas are depicted in Appendix A: Detailed Route Maps.

If not previously prepared, staging areas would be prepared by clearing, topsoil salvage, grubbing, and limited grading. Gravel may be used to line the ground at the staging area to avoid the creation of unsafe surface conditions and unnecessary sediment transport off site. Prior to the application of the gravel, fabric would be laid on the ground at the staging area to facilitate removal during the decommissioning of the staging areas. If necessary, access would be established from adjacent existing roads via temporary driveways.

Staging areas may be used as a refueling area for vehicles and construction equipment; as an equipment wash station; for assemblage; for storage of material and equipment, storage containers, construction trailers, and portable restrooms; and for parking and lighting. Some substation equipment (e.g., disconnect switches, instrument transformers, take-off towers, insulators, conductors, bus, connectors, conduit, cable trench, rebar) would be received and temporarily stored at the staging area prior to installation. Construction workers would also typically meet at the staging area each morning to park their vehicles. All construction equipment and vehicles would be parked within the staging area while inactive and at the completion of each workday, where and when practical.

Table 2-5 Summary of Construction Staging Areas

Name	Location	Existing condition	Approximate size [a]
Collinsville Substation Property	The limits of the proposed Collinsville Substation property located south of Stratton Lane may be used as a staging area to support various construction activities	Agriculture	28.3 acres
North of Stratton Lane	Directly north of the proposed LSPGC Collinsville Substation and Stratton Lane	Agriculture	11.1 acres
East of Stratton Lane	Directly east of the proposed LSPGC Collinsville Substation and Stratton Lane	Agriculture	9.8 acres
SMUD	Approximately 1 mile northeast of the proposed LSPGC Collinsville Substation	Disturbed	9.6 acres
Pittsburg Substation West	Directly west of PG&E's existing Pittsburg Substation	Disturbed	4.9 acres
Pittsburg Substation East	Directly east of PG&E's existing Pittsburg Substation	Disturbed	3.4 acres
Transposition Site D Landing Zone	South of Kellogg Creek Road	Agriculture	0.7 acres
Total	—	—	**67.8 acres**

Notes:

[a] The total size of the staging areas differs from the values for disturbance due to the overlap with other temporary and permanent work areas.

Source: (LS Power Grid California, LLC 2025)

Temporary perimeter and/or security fencing with gates would be installed at the staging areas if necessary. The type and extent of fencing would be adjusted at each staging area to match the planned activities and storage requirements. Perimeter security fencing, typically consisting of an approximately 10-foot-tall chain-link-style fence topped with approximately 1 foot of barbed wire, may be used to establish secure areas within the equipment staging areas. This fencing would be utilized to secure expensive equipment and would be locked nightly. Temporary lighting may also be installed as a security measure.

PG&E would install a distribution line on wood poles to provide power to the proposed LSPGC Collinsville Substation site and adjacent staging areas during construction, as discussed in Section 2.3.2. If distribution power is not available in a timely manner, temporary generators would be used as a contingency for power during construction. The proposed distribution line supporting the proposed LSPGC Collinsville Substation would also serve the facility during O&M as a backup power source. The other staging areas would rely on temporary generators for power during construction, if needed.

Temporary Works Areas for Facility Installation, Modification, or Removal

In addition to the staging areas, temporary work areas (also referred to as *construction work areas*) would be established to support construction activities where new facilities would be installed and where existing facilities would be accessed, modified, or removed. The locations of proposed temporary work areas are depicted in Appendix A: Detailed Route Maps. Temporary work areas have been identified for the following construction activity categories for the Proposed Project:

- Construction access areas (existing and temporary roads)
- Overhead and underground structure installation, removal, and modification areas
- Overhead and underground conductor and cable installation, stringing, tensioning, splicing, and removal areas
- Substation construction areas, including the associated adjacent facilities
- Switching operations areas
- Excavation areas, including trenching, grading, and soil stockpiling

As described in Section 2.5.1, helicopter landing areas would be included at each pulling site and staging area. In addition, helicopters may touch down along access roads or within other construction areas, as appropriate. Helicopter landing zones and touchdown areas may support the following construction activities:

- Dropping off or picking up construction crew members, equipment, and/or materials
- Dropping off or picking up structures/portions of structures, conductor sock line, conductor pull rope, and/or conductor
- Fueling helicopters

Site Preparation

Surveying and Staking

The project feature centerlines would be surveyed and marked at line-of-sight intervals, at points of intersection (including offset stakes marking the edges of the access road ROW), and at all known underground facilities. Any sensitive biological, cultural, paleontological, or hydrological resources, where appropriate, would also be clearly marked to restrict construction activities and equipment from entering such areas.

Utilities Identification and Marking

Prior to initiation of construction in any given area, all utility companies with utilities located within or crossing the Proposed Project ROW would be notified and directed to locate and mark existing underground facilities along the entire length of the Proposed Project's current construction area. No subsurface work would be conducted that would conflict with (i.e., directly impact or compromise the integrity of) a buried utility. In the event of a conflict, areas of subsurface excavation or pole installation would be realigned vertically and/or horizontally, as appropriate, to avoid other utilities and provide adequate operational and safety buffering. In instances where separation between third-party utilities and underground excavations

would be less than 5 feet, the intended construction methodology would be submitted to the owner of the third-party utility for review and approval at least 30 days prior to construction. Exploratory excavations (e.g., potholing) would be conducted, as appropriate, to verify the locations of existing facilities in the field. Construction methods would be adjusted as necessary to ensure that the integrity of existing utility lines is not compromised. No existing overhead utilities would need to be relocated to accommodate the Proposed Project.

The proposed submarine segment of the LSPGC 230 kV transmission line would be located in proximity to the Transbay Cable, an operational single-circuit direct-current 200 kV underwater transmission line. The Transbay Cable exits the water and connects to PG&E's existing Pittsburg Substation. The proposed underground segment of the LSPGC 230 kV transmission line will cross under the existing underground Transbay Cable near PG&E's existing Pittsburg Substation. LSPGC would coordinate with Trans Bay Cable LLC/NextEra Energy Transmission, LLC, to facilitate this crossing and any requirements that the utility may require. LSPGC would establish a crossing agreement with Trans Bay Cable LLC/NextEra Energy Transmission, LLC, to ensure all requirements are documented. It is not anticipated that any other underground utilities would be identified along any of the Proposed Project components. In the event that any other underground utilities are identified, LSPGC and/or PG&E would work with the owner of those utilities to determine if design changes can be made or if relocation procedures and locations are necessary.

Vegetation Clearing

Vegetation would be trimmed or removed within construction work areas to facilitate the safe construction of the Proposed Project and reduce the potential for fire. Only the minimum amount of vegetation clearing necessary to enable safe access and construction would be conducted. Vegetation removal would be completed utilizing mechanized removal equipment or by hand using chain saws or other hand-held equipment.

Tree trimming and removal are not anticipated for the Proposed Project because no trees are present where facilities are proposed or where temporary construction work areas are identified. However, trimming and removal would be conducted according to current standards and regulatory requirements. PG&E's easements would typically include the right to remove trees anywhere within the easement that could pose a threat to the lines or adjacent resources.

Work Area Stabilization

Work areas would be stabilized using the *best management practices* (BMPs) described in one or more Proposed Project-specific *Storm Water Pollution Prevention Plans* (SWPPPs) and as discussed in more detail in Section 4.10: Hydrology and Water Quality. The SWPPP BMPs would remain in place and would be maintained until new vegetation is established, as defined in the SWPPP(s). Typical BMPs that would be used for work area stabilization are discussed in Section 2.5.7. With the application of typical BMPs and minor grading at select work areas, as appropriate, no slope stabilization issues are anticipated.

Grading and Excavation

Temporary Work Areas

Staging areas and construction work areas would be located in generally flat areas; however, minor grading and/or vegetation removal would occur as necessary to provide a safe area for construction. If grading is required, sites would be graded to maintain the direction of the natural drainage and would be designed to prevent ponding and erosion. During temporary grading activities, any disturbed topsoil would be salvaged, where appropriate, to a maximum depth of 6 inches, or to the actual depth if shallower, for on-site storage and use in site restoration. Salvaged topsoil material would be kept on site in the immediate vicinity of temporary disturbance areas, at a nearby approved work area, or at a staging area to be used in the restoration of temporarily disturbed areas, as appropriate.

Equipment Installation, Modification, and Removal

Excavations are anticipated associated with structure installation, replacement, submarine cable installation, and substation construction. No other excavations are anticipated. All identified work areas are inclusive of the required excavation limits; as a result, specific temporary work areas for excavations have not been identified. Table 2-6 provides the anticipated excavation dimensions required to construct subsurface features.

Table 2-6 Typical Excavation Dimensions

Proposed Project feature	Typical excavation dimensions
LSPGC Collinsville Substation	
Transformer bank	135 feet long, 60 feet wide, 8 feet deep
500 kV GIS and control enclosure	170 feet long, 40 feet wide, 4 feet deep
230 kV GIS and control enclosure	180 feet long, 32 feet wide, 4 feet deep
Dead-end	6-foot-diameter, 40 feet deep
LSPGC 230 kV transmission line overhead segment	
TSP structure (pier foundation)	12-foot-diameter, 20 to 50 feet deep
TSP structure (direct bury)	6-foot-diameter, 15 to 25 feet deep
Riser structure (pier foundation)	10-foot-diameter, 55 feet deep
LSPGC 230 kV transmission line underground segment	
Transition vault	50 feet long, 15 feet wide, 15 feet deep
Duct bank	3 to 6 feet deep, 7 to 10 feet wide
Riser structure (pier foundation)	6-foot-diameter, 25 to 40 feet deep
LSPGC telecommunication interconnection lines	
Handhole/HDD entry/exit pit	1.5 feet by 1.5 feet, 1.5 feet deep

Proposed Project feature	Typical excavation dimensions
PG&E 500 kV interconnection lines	
LST (pier foundation)	4 to 8-foot-diameter, 20 to 40 feet deep
TSP structure (pier foundation)	4 to 8-foot-diameter, 20 to 40 feet deep
PG&E 500 kV transposition structures	
TSP structure (pier foundation)	4 to 8-foot-diameter, 20 to 40 feet deep
PG&E 12 kV distribution line	
Wood pole (direct bury)	3 to 4-foot-diameter, 6 to 10 feet deep

Source: (LS Power Grid California, LLC 2025)

LSPGC Collinsville Substation

The proposed LSPGC Collinsville Substation site would require more substantial grading to prepare it for development. Generally, grading and excavation would be completed such that the site meets the Proposed Project's design specifications and matches proposed grades. During earthwork, soils and other surficial deposits that do not possess sufficient strength and stability to support structures would be removed from the site. In addition to general earth-moving quantities, 4 to 8 inches of surface gravel would be imported from a suitable nearby aggregate source and installed as finish stone within the proposed LSPGC Collinsville Substation pad for grounding purposes. An approximately 3-foot-wide band of gravel would also be placed around the substation wall to serve as a fire break. All clean spoils excavated by the Proposed Project would be used on site to balance cut-and-fill calculations, as feasible. All spoils that are not usable and/or contaminated would be sent to a properly licensed landfill facility. Table 2-7 summarizes the anticipated grading and import/export requirements at the proposed LSPGC Collinsville Substation.

Table 2-7 Estimated Grading Volumes for the LSPGC Collinsville Substation

Grading type	Estimated volume
Total cut	40,000 cubic yards
Total fill (select import and net fill)	39,000 cubic yards
Total export/wasted	11,000 cubic yards
Total import (select import/structural fill)	11,000 cubic yards

Source: (LS Power Grid California, LLC 2025)

Below-grade work at the substation would include the construction of equipment foundations, oil containment for transformers, the grounding grid, and conduit along with erection of the control enclosures. The maximum depth of disturbance within existing soil at the proposed LSPGC Collinsville Substation site would be approximately 40 feet at the location of the dead-

end pier foundations. Other substation foundations would be installed to a depth of 4 to 8 feet. Typical below-ground conductor and/or cable would be 2 to 4 feet below ground surface.

Ground Disturbance

Implementation of the Proposed Project would result in both temporary and permanent ground disturbance; however, some of the proposed features would occur within previously disturbed or developed areas. Table 2-8 provides the estimated acreage of temporary and permanent ground disturbance for the Proposed Project by work areas. Appendix A: Detailed Route Maps identifies the locations of the anticipated temporary and permanent disturbance areas. Additional information about existing landcover conditions where temporary and permanent disturbance would occur is provided in Section 4.4: Biological Resources.

Table 2-8 Estimated Ground Disturbance for Work Areas

Segment [a]	Temporary disturbance (acres)	Permanent disturbance (acres)	Total disturbance (acres)
LSPGC Collinsville Substation [b]	15.6	12.7	28.3
LSPGC 230 kV overhead segment [c]	8.5	0.1	8.6
LSPGC 230 kV submarine segment [d]	18.5	—	18.5
LSPGC 230 kV underground segment	2.8	0.1	2.9
LSPGC telecommunication interconnection lines	<0.1	<0.1	0.0
PG&E 12 kV distribution line	0.6	0.1	0.7
PG&E 500 kV interconnection lines [c]	38.5	0.5	39.0
PG&E 500 kV transposition sites	24.1	0.1	24.2
PG&E telecommunication yard	—	0.2	0.2
Temporary construction staging areas	33.8	—	33.8
Total	**142.4**	**13.8**	**156.2**

Notes:

[a] Ground disturbance acreages are estimated based on GIS data provided by LSPGC for the Proposed Project features and construction work areas. The area of overlap between permanent facility footprints and temporary work areas has been omitted from acreages of temporary disturbance. No ground disturbance is included for PG&E's modifications to existing substations because all ground disturbance would occur within the developed substation footprints.

[b] The permanent disturbance area includes the footprint of the substation facilities as well as the maximum extent of grading anticipated.

[c] The area of existing unpaved roads (3.3 acres) has been included in the temporary disturbance areas for access roads associated with the LSPGC 230 kV overhead segment and the PG&E 500 kV interconnection lines.

[d] Approximately 1.4 acres of the temporary disturbance associated with the submarine segment would occur on land and 17.1 acres would occur in-river.

2.5.3 Transmission and Distribution Line Construction

Overhead Segments

Pole/Tower Removal

The proposed PG&E 500 kV interconnection lines would require the removal of approximately three existing LSTs and two lattice steel poles. One LST will be removed at tie in point of the loop in/out. PG&E would also remove two existing LSP transposition structures and replace two LSTs one on either side of existing LSTs with two new three-pole dead-end TSP structures at Transposition Site C. The PG&E structure removals represent the only planned demolition activities associated with the Proposed Project. For the LST removal, one or more cranes would be rigged to the top of the tower and the legs would be cut off just above or at the foundations. Helicopters may be used to remove the existing LST structure. The tower would then be lowered to the ground, where it would be crushed and/or dismantled prior to being transported off site by flatbed trucks. The removed tower would be transported to a staging area or a PG&E storage yard for further disassembly prior to being recycled or disposed of at an approved facility. The LSPs would be removed in a similar manner.

Following the LST and LSP removal, each foundation would be removed to a depth of approximately 2 to 5 feet below grade. The existing concrete would be broken using an excavator with a breaker attachment, and the existing rebar would be cut using appropriate tools. The removed material would be loaded into dump trucks for disposal or recycling at an approved facility. Following foundation removal, the void would be backfilled using native spoils previously excavated from the vicinity or imported fill. Excess removed material may be stored temporarily at work sites and ultimately loaded into dump trucks for disposal at an approved facility.

Pole/Tower Installation

Direct Bury Poles

Direct-buried poles would be installed along the proposed LSPGC 230 kV transmission line overhead segment and proposed PG&E 12 kV distribution line. Each pole would require a hole to be excavated using an auger, backhoe, or hydraulic or pneumatic equipment (e.g., jackhammers, drills). In some locations, steel casing may be placed to stabilize the excavation walls prior to installation of the pole. Following excavation of the pole hole, the pole would then be installed in the excavated or augured holes, typically by a crane or a line truck with an attached boom. The base would be secured by backfilling with the excavated material, gravel, controlled low-strength material, or concrete in the interstitial space between the wall of the excavated or augured hole and the pole. In some locations, guy wires would be required to provide additional support to the pole. The guy wire would be attached to the pole, and anchors would be used to secure the guy wire to the ground. Material excavated for foundation construction would be trucked off site or spread across the surrounding area within the ROW.

Pier Foundation-mounted Poles

The Proposed Project would involve the installation of LSTs and TSP structures on concrete pier foundations. Foundation construction would begin by using large augers and drill rigs to complete the required excavations and, if necessary, a reinforcing steel rebar cage would then be lowered into the excavation. A temporary form extending approximately 2 feet above grade would then be constructed, and a concrete truck would be used to pour concrete and fill the excavation. Each completed foundation would be left to cure for approximately 28 days, then the form would be removed. The approximate average depth and diameter of excavation are summarized in Table 2-2. Material excavated for foundation construction would be trucked off site or spread across the surrounding area within the ROW. After the foundation is cured, the LST and TSP structure components would be delivered to the temporary construction area using a flatbed truck. Cranes would be used to lift and place the structures onto the foundation. Cranes and/or bucket trucks would lift workers into elevated positions to attach crossarms and other hardware onto the assembled structure. Helicopters may be used instead of cranes.

Conductor/Cable Installation and Removal

Aboveground conductor/cable installation and removal (i.e., wire stringing) activities would be conducted in a manner similar to the methods detailed in the Institute of Electrical and Electronics Engineers Standards Association Standard 524-2016, Guide to the Installation of Overhead Transmission Line Conductors. Safety devices (e.g., traveling grounds, radio-equipped construction crews) would be in place prior to the initiation of wire-stringing activities.

The term *wire-stringing* refers to all activities associated with the installation of the conductors onto transmission line structures. These activities include the installation of conductor, telecommunication cable (where applicable), insulators, stringing sheaves (rollers or travelers), vibration dampeners, weights, suspension, and dead-end hardware assemblies for the entire length of the route. The following steps describe typical wire-stringing activities:

- **Sock line threading:** Using a bucket truck, a lightweight sock line is threaded through wire rollers attached to each structure and is secured using a camlock device. Alternatively, helicopters may be used to fly the sock line from structure to structure.
- **Pulling:** The sock line would be used to pull in the conductor-pulling rope and/or cable. The pulling rope and/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. The new conductor would be installed by utilizing conductor tensioning equipment at the pulling site.
- **Splicing, sagging, and dead-ending:** After the conductor is pulled in, any necessary mid-span splicing would be performed. The conductor would then be sagged to proper tension and dead-ended to structures.
- **Clipping in:** After the conductor is dead-ended, the conductors would be secured to all tangent structures in 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.

Conductor installation activities would be conducted at pulling sites and structure work areas as depicted in preliminary locations in Appendix A: Detailed Route Maps. If needed, conductor splicing would be performed using compression splices applied in accordance with manufacturer recommendations. Anchor poles may be used in pulling sites during conductor installation activities.

The proposed transmission and distribution structures would be designed with sufficient conductor and ground wire spacing so that raptors cannot simultaneously contact two conductors or one conductor and a ground wire, which could cause electrocution, as described in the Avian Power Line Interaction Committee's (APLIC) *Suggested Practices for Avian Protection on Powerlines: State of the Art 2006* (APLIC 2006). Further, appropriate methods to reduce the risks of avian collisions would be incorporated into the Proposed Project design following the guidance in the APLIC's *Reducing Bird Collisions with Power Lines: State of the Art in 2012* (APLIC 2012).

Aviation Lighting and Marking

LSPGC conducted an initial screening and coordination with the FAA and the Department of Defense (DOD) to determine if any of the aboveground structures identified for the Proposed Project have the potential to result in a hazard to airspace navigation and whether the installation of aviation lighting and/or marking may be required. No hazards to airspace navigation or the need for aviation lighting and/or marking is anticipated for any facilities associated with the Proposed Project based on the results of the initial screening and coordination with FAA and DOD[8]; therefore, such equipment and the potential environmental effects are not considered in this EIR. Upon completion of the final design, LSPGC would confirm the screening results and file applicable notices with the FAA for official study and determination of lighting and/or marking requirements for all LSPGC structures. Additionally, LSPGC would submit the final design to DOD for review. PG&E would be responsible for evaluation of the remaining PG&E structures by the FAA and DOD.

Underground Segment

Trenching

The duct bank, utility vault, and underground portions of the proposed LSPGC 230 kV transmission line would be installed using open-cut trenching techniques (i.e., mechanical excavation) unless alternate methods are required to cross existing facilities or sensitive resources. The duct banks would typically have a double-duct-bank vertical configuration, as shown in Figure 2-12, with occasional transitions to a flat configuration to clear substructures in highly congested areas or to fan out to the proposed utility vault and riser structures, as appropriate. Starting at the Pittsburg Substation, excavators and other earth-moving equipment

[8] The results of LSPGC's initial screening and coordination with FAA and DOD are provided in Appendix 3-B of the PEA (LS Power Grid California, LLC 2025).

would be used to establish trenches typically 3 to 6 feet deep and 7 to 10 feet wide depending on the duct bank configurations. Excavation to install the utility vault would begin by grading back the shoreline for the hydroplow to be pulled onto the shore. Approximately 80 feet from the shoreline, four trenches would be excavated, approximately 50 feet long, 15 feet wide, 15 feet deep. Depths may vary depending on soil stability and the presence of existing substructures. The trench would be widened and shored where necessary to meet California Division of Occupational Safety and Health (Cal/OSHA) safety requirements. From the utility vault, a long-reach excavator would dig trenches for approximately 80 feet to the mean high-water line, and a hydroplow would install the proposed submarine segment of the LSPGC 230 kV transmission line in the trenches. The trenches may extend into the Delta for approximately 30 feet north of the mean high-water line if excavation is required to clear the cable paths of any buried or submerged obstructions to achieve the target burial depth. At the north shore landing of the proposed LSPGC 230 kV transmission line submarine segment, trenching would occur at the shoreline to a point approximately 50 feet south of the mean high-water line to clear each cable path of any buried or submerged obstructions and achieve the target burial depth. North of the shoreline, a long-reach excavator would dig trenches on land for approximately 270 feet. cable path of any buried or submerged obstructions and achieve the target burial depth. North of the shoreline, a long-reach excavator would dig trenches on land for approximately 270 feet.

Dewatering is anticipated during trenching activities at the north and south shores. The proposed dewatering procedures would be similar to those required to dewater overhead transmission line excavations, as described in Section 2.5.7.

At any one time, open trench lengths would not exceed those required to facilitate the installation of the duct banks. Steel plating would be placed over or fencing installed around open trenches, where appropriate, and across those areas that are not under active construction.

Excavated materials removed during trenching would be stockpiled within work areas or hauled directly off site for disposal. All excavated spoils would be tested in accordance with applicable laws and regulations for hazardous materials and disposed of at an approved facility. Excavated materials may be used as backfill if it is deemed suitable and feasible. If existing concrete must be removed to facilitate trenching activities, concrete saws and other pavement-breaking machines would be used. If this equipment is unable to access the required removal areas, jackhammers would be used on an as-needed basis to break up concrete.

Duct Bank and Cable Installation

As the trenches for the underground duct banks are excavated, cable conduits separated by spacers would be installed, and concrete would be poured around the conduits to form the duct banks. Each duct bank would typically consist of approximately 8-inch diameter PVC conduits, which would house the electrical cables. An approximately two 2-inch-diameter conduit would also be included to house ground-continuity conductor, and multiple 2-inch-diameter conduits would also be included to house the communication fibers. The dimensions of the duct banks would be approximately 6 feet wide and 2.5 feet high.

Once the duct banks are installed, engineered backfill would be imported, placed, and compacted. Excavated materials may be used in lieu of engineered backfill, as described previously. Each duct bank would have a minimum of 36 inches of cover. While the completed trench sections are being backfilled, an additional trench line would be opened farther down the alignment. This process would continue until the entire duct bank is installed.

After installation of the conduit, cables would be installed in the duct banks. Each cable segment would be pulled into the duct bank, spliced where required, and terminated at the transition where the lines convert to overhead.

Submarine Segment

Northern and Southern Approaches
Cable installation at the northern and southern Delta shorelines would be completed in sequential stages as follows:

1. A trench would be excavated.
2. A cable would be placed within the trench.
3. The hydroplow would be towed over the cable.
4. The trench would be backfilled before starting work on the next trench for the subsequent cable.

Each trench would be opened, backfilled, and recontoured within six days – three days for excavation work and cable installation and three days for backfill and recontouring activities.

At the south shore work area, trenching would be required between the four proposed underground utility vaults and the mean high-water line (approximately 70 to 80 feet) and may also be required up to approximately 30 feet waterward of the mean high-water line. It is anticipated that each trench between the southern shoreline and the underground utility vaults, would be approximately 5 feet wide and up to approximately 5 feet deep.

At the north shore, along each cable path a trench would be excavated from the shoreline to a point approximately 50 feet waterward of the mean high-water line. The cables would be installed below ground between the Delta's northern shoreline and two proposed onshore riser structures, a distance of approximately 250 feet. It is anticipated that each trench between the northern shoreline and the onshore riser structures would be approximately 5 feet wide and up to approximately 5 feet deep. To anchor the cables in place, a concrete anchor block would be placed underground in each trench, atop each cable, approximately 60 to 80 feet landward of the mean high-water line (in uplands).

Temporary workspace is required adjacent to each trench for operation of construction equipment, worker foot traffic, and possibly temporary sidecasting of soil. At the north shore work area, the proposed area of temporary workspace includes the four proposed cable paths, the areas in between the proposed cable paths, and a 40-foot buffer.

It is anticipated that each trench will be approximately 4 to 6 feet deep below existing grade and 4 to 23 feet wide, depending on soil stability and location relative to the water line. The width of each trench will depend on soil/sediment stability and whether it is feasible to use trench boxes. The trenches will be widened and shored where necessary to meet California Division of Occupational Safety and Health (Cal/OSHA) safety requirements. The need to dewater onshore trenches at and landward of the utility vaults is anticipated (see the section below entitled "Dewatering"). Trenching at the shorelines will be conducted using a long-reach excavator positioned on land. With the trench open, the cabling will be laid in the trench and the hydroplow will be towed over the cable to complete the cable installation. Immediately following installation of the cables, the trenches would be backfilled to pre-construction contours, and the areas of temporary disturbance would be restored in accordance with applicable permit conditions. Construction matting would be used as necessary when operating construction equipment within the wetlands at the northern shoreline.

Soil volume excavation estimates are provided using the approximate anticipated values for each trench. Each southern shore trench would have approximately 260 cubic yards of soil/sediment sidecasted or stockpiled. Each northern shore trench would have approximately 590 cubic yards of soil/sediment sidecasted or stockpiled. Soil/sediment removed during trenching will be either sidecasted adjacent to the trench or temporarily stored in a stockpile located in uplands. It is anticipated that the majority of the excavated soil/sediment would be used to backfill the trenches. Any suitable excess material would be either reused at the site of origin, reused at the proposed Collinsville Substation, or disposed of at an appropriate licensed facility. Any soil that is disposed of offsite or excavated soil that exhibits indicators of contamination would undergo testing prior to disposal or reuse.

Turbidity Curtains

Turbidity curtains would be used during cable installation activities, including excavation, at the southern and northern shore work areas, as operationally feasible. The purpose of the turbidity curtains is to contain the temporary turbidity plume to the in-water work area during cable installation activities.

Dewatering

Dewatering of trenches and excavations may be required during construction of the proposed duct banks, utility vaults, and trenches located landward of the mean high-water line. Dewatering is not required or proposed for the proposed trenches located in the Delta (i.e., at/waterward of the mean high-water line). In instances where dewatering is needed, excavations would be dewatered using one or more pumps and the water would be either discharged on site to the surface within the temporary workspace, if permitted, or stored in Baker tanks or similar equipment within staging areas prior to disposal off site. Baker tanks or similar equipment would be positioned in the designated temporary work area. Groundwater removed from trenches may also be used for dust control. In all cases, water discharges would be conducted in accordance with all applicable federal and state regulations and in a manner that minimizes erosion and avoids impacting surface waters in the vicinity.

Submarine Cable Installation

The submarine cables would be installed by using a hydroplow that is pulled along the riverbed behind a barge. The hydroplow would consist of a water jet and a long blade mounted to either a sled- or track-mounted submerged vehicle. The blade would contain water nozzles on the leading edge that mobilize the sediment using high-pressure water. The submarine cable would be fed from the barge down to the seabed through the blade and would exit at the foot of the blade to be laid directly into the river bottom sediments. The length and angle of the blade would determine the burial depth of the cable. As the blade moves forward and the cable is placed in the momentarily opened trench, the majority of the fluidized sediments behind the blade would fall back into the trench, effectively burying the cable.

Divers may manually guide the water jet to open a furrow and directly bury the cable in areas where operation of the hydroplow would be difficult. Divers would follow all applicable safety protocols outlined in the construction contractor's safety plan. Divers would not require additional boats to access the hydroplow. If the minimum burial depth (6 to 15 feet or greater per USACE requirements; refer to Section 2.3.1) cannot be met using the hydroplow, the use of diver-assisted water jet lances may be utilized to achieve the required depth. In the event that the required burial depth cannot be met using these methods, then cable protection measures, such as concrete mattresses or rock over, may be installed using a barge and crane would be used to install the protective cover. LSPGC does not anticipate using more than a total of 540 linear feet (LF) or 4,320 square feet of protective cover. Installation of concrete mattresses would require approximately two weeks.

The installation of each submarine cable would take between 10 and 15 days, including approximately 6 days for excavation and backfilling at the north and south shores and approximately 4 or 5 days for embedding the cable beneath the riverbed using the hydroplow. Once the hydroplow initiates the cable installation process, it would continue 24 hours per day and would not stop until the cable has been completely installed. Typical workhours would apply for all other construction activities associated with the marine segment (refer to Section 2.7.5). Approximately 4.5 months would be required to complete the installation of the proposed submarine cables beneath the riverbed, including activities such as testing the cable and towing the equipment back to the landing site to prepare for the next cable installation process and reloading the barge with the next cable.

Prior to the installation of the submarine segment, LSPGC would coordinate with USACE and the *U.S. Coast Guard* (USCG), incorporate necessary design specifications, and obtain applicable permits and approvals to ensure the installation work does not conflict with the navigational channels. In addition, all vessel traffic supporting the Proposed Project installation would be coordinated with the USCG, Vessel Traffic Service, the Harbor Master, and other applicable agencies, as required, prior to any anchoring or stationary positioning of barges or other vessels during periods of inactivity.

Existing Mining Operations

As described in Section 4.12: Mineral Resources, the submarine segment cables of the proposed LSPGC 230 kV transmission line would cross Lind Marine, Hanson Aggregates, and Suisun Associates (Suisun Associates) active dredging operations in Suisun Bay. Suisun Associates conducts sand mining operations through intentional dredging of sand and fine to medium gravel to be later used and sold for commercial purposes. LSPGC has designed the submarine segment to minimize the crossing length within Suisun Associates' operations and would obtain a lease agreement and a lease encumbrance permit/agreement from the *California State Lands Commission* (CSLC) for encumbering on the existing mining lease. With these agreements in place, Suisun Associates' activities in the vicinity of the cables would be prohibited, protecting them from incidental impacts.

2.5.4 Substation Construction

Substation Installation

Construction of the proposed LSPGC Collinsville Substation would begin with site preparation and grading of the site, followed by installation of foundations and underground equipment, and then installation and testing of electrical equipment. Prior to clearing and grubbing, all necessary surveys, marking, and installation of stormwater management features (e.g., silt fence, fiber rolls) would be completed. In addition, fencing driveways and gates would be installed (some on a temporary basis) to provide site security during construction activities. Following construction, temporary disturbance areas would typically be recontoured to match preconstruction grades.

Following site preparation and grading, all necessary below-grade construction (including structure and equipment foundations, underground ducts, ground grid, and construction of the control enclosure) would begin. Once all earthwork and below-grade work are completed, major equipment and structures would be installed and anchored to their respective foundations. It is anticipated that all major electrical and substation equipment (e.g., power transformers, reactors, power circuit breakers, control enclosure, and reactors) would be delivered to the substation footprint and placed directly on the previously constructed foundations. Other substation equipment (e.g., air disconnect switches, instrument transformers, transmission structures, insulators, conductors, rigid bus, connectors, conduit, cable trench, rebar) would be received and temporarily stored at the staging area prior to installation. Transmission interconnection line terminations and distribution connections would be completed inside the proposed LSPGC Collinsville Substation facility following final installation of the substation structures and equipment.

Civil Works

Civil work at the proposed LSPGC Collinsville Substation site would include grading and the installation of a stormwater detention basin. The graded area would be used for the construction of the substation as well as staging, spoil or import storage, drainage, and the substation driveway and parking areas. Prior to grading, the substation site would be cleared of all vegetation. The proposed slope of the substation would be approximately 1 percent from

north to south, toward the stormwater detention basin. Final elevation profiles, and resulting storm water flow directions, would be developed during the detailed engineering phase.

A proposed stormwater detention basin at the southern boundary of the proposed LSPGC Collinsville Substation has been included in the preliminary design, as depicted in Figure 2-6 and Appendix A: Detailed Route Maps. Because the proposed LSPGC Collinsville Substation would be located in Solano County, it would need to comply with the Bay Area Stormwater Management Agencies Associates (BASMAA) and the National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit (Provisions E.12) as follows:

> All regulated projects (i.e., projects that create or replace 5,000 square feet or more of impervious surface) are required to implement stormwater detention basins for low-impact development standards. Storm water capture is determined using the formula and volume capture coefficients in Urban Runoff Quality Management, WEF Manual of Practice No.23/ASCE Manual of Practice No.87 (1998), pages 175-178.

The BASMAA Post-Construction Manual recommends preliminarily sizing basin facilities at 4 percent of the tributary's impervious area. The proposed stormwater detention basin would be 4 to 5 percent of the impervious area created by the proposed LSPGC Collinsville Substation components. The basin's current design assumes that the entire 11 acres would be considered impervious during a 2-inch rain event. To conservatively estimate potential disturbance, a scenario with the largest anticipated basin design is assumed, in which the size of the detention basin would be approximately 530 feet long, 75 feet wide, and 3 feet deep; however, the actual size of the detention basin is estimated to be 3 feet deep, 25 feet wide, and 350 feet long. In total, approximately 7,700 cubic yards of material would be excavated for the basin, which would be constructed using an excavator and typical compaction machinery. The stormwater detention basin's design would be refined once geotechnical investigations are complete, which would identify groundwater level ranges in the vicinity of the substation site.

2.5.5 Telecommunication Equipment Construction

Microwave Tower Installation

As described previously, two new telecommunication paths would be installed as part of the Proposed Project. The first path would involve installing a PG&E-owned microwave tower at the proposed LSPGC Collinsville Substation. The maximum height of the tower would be 199 feet (see Figure 2-7). A crane would be used to install the tower if it is under 199 feet, and a helicopter may be used to install the tower if it is closer to 199 feet in height. The microwave tower would be a lattice tower composed of galvanized steel and the foundation would be on concrete piers. Installation of the microwave tower would involve similar methods to those described in Section 2.5.3 for proposed the 500 kV interconnection lines LSTs.

Telecommunication Lines Installation

The second path includes the telecommunications lines installed along the LSPGC Collinsville-Pittsburg 230 kV Transmission Line and the telecommunication interconnection lines. The

telecommunication interconnection lines would involve installing two new underground fiber optic cables for redundancy within the City of Pittsburg's streets until reaching a new fiber optic hub located adjacent to and north of PG&E's existing Pittsburg Substation. Each fiber optic cable would be installed and operated by a third-party telecommunications provider (e.g., AT&T, Comcast, etc.). A new underground fiber optic cable would continue from the fiber optic hub until reaching the utility vault installed as part of the proposed LSPGC Collinsville-Pittsburg 230 kV Transmission Line. These portions of fiber optic cable would be installed using HDD techniques. Within the utility vault, the fiber optic cable would be spliced to one of the proposed submarine cables.

HDD is a boring technique that would be used to install the proposed LSPGC telecommunication line. HDD involves drilling along a horizontal arc that would pass beneath the resource or infrastructure to be avoided. The HDD technology uses a hydraulically powered horizontal drilling rig supported by a drilling mud tank and a power unit for the hydraulic pumps and mud pumps. A variable-angle drilling unit would initially be adjusted to the proper design angle for the drill. The first step would be to drill a pilot hole. The first and smallest of the cutting heads would begin the pilot hole at the surveyed entry point in the entry pit. Once the pilot hole is completed, a succession of larger cutting heads and reamers would be pulled and pushed through the bore hole until it is the appropriate size for the cable. Once the drill hole reaches the correct diameter, a pulling head would be attached on the end of the cable section, and the cable would be pulled through the drill hole until it surfaces on the other side. The completed, drilled crossing would then be connected, as appropriate, and the entry and exit pits would be backfilled.

Drill lubrication containing water, bentonite clay, and additives (referred to as "drilling mud") would be used to aid the drilling, coat the walls of the bore hole, and maintain the opening. During the bore, drilling fluid would be pumped under high pressure through the drill stem to the rotating cutting head and would return the soil cuttings to a pit at the surface entry point. No additives that are considered hazardous, according to federal and state laws would be used during the HDD process. The drilling fluid would be filtered/cleaned, conditioned, and reused to the extent feasible. Excess drilling mud is anticipated to be hauled off site after construction for disposal at an approved facility. If a frac-out occurs, the boring operation would be assessed to determine whether the bentonite needs to be contained.

The third-party telecommunications provider that would install the underground lines would follow their best standard practices for installation and access to public and private property, and they would be responsible for industry standard practices of avoiding existing buried utilities and meeting vertical and horizontal clearance requirements.

A new OPGW cable would be installed above the primary conductors between the proposed overhead riser structures and the proposed LSPGC Collinsville Substation along the new structures installed as part of the overhead segment of the LSPGC 230 kV transmission line. The aboveground telecommunication lines would be installed in a similar manner to that of the transmission and distribution conductor installation, as described in Section 2.5.3.

2.5.6 Traffic Control

No trails, paths, or driveways would be impacted by the Proposed Project. Temporary impacts to sidewalks may occur during the construction of the proposed LSPGC telecommunication interconnection lines within the City of Pittsburg.

Traffic control procedures may be implemented intermittently along Stratton Lane, Marina Boulevard, Herb White Way, Halsey Way, Halsey Court, and adjacent roadways within the City of Pittsburg during construction and times of deliveries. Flaggers or other traffic control measures would be utilized to guide traffic around active work areas in a safe manner. Temporary lane closures may also be required during construction, which would be coordinated with applicable counties and the City of Pittsburg and emergency service providers through the encroachment permit process. No detours are anticipated.

LSPGC would secure encroachment permits as required from Solano County, Contra Costa County, and the City of Pittsburg and implement the corresponding traffic control plans prior to encroachment or lane closures activities.

2.5.7 Dust, Erosion, and Runoff Controls

Dust

During construction, migration of dust from the construction sites would be limited by the APMs and CMs outlined in Section 4.3: Air Quality. These measures may include the use of water trucks and other dust control measures, including the application of non-toxic soil binders.

Erosion

LSPGC would obtain and comply with the Construction Stormwater General Permit Order 2022-0057-DWQ and implement the measures identified in the required SWPPP to effectively control erosion and minimize any associated impacts during the construction phase.

Runoff

Stormwater runoff would also be managed during construction in accordance with the Project SWPPP. In addition, a stormwater detention basin would be installed on the southern portion of the proposed LSPGC Collinsville Substation, as depicted in Figure 2-6 and Appendix A: Detailed Route Maps, to facilitate the return of water captured on site to the groundwater basin. The stormwater detention basin would be at or below the substation grade to collect stormwater runoff in accordance with the BASMAA's Low Impact Development standards, which aim to mimic pre-project site hydrology. All stormwater runoff from the Proposed Project would filter through the surrounding soil into the groundwater basin or evaporate.

2.5.9 Water Use and Dewatering

Water Use

Water that is needed during construction would be obtained from one or more sources, including municipal sources or private purveyors. In addition, SMUD operates an existing well, located northeast of the proposed LSPGC Collinsville Substation and across Stratton Lane, that may be suitable for obtaining water. It is estimated that approximately 6 million gallons of water would be needed in total during construction for dust control, compaction, and concrete work. Approximately 5 percent of the water required from the Proposed Project may be obtained from existing wells. The exact location of an offsite water source has not yet been determined. It is expected that offsite water may be sourced from a provider up to 18 miles from the proposed substation site in Rio Vista; however, a suitable water source provided may be identified closer to the substation site.

During construction, LSPGC 's water use would account for approximately 96 percent of the total and PG&E would account for the remaining 4 percent. Of the LSPGC water allocation, approximately 94 percent (roughly 5,400,000 gallons) would be used for LSPGC's substation construction (e.g., concrete work and dust control), and approximately 6 percent (roughly 350,000 gallons) would be used for transmission line construction (e.g., dust control). PG&E's water usage would be primarily for dust control during transmission line construction (roughly 250,000 gallons). Construction crews would be responsible for providing their own drinking water during construction.

During operations, water usage would be negligible. The Proposed Project would not require water sources for operation and maintenance activities as the proposed LSPGC Collinsville Substation would be unmanned.

Dewatering

In instances where groundwater is encountered, excavations would be dewatered using one or more pumps, and the water would be either discharged on site to the surface, if permitted, or stored in Baker tanks or similar equipment within construction work areas prior to disposal off site. Dewatered water may also be used for dust control. In all cases, water discharges would be conducted in accordance with all applicable federal and state regulations and in a manner that minimizes erosion and avoids impacting surface waters in the vicinity.

2.5.10 Hazardous Materials and Management

Hazardous Materials

Construction of the Proposed Project would require the limited use of hazardous materials (e.g., fuels, lubricants, cleaning solvents, chemicals). All hazardous materials would be stored, handled, and used in accordance with applicable regulations. *Safety Data Sheets* (SDS) would be made available at the construction site for all workers. Based on the anticipated volume of hazardous liquid materials (e.g., fuel) that would be stored and dispensed at a staging area, a *Spill Prevention, Control, and Countermeasure* (SPCC) Plan would be required (in accordance with

applicable provisions of Title 40, parts 112.1 to 112.7 of the CFR). An SPCC Plan, covering the operation and maintenance phase of the LSPGC Proposed Project components, would also be prepared and implemented, as applicable.

Although not expected, if pre-existing hazardous waste is encountered on the Proposed Project site, it would be removed and disposed of in a manner consistent with all state and federal regulations. It is not anticipated that pesticides would be used during construction. As discussed in Section 2.9, herbicides may be used during operation and maintenance for vegetation management.

Hazardous Materials Management

Prior to construction, an SPCC Plan and *Hazardous Materials Management Plan* (HMMP) would be prepared, describing hazardous materials use, transport, storage, management, and disposal protocols. Construction would not begin until the SPCC Plan and HMMP are complete. The plans would be prepared in accordance with relevant state and federal guidelines and regulations (e.g., Cal/OSHA). The HMMP would include the following information related to hazardous materials and waste as applicable:

- A list of hazardous materials present on site during construction and operation to be updated as needed along with the product SDS for each and other information regarding storage, application, transportation, and disposal requirements
- A Hazardous Materials Communication Plan
- Assignments and responsibilities of Proposed Project Health and Safety roles
- Standards for any secondary containment and countermeasures that would be required for hazardous materials
- Spill response procedures based on product and quantity

The procedures would include the materials to be used, location(s) of such materials within the Proposed Project area, and disposal protocols as well as protocols for the management, testing, reporting, and disposal of potentially contaminated soils or groundwater observed or discovered during construction. This would include termination of work within the area of suspected contamination sampling by an Cal/OSHA-trained individual and testing at a certified laboratory. An HMMP covering the operation and maintenance phase of the LSPGC Proposed Project components would also be prepared and implemented, as applicable.

2.5.12 Waste Generation and Management

Solid Waste

Construction debris volumes are estimated at a total of 2,750 cubic yards. During construction, LSPGC would account for approximately 78 percent of the total waste volume and PG&E would account for the remaining 22 percent. Of the LSPGC waste volume allocation, LSPGC's substation construction would account for approximately 80 percent (approximately 1,700 cubic yards) of the waste volume and the 230 kV transmission line would account for approximately 20 percent (approximately 425 cubic yards). Estimated waste volumes for PG&E project components include approximately 360 cubic yards for the transmission and distribution construction and 250 cubic yards for the substation interconnection and communication yard. During operations, waste would be negligible.

Solid waste generated during construction would primarily be non-hazardous waste, including metal, paper, and plastic packaging. Earthwork associated with the Proposed Project would require cut-and-fill, and a balanced cut-and-fill approach is planned. Should there be any excess fill material after the completion of grading, it would be minimal. If possible, recyclable construction material would be transported to an approved recycling facility. Construction waste that cannot be recycled would ultimately be disposed of at the Potrero Hills Landfill, Recology Hay Road Landfill, Mt. Diablo Recycling Center, or another approved facility. Construction waste would be disposed of properly and in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste that would include, but not be limited to, the California Integrated Waste Management Act of 1989, which set reduction rates for solid waste sent to landfills.

Liquid Waste

Liquid waste streams anticipated for the Proposed Project primarily include sanitary waste and storm water runoff. Sanitary waste from self-contained portable toilets would be routinely pumped as needed and would be taken by the vendor to a proper sanitary waste facility for disposal. The sanitary waste that would be generated is estimated at 100 to 150 gallons per week per 10 workers on site. Sanitary waste would be transported by the licensed sanitary waste service providers for off-site disposal at their contracted treatment, storage, and disposal facility.

Stormwater runoff would be managed according to a SWPPP prepared to comply with the Construction Stormwater General Permit Order 2022-0057-DWQ and approved by the Central Valley Regional Water Quality Control Board. While contaminated groundwater is not anticipated to be encountered, excavation dewatering effluent may be produced. This effluent would be filtered and managed according to the dewatering plan developed as part of the SWPPP.

Hazardous Waste

As discussed in Section 2.5.10: Hazardous Materials and Management, construction would require the limited use of hazardous materials (e.g., fuels, lubricants, cleaning solvents, and

chemicals). Additionally, the Proposed Project would include transformers containing mineral oil, which is considered a hazardous material in California. Additional potentially hazardous waste sources during construction include contaminated soils, incidental spill waste, and concrete washout. Waste generated or encountered would be handled, contained, and disposed of according to local, state, and federal regulations. In addition, prior to construction, an HMMP would be prepared describing hazardous materials use, transport, storage, management, and disposal protocols. This could include containerization in California Department of Transportation-approved vessels, review of relevant SDSs, use of secondary containment, and/or training of material handlers to ensure worker safety and the reduction of cross-contamination. The location for hazardous waste disposal would be identified in the HMMP.

2.5.13 Fire Prevention and Response

The Proposed Project would not be located in an area designated as a high Fire Hazard Severity Zone by the California Department of Forestry and Fire Protection or within a CPUC-designated High Fire Threat District. Tree trimming and vegetation removal would be implemented, as necessary, to prevent fire. Fire response services would be provided by the Montezuma and Contra Costa fire protection districts.

The Proposed Project includes APM FIRE-1, which requires the preparation and implementation of a project-specific *Construction Fire Prevention Plan* (CFPP) that would address construction fire risks and minimization measures. During construction activities that are considered "hot work" (e.g., welding, grinding, or any other activity that creates hot sparks), a 10-foot buffer around that activity would be implemented, and vegetation would be cleared to ensure sparks do not create a fire hazard. The proposed workspaces account for these buffer areas. For activities that do not produce sparks but still have potential to produce a fire hazard, such as ground rod or ground wire installation, a 5-foot buffer would be cleared of vegetation, and additional details (e.g., handling sparks) would be provided in the CFPP.

LSPGC would create a fire break around the proposed LSPGC Collinsville Substation in accordance with all applicable state and federal regulations. The fire break would be achieved by creating an approximately 30-foot vegetation-free buffer zone surrounding the substation's wall. Gravel would be applied for the first 3 feet of the fire break, and the remaining 27 feet would be cleared of vegetation using mechanical methods or state-approved herbicides, as appropriate. In this vegetation-free buffer zone, no vegetation above 3 inches in height would be allowed.

2.7 Construction Workforce, Equipment, Traffic, and Schedule

2.7.1 Construction Workforce

Construction of the Proposed Project components would occur simultaneously. The peak employment is anticipated to be approximately 206 workers per day but, on average, the workforce on site would be smaller (approximately 72 workers). Total vehicle round trips during this construction period would be approximately 282 per day, consisting of approximately 40 truck trips (based on substation cut and fill) as well as 243 automobile worker trips. Additionally, workers would commute to the Proposed Project sites from adjacent rural areas and would utilize options such as vanpools and carpools to reduce their reliance on single-occupancy vehicles. Any traveling workers that would not return to their homes between workdays would obtain temporary off-site accommodations (e.g., hotels or other short-term rentals in the region) during construction. Hotels and short-term rentals are available in the Proposed Project area vicinity, including Suisun City, Fairfield, and Pittsburg. No on-site temporary housing would be constructed.

2.7.2 Construction Equipment

The equipment that would be used to construct each Proposed Project component and applicable phase is provided in Table 2-9, including assumptions about the anticipated engine output (horsepower), fuel type, equipment quantity, and daily use.

Table 2-9 Proposed Construction Equipment

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Survey					
Pickup: 1/2 Ton	395	Gasoline	2	4	26
LSPGC Collinsville Substation – site development					
Truck: water, 4,000-gallon	300	Diesel	4	8	76
Loader: 4–5-yard	230	Diesel	2	8	76
Truck: dump 10–12-yard	415	Diesel	5	8	76
Motor grader	250	Diesel	2	8	76
Scraper	410	Diesel	4	8	76
Vibratory roller	157	Diesel	2	8	76
Pickup: 1/2-ton	395	Gasoline	4	4	76
Generator: 25 kW	36	Diesel	2	8	76
Forklift: 15,000-pound	130	Diesel	4	6	76
Pickup: 1-ton	410	Diesel	4	4	76
844 loader	417	Diesel	1	6	76
Semi truck	500	Diesel	2	6	76
LSPGC Collinsville Substation – below-grade construction					
Truck: water, 4,000-gallons	300	Diesel	2	8	152
Excavator	108	Diesel	2	8	152
Forklift: 15,000-reach	130	Diesel	3	8	152
Backhoe: 2x4	68	Diesel	2	6	152

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Pickup: 1/2-ton	395	Gasoline	4	2	152
Pickup: 1-ton	410	Diesel	4	2	152
Excavator: mini	70	Diesel	1	5	152
Generator: 25 kW	36	Diesel	1	8	152
Truck: concrete	425	Diesel	4	5	152
Loader: 4–5-yard	230	Diesel	2	8	152
Pressure digger: lo-drill (tracked)	275	Diesel	1	8	152
Excavator	275	Diesel	1	8	152
Truck: dump, 10–12-yard	415	Diesel	3	5	152
Tool: van: Conex, 20-foot	n/a	n/a	6	8	152
Trencher	75	Diesel	2	5	152
Skid steer loader	74	Diesel	2	8	152
Wire Trailer/Tensioner	175	Diesel	1	5	152
Wire Puller	175	Diesel	1	5	152
LSPGC Collinsville Substation – above-grade construction					
Wire trailer/tensioner	175	Diesel	1	5	333
Wire puller	175	Diesel	1	5	333
Crane: 200-ton	275	Diesel	1	4	333
Pickup: 1/2-ton	395	Gasoline	4	2	333
Pickup: 1-ton	410	Diesel	4	2	333

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Welding truck	395	Diesel	2	2	333
Generator: 25 kW	36	Diesel	2	8	333
Crane: 35 ton (manlift)	250	Diesel	2	5	333
Forklift: 10,000 reach	130	Diesel	2	4	333
Forklift: 15,000 pounds	130	Diesel	1	4	333
Loader: 4–5-yard	74	Diesel	2	5	333
Manlift: 120-foot	74	Diesel	2	4	333
PG&E 500 kV Interconnection – structure foundation installation					
Pressure digger: lo-drill (tracked)	275	Diesel	1	8	54
Truck: concrete	425	Diesel	4	5	54
Pickup: 1-ton	410	Diesel	4	2	70
Truck: water, 4,000-gallon	300	Diesel	2	6	70
Truck: dump, 10–12-yard	415	Diesel	2	8	20
Skid steer loader	74	Diesel	1	8	35
Forklift: 10,000-reach	130	Diesel	2	8	35
Crane: 35 ton (manlift)	250	Diesel	1	4	35
Loader: 4–5 yards	230	Diesel	1	8	35
D4 type dozer	130	Diesel	1	8	20
Excavator	250	Diesel	1	8	20
Vibratory roller	125	Diesel	1	8	20

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
PG&E 500 kV interconnection lines – structure installation					
Crane: 35-ton (manlift)	250	Diesel	2	8	40
Helicopter: heavy duty	3,200	Jet	1	5	13
Pickup: 1/2-ton	395	Gasoline	2	2	40
Forklift: 25,000-pound	175	Diesel	1	5	20
Pickup: 1-ton	410	Diesel	2	2	40
Crane: 200-ton	275	Diesel	1	8	40
Truck: water, 4,000-gallon	300	Diesel	2	6	40
Jet fuel truck	300	Diesel	1	8	13
PG&E 500 kV interconnection lines – conductor installation					
Helicopter	700	Jet	1	8	12
Jet fuel truck	300	Diesel	1	8	12
Crane: 35 ton (manlift)	250	Diesel	1	8	40
Pickup: 1/2-ton	395	Gasoline	4	2	40
Pickup: 1-ton	410	Diesel	4	2	40
D8 sag dozer	200	Diesel	1	8	6
Wire puller	175	Diesel	1	5	40
Truck: water, 4,000-gallon	300	Diesel	2	6	40
Wire trailer/tensioner	175	Diesel	1	5	40
PG&E 500 kV transposition structures – foundation installation					

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Pressure digger: lo-drill (tracked)	275	Diesel	1	8	36
Truck: concrete	425	Diesel	2	4	20
Pickup: 1-ton	410	Diesel	2	2	48
Truck: water, 4,000-gallon	300	Diesel	1	6	48
Truck: dump, 10–12-yard	415	Diesel	1	8	30
Skid steer loader	74	Diesel	1	4	30
PG&E 500 kV transposition structures – structure and conductor installation					
Crane: 35-ton (manlift)	250	Diesel	1	8	36
Pickup: 1/2-ton	395	Gasoline	4	2	36
Pickup: 1-ton	410	Diesel	4	2	36
Crane: 200-ton	275	Diesel	1	8	36
D8 sag dozer	200	Diesel	1	4	3
Truck: water, 4,000-gallon	300	Diesel	1	4	36
Wire puller	175	Diesel	1	4	36
Wire trailer/ tensioner	175	Diesel	1	4	36
Helicopter	700	Jet	1	3	8
Jet fuel truck	300	Diesel	1	N/A	8
LSPGC 230 kV transmission line overhead segment – access road construction					
Pickup: 1/2-ton	395	Gasoline	2	4	16
Pickup: 1-ton	410	Diesel	2	4	16

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Motor grader	250	Diesel	1	8	16
Truck: dump, 10–12-yard	415	Diesel	2	8	16
Skid steer loader	74	Diesel	1	8	16
Truck: water, 4,000-gallon	300	Diesel	2	6	16
D6 type dozer	250	Diesel	1	8	16
Excavator	250	Diesel	1	8	16
LSPGC 230 kV transmission line overhead segment – structure foundation installation					
Pressure digger: lo-drill (tracked)	275	Diesel	1	8	22
Truck: concrete	425	Diesel	4	5	22
Pickup: 1-ton	410	Diesel	4	2	22
Truck: water, 4,000-gallon	300	Diesel	2	6	22
Truck: dump, 10–12-yard	415	Diesel	2	8	22
Skid steer loader	74	Diesel	1	8	22
Forklift: 10,000-reach	130	Diesel	2	8	22
Crane: 35-ton (manlift)	250	Diesel	1	4	22
844 loader	417	Diesel	1	8	22
Rough terrain crane	185	Diesel	1	2	22
LSPGC 230 kV overhead segment – structure installation					
Crane: 35-ton (manlift)	250	Diesel	2	8	24
Pickup: 1/2-ton	395	Gasoline	2	2	24

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Forklift: 15,000-pound	130	Diesel	1	5	24
Pickup: 1-ton	410	Diesel	2	2	24
Crane: 200-ton	275	Diesel	1	8	24
844 loader	417	Diesel	1	8	24
Truck: water, 4,000-gallon	300	Diesel	2	6	24
LSPGC 230 kV overhead segment – conductor installation					
Helicopter	700	Jet	1	8	6
Jet fuel truck	300	Diesel	1	8	26
Crane: 35-ton (manlift)	250	Diesel	6	8	26
Pickup: 1/2-ton	395	Gasoline	4	2	26
Pickup: 1-ton	410	Diesel	4	2	26
D8 sag dozer	200	Diesel	3	8	26
Wire puller	175	Diesel	1	5	26
Truck: water, 4,000-gallon	300	Diesel	2	6	26
Wire trailer/tensioner	175	Diesel	1	5	26
LSPGC 230 kV transmission line submarine segment – submarine cable installation					
Water Pumps	325	Diesel	2	15	122
Deck Generator	170	Diesel	1	21	122
Deck Equipment	100	Diesel	1	21	122
Anchor Winches	225	Diesel	2	12	122

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Deck Winch	100	Diesel	1	12	122
Crane	180	Diesel	1	5	122
Linear Cable Engine	200	Diesel	3	12	122
Barge Tug	2000	Diesel	1	11	122
Deck Generator - 100kW	100	Diesel	2	17	122
Small Boats	250	Diesel	1	16	122
Deck Equipment	100	Diesel	1	6	67
Crane	180	Diesel	1	2	67
Dive Compressor	50	Diesel	1	2	67
Deck Generator	170	Diesel	1	12	67
Anchor Tug	1320	Diesel	1	22	70
Deck Generator - 100kW	100	Diesel	1	22	70
Survey Vessel	250	Diesel	1	11	18
Pull In Winch	225	Diesel	1	11	20
LSPGC 230 kV transmission line submarine segment – southern transition approach construction					
Survey Vessel	250	Diesel	N/A	N/A	N/A
Pull In Winch	225	Diesel	N/A	N/A	138
Onshore crane	180	Diesel	1	8	138
Crane: 200-ton	275	Diesel	1	6	138
Onshore vibratory hammer	300	Diesel	1	8	138

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Air compressor	50	Diesel	1	8	138
Truck: dump, 10–12-yard	415	Diesel	4	6	138
Onshore dewatering equipment	50	Diesel	2	8	138
Onshore Trucks	300	Diesel	4	8	138
LSPGC 230 kV transmission line submarine segment – northern transition approach construction					
Onshore excavator	600	Diesel	1	8	138
Onshore end loader	250	Diesel	1	8	138
Onshore crane	180	Diesel	1	8	138
Air compressor	50	Diesel	1	8	138
Truck: dump, 10–12-yard	415	Diesel	1	6	138
Onshore dewatering equipment	50	Diesel	2	8	138
LSPGC 230 kV transmission line underground segment – substation getaways					
Pickup: 1/2-ton	395	Gasoline	4	2	70
Pickup: 1-ton	410	Diesel	4	2	70
Welding truck	395	Diesel	2	2	70
Generator: 25 kW	36	Diesel	2	8	70
Crane: 35-ton (manlift)	250	Diesel	2	5	70
Forklift: 10,000-reach	130	Diesel	2	4	70
Forklift: 15,000-pound	130	Diesel	1	4	70

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Loader: 4–5-yard	74	Diesel	2	5	70
Wire trailer/ tensioner	175	Diesel	1	5	70
Wire puller	175	Diesel	1	5	70
Skid steer loader	74	Diesel	2	8	70
Backhoe: 2x4	68	Diesel	2	6	70
PG&E 12 kV distribution line					
Pickup: 1/2-ton	395	Gasoline	2	2	51
Wire trailer/tensioner	175	Diesel	1	5	51
Wire puller	175	Diesel	1	5	51
Crane: 35-ton (manlift)	250	Diesel	2	8	51
Pickup: 1-ton	410	Diesel	2	2	51
Forklift: 15,000-reach	130	Diesel	2	6	51
Pressure digger: lo-drill (tracked)	275	Diesel	1	8	51
Truck: dump, 10–12-yard	415	Diesel	2	8	51
Skid steer loader	74	Diesel	2	8	51
Truck: concrete	425	Diesel	4	5	51
Backhoe: 2x4	68	Diesel	1	8	51
LSPGC telecommunication interconnection lines					
Crane: 35-ton (manlift)	250	Diesel	2	8	103
Forklift: 10,000-reach	130	Diesel	1	5	103

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Excavator: mini	70	Diesel	2	5	103
Truck: dump, 10–12-yard	415	Diesel	3	5	103
Skid steer loader	74	Diesel	2	8	103
Trencher	75	Diesel	1	8	103
Pickup: 1-ton	410	Diesel	3	2	103
Truck: concrete	425	Diesel	2	5	103
Wire trailer/ tensioner	175	Diesel	1	5	103
Wire puller	175	Diesel	1	5	103
PG&E Pittsburg Substation modifications					
Pickup: 1/2-ton	395	Gasoline	4	2	250
Pickup: 1-ton	410	Diesel	2	2	250
Welding truck	395	Diesel	1	5	144
Crane: 35-ton (manlift)	250	Diesel	1	5	144
Forklift: 15,000-pound	130	Diesel	2	4	144
Manlift: 120-foot	74	Diesel	2	7	144
Truck - Water 4 K	300	Diesel	1	5	144
Excavator	108	Diesel	1	6	144
Excavator - Mini	70	Diesel	2	5	144
Generator – 25 Kw	36	Diesel	1	8	144
Truck - Concrete	425	Diesel	4	5	144

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Loader - 4-5 Yd	230	Diesel	1	6	144
Pressure Digger - Lo-Drill (Tracked)	275	Diesel	1	8	144
Excavator	275	Diesel	1	8	144
Truck - Dump 10-12 Yd	415	Diesel	4	5	144
Tool - Van/Conex 20'	0	N/A	2	8	144
Skid steer loader	74	Diesel	2	8	144
LSPGC testing and commissioning					
Pickup: 1/2-ton	395	Gasoline	4	2	174
Pickup: 1-ton	410	Diesel	4	2	174
Manlift: 40-feet	49	Diesel	3	8	174
Truck: water, 4,000-gallon	300	Diesel	1	8	174
Tool van: Conex, 20-foot	0	n/a	6	8	174
Deck barge	n/a	n/a	0	0	174
Deck generator	170	Diesel	0	0	174
Crane: 35-ton (manlift)	250	Diesel	2	8	174
LSPGC site and ROW restoration					
Pickup: 1-ton	410	Diesel	4	2	140
Motor grader	250	Diesel	2	8	140
Backhoe: 2x4	68	Diesel	2	8	140
Truck: water, 4,000-gallon	300	Diesel	2	8	140

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Skid steer loader	74	Diesel	1	8	140
Excavator	250	Diesel	1	8	140
Dozer, D6-type	250	Diesel	1	8	140
Pickup: 1/2-ton	395	Gasoline	4	2	140
Truck: dump, 10–12-yard	415	Diesel	2	8	140
Pickup: 1-ton	410	Diesel	4	2	140
PG&E Tesla Substation modifications					
Pickup - 1/2 Ton	395	Gasoline	4	2	144
Pickup - 1 Ton	410	Diesel	4	2	144
Crane - 35 Ton (Manlift)	250	Diesel	2	5	72
Forklift -15,000 lb	130	Diesel	1	4	72
Manlift - 40'	49	Diesel	3	5	72
Excavator	108	Diesel	1	8	72
Generator – 25 Kw	36	Diesel	1	8	144
Truck - Concrete	425	Diesel	1	3	72
Truck - Dump 10-12 Yd	415	Diesel	1	5	72
Tool - Van/Conex 20'	0	NA	2	8	72
Skid steer loader	74	Diesel	1	8	72
PG&E Vaca Dixon Substation modifications					
Pickup - 1/2 Ton	395	Gasoline	4	2	224

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Pickup - 1 Ton	410	Diesel	4	2	224
Crane - 35 Ton (Manlift)	250	Diesel	2	5	132
Forklift -15,000 lb	130	Diesel	1	4	132
Manlift - 40'	49	Diesel	3	5	132
Excavator	108	Diesel	1	8	132
Generator – 25 Kw	36	Diesel	1	8	224
Truck - Concrete	425	Diesel	1	3	132
Truck - Dump 10-12 Yd	415	Diesel	1	5	132
Tool - Van/Conex 20'	0	NA	2	8	67
Skid steer loader	74	Diesel	1	8	132
PG&E IT work at Collinsville Substation					
Pickup - 1/2 Ton	395	Gasoline	4	2	202
Pickup - 1 Ton	410	Diesel	2	2	202
Crane - 35 Ton (Manlift)	250	Diesel	1	5	150
Forklift -15,000 lb	130	Diesel	2	4	150
120' Manlift	74	Diesel	1	7	150
Truck - Water 4 K	300	Diesel	1	5	150
Excavator	108	Diesel	1	6	150
Excavator - Mini	70	Diesel	2	5	150
Generator – 25 Kw	36	Diesel	1	8	202

Equipment name	Engine output (horsepower)	Anticipated fuel type	Approximate equipment quantity	Approximate daily use (hours)	Working days
Truck - Concrete	425	Diesel	4	5	150
Loader - 4-5 Yd	230	Diesel	1	6	150
Pressure Digger - Lo-Drill (Tracked)	275	Diesel	1	8	150
Excavator	275	Diesel	1	8	150
Truck - Dump 10-12 Yd	415	Diesel	2	5	150

2.7.3 Construction Traffic

Construction vehicles and equipment would typically access the Proposed Project areas via existing roads and highways, as follows:

- Collinsville Substation, PG&E telecommunication yard, 230 kV transmission line overhead segment, 12 kV distribution line: Collinsville Road and Stratton Lane
- 500 kV interconnection lines: Collinsville Road, Stratton Lane, and Talbert Lane
- Pittsburg Substation and 230 kV transmission line underground segment: Railroad Avenue exit from State Route 4
- Telecommunication interconnection lines: Marina Boulevard, Herb White Way, Halsey Way, Halsey Court
- Vaca Dixon Substation: Weber Road exit and N. Meridian Road from Interstate 80
- Tesla Substation: Midway Road
- Transposition Site A: Box R Ranch Road
- Transposition Site B: Mauds Lane
- Transposition Site C: Montezuma Hills Road
- Transposition Site D: Kellogg Creek Road

The peak vehicle trips for the Proposed Project would occur over approximately 12 months during the below-grade and above-grade construction at the LSPGC Collinsville Substation and the LSPGC 230 kV Collinsville-Pittsburg Transmission Line. Total maximum vehicle round trips during this construction period would be approximately 282 per day, consisting of approximately 40 daily truck trips.

2.7.4 Construction Schedule

Construction is anticipated to occur from May 2026 to July 2028 and would take approximately 27 months to complete. Per the CAISO technical specifications, the Proposed Project is required to be energized by June 1, 2028. The proposed construction schedule is summarized in Table 2-10.

The Proposed Project includes construction occurring on land and in water. The installation of the submarine cables is expected to take approximately 3 months. In-water work would be scheduled to occur between July 1 and October 31 when listed fish are least likely to be present, which is consistent with state and federal avoidance and minimization recommendations. Work associated with the submarine segment outside this window would consist of mobilization or demobilization and would not include activities that would disturb the Delta substrate. In-water work would not be scheduled to occur between November 1 and June 30; however, a possible emergency could arise that requires LSPGC to work beyond October 31 to complete the installation of a submarine cable which cannot be stopped once started, such as due to a storm event or equipment malfunction. If this occurred, LSPGC would notify the applicable agencies prior to continuing work beyond October 31. Land-based construction would occur year-round or as authorized by permits and authorizations.

Table 2-10 Proposed Construction Schedule and Workforce

Construction component/phase	Start date	End date	Active workdays [a]	Maximum crew members per day
Survey	May 1, 2026	June 1, 2026	26	4
LSPGC Collinsville Substation	May 1, 2026	February 11, 2028	533	40
Site development	*May 1, 2026*	*August 1, 2026*	*76*	*12*
Below-grade construction	*July 14, 2026*	*January 14, 2027*	*152*	*40*
Above-grade construction	*January 2, 2027*	*February 11, 2028*	*333*	*30*
PG&E 500 kV interconnection lines	May 17, 2027	November 19, 2027	150	30
Foundation installation	*May 17, 2027*	*August 25, 2027*	*70*	*15*
Structure installation	*July 29, 2027*	*September 23, 2027*	*40*	*15*
Conductor installation	*September 24, 2027*	*November 19, 2027*	*40*	*30*
PG&E 500 kV transposition structures	June 1, 2027	February 29, 2028	84	30
Foundation installation	*June 1, 2027*	*July 28, 2027*	*48*	*15*
Structure and conductor installation	*January 18, 2028*	*February 29, 2028*	*36*	*30*
LSPGC 230 kV transmission line overhead segment	May 1, 2027	August 15, 2027	88	12
Access road construction	*May 1, 2027*	*May 19, 2027*	*16*	*12*
Foundation installation	*May 20, 2027*	*June 15, 2027*	*22*	*12*
Structure installation	*June 16, 2027*	*July 15, 2027*	*24*	*12*
Conductor installation	*July 16, 2027*	*August 15, 2027*	*26*	*30*
LSPGC 230 kV transmission line submarine segment	July 1, 2027	November 30, 2027	138	25
Cable installation	*July 1, 2027*	*October 31, 2027*	*122*	*25*
	June 15, 2027	*November 30, 2027*	*138*	*25*
Southern substation getaways	*June 1, 2027*	*August 23, 2027*	*70*	*20*
Northern transition approach construction	*June 15, 2027*	*November 30, 2027*	*138*	*20*
LSPGC 230 kV transmission line underground segment [b]	June 1, 2027	August 23, 2027	70	20
PG&E Pittsburg Substation modifications	May 1, 2027	May 31, 2028	250	15

Construction component/phase	Start date	End date	Active workdays [a]	Maximum crew members per day
PG&E Vaca-Dixon Substation modifications	May 1, 2027	February 1, 2028	224	15
PG&E Tesla Substation modifications	September 1, 2027	February 28, 2028	144	15
PG&E IT work at Collinsville Substation	January 1, 2027	August 31, 2027	202	15
PG&E 12 kV distribution line	June 1. 2026	August 1, 2026	51	10
LSPGC telecommunication line interconnection	June 1, 2027	October 1, 2027	103	12
LSPGC testing and commissioning [c]	November 1, 2027	June 1, 2028	174	24
LSPGC site and ROW restoration	February 1, 2028	July 17, 2028	140	12

Notes:

[a] Active workdays are approximate and exclude all Sundays and federal holidays between the schedule start and end date for each construction phase. Work activities along linear project features may occur continuously, but the activities at a single structure would be periodic.

[b] In the air quality calculations sheet, the LSPGC 230 kV underground segment is listed as "230 kV - Southern Construction – Substation Getaways."

[c] The testing and commissioning duration also includes PG&E's construction and testing activities to connect the proposed LSPGC Collinsville Substation.

2.7.5 Construction Workdays and Workhours

Terrestrial construction activities on the Proposed Project would generally be scheduled to occur during daylight hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Construction is not anticipated on federal holidays or Sundays. Terrestrial construction activities could infrequently be scheduled outside of these periods to avoid or reduce schedule delays, complete construction activities (e.g., continuous concrete pours), accommodate the schedule for system outages, or address emergencies. Terrestrial night work is not anticipated to be necessary but could be required in limited circumstances. PG&E may require night work for emergency outage restoration at either PG&E's existing Pittsburg Substation or the proposed PG&E 500 kV interconnection lines. LSPGC may require up to 30 days of night work to support schedule recovery, such as due to weather delays, or for system commissioning of the proposed LSPGC Collinsville Substation.

Construction of the LSPGC 230 kV transmission line submarine segment would typically occur 24 hours per day, 7 days per week until complete.

2.8 Post-construction

2.8.1 Commissioning and Testing

Configuring (commissioning) and testing would begin with pre-commissioning activities that include equipment fit-up inspections and simple electrical tests to ensure the equipment is connected properly. After pre-commissioning, the first commissioning activities would include transformer energization followed by auxiliary electrical tests. Lastly, the power electronic devices and protection/control system would be tested and programmed per the Proposed Project requirements. After this, the Proposed Project would be ready for energization.

Configuring and testing would require the use of pickup trucks, forklifts, and manlifts and would require approximately 24 construction personnel to be on site. Configuring and testing the Proposed Project would take approximately 7 months between November 2027 and June 2028 for a total duration of approximately 174 days, at which point the Proposed Project would be fully functional and ready for commercial operation.

2.8.2 Demobilization and Site Restoration

Construction equipment would be removed from work areas once all work activities are complete, and temporarily disturbed areas would be restored to their pre-construction condition or as otherwise provided by new or existing easements. Revegetation activities would be conducted in accordance with the SWPPP and APMs. Restoration could include recontouring, reseeding, and planting replacement vegetation, as appropriate. Additional restoration opportunities could include preparing the site for future utility uses. Erosion control measures may be required and would also be implemented in accordance with the SWPPP and APMs. Gravel placed to facilitate construction may be left in place if requested by applicable landowners.

All work areas would be carefully assessed to be sure all residual construction debris and waste are removed and transported off site to an approved disposal facility. Waste materials that are routinely recycled would be recycled in an appropriate fashion at an approved disposal facility.

Temporary work areas that are disturbed by grading, auguring, or equipment movement would be restored to their original contours and drainage patterns unless otherwise required by permit conditions or landowner agreements. Work areas would be decompacted, and salvaged topsoil materials would be respread following recontouring to aid in the restoration of temporarily disturbed areas.

2.9 Operation and Maintenance

All project components would be inspected and maintained to comply with applicable state and federal regulations, including but not limited to CPUC GO 95, GO 128, GO 165, and GO 174. GO 95 sets forth comprehensive rules for the design, construction, maintenance, and inspection of overhead electric supply and communication lines, and specifies requirements for clearances,

strength, and other technical standards. GO 128 provides rules for the design, construction, and maintenance of underground electric supply and communication systems. GO 165 establishes inspection and maintenance requirements for electric distribution and transmission facilities, excluding substations, and it mandates utilities to perform regular inspections, maintain records, and report annually on their inspection activities to ensure system safety and reliability. GO 174 outlines inspection and maintenance requirements for electric utility substations. It requires utilities to develop and implement inspection programs, maintain records, and submit annual reports summarizing their inspection activities to promote substation safety and reliability. Maintenance work (e.g., high-voltage capital repair or replacement) would also be conducted in accordance with NESC, Cal/OSHA and other applicable regulations and standards.

2.9.1 System Controls and Operation Staff

No new permanent operational staff would be required for the Proposed Project. The LSPGC Collinsville Substation would be unmanned during operation and would be operated remotely by LSPGC's 24-hour control center in Austin, Texas. Day-to-day management of the substation would be conducted by LSPGC's asset management teams based in Texas and Missouri. The substation would also be monitored by CAISO's control center in Folsom, California, and CAISO would have operational control of the facility with authority to direct LSPGC's control center. PG&E's existing substations would continue to be unmanned during operations and monitored remotely. Inspection and maintenance activities would be conducted by LSPGC and PG&E staff and their contractors as discussed in the following sections.

2.9.2 Inspection and Maintenance Programs

LSPGC Project Components

The proposed LSPGC project components would be incorporated into LSPGC's existing programs associated with their existing equipment. LSPGC's local staff and contractors would typically conduct inspections and respond to maintenance issues and emergency situations.

LSPGC would regularly (e.g., monthly) inspect, maintain, and repair the proposed Collinsville Substation features. Typical maintenance activities would involve routine (e.g., monthly, quarterly) inspections and preventive maintenance to ensure service reliability as well as emergency work to maintain or restore service. It is anticipated that substation equipment would be taken out of service periodically to perform more extensive checks and maintenance on the main components of the facility. Due to the diversity of equipment and the individual system components, a small, specialized team would be utilized to perform more extensive maintenance activities.

Routine maintenance of the overhead and underground segments of the proposed LSPGC 230 kV transmission line is expected to require approximately one trip per year by crews composed of one to four people. Annual comprehensive checks and maintenance would be performed by LSPGC maintenance personnel or qualified contractors. Should structures require

direct access during maintenance, overland access consistent with easement access rights and in coordination with the landowner would be utilized. No permanent overland access routes would be required for routine maintenance of the proposed LSPGC project components.

The proposed LSPGC 230 kV transmission line submarine segment is not anticipated to require regular maintenance. LSPGC would conduct geophysical surveying including side-scan sonar to monitor the submarine cables. LSPGC would compare data collected over time to evaluate cover depth and determine if cables are exposed or vulnerable to mechanical damage (i.e., anchor strikes). If a cable appears to be becoming exposed, LSPGC would preemptively work with state and federal agencies to prevent complete exposure. The exact method of maintenance activity to prevent exposure would be determined and approved in coordination with local, state, and federal agencies but may include placing concrete mattresses over areas or covering areas with stone. Should any portion of a submarine cable become defective, a replacement segment of cable would be spliced to repair it, and the defective portion would be abandoned in place. Any required submarine cable or cable segment replacement would involve similar methods and impacts as those associated with initial construction.

PG&E Project Components

The proposed PG&E project components would be incorporated into PG&E's existing inspection and maintenance programs. PG&E's local staff and contractors would typically conduct inspections and respond to maintenance issues and emergency situations in a manner consistent with operations conducted for their existing facilities.

PG&E would continue its regular inspections (e.g., monthly, annually) at its existing substations, consistent with existing inspections and in accordance with manufacturer recommendations for the substation equipment. Typical maintenance activities would involve routine inspections and preventive maintenance to ensure service reliability as well as emergency work to maintain or restore service. Inspections would be performed without taking the substation out of service.

The PG&E 500 kV interconnection lines facilities would be inspected annually by existing staff conducting routine patrols, either on the ground or using a helicopter or drone. Ground patrols would typically be completed in a pickup truck and/or an off-road utility vehicle. While not expected, if vehicle access is not available, an inspector would complete portions of the inspection on foot. Climbing inspections would be performed on an as-needed basis, based on specific identified conditions, and in compliance with applicable guidelines and regulations.

2.9.3 Vegetation Management

The project components would be maintained to meet all GO 95 vegetation and equipment clearances, in addition to the vegetation clearance requirements in California PRC section 4292 and Title 14, section 1254 of the California CCR. In accordance with fire break clearance requirements in GO 95, PRC section 4292 and Title 14, section 1254 of the CCR, LSPGC and PG&E would trim or remove flammable vegetation in the area surrounding the Proposed

Project facilities as required and applicable for each of the proposed facilities and their locations.

GO 95 requires a minimum radial clearance of 31 inches for 230 kV conductors and 115 inches for 500 kV conductors. According to PRC section 4292, anyone operating electrical transmission or distribution lines on certain types of land, such as mountainous, forest-covered, brush-covered, or grass-covered land, must maintain a firebreak clearing of at least 10 feet around the structures; however, PRC section 1255 provides for certain exemptions for these vegetation clearances if specific conditions are met.

Where vegetation management work is required, such activities would typically be conducted by small work crews using mechanical equipment consisting of weed trimmers, rakes, shovels, and leaf blowers. State-approved herbicides would also be applied to treat bare-ground areas, as needed. Pesticides would not be used during maintenance activities. The proposed LSPGC 230 kV transmission line and Collinsville Substation would be inspected on an annual basis to determine if vegetation trimming or clearing is required. LSPGC and PG&E vegetation management activities would ensure a continuous defensible area around the substation and within transmission line ROW.

2.9.4 Equipment Replacement

Equipment or conductor replacement activities that may be required due to unforeseen circumstances, such as due to failure or damages and the associated construction activities, would be subject to additional CPUC review as applicable through compliance with GO 131. LSPGC and PG&E would be required to obtain CPUC approvals, as required by GO 131, as well as applicable permits from state and federal agencies, if required.

2.10 Decommissioning

Prior to removal or abandonment of any facilities associated with the Proposed Project, LSPGC would prepare a Removal and Restoration Plan (refer to LSPGC APM in Table 2-12). The Removal and Restoration Plan would address the removal of the proposed LSPGC Collinsville Substation and proposed LSPGC 230 kV transmission line from the permitted area; any requirements for restoration and revegetation; and the potential preparation of the property for future utility uses. The removal and restoration plan would then be approved by the CPUC prior to implementation. PG&E is not subject to decommissioning and would retain its facilities as long as they are useful.

2.11 Electric and Magnetic Fields Analysis

The CPUC recognizes that there is public interest and concern regarding potential health effects that could result from exposure to *electric and magnetic fields* (EMFs) from power lines; therefore, this subsection provides information regarding EMF associated with electric utility facilities and the potential effects of the Proposed Project related to public health and safety. Potential health

effects from exposure to electric fields from power lines (produced by the existence of an electric charge, such as an electron, ion, or proton, in the volume of space or medium that surrounds it) are typically not of concern since electric fields are effectively shielded by materials such as trees, walls, etc. Therefore, the majority of the following information related to EMF focuses primarily on exposure to magnetic fields (invisible fields created by moving charges) from power lines.

Magnetic fields can be reduced either by cancellation or by increasing distance from the source. Cancellation is achieved in two ways. A transmission line circuit consists of three "phases": three separate wires (conductors), usually on an overhead tower. The configuration of these three conductors can reduce magnetic fields. When the configuration places the three conductors closer together, the interference, or cancellation, of the fields from each wire is enhanced, and the magnetic field is reduced. This technique has practical limitations because of the potential for short circuits if the wires are placed too close together. Close conductor spacing can also create worker safety concerns because there is a risk of workers contacting energized conductors during maintenance.

This EIR does not consider magnetic fields in the context of CEQA and determination of environmental impact. This is because (a) there is no agreement among scientists that EMFs do create a potential health risk, and therefore, (b) there are no defined or adopted CEQA standards for defining health risk from EMFs. As a result, EMF information is presented for the benefit of the public and decisionmakers.

After several decades of study regarding potential public health risks from exposure to power line EMFs, research results remain inconclusive. Several national and international panels have conducted reviews of data from multiple studies and state that there is not sufficient evidence to conclude that EMFs cause cancer. The International Agency for Research on Cancer (IARC), an agency of the World Health Organization (WHO), and the California Department of Health Services (DHS) both classified EMFs as a possible carcinogen (IARC 2002; DHS 2002).

In addition, the 2007 WHO (Environmental Health Criteria [EHC)] 238) report concluded the following: (WHO 2007):

- Evidence for a link between extremely low frequency (ELF,; 50–60 Hz) magnetic fields and health risks is based on epidemiological studies demonstrating a consistent pattern of increased risk for childhood leukemia. However, "…virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level ELF magnetic fields and changes in biological function or disease status.…the evidence is not strong enough to be considered causal but sufficiently strong to remain a concern."
- "For other diseases, there is inadequate or no evidence of health effects at low exposure levels."

Currently, there are no applicable regulations related to EMF levels from power lines or substations. However, following a CPUC decision from 1993 (Decision [D.]93 11 013) that was

reaffirmed by the CPUC on January 27, 2006 (D.06 01 042), the CPUC requires utilities to incorporate "low-cost" or "no-cost" measures to mitigate EMF from certain new or upgraded electrical utility facilities up to approximately 4 percent of total project cost. The CPUC's *EMF Design Guidelines for Electrical Facilities* (2006), which specify the types of electrical facilities that require utilities to evaluate such measures by completing an Electric and Magnetic Fields Management Plan (FMP), as well as facilities that are exempt from the FMP requirement. Projects that are exempt from the FMP requirement are described in Section 3.4 of the CPUC's EMF guidelines.

The Proposed Project components meet one or more of the exemptions from the FMP requirement; therefore, an FMP is not required. However, LSPGC developed and included an FMP as part of their application for the Proposed Project to reduce magnetic field levels in the vicinity of the proposed overhead and underground segments of the LSPGC 230 kV Collinsville-Pittsburg Transmission Line (Appendix G of LSPGC's CPCN application). No schools or hospitals are located in the vicinity of the proposed electrical facilities. The proposed LSPGC Collinsville Substation and the PG&E 500 kV interconnection lines are exclusively adjacent to undeveloped land, and the proposed installation of PG&E transposition structures and existing substation modifications would not require an FMP. Therefore, to the extent the EMF requirements were deemed to be applicable to the Project, only no-cost mitigation measures were implemented. The following no-cost design measures were adopted for the overhead and underground segments of the 230 kV transmission line:

- Locating overhead structures at the center of ROW
- Phasing overhead circuits
- Arranging underground cables in a triangular configuration

2.12 Potential Permits and Approvals

The CPUC is the lead stage agency for the Proposed Project. LSPGC would comply with CPUC GO 131, which contains the permitting requirements for construction of the Proposed Project. This PEA was prepared as part of an application to obtain a CPCN for the Proposed Project. Although PG&E is not an applicant in LSPGC's application for a CPCN, PG&E's scope of work is needed to interconnect the Proposed Project to PG&E's electrical grid. PG&E would be responsible for complying with the CPUC's permitting requirements pursuant to GO 131 to construct their facilities associated with the Proposed Project.

LSPGC and PG&E may be required to obtain several other permits from federal, state, and local agencies. Table 2-11 lists the permits, approvals, and licenses that LSPGC anticipates obtaining from jurisdictional agencies to construct the Proposed Project.

Table 2-11 Potential Permits and Approvals

Agency	Permit/approval	Trigger
Federal		
Federal Aviation Administration	Determination of No Hazard	Evaluation of potential obstruction of air space
California State Historic Preservation Office	Section 106 Consultation	Ground-disturbing activities in an area with the potential for cultural resources
National Oceanic and Atmospheric Administration National Marine Fisheries Service – West Coast Region	Section 7 Consultation	Activities occurring within waters of the U.S. that have the potential to impact federally protected marine species
U.S. Fish and Wildlife Service (USFWS) – Region 8	Section 7 Consultation	Activities occurring within critical habitat or with the potential to impact species protected by the FESA
USACE – San Francisco District	Section 10 Permit	Construction within navigable waters of the U.S.
	Section 404 Permit	Discharge or placement of fill within waters of the U.S.
	Section 408 Letter of Permission	Permanent or temporary alteration or use of a USACE Civil Works project
State		
CPUC	CPCN	Construction of an electric transmission line designed for operation at 200 kV or higher
	Public Utilities Code Section 851 Authorization or General Order 173 Advice Letter	Easements from PG&E within PG&E owned lands
California Department of Fish and Wildlife (CDFW) – Bay Delta (Region 3)	Section 2081 Incidental Take Permit	Potential take of California Endangered Species Act-listed species (e.g., Delta smelt and longfin smelt)
	Section 1600 Lake and Streambed Alteration Agreement	Alteration of a streambed
CSLC	Land Lease Agreement	Activities proposed on tidelands and submerged lands owned by the State
	Encumbrance Agreement	Encumbering on an existing CSLC lease agreement
San Francisco Bay Conservation and Development Commission (BCDC)	Administrative Permit	Projects within the Primary Management Areas of the Suisun Marsh Protection Plan

Agency	Permit/approval	Trigger
State Water Resources Control Board	NPDES Construction General Permit	Construction activities resulting in the disturbance of 1 acre or more of land
	Section 401 Water Quality Certification and Porter Cologne Water Quality Control Act Waste Discharge Requirements	Activities that require a federal Section 404 permit or permit for discharge to waters of the State and are located in the jurisdiction of more than one Regional Water Quality Control Board and permitted by the State Water Resources Control Board
Local		
Solano County	Encroachment Permit	Construction work within the Solano County ROW
	Grading Permit	Construction activities requiring grading in Solano County
	Building Permit	Construction of structures within the Collinsville Substation
	Marsh Development Permit	Development within the Secondary Management Areas of the Suisun Marsh Protection Plan
Contra Costa County	Encroachment Permit	Construction work within the Contra Costa County ROW
City of Pittsburg	Encroachment Permit	Construction work within the City of Pittsburg ROW
City of Pittsburg	Lands Lease Agreement	Activities proposed on tidelands and submerged lands owned by the City of Pittsburg

2.13 LSPGC Applicant Proposed Measures

LSPGC proposes the implementation of the APMs identified in Table 2-12 to avoid or minimize environmental impacts associated with the Proposed Project in a manner consistent with applicable federal, state, and local regulations. The APMs are part of the Proposed Project and are considered in the evaluation of environmental impacts. In some cases, mitigation measures presented in this EIR will supersede, expand upon, or add detail to the APMs as necessary, to further reduce or avoid potential impacts. APMs that are not superseded will be incorporated into the Mitigation Monitoring and Reporting Plan (MMRP) and will become conditions of project approval.

PG&E would not be subject to the LSPGC APMs. Instead, PG&E would implement separate CMs that are similar to the APMs, as described in Section 2.14.

Table 2-12 LSPGC Applicant Proposed Measures

LSPGC APMs
APM AES-1: Staging Area Maintenance and Restoration. All Proposed Project sites would be maintained in a clean and orderly state. Temporary nighttime lighting would be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of Proposed Project construction, staging and temporary work areas would be returned to pre-Proposed Project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.
APM AG-1: Landowner Coordination. LSPGC would coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Notice would be provided to landowners outlining construction activities and restoration efforts. • Areas disturbed by construction of the Proposed Project would be restored in accordance with lease agreements, applicable O&M standards, and environmental permit requirements. • In areas containing permanent crops (e.g., grapevines and orchard crops) that must be removed to gain access to pole sites for construction purposes, LSPGC would provide compensation to the farmer and/or landowner in coordination with the landowner.
APM AIR-1: Tier 4 Construction Equipment. Construction equipment with a rating between 100 and 750 horsepower (hp) would be required to use engines compliant with EPA Tier 4 non-road engine standards. In the event that enough Tier 4 equipment is not available, documentation of the unavailability would be provided and engines utilizing a lower standard would be used.
APM AIR-2: Dust Control *(Superseded by MM AQ-1).* Measures to control fugitive dust emissions would be implemented during construction. These measures would be included in a Fugitive Dust Control Plan that would be prepared in accordance with Bay Area Air Quality Management District (BAAQMD) and Sacramento Metropolitan Air Quality Management District requirements. The measures would be implemented as needed to control dust emissions. These measures would include, but may not be limited to, the following: • Surfaces disturbed by construction activities would 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 would be sufficiently watered or sprayed with a soil stabilizer to create a surface crust, or would be covered. • Vehicles hauling soil and other loose material would be covered. • Vehicles would adhere to a speed limit of 15 mph on unpaved access roads without a posted speed limit, Proposed Project-specific construction routes, and within temporary work areas. • Visible mud or dirt trackout onto an adjacent public road would be removed at least once per day using wet power vacuum street sweepers. • Excavation, grading, and/or demolition activities would be suspended when average wind speeds exceed 20 mph and dust cannot be suppressed in accordance with the requirements of BAAQMD Rule 6-1.

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• Unpaved dirt roads providing access to sites located 100 feet or farther from a paved road would be treated with a 6- to 12-inch layer of compacted wood chips, mulch, or gravel. • Publicly visible signs would be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person would respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number would also be visible to ensure compliance with applicable regulations.
APM BIO-1: Avoid Environmentally Sensitive Areas. Biological field surveys (i.e., surveys to identify vegetation communities and land cover, aquatic features, and potential terrestrial habitat for special-status plant and wildlife species, as well as fully floristic botanical surveys) would be performed for any portion of the Proposed Project area not yet surveyed (e.g., areas that did not have landowner access, new or modified staging areas, pull sites, or other work areas). Sensitive biological resources or areas discovered during surveys would be subject to a buffer from construction activities in accordance with the applicable Proposed Project APMs. The findings of all biological field surveys on portions of the Proposed Project area not yet surveyed would be provided to the CPUC prior to construction commencing within those areas.
APM BIO-2: Develop and Implement Restoration Plan ***(Superseded by MM BIO-2).*** A Proposed Project-specific restoration plan would be prepared for the Proposed Project and submitted to the CPUC for approval prior to the start of construction activities. The restoration plan would include procedures for restoration activities, including plant species to be planted, procedures to reduce weed encroachment, and expected timeframes and success criteria for restoration and revegetation. Revegetation activities would be conducted in accordance with the Proposed Project SWPPPs and restoration plan.
APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training. All workers on the Proposed Project site would be required to attend a WEAP training. Training would inform all construction personnel of the resource protection and avoidance measures, as well as procedures to be followed upon the discovery of environmental resources. Additionally, the WEAP would train all construction personnel on hazardous materials management, hazardous wastes and stained or odiferous soils identification, and applicable regulations. The WEAP training would include, at a minimum, the following topics so crews would understand their obligations: • Environmentally sensitive area boundaries, • Housekeeping (i.e., trash and equipment cleaning), • Safety, • Work stoppage, • Communication protocol, and • Consequences of non-compliance.
APM BIO-4: Delineation of Sensitive Resources. All sensitive biological areas (e.g., aquatic resources and special-status plants) within Proposed Project work areas would be clearly marked prior to construction to restrict construction activities and equipment from entering these areas. Signage would be placed along regular intervals of this delineation prohibiting entry by Proposed Project personnel and identifying the delineated area as a sensitive resource. A buffer of at least 5 feet from all construction activities would be established around these areas. These buffers would be inspected regularly to ensure that they remain in place.

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APM BIO-5: Pre-Construction Plant Surveys ***(Superseded by MM BIO-1).*** Prior to initial vegetation clearing and ground-disturbing activities, a qualified biologist would conduct pre-construction surveys during the appropriate blooming period for Welsh mudwort, Delta tule pea, Mason's lilaeopsis, Bolander's water hemlock, and Suisun marsh aster. Surveys would occur within Proposed Project work areas with suitable habitat for these plants. In the event of the discovery of a previously unknown special-status plant, the area would be marked as a sensitive area and would be avoided to the maximum extent practicable. If avoidance of species listed under the FESA or CESA is not possible, the USFWS and/or CDFW would be consulted, as appropriate.
APM BIO-6: Qualified Biologist Monitoring ***(Superseded by MM BIO-7).*** Any construction activities within suitable special-status species habitat that may impact sensitive biological resources would be monitored by a qualified biologist. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.
APM BIO-7: Vehicle Cleaning. All construction equipment and vehicles that would travel outside of approved access roads/designated parking areas (e.g., staging yards) would be cleaned prior to their initial arrival on the Proposed Project site to avoid spread of noxious weeds and non-native invasive plant species.
APM BIO-8: Vehicle Travel. Vehicles would adhere to a speed limit of 15 mph on unpaved access roads without a posted speed limit, Proposed Project-specific construction routes, and within temporary work areas. In addition, construction employees would be required to stay on established and clearly marked and existing roads and within the limits of disturbance (except when not feasible due to physical or safety constraints) and would be advised that care should be exercised when commuting to and from the Proposed Project area to reduce accidents and animal road mortality.
APM BIO-9: Trapped Animal Prevention. All excavated holes/trenches that are not filled at the end of a workday would be covered, or a wildlife escape ramp would be installed to prevent the inadvertent entrapment of wildlife species.
APM BIO-10: Delineation of Work Areas. All work areas within the Proposed Project area would be clearly delineated prior to construction commencing with fencing, staking, or flags. Construction activities would be restricted to delineated work areas and all delineation would be maintained in working order until completion of construction.
APM BIO-11: Pre-Construction Wildlife Surveys. Prior to initial vegetation clearance and ground-disturbing activities within suitable habitat for special-status wildlife, a biologist would conduct pre-construction surveys within Proposed Project work areas for special-status wildlife. Within wetland habitats or other areas suitable for northwestern pond turtle occupation, a qualified biologist would examine potential basking sites for adult turtles, as well as potential nest sites in sandy or sparsely vegetated substrates; turtle nests would be flagged for avoidance. In pickleweed habitats or other areas suitable for salt marsh harvest mouse occupation, a qualified biologist would carefully inspect vegetation prior to vegetation clearance and ground disturbing activities to ensure no salt marsh harvest mouse individuals or nests are present and to encourage mice residing within or adjacent to the Proposed Project work areas to move into adjacent habitats prior to impacts commencing each day. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.

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APM BIO-12: Project Lighting. The use of outdoor lighting during construction would be minimized whenever practicable. Photocell-controlled lighting (i.e., motion detection) would be provided at a level sufficient to provide safe entry and exit to the proposed LSPGC Collinsville Substation and control enclosures. All lighting would be selectively placed, shielded, and directed downward and away from sensitive habitat and resources to the maximum extent practicable.
APM BIO-13: Nesting Bird Avoidance ***(Superseded by MM BIO-7).*** If feasible, construction and vegetation trimming/removal would be avoided during the migratory bird nesting or breeding season (i.e., February 15 to August 31). When it is not feasible to avoid construction during the nesting or breeding season, a survey would be performed in the area where the work is to occur to determine the presence or absence of nesting birds. If an active nest (i.e., containing eggs or young) is identified, a suitable construction buffer (which would differ based on species and location of nest) would be implemented to ensure that the nesting or breeding activities are not substantially adversely affected. If the nesting or breeding activities are being conducted by a federal or state-listed species, LSPGC and/or PG&E would consult with the USFWS and CDFW as necessary. Monitoring of the nest would continue until the birds fledge or construction is no longer occurring on the site.
APM BIO-14: Burrowing Owl ***(Superseded by MM BIO-8).*** Prior to the initiation of construction activities occurring in suitable grassland habitat, a qualified biologist would conduct up to four protocol-level surveys for burrowing owl in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). A take avoidance survey for active burrows would also be conducted no more than 30 days prior and no less than 14 days prior to the start of construction in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). If burrowing owls are present at the site, a qualified biologist would establish an exclusion zone in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). If a qualified biologist experienced with burrowing owls determines the relocation of owls is necessary, a passive relocation effort may be conducted in coordination with the CDFW as appropriate and in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012).
APM BIO-15: Wetland Birds. To the greatest extent feasible, work within wetland habitats suitable for California black rail or Ridgway's rail occupation would be limited to a work window of September 1 through January 15, which is outside of the breeding season for these species.
APM BIO-16: Vegetation and Tree Trimming/Removal. Vegetation and tree trimming/removal would be limited to the minimum area necessary to allow construction to proceed and to provide adequate vegetation removal to meet initial electrical clearance and wildfire prevention requirements. Where feasible, shrubs and other woody vegetation would be cut at the base to preserve the existing root system and facilitate resprouting following the conclusion of Proposed Project construction.
APM BIO-17: Raptor Nests ***(Superseded by MM BIO-7).*** If a raptor nest or breeding burrow is observed during pre-construction surveys, a qualified biologist would determine if it is active. If the nest is determined to be active, the biological monitor would monitor the nest to ensure that nesting or breeding activities are not substantially adversely affected. If the biological monitor determines that activities associated with the Proposed Project are disturbing or disrupting nesting or breeding activities, the biological monitor would make recommendations to reduce noise or disturbance in the vicinity of the nest, such as temporarily suspending work in the area. If the nest is determined to be inactive, the nest would be removed under direct supervision of the qualified biologist.
APM BIO-18: In-Water Work Window. To minimize potential impacts to fish during in-water work (i.e., disturbance to the Delta substrate or placement of construction materials below the waterline) both from general disturbance or from the potential introduction of deleterious materials that may disrupt both

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migratory events and cause impacts to species during key times of year when more sensitive life stages (i.e., eggs and fry) are present, a work window of July 1 to November 30 would be enacted.
APM BIO-19: Intake Screening. To minimize the potential for fish to be entrained by the Proposed Project, any pumps or water intakes used by the Proposed Project would be screened in accordance with the following CDFW and NMFS screening requirements for water diversions within the Delta (CDFG 2000, NMFS 1997). If any variation from these criteria is necessary, the Proponent would consult with the agency responsible for the species for recommendations to protect fish.
APM BIO-20: Invasive Species Management for In-Water Work. To help reduce the potential effects of invasive species from construction of the Proposed Project the following measures would be implemented: • Aquatic vessels brought to the study area from ports outside of San Francisco Bay and/or the Delta for aquatic construction would follow all maritime regulations relating to the exchange of ballast water to prevent the spread of invasive species from outside ports. • Any in-water fill materials (e.g., piles) would be new and not salvaged from areas outside of San Francisco Bay. • Any pumps or in-water equipment that may be needed during construction would be cleaned and dried for at least 72 hours prior to first being used on the Proposed Project. Continual presence on site would not require drying between uses.
APM BIO-21: Aquatic Sediment Screening and Testing. Prior to installation of cables, screening of the cable alignment based on available background resources (e.g., EnviroStor) would be conducted to determine if there have been any known spills or other hazardous materials releases that potentially intersect with the alignment. If any known spills or other hazardous materials releases are discovered, an aquatic sediment screening and testing program would be developed to evaluate the risk of exposing hazardous sediments to the marine environment. The program would entail the following: • Representative aquatic sediment samples would be collected at a minimum of three locations placed evenly along the alignment. The depth of the samples would be consistent with the depth of trenching at each sample location. • Sediment samples would be tested according to methods prescribed in the Guidelines for Implementation of the Inland Testing Manual in San Francisco Bay or updated similar manual approved by the San Francisco Bay Dredge Material Management Office (DMMO) (DMMO 2001). The results of this test would be compared to concentrations allowed for in-bay disposal by the San Francisco Bay DMMO to determine if sediments are clean or require special handling. • Aquatic sediments that exceed San Francisco Bay DMMO testing standards would: • Be avoided by the cable installation route, or • Be removed through dredging and disposed of at an appropriate facility approved by the RWQCB, or • Be controlled via use of a silt curtain or other appropriate BMP approved by the RWQCB. • Cable installation and hydroplow use would be limited to the specified areas and the minimum length necessary.
APM BIO-22: Aquatic Spill Prevention and Control. A spill prevention and control plan would be developed and implemented for the Proposed Project throughout all phases of construction. This plan would, at a minimum, include the following parameters to reduce potential effects from spills: • Procedures to ensure any equipment used in water (e.g., hydroplow or excavators) are cleaned of excess lubricants and fuels.

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- Identification of any hazardous materials used by the Proposed Project.
- Storage locations and procedures for such materials.
- Spill prevention practices, as well as BMPs, employed for various activities.
- Requirements to inspect equipment regularly such that it is maintained to be free of leaks.
- Spill kit location, cleanup, and notification procedures.

APM BIO-23: Overwater Concrete Casting. The following measure would be implemented during the casting of overwater concrete:

- All overwater concrete would be poured into water-tight forms, and isolated from waters of the Delta until concrete has fully cured (typically 30 days).
- Commercial sealants may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water would be excluded from the site until the sealant is dry.
- Any water used to keep concrete moist during the curing process would not be allowed to run off of the structure. Concrete forms would also be sufficiently designed to catch and hold any such cure water.
- At all times when concrete is being poured or when working with wet concrete, a monitor would be present to inspect the containment structures and ensure that no concrete or cure water escapes the containment structure.

APM CUL-1: Worker's Environmental Awareness Program. In accordance with this measure, the Proposed Project's WEAP would include, at minimum:

- Training on how to identify potential cultural resources and human remains during the construction process;
- A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation;
- A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the Proposed Project;
- A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and policies; and
- A statement by the construction company or applicable employer agreeing to abide by the WEAP, and other applicable laws and regulations.

The WEAP would be provided to all Proposed Project personnel who may encounter and/or alter historical resources or unique archaeological properties, including construction supervisors and field personnel. No construction worker would be involved in ground-disturbing activities without having participated in the WEAP.

APM CUL-2: Avoid Environmentally Sensitive Areas. Cultural resource surveys would be performed for any portion of the Proposed Project area not yet surveyed (e.g., new or modified staging areas, pull sites, or other work areas). Cultural resources discovered during surveys would be subject to a 100-foot buffer around the boundary of each respective resource and designated as environmentally sensitive areas. Methods of environmentally sensitive area delineation may include, as applicable, flagging, rope, tape, or fencing. The environmentally sensitive areas should be clearly marked on all pertinent construction plans. Where operationally feasible, all NRHP- and CRHR-eligible resources would be protected from direct Proposed Project impacts by Proposed Project redesign (i.e., relocation of the line, ancillary facilities, or temporary facilities or work areas). In addition, all historic properties/historical resources would be avoided by all Proposed Project construction and restoration activities, where feasible. If work within the 100-foot buffer cannot be avoided, then monitoring would be required.

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APM CUL-3: Inadvertent Discoveries. In the event that previously unidentified cultural resources are uncovered during implementation of the Proposed Project, all work within 100 feet of the discovery would be halted and redirected to another location. A qualified archaeologist(s) would inspect the discovery and determine whether further investigation is required. The qualifications of the archaeologist(s) would be approved by the CPUC and U.S. Army Corps of Engineers (USACE). If the discovery can be avoided and no further impacts would occur, the resource would be documented on California Department of Parks and Recreation cultural resource records, and no further effort would be required. If the resource cannot be avoided and may be subject to further impact, the significance and NRHP and CRHR eligibility of the resource would be evaluated and, in consultation with the CPUC and USACE, appropriate treatment measures would be determined. All work would remain halted until a Secretary of the Interior-qualified archaeologist approves the treatment measures. Preservation in place would be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Guidelines Section 15126.4(b)(3), if it is demonstrated that resources cannot feasibly be avoided, and if the unearthed resource is prehistoric or Native American in nature, a Native American representative, in consultation with the CPUC and USACE, would develop additional treatment measures, such as data recovery consistent with CEQA Guidelines 15126.4(b)(3)(C-D). Archaeological materials recovered during any investigation would be curated at an accredited curation facility or transferred to the appropriate tribal organization.
APM CUL-4: Paleolandform Testing. Prior to construction, the paleolandform would be evaluated through coring and soil analysis. If this analysis indicates the potential for cultural resources, a Paleolandform Monitoring Plan would be developed, approved by the CPUC, and implemented during submarine cable installation within 500 feet of the potential cultural resources.
APM GEO-1: Geological Hazards and Disturbance to Soils. The following measures would be implemented during construction to minimize impacts from geological hazards and disturbance to soils: • Keep vehicles and construction equipment within the limits of the Proposed Project and in approved construction work areas to reduce disturbance to topsoil. • Salvage any disturbed topsoil during temporary grading activities to a maximum depth of 6 inches or to the actual depth if shallower (as identified in a site-specific geotechnical engineering report) to avoid the mixing of soil horizons. • Avoid construction in areas with saturated soils where topsoil salvage has not occurred whenever practical to reduce impacts to soil structure and allow safe access. Similarly, avoid topsoil salvage in saturated soils to maintain soil structure. • Keep topsoil material on site in the immediate vicinity of the temporary disturbance or at a nearby approved work area to be used in the restoration of temporarily disturbed areas. Recontour temporarily disturbed areas following construction to match pre-construction grades. Site and manage on-site material storage in accordance with all required permits and approvals. • Keep vegetation removal and soil disturbance to a minimum and limited to only the areas needed for construction and to provide adequate vegetation removal to meet initial electrical clearance and wildfire prevention requirements. Dispose of removed vegetation off site at an appropriate licensed facility, or it can be chipped on site to be used as mulch during restoration.
APM GHG-1: Greenhouse Gas Emissions Reduction During Construction. The following measures would be implemented during construction to minimize GHG emissions:

LSPGC APMs
• If suitable park-and-ride facilities are available in the Proposed Project vicinity, construction workers would be encouraged to carpool to the job site. • On-road and off-road vehicle tire pressures would be inflated to manufacturer specifications; tires would be checked and reinflated at regular intervals. • Demolition debris would be recycled for reuse to the extent feasible. • Line power, instead of diesel generators, would be used at construction sites where feasible. • Construction equipment would be maintained per the manufacturer's specifications.
APM HAZ-1: Air Transit Coordination. LSPGC would implement the following protocols related to helicopter use during construction and air traffic: • LSPGC would comply with all applicable FAA regulations regarding air traffic within 2 miles of the Proposed Project alignment. • LSPGC's helicopter operator would coordinate all Proposed Project helicopter operations with local airports before and during Proposed Project construction. • Helicopter use and landing zones would be managed to minimize impacts on local residents.
APM PALEO-1: WEAP Training. Prior to the start of the construction activities, all field personnel would receive a WEAP training on paleontological resources. The training would provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the Proposed Project area, the role of the paleontological monitor, steps to follow if a fossil discovery is made, and contact information for the paleontologist. The training would be developed by the paleontologist and would be delivered concurrently with other training, including cultural, biological, and safety.
APM PALEO-2: Paleontological Monitoring. A professional paleontologist would be retained to monitor initial ground-disturbing activities in areas mapped as Pleistocene alluvial fan deposits (Qpf) and Montezuma Formation (Qmz). Monitoring would entail the visual inspection of excavated or graded areas and trench sidewalls. If a paleontological resource is discovered, the paleontological monitor would have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the paleontological monitor would complete the following steps: • If fossils are discovered, all work in the immediate vicinity would be halted to allow the paleontological monitor to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the paleontological monitor would recover them by following standard field procedures for collecting paleontological resources. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (e.g., skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case, the paleontological monitor would have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossils can be removed in a safe and timely manner. • An accredited repository, which has agreed to accept fossils that may be discovered during Proposed Project-related excavations, would be identified prior to construction activities. Upon completion of fieldwork, all significant fossils collected would be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossil specimens would be identified to the lowest taxonomic level practical prior to curation at an accredited repository (usually a museum).

LSPGC APMs
The fossil specimens would be delivered to the accredited museum or repository no later than 30 days after all laboratory work is completed. The cost of curation would be assessed by the repository and would be the responsibility of the client.
APM HYD-1: Utilize In-Water Sediment Containment during Open Trenching in Marine Environments. In-water sediment control BMPs (e.g., sediment curtains, silt barriers, turbidity curtains, or similar technologies) would be utilized when open trenching would occur in marine environments to reduce the amount of disturbed sediment discharged to the surrounding area and to reduce potential short-term impacts from mobilized sediment on surrounding benthic environments.
APM PUB-1: School Access. Construction of the proposed LSPGC Telecommunication Line within 320 feet of Saint Peter Martyr School would be coordinated with the school's administration and conducted during the summer months, at a time when school is out of session, in order to minimize disruptions to school access.
APM REC-1: Access Restrictions in the Delta. Construction crews would coordinate with the USCG's San Francisco Waterways Branch, the San Francisco VTC, and the City of Pittsburg's harbor master prior to any temporary in-water access restrictions to ensure that Delta users are aware of upcoming restrictions. In addition, a Local Notice to Mariners would be submitted to the USCG's District 11 at least 15 days prior to the start of in-water construction.
APM TRA-2: Road and Lane Closure Plan. LSPGC shall develop a Traffic Control Plan for the proposed project which includes a Road and Lane Closure plan that outlines how LSPGC will handle road and lane closures to allow for safe vehicle, bicyclist, and pedestrian passage when road and lane closures occur. The plan shall be prepared in coordination with local jurisdictions where road and lane closures would occur. Upon determination of the final construction schedule and precise locations and durations of road and lane closures, the plan shall describe locations and durations of: • Lane closures • Bicycle lane closures • Sidewalk or pedestrian path closures Measures to be included in the plan that would allow for safe vehicle, bicyclist, and pedestrian passage shall adhere to the California Manual on Uniform Traffic Control Devices. Potential measures include: • Signage directing motorists, pedestrians, and bicyclists to an efficient, safe detour around the closure • Flaggers and/or signage to halt traffic at road closures or direct traffic at lane closures and to allow traffic to pass when construction is halted • Requirements for notifications and a process for communication with affected residents and landowners prior to the start of construction. • Emergency service providers would be notified of the timing, location, and duration of construction activities. Requirement that emergency vehicle access is maintained at all times.
APM FIRE-1: Construction Fire Prevention Plan. A Proposed Project-specific CFPP would be prepared and submitted to the CPUC for review prior to initiation of construction. The CFPP would be fully implemented throughout the construction period and would include, at a minimum, the following: • The purpose and applicability of the CFPP.

LSPGC APMs
• Responsibilities and duties. • Preparedness training and drills. • Procedures for fire reporting, response, and prevention that include the following: • Identification of daily site-specific risk conditions, • The tools and equipment needed on vehicles and to be on hand at sites, • Reiteration of fire prevention and safety considerations during tailboard meetings, and • Daily monitoring of the red flag warning system with appropriate restrictions on types and levels of permissible activity. • Coordination procedures with federal and local fire officials. • Crew training, including fire safety practices and restrictions. • Method(s) for verifying that all CFPP protocols and requirements are being followed. A Proposed Project Fire Marshal or similar qualified position would be established to enforce all provisions of the CFPP, as well as perform other duties related to fire detection, prevention, and suppression for the Proposed Project. Construction activities would be monitored to ensure implementation and effectiveness of the CFPP.
APM DECOM-1: Decommissioning Plan. If decommissioning is necessary, LSPGC would create a Removal and Restoration Plan to address the removal of the proposed LSPGC Collinsville Substation and 230kV Transmission line. This plan will be created prior to the start of decommissioning and would be approved by the CPUC.

Source: (LS Power Grid California, LLC 2025)

2.14 PG&E Construction Measures

While PG&E is not a project applicant, PG&E proposes to implement CMs to avoid or minimize environmental impacts associated with their Proposed Project components, which are identified in Table 2-13. The PG&E CMs are similar to LSPGC APMs and would only apply to PG&E's construction activities. Like the APMs, the CMs are also part of the Proposed Project and are considered in the evaluation of environmental impacts. In some cases, mitigation measures presented in this EIR will supersede, expand upon, or add detail to the CMs as necessary, to further reduce or avoid potential impacts. CMs that are not superseded will be incorporated into the MMRP.

Table 2-13 PG&E Construction Measures

PG&E CMs
CM AES-1: Aesthetics. All work areas would be maintained in a clean and orderly state.
CM AG-1: Landowner Coordination. PG&E would coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Provide notice to landowners outlining construction activities and restoration efforts. • Areas disturbed by construction of the Proposed Project restored in accordance with lease agreements, applicable operation and maintenance standards, and environmental permit requirements. • In areas containing permanent crops (i.e., grape vines, orchard crops, etc.) that must be removed to gain access to pole sites for construction purposes, PG&E may provide compensation to the farmer and/or landowner in coordination with the landowner.
CM AIR-1: Tier 4 Construction Equipment. Construction equipment with a rating between 100 and 750 hp would be required to use engines compliant with Environmental Protection Agency Tier 4 non-road engine standards. In the event that enough Tier 4 equipment is not available, documentation of the unavailability would be provided and engines utilizing a lower standard would be used.
CM AIR-2: Fugitive Dust Control ***(Superseded by MM AQ-1).*** The following actions would be taken, as applicable and feasible, to control fugitive dust during construction. BAAQMD notifications would be made in accordance with any requirements in effect at the time of construction. • Applying water to disturbed areas and to storage stockpiles. • Applying water in sufficient quantities to prevent dust plumes during activities such as clearing & grubbing, backfilling, trenching and other earth moving activities. • Limit vehicle speed to 15 mph. • Load haul trucks with a freeboard (space between top of truck and load) of six inches or greater. • Cover the top of the haul truck load. • Clean-up track-out at least daily.
CM BIO-1: Vernal Pool and Waters Avoidance. Prohibit vehicular and equipment refueling 250 feet from the edge of vernal pools, and 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas. Maintain a buffer of 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew would implement other measures as prescribed by the land planner, biologist, or HCP administrator to minimize impacts by flagging access, requiring foot access, restricting work until dry season, or requiring a biological monitor during the activity.

PG&E CMs
CM BIO-2: Revegetation. If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew would revegetate the area with a commercial "weed free" seed mix.
CM BIO-3: Worker's Environmental Awareness Training. All workers on the Proposed Project site would be required to attend a Workers Environmental Awareness Program (WEAP) training. Training would 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 would include, at a minimum, the following topics so crews would understand their obligations: • Environmentally sensitive area boundaries, • Housekeeping (i.e., trash and equipment cleaning), • Safety, • Work stoppage, • Communication protocol, and • Consequences of non-compliance.
CM BIO-4: Delineation and Avoidance of Sensitive Habitat Features. A Designated Biologist would clearly identify sensitive resources that crews must avoid for the duration of the activities with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize or avoid disturbance.
CM BIO-5: Special-Status Plant Species. Occurrences of special-status plant species would be avoided to the extent practicable and would include performance of Proposed Project activities in special-status plant habitat after senescence. PG&E has created "Map Book zones" for the 13 state or federally listed plants that are covered in the O&M HCP. A Map Book zone is defined as an area of occupied or potentially occupied the HCP-covered plant species habitat as determined by PG&E botanical surveys. When rare and endangered plant species subject to the NPPA cannot be avoided, PG&E would follow the requirements of California Fish and Game Code Sections 1913(b) and 1913(c) concerning notification to CDFW at least 10 days in advance and provide an opportunity to salvage such species. If a special-status plant is found or known to occur, the plant would be avoided if feasible (i.e., O&M objectives could still be met). If feasible to avoid, avoidance would include establishing a buffer around the plants and demarcation of the buffer by a qualified biologist or botanist using flagging. Consideration of site-specific environmental factors such as terrain, site hydrology, light, and potential introduction of invasive plants may inform the avoidance approach.
CM BIO-6: Biological Monitor. For Covered Activities in Covered Species modeled habitat that require work over a period of two weeks or greater, a General Biological Monitor would conduct compliance inspections, at a minimum, once every week after clearing, grubbing, and grading are completed and during periods of inactivity.
CM BIO-7: Clean Equipment and Materials. PG&E would implement the following for activities that involve ground disturbance: • Mud and/or accumulated soils would be removed from equipment and vehicles to the maximum extent practicable. • Vehicles and equipment would be cleaned or washed before entering a new work site.

PG&E CMs
• A log would be kept for each work site and would be completed to document each cleaning or washing of vehicles or equipment before entering each new work site. • Vehicles would be staged and stored on paved or cleared areas to the extent practicable. • Certified weed-free mulch, straw, hay bales, or equivalent materials would be used where necessary.
CM BIO-8: Vehicle Travel. PG&E would: • Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt). • Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation. • Locate off-road access routes and work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops). • Limit vehicle speeds on unpaved roads to 15 miles per hour.
CM BIO-9: Trapped Animal Prevention. Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews would search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife are not trapped. If any wildlife are found, a biologist would be notified and would relocate the species to adjacent habitat or the species would be allowed to naturally disperse, as determined by a biologist. Minimize potential for covered species to seek refuge or shelter in pipes and culverts. Inspect pipes and culverts, of diameter wide enough to be entered by a covered species that could inhabit the area where pipes are stored, for wildlife species prior to moving pipes and culverts. Immediately contact a biologist if a covered species is suspected or discovered.
CM BIO-10: Minimize Footprint. Minimize the activity footprint and minimize the amount of time spent at a work location to reduce the potential for take of species.
CM BIO-11: Construction Hours and Lighting. Construction activities would cease 30 minutes before sunset and would not begin prior to 30 minutes after sunrise, where feasible. Night work would be limited in extent, duration, and brightness, to the extent feasible. If temporary construction lighting is required, PG&E would use shielded construction light fixtures, or otherwise screen or direct lighting away from nearby residences except in the cases of emergency.
CM BIO-12: Nesting Birds *(Superseded by MM BIO-7).* If work is anticipated to occur within the nesting bird season (February–August 31) nesting birds, including raptors and other species protected under the Migratory Bird Treaty Act, may be impacted. If active nests are discovered, exclusionary measures and/or designated avoidance buffers may be required and implemented according to the guidance in the PG&E Nesting Bird Management Plan. The Proposed Project biologist determines if the construction action would impact the nest, and if so, identifies whether alternative actions or monitoring can be implemented to avoid impacts. If active nests are observed during construction, crews must immediately alert the PG&E project biologist. Nests with eggs and/or chicks would be avoided: contact a biologist, land planner or the Avian Protection Program manager for further guidance.

PG&E CMs
CM BIO-13: Felling Trees. Directionally fell trees away from an exclusion zone, if an exclusion zone has been defined. If this is not possible, remove the tree in sections. Avoid damage to adjacent trees to the extent possible. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs over 6 inches in diameter.
CM BIO-14: Conservation Landowner Notification. Notify conservation landowner at least 2 business days prior to conducting covered activities on protected lands (state and federally owned wildlife areas, ecological reserves, or conservation areas); more notice would be provided if possible or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E would notify the conservation landowner within 48 hours after initiating emergency work. While this notification is intended only to inform conservation landowner, PG&E would attempt to work with the conservation landowner to address landowner concerns.
CM BIO-15: Prohibitions. Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.
CM BIO-16: Erosion and Sediment Control BMPs. Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's *Stormwater Field Manual for Construction Best Management Practices*) to prevent construction site runoff into waterways.
CM BIO-17: Soil Stockpiling. Stockpile soil within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.
CM CUL-1: Worker Awareness Training. PG&E would provide environmental awareness training on archeological resources protection. This training may be administered by the PG&E cultural resources specialist (CRS) or a designee as a stand-alone training or included as part of the overall environmental awareness training as required by the Proposed Project and would at minimum include: types of cultural resources or fossils that could occur at the Proposed Project site; types of soils or lithologies in which the cultural resources or fossils could be preserved; procedures that should be followed in the event of a cultural resource or human remain discovery; and penalties for disturbing cultural resources.
CM CUL-2: Flag and Avoid Known Resources. Sites would be marked with flagging tape, safety fencing, and/or sign designating it as an "environmentally sensitive area" to ensure that PG&E construction crews and heavy equipment would not intrude on these sites during construction. At the discretion of the PG&E CRS, monitoring may be done in lieu of or in addition to flagging. If it is determined that the Proposed Project cannot avoid impacts on one or more of the sites, then, for those sites that have not been previously evaluated, evaluation for inclusion in the National Register of Historic Places (NRHP)/California Register of Historic Resources (CRHR) would be conducted. Should the site be found eligible, appropriate measures to reduce the impact to a less-than-significant level would be implemented, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate. If it is determined that sites that have been previously determined to be eligible for inclusion in either the NRHP or CRHR cannot be avoided, measures would be implemented to reduce the impact to a less-than-significant level, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate.
CM CUL-3: Unanticipated Cultural Resources Discoveries ***(Superseded by MM CUL-2)***.

PG&E CMs
Unanticipated Cultural Resources. If unanticipated cultural resources are inadvertently discovered during site preparation or construction activities, work would stop in that area and within 50 feet of the find until CRS or their qualified designee can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with PG&E and other appropriate agencies. Work may continue on other portions of the site with the CRS's approval. PG&E would implement the CRS's or their designee's recommendations for treatment of discovered cultural resources. **Human Remains.** In the unlikely event that human remains or suspected human remains are uncovered during preconstruction testing or during construction, all work within 50 feet of the discovery would be halted and redirected to another location. The find would be secured, and the CRS or designated representative would be contacted immediately to inspect the find and determine whether the remains are human. If the remains are not human, the CRS would determine whether the find is an archaeological deposit and whether paragraph (a) of this CM should apply. If the remains are human, the cultural resources specialist would immediately implement the applicable provisions in PRC Sections 5097.9 through 5097.996, beginning with the immediate notification to the affected county coroner. The coroner has two working days to examine human remains after being notified. If the coroner determines that the remains are Native American, California Health and Safety Code 7050.5 and PRC Section 5097.98 require that the cultural resources specialist contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC, as required by PRC Section 5097.98, would determine and notify the Most Likely Descendant.
CM GEO-1: Minimize Construction in Soft or Loose Soils. Where soft or loose soils are encountered during Proposed Project construction, several actions are available, feasible and can be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, one or more of these actions may be implemented to eliminate impacts from soft or loose soils: • Locating construction facilities and operations away from areas of soft and loose soil. • Over-excavating soft or loose soils and replacing them with engineered backfill materials. • Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction. • Installing material, such as aggregate rock, steel plates, or timber mats, over access roads. • Treating soft or loose soils in place with binding or cementing.
CM PALEO-1: Worker Awareness Training. PG&E would provide environmental awareness training on paleontological resources protection. This training may be administered by the PG&E cultural resources specialist (CRS) or a designee as a stand-alone training or included as part of the overall environmental awareness training as required by the Proposed Project and would at minimum include: types of cultural resources or fossils that could occur at the Proposed Project site; types of soils or lithologies in which the cultural resources or fossils could be preserved; procedures that should be followed in the event of a cultural resource or human remain discovery; and penalties for disturbing paleontological resources.
CM PALEO-2: Paleontological Monitoring. A professional paleontologist would be retained to monitor initial ground-disturbing activities in previously undisturbed areas mapped as Montezuma Formation (Qmz). Monitoring would entail the visual inspection of excavated or graded areas and trench sidewalls. If a paleontological resource is discovered, the paleontological monitor would have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the paleontological monitor would complete the following steps:

PG&E CMs

- If fossils are discovered, all work in the immediate vicinity would be halted to allow the paleontological monitor to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the paleontological monitor would recover them by following standard field procedures for collecting paleontological resources. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (e.g., skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case, the paleontological monitor would have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossils can be removed in a safe and timely manner.
- An accredited repository, which has agreed to accept fossils that may be discovered during Proposed Project-related excavations, would be identified prior to construction activities. Upon completion of fieldwork, all significant fossils collected would be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossil specimens would be identified to the lowest taxonomic level practical prior to curation at an accredited repository (usually a museum). The fossil specimens would be delivered to the accredited museum or repository no later than 30 days after all laboratory work is completed. The cost of curation would be assessed by the repository and would be the responsibility of the client.

CM GHG-1: Greenhouse Gas Emissions Reduction During Construction. The following actions would be taken, as feasible, to minimize greenhouse gas emissions.

- Encourage construction workers to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the Proposed Project would depend upon the proximity of carpool facilities to the area, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker arrival time and the Proposed Project's construction schedule.
- Minimize unnecessary construction vehicle idling time for on-road and off-road vehicles. The ability to limit construction vehicle idling time would depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The Proposed Project would apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine would be shut off. Construction foremen would include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings would include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with PG&E standards.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment, where feasible. Portable diesel fueled construction equipment with engines 50 hp or larger and manufactured in 2000 or later would be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- Encourage recycling construction waste where feasible.

PG&E CMs
CM HAZ-1: Hazardous-Substance Control and Emergency Response. PG&E would implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of Proposed Project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on-site, as applicable. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil would be tested, and if contaminated above hazardous waste levels, would be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil would require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following: • Proper disposal of potentially contaminated soils. • Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources. • Emergency response and reporting procedures to address hazardous material spills. • Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work would be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.
CM HAZ-2: Worker Environmental Awareness. The training would include the following components related to hazards and hazardous materials: • PG&E Health, Safety, and Environmental expectations and management structure. • Applicable regulations. • Summary of the hazardous substances and materials that may be handled and/or to which workers may be exposed. • Summary of the primary workplace hazards to which workers may be exposed. • Overview of the controls identified in the Storm Water Pollution Prevention Plan.
CM HAZ-3: Air Transit Coordination. PG&E would implement the following protocols related to helicopter use during construction and air traffic: • PG&E would comply with all applicable Federal Aviation Administration (FAA) regulations regarding air traffic within 2 miles of the Proposed Project alignment. • PG&E's helicopter operator would coordinate all Proposed Project helicopter operations with local airports before and during Proposed Project construction. • Helicopter use and landing zones would be managed to minimize impacts on local residents.

PG&E CMs
CM HYD-1: Micro-Site Distribution Poles. The distribution poles associated with the proposed PG&E 12 kV Distribution Line would be micro-sited in a manner that minimizes permanent impacts to sensitive wetland resources located along the alignment as a result of pole siting to the extent feasible. In the event that it is not possible to site poles in a manner that avoids impacts to wetlands, all appropriate permits would be obtained and any associated permit conditions would be implemented.
CM HYD-2: Prepare and Implement a Storm Water Pollution Prevention Plan. PG&E would prepare and implement a SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP would include a list of BMPs to be implemented in areas with potential to drain to any water body. BMPs to be part of the Proposed Project-specific SWPPP may include, but are not limited to, the following control measures. • Implementing temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) to control erosion from disturbed areas. • Protecting drainage facilities in downstream off-site areas from sediment using appropriate BMPs. • Protecting the quality of surface water from non-stormwater discharges such as equipment leaks, hazardous materials spills, and discharge of groundwater from dewatering operations. • Restoring disturbed areas, after Proposed Project construction is completed, unless otherwise requested by the landowner in agricultural land use areas.
CM NOI-1: Employ Noise-Reducing Construction Practices during Temporary Construction Activities. PG&E would employ standard noise-reducing construction practices such as the following: Ensure that all equipment is equipped with mufflers that meet or exceed factory new-equipment standards. • Locate stationary equipment as far as practical from noise-sensitive receptors. • Limit unnecessary engine idling. • Limit all construction activity near sensitive receptors to daytime hours unless required for safety or to comply with line clearance requirements. Minimize noise-related disruption by notifying residents. Should nighttime Proposed Project construction be necessary because of planned clearance restrictions, affected residents would be notified at least 7 days in advance by mail, personal visit, or door hanger, and informed of the expected work schedule.
CM TRA-1: Temporary Traffic Controls. PG&E would obtain any necessary transportation and encroachment permits from the California Department of Transportation and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and would comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E would develop road and lane closure or width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in or along or that cross local roadways would follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the Proposed Project area.

PG&E CMs
CM TRA-2: Coordinate Road Closures with Emergency Service Providers. At least 24 hours prior to implementing any road or lane closure, PG&E would coordinate with applicable emergency service providers in the Proposed Project vicinity. PG&E would provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.
CM FIRE-1: Fire Risk Management. PG&E would follow relevant California Public Resource Code provisions and the then-current company-specific standard for preventing and mitigating fires while performing PG&E work. PG&E would utilize a project-specific safety plan to outline and ensure compliance with safe work practices, training, and fire response. Examples of the measures in the wildfire prevention and mitigation standard include, but are not limited to, the following practices: • When working on unpaved roads where the ignitions may be probable due to dry vegetation, park vehicles in an area cleared of vegetation (e.g., paved, gravel or cleared to bare mineral soil) or otherwise where suitable to avoid fire ignitions. • During dry months, all motorized equipment driving on unpaved or gravel/dirt right-of-way or roads must have installed State-approved spark arrestor. • When traveling to the jobsite, or when operating on unimproved roadways, passenger vehicles are to carry one dry chemical fire extinguisher (rated ABC) and one round point shovel. • Trucks (1/2 ton or larger) and all-terrain vehicles (ATVs) are to carry one dry chemical fire extinguisher (rated ABC), one round point shovel and one, 5-gallon backpack pump-type fire extinguisher. • Heavy machinery or equipment (e.g., tractors, tub grinders, whole tree chippers, excavators, bulldozers) must have one dry chemical fire extinguisher (rated ABC), one round point shovel and one 5-gallon backpack pump-type fire extinguisher in the operating area but these are not required to be affixed to heavy machinery or equipment. • In addition, during “red flag warning” advisory conditions (as determined by the National Weather Service) or other very high fire risk conditions, certain work activities will be curtailed or temporarily stopped unless work is deemed an emergency. • All flammable chemicals must be clearly labeled and stored in approved containers away from ignition sources.

Source: (LS Power Grid California, LLC 2025)

2.15 References

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: State of the Art in 2006*.

Avian Power Line Interaction Committee (APLIC). 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Edison Electric Institute, Avian Power Line Interaction Committee, and the California Energy Commission.

California EMF Program. 2002. *An Evaluation of the Possible Risks from Electric and Magnetic Fields (EMFs) from Power Lines, Internal Wiring, Electrical Occupations, and Appliances*. State of California, Health and Human Services Agency, Department of Health Services. https://ehtrust.org/wp-content/uploads/CA-EMF-.pdf.

California Public Utilities Commission (CPUC). 2006. "EMF Design Guidelines for Electrical Facilities." July 21. https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/permitting-and-environmental-review/electric-magnetic-fields.

International Agency for Research of Cancer. 2002. *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*. 80: Non-Ionizing radiation, Part 1: Static and Extremely Low-Frequency (ELF) Electric and Magnetic Fields. World Health Organization. http://journals.lww.com/00004032-200212000-00021.

LS Power Grid California, LLC. 2025. *Proponent's Environmental Assessment for LS Power Grid California, LLC's Collinsville 500/230 Kilovolt Substation Project. Application A.24-07-018 to the California Public Utilities Commission.* Available: https://ia.cpuc.ca.gov/environment/info/panoramaenv/collinsville/pea_deficiences.html#LSPGC_Application_Deficiency_Reports_.

World Health Organization (WHO). 2007. *Environmental Health Criteria 238. Extremely Low Frequency Fields*.

3 Description of Alternatives

3.1 Introduction

The purpose of the alternatives analysis in an EIR, pursuant to CEQA, is to identify a reasonable range of potentially feasible alternatives to the Proposed Project, or its location, that would attain most of the project's basic objectives, while avoiding or substantially lessening any of its significant environmental effects (CEQA Guidelines 15126.6[a]).

This section is organized as follows:

- Section 3.2 provides an overview of the alternatives development
- Section 3.3 describes the methodology used for the alternatives screening process
- Section 3.4 describes each alternative that has been retained for full EIR analysis
- Section 3.5 describes the No Project Alternative, which has been retained for full EIR analysis

Section 6 of this EIR provides a comparison of alternatives based on the environmental analysis of each alternative. The environmentally superior alternative is also identified in Section 6.

3.2 Alternatives Development Process

The Alternatives Screening Report (Appendix C) describes and documents the alternatives development and screening analysis conducted by the CPUC. The Alternatives Screening Report documents the criteria used to evaluate and select alternatives for further analysis, including their feasibility, the extent to which they would meet most of the basic project objectives, and their potential to avoid or substantially lessen any of the significant effects of the proposed project. The Alternatives Screening Report provides a complete description of each alternative considered during screening and discusses why each alternative was either eliminated from further consideration or retained for further consideration in this EIR. The alternatives screening process culminated in the identification and screening of 16 potential alternatives. Six alternatives were retained for analysis in this EIR, and nine alternatives were eliminated from further analysis. The alternatives development process included consideration of (1) alternatives proposed by LSPGC, (2) alternatives developed based on scoping comments, (3) alternatives developed by the CPUC CEQA Team, and (4) No Project Alternative.

3.2.1 CEQA Requirements

CEQA Guidelines (Section 15126.6) emphasize the selection of a reasonable range of technically feasible alternatives that meet most of the basic project objectives, and an adequate assessment

of these alternatives to allow decision makers to make a comparative analysis of potential environmental effects (refer to Section 6 for a comparison of alternatives). CEQA Guidelines (Section 15126.6 (a)) state that:

> *An 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.*

To comply with CEQA's requirements, each alternative that was suggested or developed for this project was evaluated in three ways:

1. Does the alternative meet most of the basic project objectives?
2. Is the alternative feasible (i.e., legal, regulatory, technical)?
3. Does the alternative avoid or substantially lessen any significant effects of the proposed project, including consideration of whether the alternative itself could create significant effects potentially greater than those of the proposed project?

The Alternatives Screening Report (Appendix C) provides more detail about the evaluation process for alternatives.

3.3 Alternatives Screening Methodology

The evaluation of alternatives to the Proposed Project was completed using a screening process that consisted of the following steps:

- Step 1: Identify significant impacts of the Proposed Project
- Step 2: Consider alternatives considered by LSPGC in the PEA and alternatives suggested by stakeholders or the public
- Step 3: Identify alternative methods of meeting the basic project objectives that could avoid or substantially lessen a significant effect
- Step 4: Evaluate each alternative ability to meet basic project objectives, feasibility, and ability to avoid or substantially lessen an environmental impact
- Step 5: If the alternative does not meet basic project objectives, is infeasible, or does not avoid or substantially lessen an environmental impact, eliminate it from further consideration.

Those alternatives that met the basic project objectives, are potentially feasible, and avoid or substantially lessen an environmental effect are considered for full analysis in the EIR and described in this Section.

3.3.1 Significant Environmental Impacts

Potentially significant environmental impacts resulting from the Proposed Project were evaluated to develop alternatives and determine whether an alternative would meet CEQA Guidelines Section 15126.6 requirements. Table 3.3-1 presents a summary of the significant environmental effects of the Proposed Project. Impacts related to air quality, biological

resources, cultural resources, energy, greenhouse gases, land use, mineral resources, noise, and tribal cultural resources would be significant after implementation of all feasible mitigation measures.

Table 3.3-1 Summary of Potentially Significant Environmental Impacts of the Proposed Project

Issue Area	Impact and Determination for the Proposed Project
Aesthetics	No significant impacts
Agriculture and Forestry Resources	• Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract. *(Less than significant with mitigation)* • 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. *(Less than significant with mitigation)*
Air Quality	• Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable or state ambient air quality standard. *(Significant and unavoidable)*
Biological Resources	• Impact BIO-1A: Have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. *(Less than significant with mitigation)* • Impact BIO-1B: Have substantial adverse effects, either directly or through habitat modifications, on any amphibian species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. *(Less than significant with mitigation)* • Impact BIO-1C: Have substantial adverse effects, either directly or through habitat modifications, on any reptile species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. *(Less than significant with mitigation)* • Impact BIO-1D: Have substantial adverse effects, either directly or through habitat modifications, on any bird species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. *(Significant and unavoidable)* • Impact BIO-1E: Have substantial adverse effects, either directly or through habitat modifications, on any invertebrate species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. *(Less than significant with mitigation)* • Impact BIO-1F: Have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. *(Less than significant with mitigation)* • Impact BIO-1G: Have substantial adverse effects, either directly or through habitat modifications, on any aquatic mammal species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. *(Less than significant with mitigation)* • Impact BIO-1H: Have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status

Issue Area	Impact and Determination for the Proposed Project
	species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. *(Less than significant with mitigation)* • 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 the USFWS. *(Less than significant with mitigation)* • Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. *(Less than significant with mitigation)* • 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 corridors, or impede the use of native wildlife nursery sites. *(Less than significant with mitigation)* • Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Less than significant with mitigation)* • Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. *(Less than significant with mitigation)*
Cultural Resources	• Impact Cultural-1: Cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5. *(Significant and unavoidable)* • Impact Cultural-2: Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5. *(Significant and unavoidable)* • Impact Cultural-3: Disturb any human remains, including those interred outside of dedicated cemeteries. *(Significant and unavoidable)*
Energy	• Impact EN-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency. *(Significant and unavoidable)*
Geology, Soil, and Paleontological Resources	• Impact GEO-1(iii): Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. *(Less than significant with mitigation)* • Impact GEO-1(iv): Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. *(Less than significant with mitigation)* • Impact GEO-3: 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 landslides, lateral spreading, subsidence, liquefaction, or collapse. *(Less than significant with mitigation)* • Impact GEO-4: Be located on expansive soil creating substantial direct or indirect risks to life or property. *(Less than significant with mitigation)*
Greenhouse Gas Emissions	• Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. *(Significant and unavoidable)*
Hazards, Hazardous Materials, and Public Safety	• Impact HAZ-7: Potential to expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. *(Less than significant with mitigation)* • Impact HAZ-9: Expose workers or the public to excessive shock hazards. *(Less than significant with mitigation)*

Issue Area	Impact and Determination for the Proposed Project
	• Impact HAZ-10: For projects located within a wind turbine throw hazard zone, would the project expose structures or people to a wind turbine throw hazard. *(Less than significant with mitigation)*
Hydrology and Water Quality	No significant impacts
Land Use and Planning	• 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. *(Significant and unavoidable)*
Mineral Resources	• Impact MIN-1: Result in the loss of availability of a known mineral resource that would be of value to the region and the residence of the state. *(Significant and unavoidable)* • 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. *(Significant and unavoidable)*
Noise	• Impact NOI-1: Result in the 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. *(Significant and unavoidable*)
Population and Housing	No significant impacts
Public Services	No significant impacts
Recreation	No significant impacts
Transportation	• Impact TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. *(Less than significant with mitigation)* • 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). *(Less than significant with mitigation)*
Tribal Cultural Resources	• Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: - (i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. *(Significant and unavoidable)*
Utilities and Service Systems	• Impact UT-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 telecommunication facilities, the construction or relocation of which could cause significant environmental effects. *(Less than significant with mitigation)* • Impact UT-6: Induce voltage on an existing natural gas pipeline in a manner that would result in the physical degradation of the pipeline. *(Less than significant with mitigation)*

Issue Area	Impact and Determination for the Proposed Project
Wildfire	• 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. *(Less than significant with mitigation)* • 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. *(Less than significant with mitigation)*

3.3.2 Alternatives Considered by the CPUC

Each of the alternatives considered is identified in Table 3.3-2. The alternatives retained for further consideration in this EIR are described in Section 3.4. The alternatives eliminated from further consideration are described in the Alternatives Screening Report (Appendix C).

Table 3.3-2 Collinsville 500/230 kV Substation Project Alternatives

Alternative	Source	Type	Eliminated or Retained
Alternative 1: Collinsville Substation North of Talbert Lane	LSPGC Application	Substation Location	Retained
Alternative 2: Collinsville Substation East of Wind Energy Substations	CPUC CEQA Team	Substation Location	Retained
Alternative 3: 500 kV Interconnection Lines on Entirely TSPs	Scoping Comment	Transmission Structures	Retained
Alternative 4: 230 kV Overhead Segment Alternative Route	LSPGC	Transmission Route	Retained
Alternative 5: 230 kV Submarine Segment Alternative Route	Scoping Comment	Transmission Route	Retained
Alternative 6a/6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh Protection Plan Management Areas	LSPGC	Transmission Route	Retained
Collinsville Substation South of Talbert Lane	LSPGC Application	Substation Location	Eliminated
Collinsville Substation East of Talbert Lane	CPUC CEQA Team	Substation Location	Eliminated
Collinsville Substation on Industrial Zoned Land	CPUC CEQA Team	Substation Location	Eliminated
Collinsville Substation North of Pittsburg Substation	Scoping Comment	Substation Location	Eliminated
Collinsville Substation South of Pittsburg Substation	Scoping Comment	Substation Location	Eliminated
Route Relocation Outside of BCDC Jurisdiction	CPUC CEQA Team	Route Relocation	Eliminated

Alternative	Source	Type	Eliminated or Retained
In-river Transition Structure	LSPGC Application	Transition Structure	Eliminated
500 kV Interconnection Lines on a Single Set of Structures	Scoping Comment	Transition Structure	Eliminated
230 kV Submarine Segment – Full Horizontal Directional Drilling (HDD) Installation	Scoping Comment	Construction Methods	Eliminated
230 kV Submarine Segment – Partial HDD Installation	Scoping Comment	Construction Methods	Eliminated
Reduced Activity Level for In-Water Work	CPUC CEQA Team	Construction Methods	Eliminated

3.3.3 Summary of Alternatives Analyzed in the EIR

The alternatives listed below are those that have been selected through the alternative screening process for detailed analysis in this EIR; the No Project Alternative is also included as required by CEQA. Each of the alternatives, with the exception of the No Project Alternative, would substantially meet project objectives, would be potentially feasible, and would avoid or reduce potential environmental effects of the Proposed Project. The following alternatives are analyzed in this EIR:

- Alternative 1: Collinsville Substation Site North of Talbert Lane
- Alternative 2: Collinsville Substation East of Wind Energy Substations
- Alternative 3: 500 kV Interconnection Lines on Entirely TSPs
- Alternative 4: 230 kV Overhead Segment Alternative Route
- Alternative 5: 230 kV Submarine Segment Alternative Route
- Alternative 6a/6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh Protection Plan Management Areas
- No Project Alternative

3.4 Alternatives Analyzed in the EIR

The alternatives analyzed in this EIR are described in the following sections.

3.4.1 Alternative 1: Collinsville Substation North of Talbert Lane

Alternative 1 Description

Alternative 1 involves a location for the Collinsville Substation, approximately 1.2 miles north of the proposed substation site. The Alternative 1 substation site is located approximately 500 feet north of Talbert Lane and approximately 1 mile east of Collinsville Road (Figure 3.4-1). The 500 kV interconnection lines would be approximately 0.4-mile long in total (both lines combined) and would require approximately 3 to 4 multi-pole TSP structures (up to approximately 9 individual poles) to interconnect to the existing 500 kV Vaca Dixon-Tesla 500 kV Transmission Line to two transition structures within the substation fence. The 230 kV overhead segment would extend from the alternative substation site south for approximately 1.8 miles to the proposed transition structures on the northern shore of the Delta. The 230 kV overhead segment would be located on approximately eleven TSP structures. The 12 kV distribution line would be approximately 700 feet long and would be located on approximately four wooden poles. The dimensions of the TSPs and 12 kV poles would be the same as the Proposed Project described in Section 2: Project Description. The dimensions and equipment housed within the Collinsville Substation and PG&E communication yard would be the same as described in Section 2: Project Description. The permanent footprint of the Alternative 1 substation would be similar to the Proposed Project (approximately 12.7 acres).

Alternative 1 would not involve changes to any of the other Proposed Project components, including the LSPGC 230 kV submarine segment, 230 kV underground segment, and telecommunication interconnection lines, as well as the PG&E 500 kV transposition sites and existing substation modifications. With Alternative 1, these project components would be constructed as described for the Proposed Project or the other alternatives if selected in combination with Alternative 1.

Alternative 1 Construction Details

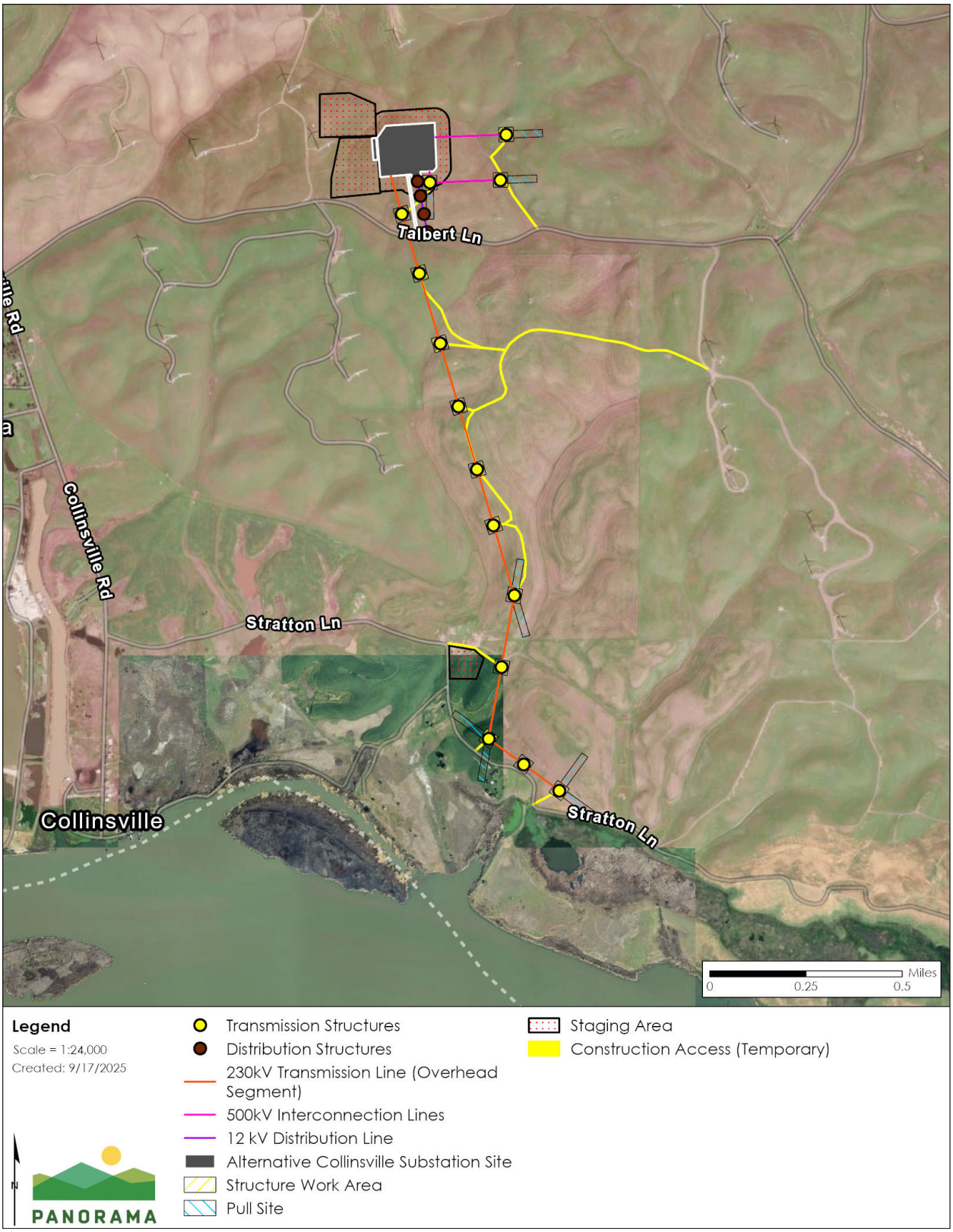
The overall construction activities/approach would generally be the same as the Proposed Project (see Section 2: Project Description). Differences in the construction requirements are described below.

PG&E would not use helicopters to install structures for the 500 kV interconnection with Alternative 1; however, PG&E would still use helicopters for construction of the transposition structures and LSPGC would use helicopters for construction of the 230 kV overhead segment, as described for the Proposed Project.

Access Roads

Alternative 1 would be accessed using existing paved and unpaved roads, new permanent access roads, and temporary access roads, as summarized in Table 3.4-1. The description of each type of access road is provided in Section 2: Project Description.

Figure 3.4-1 Alternative 1: Collinsville Substation North of Talbert Lane



Source: (LSPGC 2025a; 2025b; 2025c)

Table 3.4-1 Alternative 1 Access Road Details

Type	Approximate total length	Typical width	Approximate total area
Existing unpaved roads (no improvements anticipated)	2.1 miles	20 to 36 feet	5.1 acres
New substation driveway (permanent)	421 feet	30 feet	0.3 acre
Construction access roads (temporary)	3.8 miles	16 feet	7.4 acres

Source: (LSPGC 2025b)

Staging Areas

It is anticipated that two staging areas would be used by LSPGC to support construction activities associated with Alternative 1, including alternate staging areas surrounding the Alternative 1 substation site and a modified version of the East of Stratton Lane staging area associated with the Proposed Project. The size of each alternate staging area is summarized in Table 3.4-2. The staging areas are shown on Figure 3.4-1.

Table 3.4-2 Alternative 1 Staging Areas

Name	Location	Existing condition	Approximate size
Alternative 1 Substation Site	Directly northwest and west of the Alternative 1 substation, as well as approximately 200 feet surrounding the Alternative 1 substation's permanent footprint	Agriculture	42.0 acres [a]
East of Stratton Lane	East of Stratton Lane adjacent to Proposed Project substation site	Agriculture	4.0 acres

Note:

[a] Substation staging area acreage includes the approximately 12.7-acre permanent footprint.

Source: (LSPGC 2025a; 2025b; 2025c)

Grading and Excavation

Typical excavation dimensions for the Alternative 1 TSPs would be consistent with those described in Section 2: Project Description. Excavation for the Alternative 1 substation would require approximately 60,000 cubic yards greater cut and fill than the Proposed Project substation. The total area of ground disturbance for the Alternative 1 substation would be comparable to the Proposed Project as described in Section 2: Project Description.

- Total cut: 68,000 cubic yards
- Total fill (select import and net fill): 71,000 cubic yards
- Total export/wasted: 8,000 cubic yards
- Total import (select import/structural fill): 11,000 cubic yards

The duration and schedule for each Alternative 1 construction activity and the percent of increase or decrease in activity level compared to the Proposed Project is listed in Table 3.4-3. The equipment used for development would be comparable to the Proposed Project; however, the duration of use would differ as indicated below.

Table 3.4-3 Alternative 1 Construction Schedule

Component [a]	Activity [a]	Start	End	Workdays	Percent Increase or Decrease [b]
Collinsville Substation	Site Development/Staging Yards	5/1/2026	8/29/2026	101	+33%
Collinsville Substation	Below-Grade Construction	8/14/2026	2/6/2027	152	0%
Collinsville Substation	Above-Grade Construction	1/23/2027	2/15/2028	333	0%
500 kV Interconnection	Foundation Installation	5/17/2027	6/11/2027	20	-70%
500 kV Interconnection	Structure Installation & Conductor Install [c]	1/18/2028	2/25/2028	40	0%
230 kV - New Overhead Transmission	Access Road Construction	5/1/2027	5/22/2027	19	+20%
230 kV - New Overhead Transmission	Foundation Installation	5/20/2027	8/3/2027	57	+260%
230 kV - New Overhead Transmission	Structure Installation	8/3/2027	10/19/2027	65	+260%
230 kV - New Overhead Transmission	Conductor Installation	10/20/2027	12/6/2027	39	+150%
12 kV Distribution	Distribution Extension to Substation	6/1/2026	7/16/2026	38	-25%

Notes:

[a] Components and activities included are limited to those that would be different than the Proposed Project.

[b] Percent increase or decrease refers to the approximately change in duration or activity level compared to the Proposed Project.

[c] Conductor installation for the 500 kV interconnection would occur at the same time as structure installation. Therefore, the 40 workdays for 500 kV conductor installation identified for the Proposed Project would not apply.

Source: (LSPGC 2025a; 2025b; 2025c)

Alternative 1 Operation and Maintenance Details

Alternative 1 operation and maintenance requirements would be the same as the Proposed Project. Routine inspection and maintenance activities would proceed under the same schedule as the Proposed Project as described in Section 2: Project Description.

3.4.2 Alternative 2: Collinsville Substation East of Wind Energy Substations

Alternative 2 Description

Alternative 2 involves a location for the Collinsville Substation, approximately 3.0 miles north of the proposed substation site. The Alternative 2 substation site is approximately 200 to 300 feet east of the Vaca Dixon–Tesla 500 kV Transmission Line. The Alternative 2 substation site is also located east of existing wind energy substations including approximately 650 feet northeast of Russel Substation (owned and operated by SMUD) and 500 east of Birds Landing Switching Station (owned and operated by PG&E). The Alternative 2 substation site would be approximately 1 mile northeast of the intersection of Birds Landing Road and Montezuma Hills Road. The 500 kV interconnection lines would be approximately 1,200 feet long in total (both transmission lines) and would require approximately 3 to 4 multi-pole TSP structures (up to approximately 9 individual poles) to interconnect to the Vaca Dixon-Tesla 500 kV Transmission Line to two transition structures within the substation. The 230 kV overhead segment would extend from the Alternative 2 substation site south for approximately 4.0 miles located on 23 TSPs and would extend from the substation site to the proposed transition structures on the northern shore of the Delta. The 12 kV distribution line would be approximately 0.3-mile long and installed on approximately 4 poles; it would extend from an existing distribution line within the wind farm. The details of Alternative 2 are depicted in Figure 3.4-2, below. The dimensions of the TSPs and 12 kV poles would be the same as the Proposed Project described in Section 2: Project Description. The dimensions and equipment housed within the Collinsville Substation and PG&E communication yard would be the same as described in Section 2: Project Description. The permanent footprint of the Alternative 2 substation would be similar to the Proposed Project (approximately 12.7 acres).

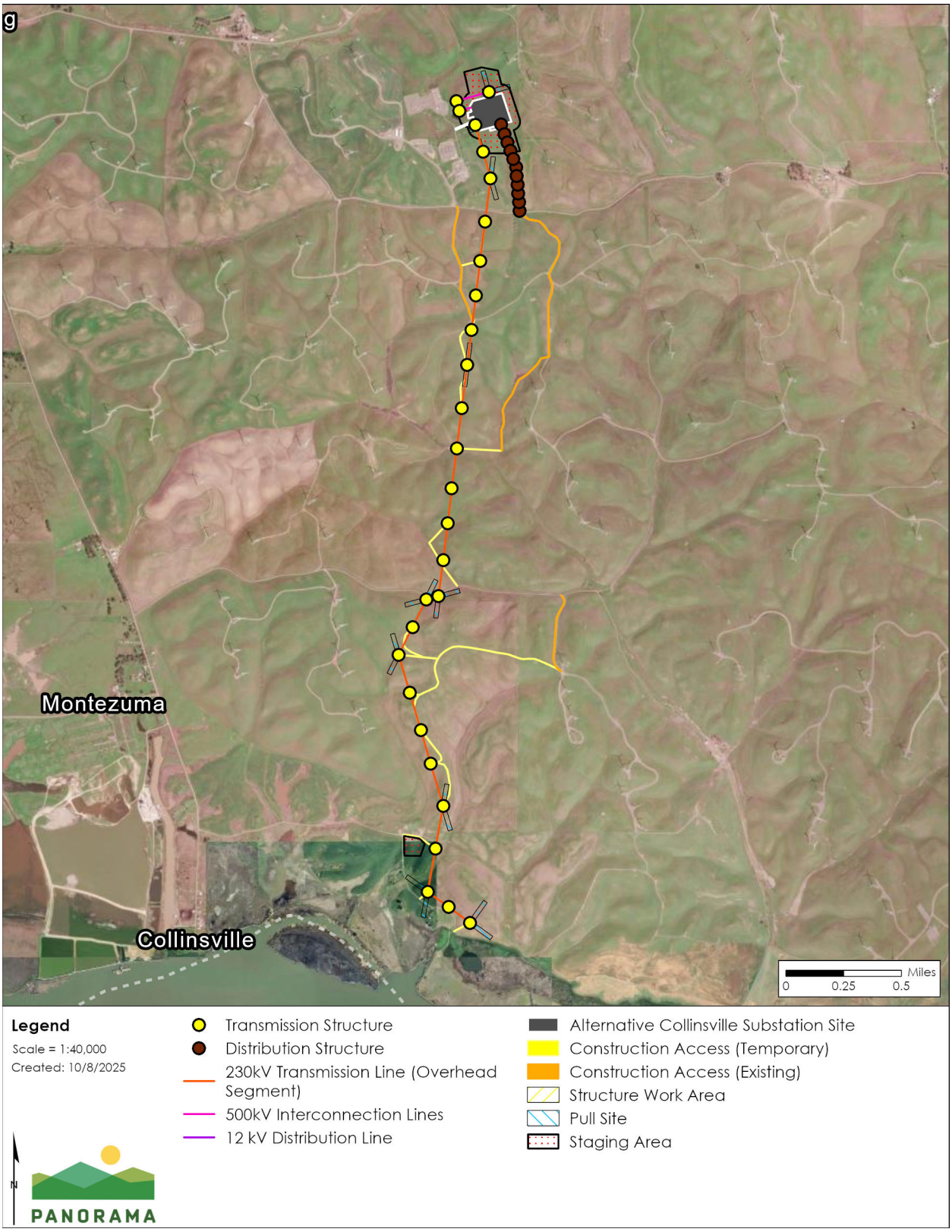
Alternative 2 would not involve changes to any of the other Proposed Project components, including the LSPGC 230 kV submarine segment, 230 kV underground segment, and telecommunication interconnection lines, as well as the PG&E 500 kV transposition sites and existing substation modifications. With Alternative 2, these project components would be constructed as described for the Proposed Project or the other alternatives if selected in combination with Alternative 2.

Alternative 2 Construction Details

The overall construction activities/approach would generally be the same as the Proposed Project (see Section 2: Project Description). Differences in the construction requirements are described below.

PG&E would not use helicopters to install structures for the 500 kV interconnection with Alternative 2; however, PG&E would still use helicopters for construction of the transposition structures and LSPGC would use helicopters for construction of the 230 kV overhead segment, as described for the Proposed Project.

Figure 3.4-2 Alternative 2: Collinsville Substation East of Wind Energy Substations



Source: (LSPGC 2025b; 2025a)

Access Roads

Alternative 2 would be accessed using existing paved and unpaved roads, new permanent access roads, and temporary access roads, as summarized in Table 3.4-4. The description of each type of access road is provided in Section 2: Project Description.

Table 3.4-4 Alternative 2 Access Road Details

Type	Approximate total length	Typical width	Approximate total area
New substation driveway (permanent)	860 feet	30 feet	0.6 acre
Construction access roads (temporary)	2.6 miles	16 feet	5.0 acres

Source: (LSPGC 2025b)

Staging Areas

It is anticipated that two staging areas would be used by LSPGC to support construction activities associated with Alternative 2, including alternate staging areas surrounding the Alternative 2 substation site and a modified version of the East of Stratton Lane staging area associated with the Proposed Project. The size of each alternative staging area is summarized in Table 3.4-5. The staging areas are shown on Figure 3.4-2.

Table 3.4-5 Alternative 2 Staging Areas

Name	Location	Existing condition	Approximate size
Alternative 2 Substation Site	Directly north and south of the Alternative 2 substation, as well as approximately 200 feet surrounding the Alternative 2 substation's permanent footprint	Agriculture	45.3 acres [a]
East of Stratton Lane	East of Stratton Lane adjacent to Proposed Project substation site	Agriculture	4.0 acres

Note:

[a] Substation staging area acreage includes the approximately 12.7-acre permanent footprint.

Source: (LSPGC 2025b)

Grading and Excavation

Typical excavation dimensions for the Alternative 2 LSTs and TSPs would be consistent with those described in Section 2: Project Description. Excavation for the Alternative 2 substation would require approximately 40,000 cubic yards greater cut and fill than the Proposed Project. The total area of ground disturbance for the Alternative 2 substation would be comparable to the Proposed Project as described in Section 2: Project Description. Estimated excavation volumes for the Alternative 2 substation are as follows:

- Total cut: 46,000 cubic yards
- Total fill (select import and net fill): 51,000 cubic yards
- Total export/wasted: 6,000 cubic yards

- Total import (select import/structural fill): 11,000 cubic yards

The duration of each Alternative 2 construction phase is listed in Table 3.4-6. The equipment used for development would be comparable to the Proposed Project; however, the duration of use would differ.

Table 3.4-6 Alternative 2 Construction Schedule

Component [a]	Activity [a]	Start	End	Workdays	Percent Increase or Decrease [b]
Collinsville Substation	Site Development/Staging Yards	5/1/2026	9/14/2026	114	+50%
Collinsville Substation	Below-Grade Construction	9/1/2026	2/24/2027	152	0%
Collinsville Substation	Above-Grade Construction	2/10/2027	3/3/2028	333	0%
500 kV Interconnection	Foundation Installation	5/17/2027	6/11/2027	20	-70%
500 kV Interconnection	Structure Installation & Conductor Install [c]	1/18/2028	2/25/2028	40	0%
230 kV - New Overhead Transmission	Access Road Construction	5/1/2027	6/8/2027	32	+100%
230 kV - New Overhead Transmission	Foundation Installation	5/20/2027	9/29/2027	110	+500%
230 kV - New Overhead Transmission	Structure Installation	8/30/2027	1/22/2028	120	+500%
230 kV - New Overhead Transmission	Conductor Installation	10/20/2027	1/7/2028	65	+250%
12 kV Distribution	Distribution Extension to Substation	6/1/2026	7/16/2026	38	-25%

Notes:

[a] Components and activities included are limited to those that would be different than the Proposed Project.

[b] Percent increase or decrease refers to the approximately change in duration or activity level compared to the Proposed Project.

[c] Conductor installation for the 500 kV interconnection would occur at the same time as structure installation. Therefore, the 40 workdays for 500 kV conductor installation identified for the Proposed Project would not apply.

Source: (LSPGC 2025a; 2025b; 2025c)

Alternative 2 Operation and Maintenance Details

Alternative 2 operation and maintenance requirements would be the same as the Proposed Project. Routine inspection and maintenance activities would proceed under the same schedule as the Proposed Project as described in Section 2: Project Description.

3.4.3 Alternative 3: 500 kV Interconnection Lines on Entirely TSPs

Alternative 3 Description

Alternative 3 involves the use of TSPs only to support the 500 kV interconnection lines. Preliminary engineering for Alternative 3 indicates that PG&E would utilize six, monopole TSPs and eight, three-pole TSPs (up to approximately 30 individual poles). The two circuits supported by these poles would be roughly parallel to each other similar to the Proposed Project. The structure locations would be approximately the same as the Proposed Project LST locations. The location of the monopole TSPs and three-pole TSPs for Alternative 3 is shown on Figure 3.4-3.

Preliminary modeling of the tangent monopole structures shows the tallest would be approximately 170 feet tall above ground height (agh), with the average height roughly 160 feet agh, utilizing approximately 32- to 35-foot arm lengths (approximately 60- to 70-foot total horizonal length) in a delta configuration and using V-string type insulators to minimize blowout of the conductor. The structures would have two approximately 15-foot arms at the top of the structure to account for the two shield wires. A diagram of a typical TSP is provided in Figure 3.4-4. The TSPs in the three-pole configurations would be up to 150 feet agh. Foundation design (diameter and depths) cannot be completed until loads are provided by the pole manufacturer, but the single tangent poles have been assumed to be roughly 8 to 10 feet in diameter and 30 to 35 feet in depth, and the three-pole TSPs would be roughly 6 to 7 feet in diameter and 25 to 30 feet in depth.

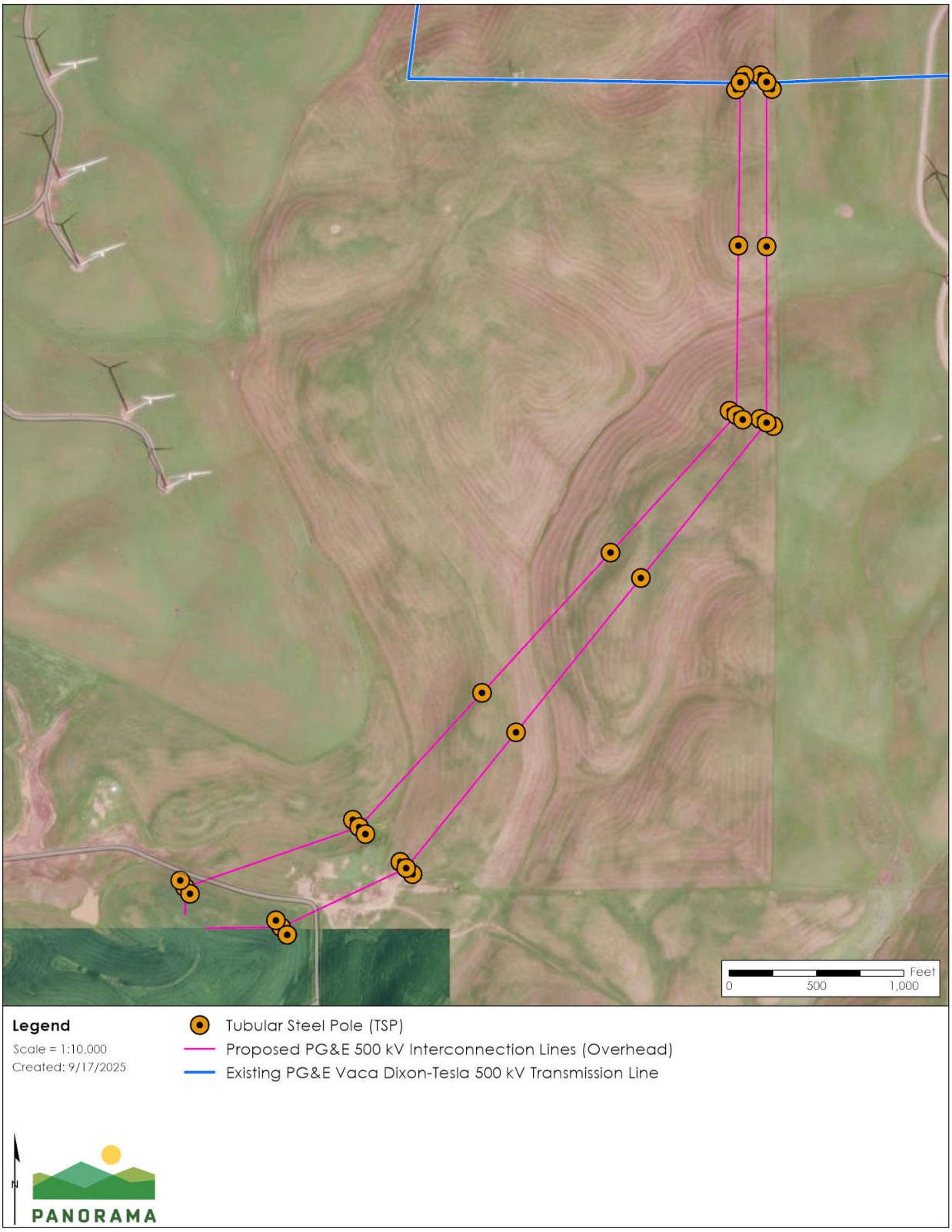
Alternative 3 would not involve changes to any of the other Proposed Project components, including the LSPGC Collinsville Substation, 230 kV line segments, and telecommunication interconnection lines, as well as the PG&E 500 kV interconnection alignment, transposition sites, and existing substation modifications. With Alternative 3, these project components would be constructed as described for the Proposed Project or the other alternatives if selected in combination with Alternative 3.

Alternative 3 Construction Details

Construction of the Alternative 3 TSPs would utilize either direct bury or pier-foundation mounted pole construction methods as described in Section 2: Project Description. The Alternative 3 access roads and staging areas would be the same as those of the Proposed Project 500 kV interconnection lines as described in Section 2: Project Description. No additional staging areas or access roads are proposed for Alternative 3.

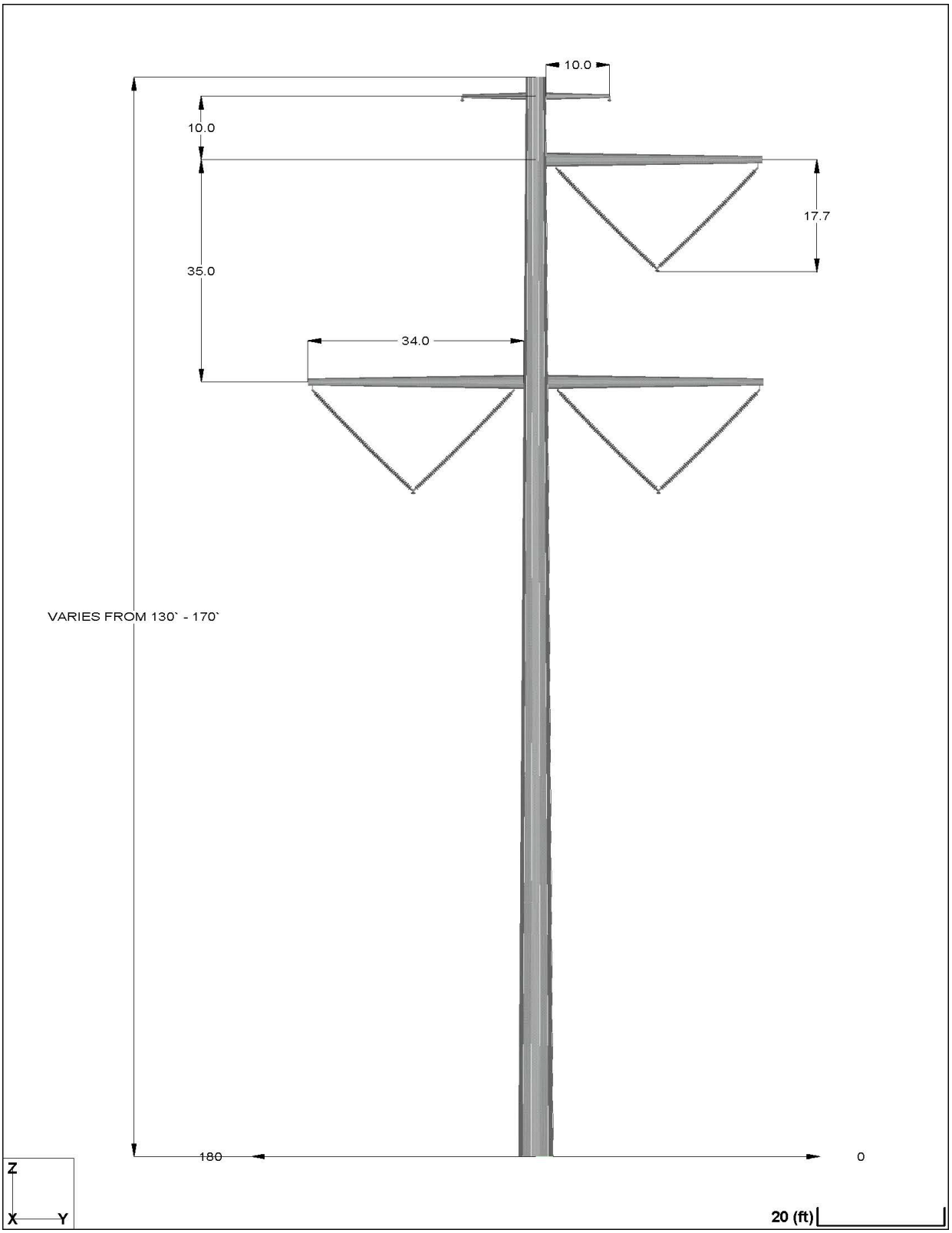
Based on preliminary engineering, due to the weight of the lower sections of the tangent monopole structures, helicopters could not be used to set them. A larger crane would be required, which would require constructing a level pad large enough to handle the crane, requiring cut and fill as needed at each pad site to create a level work area. It is possible that a single pad could be placed between the two single-pole structure locations for the large crane to set the two bottom pole sections at each of the three tangent pole locations, but that has not been

Figure 3.4-3 Alternative 3: 500 kV Interconnection Lines on Entirely TSPs



Source: (PG&E 2025)

Figure 3.4-4 Typical TSP Monopole



Source: (PG&E 2025)

field verified and otherwise confirmed. Helicopters would still be used for construction of other transmission line components.

There is one stream that would be crossed by the 500 kV interconnection line. Where the line crosses the stream there would be two poles installed on one side of the steam and one pole installed on the other side. The stream would not be rerouted.

The construction schedule for Alternative 3 is expected to be roughly the same as the Proposed Project.

Alternative 3 Operation and Maintenance Details

Operation and maintenance requirements for Alternative 3 would be equivalent to the Proposed Project as Alternative 3 would be functionally equivalent to the Proposed Project and in the same alignment. Routine inspection and maintenance activities would proceed under the same schedule as the Proposed Project as described in Section 2: Project Description.

3.4.4 Alternative 4: 230 kV Overhead Segment Alternative Route

Alternative 4 Description

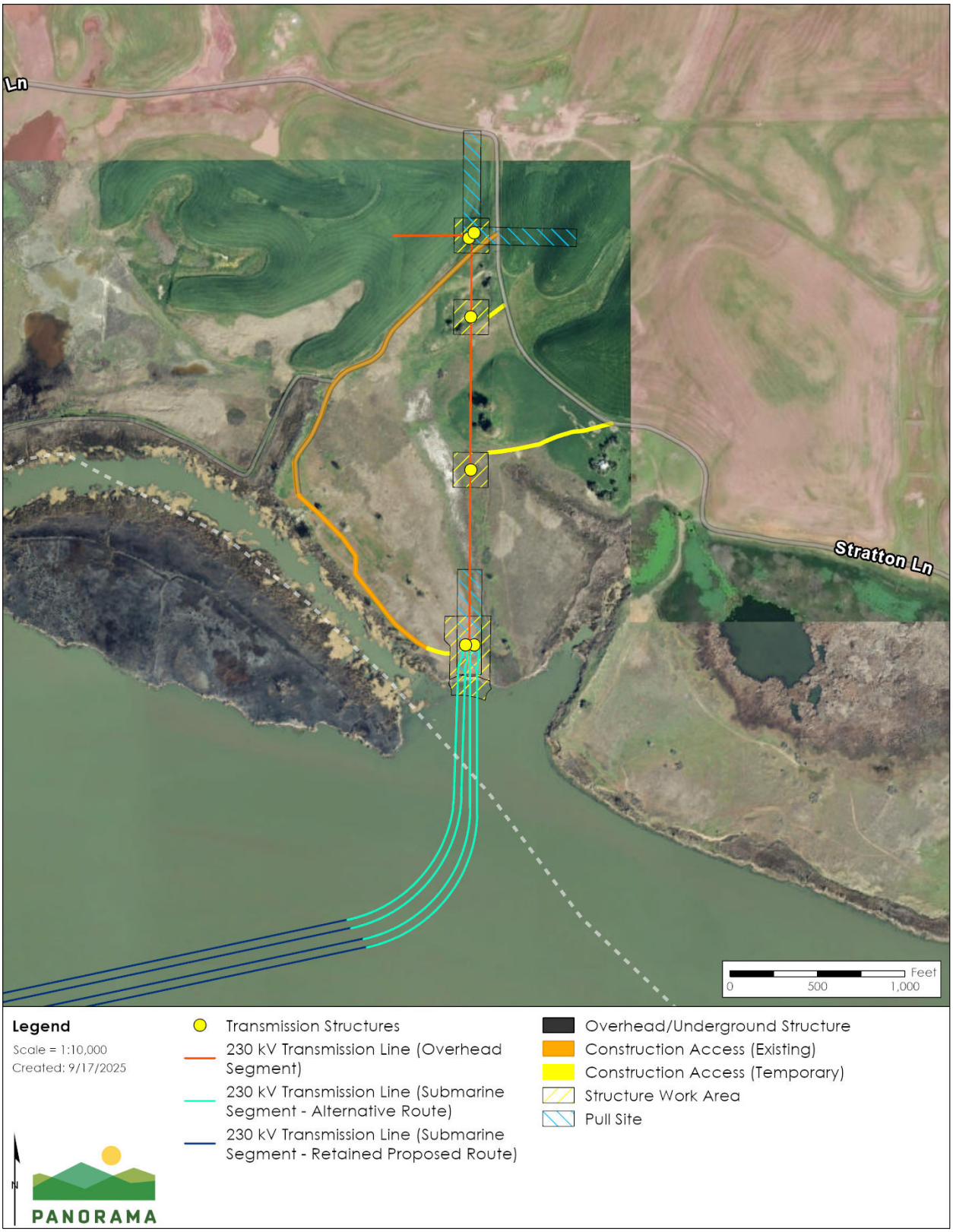
Alternative 4 would locate the 230 kV overhead segment on primarily PG&E-owned property directly south of the proposed Collinsville Substation as depicted on Figure 3.4-5. Alternative 4 would require four pier-mounted or direct bury 230-kV TSPs for the overhead segment and two pier-mounted TSP overhead riser structures at the transition to the submarine segment. The overhead riser structures would be mounted on drilled pier foundations approximately 55 feet deep. The 230 kV TSPs and riser structures would be equivalent to those described in Section 2: Project Description. The 230 kV overhead segment would be approximately 0.4-mile-long. Alternative 4 would relocate a 0.3-mile-long segment of the submarine cables to the west of the Proposed Project resulting in an approximately 0.1-mile increase in the length of the submarine cables.

Alternative 4 would not involve changes to any of the other Proposed Project components, including the LSPGC Collinsville Substation, remaining portions of the 230 kV submarine segment, 230 kV underground segment, and telecommunication interconnection lines, as well as the PG&E 500 kV interconnection, transposition sites, and existing substation modifications. With Alternative 4, these project components would be constructed as described for the Proposed Project or the other alternatives if selected in combination with Alternative 4.

Alternative 4 Construction Details

The construction methods for the Alternative 4 230 kV overhead segment including the TSP construction and submarine segment construction would be the same as the Proposed Project (see Section 2: Project Description). Differences in the construction requirements are described below. The construction schedule for Alternative 4 is expected to be the same as the Proposed Project.

Figure 3.4-5 Alternative 4: 230 kV Overhead Segment Alternative Route



Source: (LSPGC 2025b)

Alternative 4 would be accessed using existing unpaved roads and temporary access roads, as summarized in Table 3.4-7. The description of each type of access road is provided in Section 2: Project Description.

Table 3.4-7 Alternative 4 Access Road Details

Type	Approximate total length	Typical width	Approximate total area
Existing unpaved roads (no improvements anticipated)	1.2 mile	20 to 36 feet	2.9 acres
Construction access roads (temporary)	0.3 mile	16 feet	0.6 acre

Source: (LSPGC 2025b)

Alternative 4 Operation and Maintenance Details

Operation and maintenance of the 230 kV overhead segment and submarine segment would be equivalent to operation and maintenance of the Proposed Project 230 kV overhead segment and submarine segment as described in Section 2: Project Description.

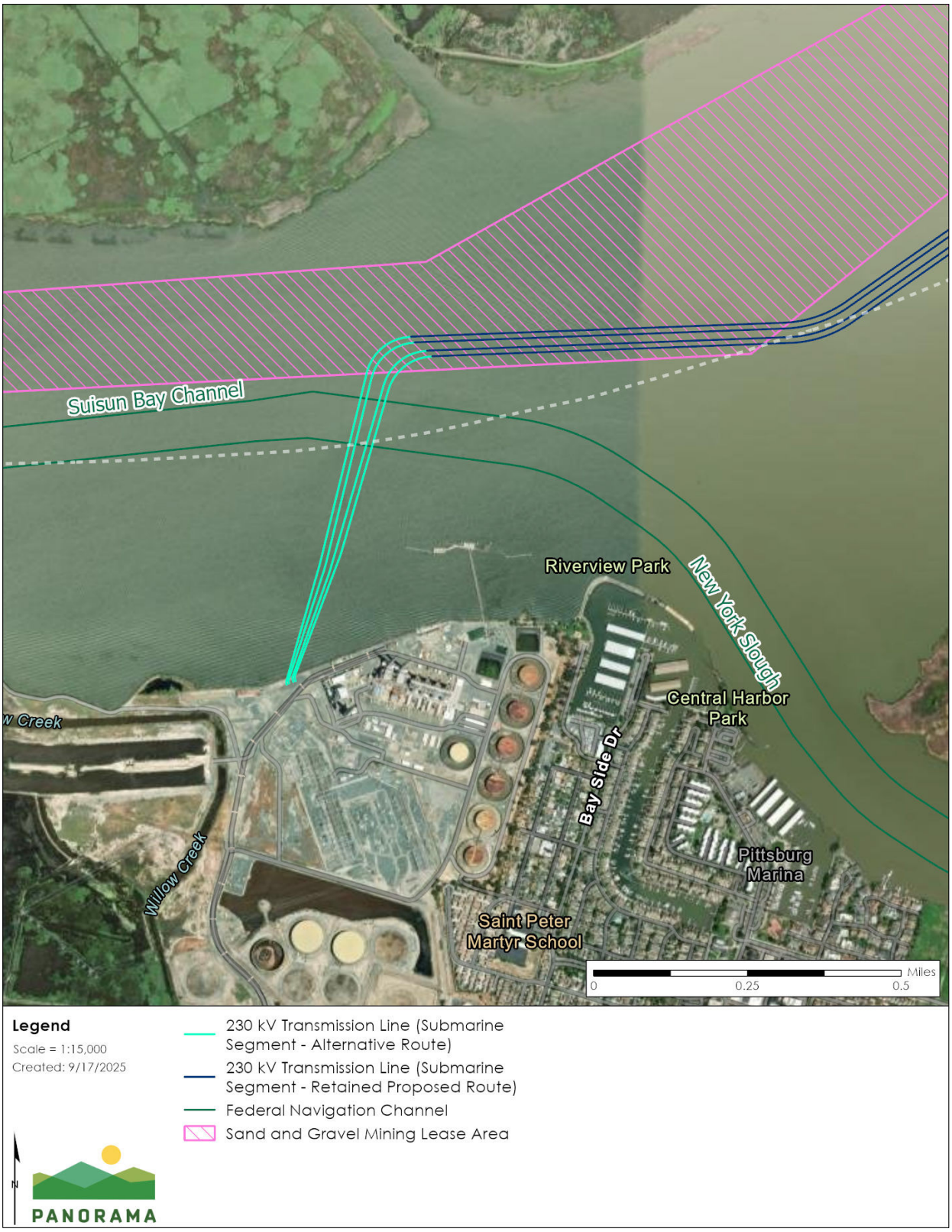
3.4.5 Alternative 5: 230 kV Submarine Segment Alternative Route

Alternative 5 Description

Alternative 5 involves relocation of a 0.6-mile-long portion of the submarine cable as depicted in Figure 3.4-6. The Alternative 5 cables would be functionally equivalent to the Proposed Project and would be buried at a similar depth to the Proposed Project to meet U.S. Army Corps of Engineers (USACE) regulatory requirements.

Alternative 5 would not involve changes to any of the other Proposed Project components, including the LSPGC Collinsville Substation, remaining portions of the 230 kV submarine segment, 230 kV underground segment, and telecommunication interconnection lines, as well as the PG&E 500 kV interconnection, transposition sites, and existing substation modifications. With Alternative 5, these project components would be constructed as described for the Proposed Project or the other alternatives if selected in combination with Alternative 5.

Figure 3.4-6 Alternative 5: 230 kV Submarine Segment Alternative Route



Source: (LSPGC 2025a)

Alternative 5 Construction Details

Alternative 5 would be installed using the same general construction methods described for the submarine cable in Section 2: Project Description. Differences in the construction requirements are described below.

Within the Alternative 4 alignment there are two underwater ridges that have a steep (near vertical) incline/decline. Due to the steep slopes site preparation would be required to meet the regulatory minimum cover requirements prior to hydroplow cable installation due to the hydroplow's inability to pivot at steep angles. Site preparation activities would occur within the Stockton Navigation Channel—a maintained shipping channel. The site preparation activity would be coordinated with USACE, U.S. Coast Guard, and Harbor Master to ensure vessel traffic safety and to minimize impacts to navigation. Site preparation would take place a year prior to the cable installation during the seasonal work window for fisheries. Site preparation would include dredging at the northern ridge to create a smooth cable lay area allowing the hydroplow to bury the cables at the appropriate depth. Site preparation would require the following equipment:

- Tugboat
- Crane barge (pulled by the tugboat)
- Material barge (pulled by the tugboat)
- Anchors
- Small crew boat
- Clam shell bucket and crane

Dredging of the southern ridge may also be required; however, at this time the need is undetermined. It is anticipated that four, 100-foot (width) by 32-foot (length) by 5-foot (depth) sections would need to be dredged to reduce the slope of the ridges for cable installation. The total area of impact would be approximately 7,000 cubic yards and would require additional federal and state permits. The excavated material would be side cast within the river and the activity would need to be in compliance with regulatory requirements.

The site preparation and dredging activities are expected to take approximately two weeks to complete, operating 12 hours per day. Other than the additional two weeks of site preparation the season prior to cable installation, the construction schedule for Alternative 5 is expected to be roughly the same as the Proposed Project.

Alternative 5 Operation and Maintenance Details

Alternative 5 operation and maintenance activities would remain the same as the Proposed Project submarine cables. Due to the location of the Alternative 5 cable in an area with a steep ridge where site preparation activities would be conducted, there is increased potential for scour in the area post-construction and Alternative 5 could require more routine maintenance to address scour and maintain minimum cover depths.

3.4.6 Alternative 6a/6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh Protection Plan Management Areas

Alternative 6a/6b Description

Alternative 6a/6b would locate the 230 kV transmission line on primarily PG&E-owned property south of the proposed Collinsville Substation site (similar to Alternative 4). In addition, Alternative 6a/6b would involve installing portions of the 230 kV transmission line in an underground position on land within the within Suisun Marsh Protection Plan Management Areas. Alternative 6a and Alternative 6b are the same, except for the northern portion of this alternative route (approximately 200 to 350 feet) which reflect slightly different connection points that would apply to the project scenarios under consideration.

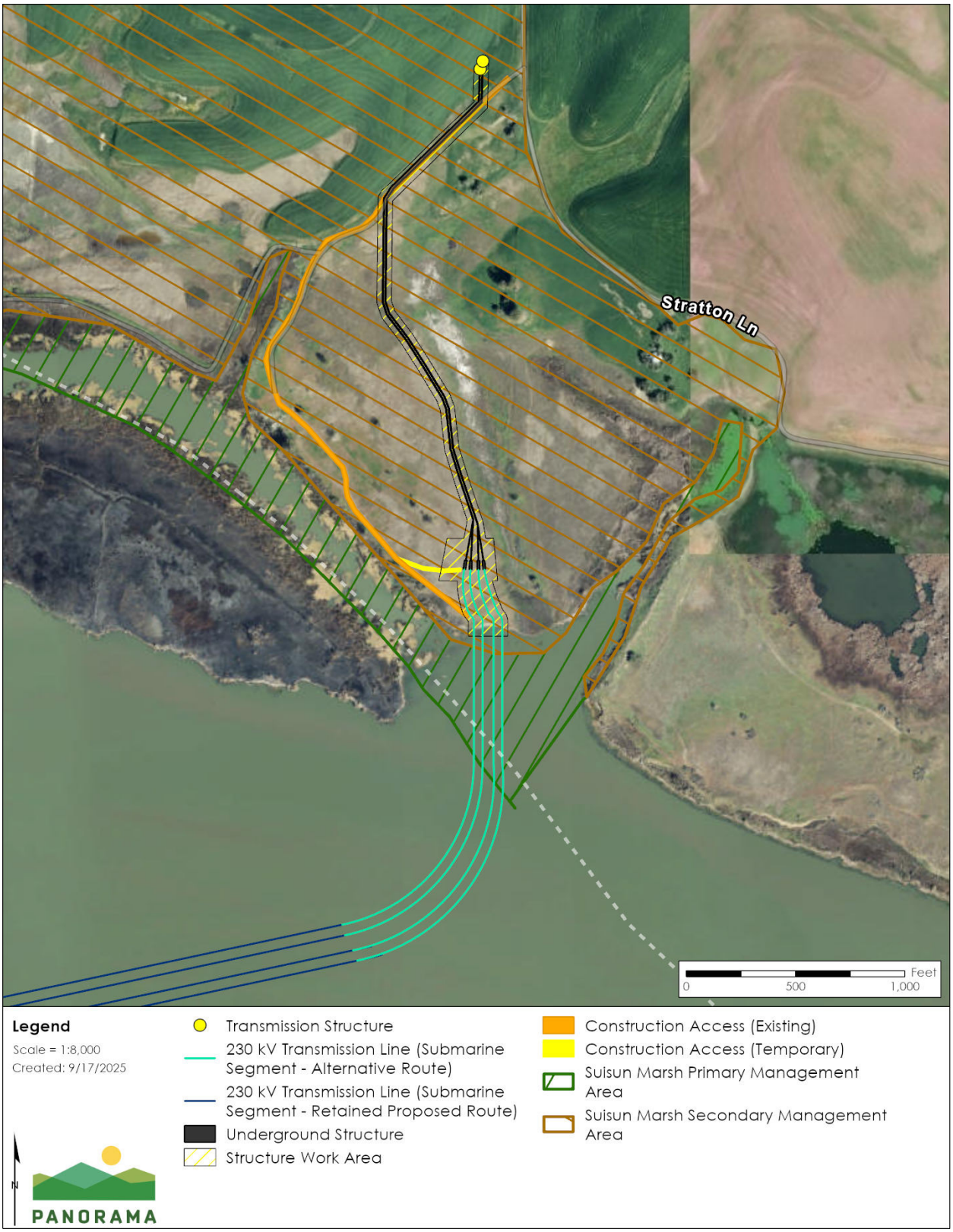
Alternative 6a would apply if the Collinsville Substation was constructed at the proposed location and a new underground route (approximately 0.5 mile long) would replace the proposed 230 kV overhead segment entirely. Two overhead riser structures would be installed at the northern end of the 230 kV underground route approximately 75 feet east of the proposed Collinsville Substation site, where the 230 kV line would connect to the substation equipment in an overhead position. Alternative 6a is shown on Figure 3.4-7.

Alternative 6b would apply if the Collinsville Substation was constructed at the locations identified for Alternatives 1 and 2, which would include an adjusted route for the 230 kV overhead segment. With Alternative 6b, approximately 0.7 mile of the 230 kV overhead segment, where identified on the northern shore of the Delta for Alternatives 1 and 2, would be replaced with a new underground route (approximately 0.5 mile long). Two overhead riser structures would be installed at the northern end of the 230 kV underground route approximately 400 feet east of the proposed Collinsville Substation site, where the 230 kV line would transition between an overhead and underground position. In addition, approximately 650 feet of the overhead 230 kV lines would be relocated between the two riser structures and the retained portions of the 230 kV overhead segment routes associated with Alternatives 1 and 2. Alternative 6b is shown on Figure 3.4-8.

The Alternative 6a/6b overhead riser structures would be similar to those described for the Proposed Project in Section 2: Project Description. The underground 230 kV lines would be installed within duct bank that would be installed within four trenches approximately 3 to 6 feet deep and 7 to 10 feet wide. The trenches would be backfilled after the duct banks are installed, and the duct bank would be buried with approximately 8 to 12 inches of native soil depending on soil stability.

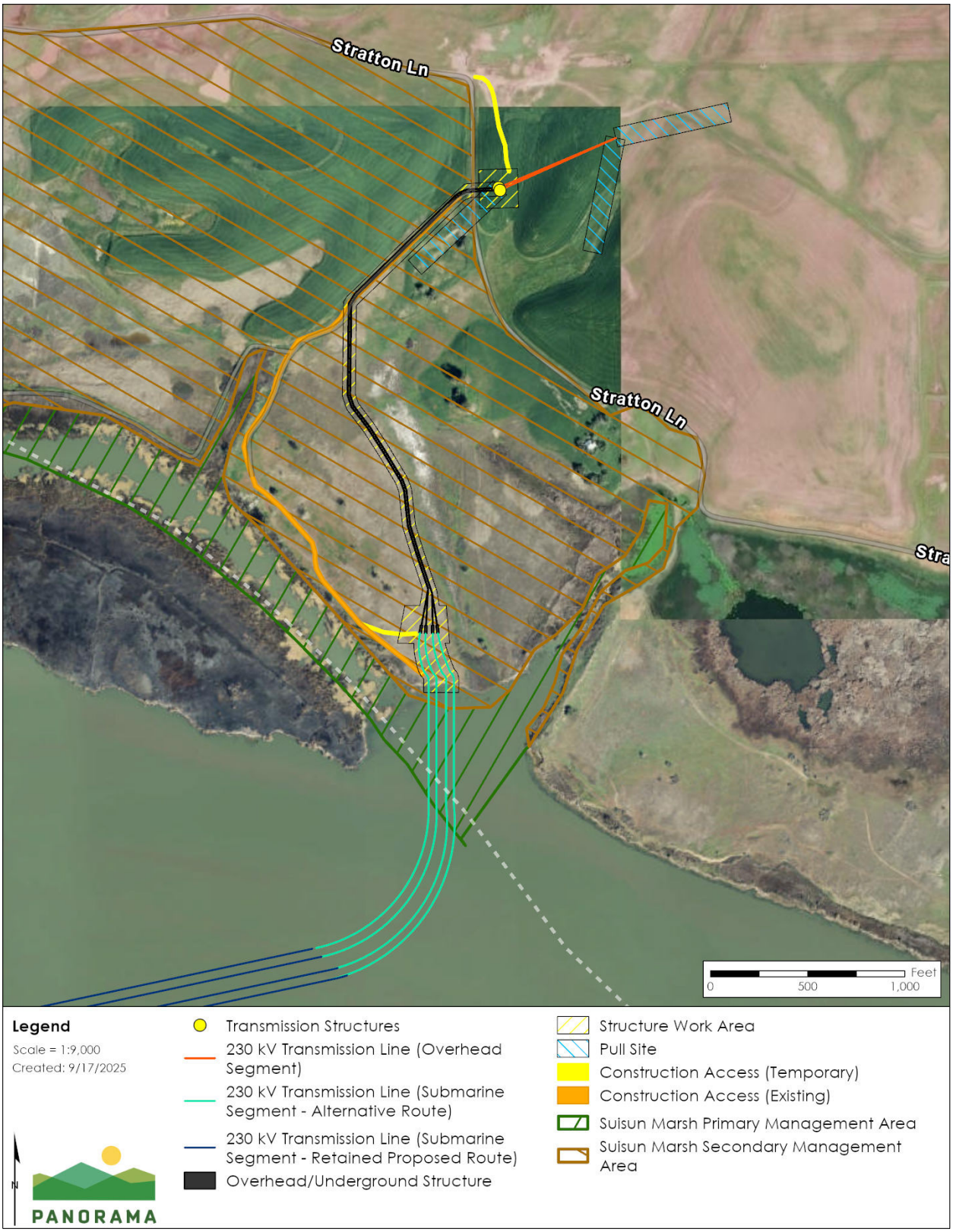
Alternative 6a/6b would include the installation of four transition vaults approximately 350 feet north of the Delta shoreline where the 230 kV transmission line transmissions to a submarine position. The dimension of each transition vault would be approximately 46 feet long, 16 feet wide, and 12 feet deep. Alternative 6a/6b would include relocating approximately 0.4 mile of the 230 kV submarine segment resulting in an approximately 0.1 mile increase in length of the submarine cables.

Figure 3.4-7 Alternative 6a: Underground Portions of the 230 kV Transmission Line within Suisun Marsh



Source: (LSPGC 2025c)

Figure 3.4-8 Alternative 6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh



Source: (LSPGC 2025c)

Alternative 6a/6b would be constructed using temporary access roads along the underground 230 kV corridor contained within the temporary workspaces identified for the alternative. Temporary access roads would be restored following construction. In addition, an existing road would be used during construction as well as during operation and maintenance (see Figure 3.4-7 and Figure 3.4-8). The existing access road would not require widening or other improvements. No new permanent access roads along the underground 230 kV corridor or elsewhere would be required.

Alternative 6a/6b would not involve changes to any of the other Proposed Project components, including the LSPGC Collinsville Substation, remaining portions of the 230 kV overhead segment (Alternative 6b only), remaining portions of the 230 kV submarine segment, 230 kV underground segment, and telecommunication interconnection lines, as well as the PG&E 500 kV interconnection, transposition sites, and existing substation modifications. With Alternative 6a/6b, these project components would be constructed as described for the Proposed Project or the other alternatives if selected in combination with Alternative 6a/6b.

Alternative 6a/6b Construction Details

The construction methods for the Alternative 6a/6b 230 kV underground lines, including the riser structures, duct bank, transition vaults, and submarine segment construction would be like the 230 kV Underground Segment described for the Proposed Project (see Section 2: Project Description). Differences in the construction requirements are described below.

Access Roads

Alternative 6a/6b would be accessed using existing unpaved roads and temporary access roads, as summarized in Table 3.4-8. The description of each type of access road is provided in Section 2: Project Description.

Table 3.4-8 Alternative 6a/6b Access Road Details

Type	Approximate total length	Typical width	Approximate total area
Existing unpaved roads (no improvements anticipated)	1.2 miles	20 to 36 feet	2.9 acres
Construction access roads (temporary) [a]	0.2 mile	16 feet	0.5 acre

Note:

[a] In addition to the defined construction access route, temporary construction access would occur along the underground 230 kV line corridor within the defined workspaces.

Source: (LSPGC 2025c)

Grading and Excavation

Typical excavation dimensions for the 230 kV lines with Alternative 6a/6b would be approximately 3 to 6 feet deep and 7 to 10 feet wide for the duct bank and approximately 46 feet long, 16 feet wide, and 12 feet deep for each of the four transition vaults. Under the Alternative 6a scenario, the duct bank installation will require approximately 3,700 cubic yards of excavation, while the transition vaults need around 1,400 cubic yards of excavation (5,100 cubic

yards total). Under the Alternative 6b scenario, the duct bank would require approximately 4,000 cubic yards of excavation due to the longer distance (5,400 cubic yards total).

Under Alternative 6a/6b, grading activity would take approximately 6 months as summarized in Table 3.4-9 and Table 3.4-10. Construction equipment that would be used with Alternative 6a/6b is identified in Table 3.4-11. Alternative 6a/6b is not expected to change the overall construction completion date.

Table 3.4-9 Alternative 6a Construction Schedule

Component [a, c]	Activity [a]	Start	End	Workdays	Percent Increase or Decrease [b]
230 kV - New Overhead Transmission	Access Road Construction	NA	NA	NA	-100%
230 kV - New Overhead Transmission	Foundation Installation	NA	NA	NA	-100%
230 kV - New Overhead Transmission	Structure Installation	NA	NA	NA	-100%
230 kV - New Overhead Transmission	Conductor Installation	NA	NA	NA	-100%
230 kV - New Underground Transmission	Northern Transition Approach Construction	6/15/2027	11/30/2027	138	+100%
230 kV - New Underground Transmission	Substation Getaways	6/1/2027	8/23/2027	30	+100%
230 kV - New Submerged Cable	Submarine Cable Installation	7/1/2027	10/31/2027	122	0%

Notes:

[a] Components and activities included are limited to those that would be different than the Proposed Project.

[b] Percent increase or decrease refers to the approximately change in duration or activity level compared to the Proposed Project.

[c] Alternative 6a would apply if the Collinsville Substation was located at the site identified for the Proposed Project, and it would replace the entire 230 kV overhead segment.

Source: (LSPGC 2025a; 2025b; 2025c)

Table 3.4-10 Alternative 6b Construction Schedule

Component [a, c]	Activity [a]	Start	End	Workdays	Percent Increase or Decrease [b]
230 kV - New Underground Transmission	Northern Transition Approach Construction	6/15/2027	11/30/2027	138	+100%
230 kV - New Underground Transmission	Substation Getaways	6/1/2027	8/23/2027	30	+100%
230 kV - New Submerged Cable	Submarine Cable Installation	7/1/2027	10/31/2027	122	0%

Notes:

[a] Components and activities included are limited to those that would be different than the Proposed Project.

[b] Percent increase or decrease refers to the approximately change in duration or activity level compared to the Proposed Project.

[c] Alternative 6b would apply if the Collinsville Substation was located at the sites identified for Alternatives 1 or 2, and it would replace a portion of the 230 kV overhead segment identified for Alternatives 1 or 2.

Source: (LSPGC 2025a; 2025b; 2025c)

Table 3.4-11 Alternative 6a/6b Construction Equipment

Equipment Name	Engine output	Anticipated fuel type	Quantity	Daily Use	Days
Underground Segment - Substation Getaways					
Pickup: ½ ton	395	Gasoline	4	2	30
Pickup: 1-ton	410	Diesel	4	2	30
Welding truck	395	Diesel	2	2	30
Generator: 25 kW	36	Diesel	2	8	30
Crane: 35-ton (manlift)	250	Diesel	2	5	30
Forklift: 10,000- reach	130	Diesel	2	4	30
Forklift: 15,000- pound	130	Diesel	1	4	30
Loader: 4-5 yard	74	Diesel	2	5	30
Wire trailer/tensioner	175	Diesel	1	5	30
Wire puller	175	Diesel	1	5	30
Skid steer loader	74	Diesel	2	8	30
Backhoe: 2x4	68	Diesel	2	6	30
Transition approach construction					
Onshore Crane	180	Diesel	1	8	138
Onshore Excavator	600	Diesel	1	8	138
Onshore End Loader	250	Diesel	1	8	138
Onshore vibratory hammer	30	Diesel	1	8	138
Air compressor	50	Diesel	1	8	138
Truck: Dump, 10- 12 yard	415	Diesel	4	6	138
Onshore dewatering equipment	50	Diesel	2	8	138
Onshore Trucks	300	Diesel	4	8	138

Source: (LSPGC 2025c)

Alternative 6a/6b Operation and Maintenance Details

Operation and maintenance of the 230 kV of the underground segment identified for Alternative 6a/6b would include different activities from those described for the 230 kV overhead segment of the Proposed Project; however, the general activities described for the 230 kV underground segment of the Proposed Project would be similar.

The existing road west of Alternative 6a/6b would be utilized for access to the transition vaults during operations and maintenance, including annual inspections utilizing a standard pickup truck. The existing road would not need to be improved for these purposes, and no road maintenance is expected. Vegetation would be allowed to grow on and around the transition vaults and only would be cleared using manual tools if needed for access to the manholes. The 230 kV underground right-of-way would not require vegetation management following construction. Dewatering during operations and maintenance is anticipated. Sump pumps are designed as part of the transition vault that would be able to discharge any water that has accumulated in the vaults, during periods of inspection. Dewatering would be completed in accordance with federal, state, and local laws and regulations. Operation and maintenance of the 230 kV submarine segment would be equivalent to operation and maintenance of the Proposed Project 230 kV submarine segment as described in Section 2: Project Description.

3.5 No Project Alternative

CEQA requires an evaluation of the No Project Alternative so decision makers can compare the impacts of approving the project with the impacts of not approving the project. According to CEQA Guidelines (Section 15126.6(e)), “the "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.”

The existing conditions at the time of notice of preparation are described in the EIR for each environmental resource as the environmental baseline.

Under the No Project Alternative the actions that are reasonably expected to occur in the foreseeable future if the project were not improved include actions within the scope of existing PG&E operations to improve and maintain the reliability of the transmission grid. The deliverability of renewable and energy storage portfolio resources in the area would be limited by multiple thermal overloads on the 230 kV corridor between Contra Costa and Newark under normal (N-0 conditions), N-1 (first contingency or outage to a single component of an electric system), and N-2 (second contingency or when outage occurs to two components of an electric system) contingency. The existing PG&E infrastructure in the area would continue to deliver energy to the San Francisco Bay Area; however, the existing system would continue to be constrained and would fall short of the forecasted demand. The No Project Alternative would thus not achieve the basic project objectives.

3.6 References

LSPGC. 2025a. "LSPGC Responses to CPUC Data Request #4 for LS Power Grid California, LLC's Collinsville 500/230 Kilovolt Substation Project (A.24-07-018)." May 23.

LSPGC. 2025b. "LSPGC Responses to CPUC Data Request #8 for LS Power Grid California, LLC's Collinsville 500/230 Kilovolt Substation Project (A.24-07-018)." August 1.

LSPGC. 2025c. "LSPGC Responses to CPUC Data Request #10 for LS Power Grid California, LLC's Collinsville 500/230 Kilovolt Substation Project (A.24-07-018)." August 22.

PG&E. 2025. "PG&E Responses to CPUC Data Request #4 for LS Power Grid California, LLC's Collinsville 500/230 Kilovolt Substation Project (A.24-07-018)." June 23.

4 Environmental Impact Analysis

4.0 Introduction and Environmental Analysis

4.0.1 Organization of Discussion of Environmental Resources

For each environmental resource, this EIR evaluates the environmental impacts of the Proposed Project. Sections 4.1 through 4.21 discuss the environmental impacts that may result with approval and implementation of the Proposed Project. Each environmental resource section contains the following components:

1. **Environmental Setting** describes the setting as related to a specific environmental resource. The setting information covers the areas that would be affected by the Proposed Project facilities (both LSPGC and PG&E) which would be in unincorporated areas of Alameda, Contra Costa, Sacramento, and Solano counties including in or near the towns of Collinsville, Byron, Midway, and Vacaville; the Sacramento-San Joaquin River Delta waterways; and the City of Pittsburg.
2. **Baseline**. The baseline for the environmental analysis is the environmental conditions as they existed at the time the Notice of Preparation was published in January 2025, consistent with CEQA Guidelines Section 15125.
3. **Regulatory Setting** provides an overview of relevant federal, State, and local laws, regulations, ordinances.
4. **Approach to Impact Analysis** provides the methodology for analysis, which describes the approach used in analyzing the impacts and significance criteria, based on those criteria identified in the IS Checklist in Appendix G of the State California Environmental Quality Act (CEQA) Guidelines but modified or supplemented as appropriate to address the Proposed Project impacts.
5. **Impact Analysis – Proposed Project** provides an analysis of impacts and mitigation measures from implementation of the Proposed Project (both the LSPGC and PG&E components).
6. **Impact Analysis – Cumulative** provides an analysis of impacts and mitigation measures from implementation of the Proposed Project in combination with cumulative projects (see Section 4.0.2 below).
7. **Impact Analysis – Alternatives** provides an analysis of impacts and mitigation measures from implementation of each alternative. The alternatives considered in this EIR replace only a portion of the Proposed Project and would require combination with the remainder of the Proposed Project or other alternatives to form a complete alternative to the Proposed Project. The impact analysis in Section 4 is focused only on the alternative segment that would replace the

Proposed Project. Section 6.0: Comparison of Alternatives includes comparison of the impacts of the Proposed Project with the alternative within each area of analysis, which is defined specifically to include the Proposed Project segments or components that would be replaced by an alternative. This approach allows for potential combination of alternatives in different areas and combination with the Proposed Project to the extent environmentally preferable.

8. **Mitigation Measures** provides the text of mitigation measures applied in the impact analysis.
9. **References** lists the materials referenced in preparing the section.

Each impact statement concludes with a determination of the level of significance before and after any identified proposed measures and mitigation measures are implemented. Impacts that would exceed identified significance criteria thresholds would be significant. Impacts are analyzed and determinations are made for the Proposed Project as a whole and impacts are also analyzed separately for the LSPGC project components and PG&E project components where relevant. In describing the significance of impacts, the following categories of significance are used:

- **Significant and Unavoidable.** Adverse environmental consequences that would exceed the significance criteria identified for the resource, even after all feasible mitigation measures are applied and/or an adverse effect that could be significant and for which no feasible mitigation measure has been identified.
- **Less than Significant with Mitigation.** Significant adverse environmental consequences that would be reduced to less-than-significant levels through implementation of identified mitigation measures.
- **Less than Significant.** Adverse environmental consequences that do not meet or exceed the significance criteria for the resource. Therefore, no mitigation measures are required.
- **No Impact.** No adverse environmental consequence would occur for the resource, or the consequences would be negligible or undetectable. Therefore, no mitigation measures are required.

4.0.2 Approach to Analysis to Cumulative Impacts

CEQA Requirements

CEQA requires consideration of cumulative impacts. A cumulative impact would occur when the impact of the Project evaluated in the EIR combines with other projects causing related impacts. *Cumulative impacts*, as defined in section 15355 of the State CEQA Guidelines, refers to two or more individual effects that, when considered together, are considerable, or that compound or increase other environmental impacts. The cumulative impact from several projects would be a change in the environment that would result from the incremental impact of the Proposed Project when added to other closely related past, present, or reasonably

foreseeable future projects. Pertinent guidance for cumulative impact analysis is provided in section 15130 of the State CEQA Guidelines, as follows:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of an individual project are considerable when viewed in connection with effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts to which the project evaluated in the EIR would not contribute.
- The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not be as detailed as it is for the effects attributable to the project alone.
- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

The cumulative impact analysis for each individual environmental resource is included at the end of the chapter for each resource.

Approach to Analysis

For evaluation of cumulative impacts, this EIR uses a list of past, present, and probable future projects producing related or cumulative impacts, based on the timeframe associated with the Proposed Project construction, as described in section 15130 of the State CEQA Guidelines. The cumulative analysis evaluates the potential for the Proposed Project and past, present, and probable future projects in the Proposed Project area or projected development to result in cumulative impacts. Because most of the impacts of the Proposed Project would occur during construction, the analysis of cumulative impacts focuses on other projects that could be constructed at the same time in the unincorporated communities of Solano, Alameda, Contra Costa and Sacramento counties. Potential cumulative operational impacts are considered as appropriate. Information about future planned development was obtained from available desktop resources for governmental agencies (e.g., CEQAnet and City of Pittsburg) where Proposed Project facilities would be located, public comments, the PEA, and agency outreach.

Cumulative Projects

Table 4.0-1 lists ongoing construction projects and potential future projects planned for construction in the general vicinity of the Proposed Project and alternatives. The locations of the cumulative projects are shown in Figure 4.0-1. While no application has been filed for the California Forever development, the project has been considered to the extent information is available on public websites or news articles about the potential for future development in the area.

Table 4.0-1 Ongoing and Planned Projects in Vicinity of the Proposed Project and Alternatives

#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
1	Flannery Associates' California Forever LP Project	The existing PG&E 500 kV Interconnection crosses the planned California Forever LP Project. The proposed LSPGC Collinsville Substation site is located approximately 7 miles south of the potential development area shown on the California Forever project website (https://californiaforever.com/).	The project may include a new master plan development city and manufacturing hub on approximately 17,500 acres in southeastern Solano County. The city would have both single-family homes and apartments (between 40,000 to 160,000 housing units). The project also includes 4,000 acres (over 20% of the proposed city) for parks, trails, urban ecological habitat, community gardens, and other types of open space.	Solano County	TBD; no application has been filed	Potential project; an EIR may be prepared in the future. A notice of preparation has not been published. No application was available for review at the time of this EIR preparation.	A schedule has not been published	No
2	California Forever Shipbuilding Project	The shipbuilding operation would be located just east of the proposed LSPGC Collinsville Substation.	California Forever is proposing to build a shipbuilding operation within the Collinsville Special Study Area located in Solano County along the waterfront.	Solano County	TBD; no application has been filed	Potential project; an EIR may be prepared in the future. A notice of preparation has not been published. No application was available for review at the time of this EIR preparation.	A schedule has not been published	No

#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
3	Montezuma Tidal and Seasonal Wetlands Restoration Project	Located approximately 0.6 mile from the LSPGC 230 kV submarine segment and 1.6 miles from the proposed LSPGC Collinsville Substation site	Approximately 300,000 cubic yards of dredged sediment is being placed at the Montezuma Wetlands site to raise the elevation of the Montezuma Wetlands Restoration Project, Phase 2. The project consists of tidal and seasonal wetland restoration on approximately 630 acres of currently diked baylands along Montezuma Slough and enhancement of adjacent uplands in Suisun Marsh.	Montezuma Slough, Solano County, North Bay Region	San Francisco Bay Restoration Authority	Under construction	Ongoing	Potentially
4	Chipps Island Tidal Habitat Restoration Project	Located approximately 0.5 mile west of the proposed LSPGC 230 kV submarine segment	The Chipps Island Tidal Habitat Restoration Project is being constructed by the California Department of Water Resources (DWR) under the Suisun Marsh Habitat Management, Preservation, and Restoration Plan (SMP) EIR, which aims to restore tidal wetland and maintain managed wetland in Suisun Marsh.	Suisun Marsh	DWR	Under construction	Ongoing	Potentially
5	Reclamation District No. 1607, Van Sickle Island	Located approximately 0.4 mile northwest of the proposed LSPGC	Restoration of earthen levees to pre-disaster capacity and function for six sites on Van Sickle Island. The project	Suisun Bay	Reclamation District No. 1607	Under construction	Ongoing	Potentially

#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
	Emergency Levee Repair	230 kV submarine segment	involves compacting dirt and gravel and installing rip rap and additional compacted soils. Sites 1 and 6 are along the Montezuma Slough coast of Van Sickle Island. Sites 2, 3, and 4 are along the Sacramento River coast of Van Sickle Island. Site 5 borders Spoonbill Creek.					
6	Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay	The proposed LSPGC 230 kV submarine segment would cross the dredging path. Located approximately 0.4 mile from the existing PG&E Pittsburg Substation.	Annual dredging of federal navigation channels by the USACE. The dredging path includes the Suisun Bay Channel from Martinez to Pittsburg.	Suisun Bay	USACE and San Francisco Bay Regional Water Quality Control Board	Approved	Ongoing	Potentially
7	San Francisco Bay and Delta Sand Mining Project	The proposed LSPGC 230 kV submarine segment would cross the Western Delta Suisun Bay (CSLC Leases) lease area number PRC 7781 (Suisun Bay/Western Delta [Lind])	The project would serve to extend mining activities occurring in lease areas for an additional 10 years beyond the activities analyzed in the 2012 EIR. Proposed equipment and methods are similar to current activities occurring in the lease areas (including PRC 7781). Mining volumes under the proposed project would be reduced in	Central San Francisco Bay/the Suisun Bay	California State Lands Commission (SLC)	Supplemental EIR was released in August of 2025 for a 45-day public comment period, closing in September of 2025	10-year lease from 2026-2036	Yes

#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
			comparison to the current CSLC-permitted volumes.					
8	Contra Costa Resilient Shoreline Plan	Within and adjacent to the 230 kV submarine segment	The project will serve as a roadmap for Contra Costa County to increase shoreline resiliency and adaptive capacity in response to rising sea levels across the approximately 90-mile Contra Costa shoreline. The project will also support other regional sea level rise adaptation efforts.	Contra Costa County Shoreline	Contra Costa County	Ocean Protection Council (OPC) approved the project in Summer of 2024 providing grant money to the Project	Ongoing	Potentially
9	Sacramento River 30 ft Channel (O&M)	The proposed LSPGC 230 kV submarine segment would cross the dredging path.	The project maintains a 30-foot-deep channel for the upper 43 miles of an 80-mile-long ship channel. It connects the Port of West Sacramento with the Pacific Ocean.	Sacramento County, Yolo County, Solano County	USACE	Active maintenance	Ongoing	Yes
11	Bay Walk Mixed Use Project – Phase I	Located adjacent to the existing PG&E Pittsburg Substation	The project would be comprised of two components: (1) remedial activities, and (2) new development within the project site. Remedial activities would include demolition of the vacant Pittsburg Power Plant and all associated structures and other remaining structures on the project site. Construction of a mixed-use development	Pittsburg, CA	City of Pittsburg	Proposed	TBD; NOP submitted April 2024	Potentially

#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
			project on more than 1,046 acres would be conducted in three phases. Phase I includes the construction of 698 residential units.					
12	Bay Walk Mixed Use Project – Phase II	Located adjacent to the existing PG&E Pittsburg Substation	Phase II includes the construction of 445 residential units.	Pittsburg, CA	City of Pittsburg	Proposed	TBD; NOP submitted April 2024	Potentially
13	Bay Walk Mixed Use Project – Phase III	Located adjacent to the existing PG&E Pittsburg Substation	Phase III would include the construction of 544 homes, a 120-room hotel, and 60,000 sq. ft. of commercial use. Phase III also includes the creation of a 6.8-acre Bay Front Park, 65,200 sq. ft. of community parks, and 120,950 sq. ft. of parkway and median landscaping.	Pittsburg, CA	City of Pittsburg	Proposed	TBD; NOP submitted April 2024	Potentially
14	Central Harbor Park and Boat Launch Area Upgrades	Located approximately 0.4 mile northeast of the proposed LSPGC 230 kV submarine segment	The project involves the installation of accessible paths, new restrooms, picnic tables, security infrastructure, and a play structure at Central Harbor Park and upgrades to the boat launch facility.	Pittsburg, CA	Pittsburg Marina	Under construction	October 2024 to June 2025	No
15	Harbor View Project	Located approximately 0.4 mile east of the	The project would include the subdivision of the project site and subsequent construction	Pittsburg, CA	City of Pittsburg	Proposed	4 years	Potentially

#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
		existing PG&E Pittsburg Substation	of 227 residential units as well as associated internal roadways, bioretention facilities, and open space/landscaping. The 20 northernmost lots, which generally front East 3rd Street, would be developed with mixed-use live/work duplexes. The ground floor of each unit would provide approximately 420 sq. ft. of commercial space and/or private workspace, ultimately up to the discretion of the property owner. Immediately south of the proposed live/work units would be 101 generally 36-foot by 55-foot single-family lots, south of which would be 106 generally 42-foot by 55-foot single-family lots.					
16	East Street Estates	Located approximately 0.4 mile southeast of the existing PG&E Pittsburg Substation	The project is constructing eight single-family dwellings in an existing subdivision located on East 9th Street in Pittsburg.	Pittsburg, CA	City of Pittsburg	Under construction	Unknown	Potentially
17	Athens Painting	Located approximately 0.6 mile southeast of the existing PG&E Pittsburg Substation.	The project is constructing two premanufactured commercial warehouse buildings, one approximately 2,000 sq. ft. and the second	Pittsburg, CA	City of Pittsburg	Under construction	Unknown	Potentially

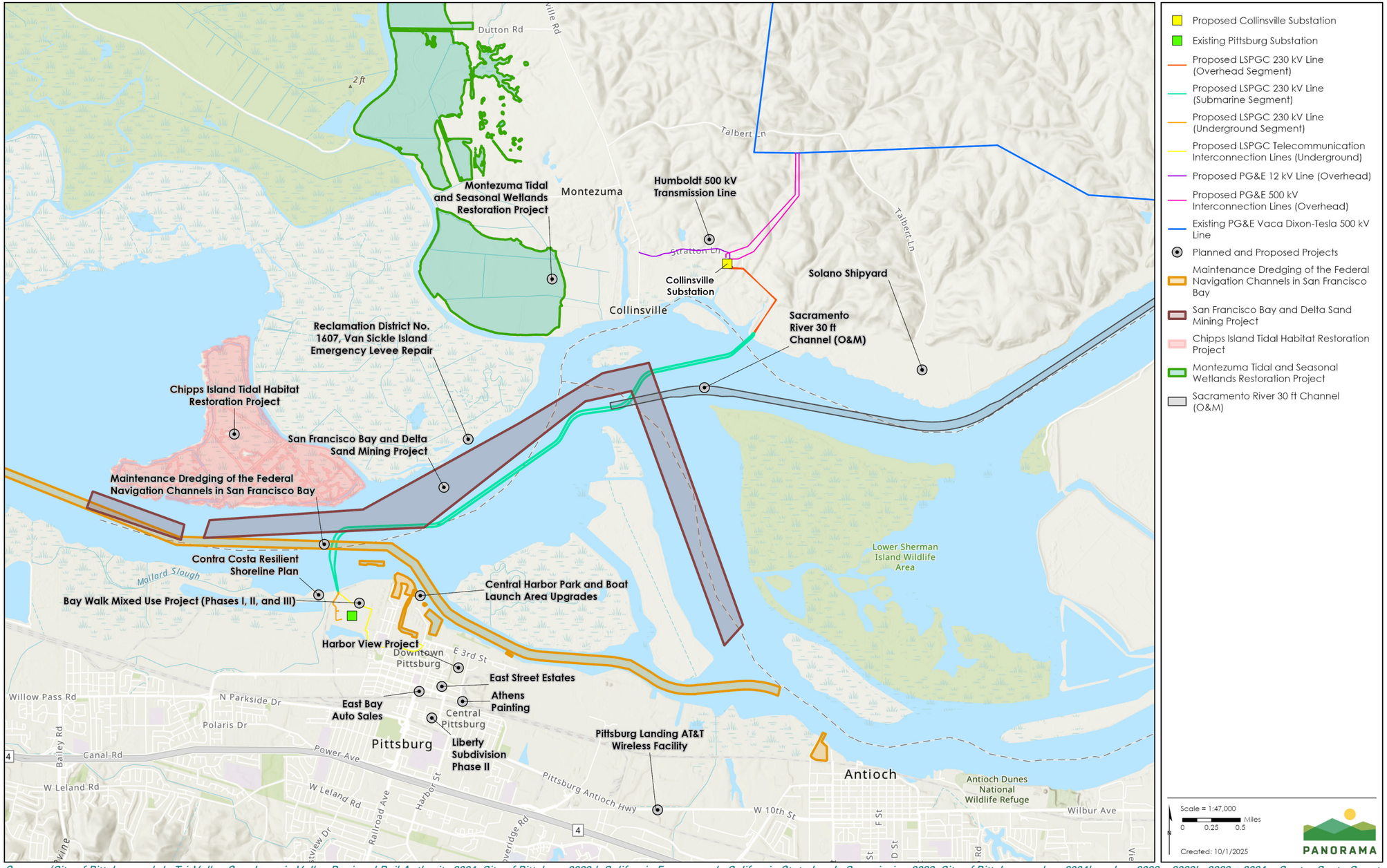
#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
			approximately 1,950 sq. ft., to establish a contractor painting business at 1000 Harbor Street in Pittsburg.					
18	East Bay Auto Sales	Located approximately 0.4 mile southeast of the PG&E Pittsburg Substation.	The project is constructing (1) an approximately 798 sq. ft. sales office, (2) 576 sq. ft. repair garage, and (3) an approximately 10,772 sq. ft. surface parking lot with 625 sq. ft. of landscaping improvements at 1025 Railroad Avenue.	Pittsburg, CA	City of Pittsburg	Under construction	Unknown	Potentially
19	Liberty Subdivision Phase II	Located approximately 0.6 mile southeast of the existing PG&E Pittsburg Substation.	The project is constructing 17 single-family homes at 360 Central Avenue in Pittsburg.	Pittsburg, CA	City of Pittsburg	Under construction	Unknown	Potentially
20	Pittsburg Landing AT&T Wireless Facility	Located approximately 3 miles southeast of the existing PG&E Pittsburg Substation	The project is constructing an 80-foot-tall Telecommunications Facility (disguised as a water tank) behind an existing industrial building, the Site One Landscape Supply, Stone Center, which is located at 2665 Pittsburg – Antioch Highway. The proposal includes 12 antennas and associated appurtenances and ground-mounted generator and equipment	Pittsburg, CA	City of Pittsburg	Under construction	Unknown	Potentially

#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
			cabinet within a 24'x25' (600 sq. ft.) slatted chain-link fenced enclosure.					
19	Valley Link Rail Project	Located approximately 2 miles north from the existing PG&E Tesla Substation.	Valley Link is a 42-mile passenger rail service connecting the Bay Area to residential areas in the Northern San Joaquin Valley. The first phase is a 22-mile section along Interstate 580 (I-580) from Dublin/Pleasanton to a new Mountain House Community station.	Pleasanton to Mountain House Community station	Tri-Valley San Joaquin Valley Regional Rail Authority	Under construction	2025 to 2040	Yes
21	Humboldt 500 kV Substation, with 500/115 kV Transformer, and a 500 kV line to Collinsville [HVDC operated as AC] Project	Would interconnect to the Collinsville Substation (0 miles from the substation at point of interconnection)	The project would include the construction of the New Humboldt 500 kV Substation near Eureka and a new single-circuit 500 kV transmission line spanning approximately 274 miles connecting the New Humboldt 500 kV Substation to the Collinsville substation. The transmission line alignment would parallel the existing PG&E Humboldt-Bridgeville 115 kV transmission line from the New Humboldt 500 kV Substation to Bridgeville, then parallel the existing PG&E Bridgeville-Cottonwood 115 kV transmission line to Platina,	Northern California from Humboldt to Collinsville	CPUC	Included in CAISO 2023-2034 Transmission Plan. No application has been filed with CPUC.	Construction after 2029. In service 2034.	No

#	Project name	Proximity to the nearest Project component	Description	Activity location	Lead agency	Status	Timeframe	Construction timing overlap?
			then follow State Route 36 to Red Bluff, then parallel existing PG&E, WAPA, and TANC transmission lines along the west side of I-5 south to Collinsville. The path from I-5 to Collinsville has not been disclosed but is assumed to follow the same general path as the Proposed Project to provide a conservative analysis of cumulative impacts.					

Source: (City of Pittsburg n.d.-b; Tri-Valley San Joaquin Valley Regional Rail Authority 2024; City of Pittsburg 2023d; California Forever, n.d.; California State Lands Commission 2023; City of Pittsburg, n.d.-a; 2024b; n.d.-c; 2023c; 2023b; 2023a; 2024a; Contra Costa County, n.d.; San Francisco Bay Restoration Authority, n.d.; U.S. Army Corps of Engineers, n.d.; Water Resources Department 2023; Engnell 2025)

Figure 4.0-1 Location of Cumulative Projects



Source: (City of Pittsburg n.d.-b; Tri-Valley San Joaquin Valley Regional Rail Authority 2024; City of Pittsburg 2023d; California Forever, n.d.; California State Lands Commission 2023; City of Pittsburg, n.d.-a; 2024b; n.d.-c; 2023c; 2023b; 2023a; 2024a; Contra Costa County, n.d.; San Francisco Bay Restoration Authority, n.d.; U.S. Army Corps of Engineers, n.d.; Water Resources Department 2023; Engnell 2025)

4.0.3 References

California Forever. n.d. "California Forever LP Project." California Forever. Accessed April 24, 2025. https://californiaforever.com/plan-overview/.

California State Lands Commission. 2023. "San Francisco Bay and Delta Sand Mining Project." May 26. https://ceqanet.opr.ca.gov/2007072036/13.

City of Pittsburg. 2023a. "Athens Painting." June 29. https://ceqanet.opr.ca.gov/2023060767.

City of Pittsburg. 2023b. "East Bay Auto Sale." April 26. https://ceqanet.opr.ca.gov/2023040668.

City of Pittsburg. 2023c. "Harbor View Project." March 15. https://ceqanet.opr.ca.gov/2022080303/2.

City of Pittsburg. 2023d. "Pittsburg Landing AT&T Wireless Facility." November 15. https://ceqanet.opr.ca.gov/2023110412.

City of Pittsburg. 2024a. "Bay Walk Mixed Use Project Phase 1, Phase 2, and Phase 3." April 9. https://ceqanet.opr.ca.gov/Project/2022100572.

City of Pittsburg. 2024b. "East Street Estates." April 18. https://ceqanet.opr.ca.gov/2024040776.

City of Pittsburg. n.d.-a. "Central Harbor Park & Boat Launch Facilities Upgrades | City of Pittsburg Marina." Accessed April 24, 2025. https://www.pittsburgmarina.com/about-the-pittsburg-marina/2024-2025-facilities-upgrade-project.

City of Pittsburg. n.d.-b. "Current Project Pipeline." Accessed May 1, 2025. https://www.pittsburgca.gov/services/community-development/planning/current-project-pipeline.

City of Pittsburg. n.d.-c. "Liberty Subdivision Phase II." Accessed April 24, 2025. https://www.pittsburgca.gov/Home/Components/News/News/3107/.

Contra Costa County. n.d. "Contra Costa Resilient Shoreline Plan." Accessed April 24, 2025. https://www.contracosta.ca.gov/9981/Contra-Costa-Resilient-Shoreline-Plan#signup.

Engnell, Anders. 2025. "California Forever's Statement on Bringing Shipbuilding Back to Solano County." *California Forever*, March 28. https://californiaforever.com/california-forevers-statement-on-bringing-shipbuilding-back-to-solano-county/.

San Francisco Bay Restoration Authority. n.d. "Montezuma Tidal and Seasonal Wetlands Restoration Project." Accessed April 24, 2025. https://www.sfbayrestore.org/projects/montezuma-tidal-and-seasonal-wetlands-restoration-project.

Tri-Valley San Joaquin Valley Regional Rail Authority. 2024. "Valley Link Rail Project." December 12. https://ceqanet.opr.ca.gov/2018092027/8.

U.S. Army Corps of Engineers. n.d. "Sacramento River 30ft Channel (O&M)." Accessed April 24, 2025. https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Projects-A-Z/Sacramento-River-30ft-Channel-O-M/.

Water Resources Department. 2023. "Chipps Island Tidal Habitat Restoration Project." December 7. https://ceqanet.opr.ca.gov/2003112039/24.

4.1 Aesthetics

This section presents the environmental setting and analysis of impacts on aesthetics resulting from the Proposed Project and alternatives. This section describes existing aesthetics conditions, applicable regulations, and environmental impacts and provides mitigation measures to reduce or avoid significant effects for the Proposed Project and alternatives, as applicable.

The following scoping comments are relevant to the analysis of aesthetics (Appendix B):

- Evaluate the potential for substantial adverse impacts to the existing visual character or quality of public views, as well as the effects of new sources of light and glare during project construction and operation.
- Evaluate how transmission towers and lines would impede views on scenic resources and include visual simulations to accurately discern impacts from proposed transmission towers and lines.
- Consider changing the 230 kV transmission line position from overhead to underground between the Collinsville Substation and the Delta to reduce overhead visual impacts.

4.1.1 Environmental Setting

Overview

Information presented in this section has been in part adapted from the Visual Resources Technical Study (VRTR) (Arcadis 2024) that was submitted by LSPGC as Attachment 5.1-A of the PEA. Visual simulations provided in the 2024 VRTR were subsequently revised, and the final versions of the visual simulations are included in this section. Methods used in this section to characterize and evaluate impacts on aesthetics are based, in part, on the U.S. Department of Transportation Federal Highway Administration's (FHWA) *Guidelines for the Visual Impact Assessment of Highway Projects* (2015) as well as other standard industry-accepted visual analysis techniques. Key definitions and concepts applicable to this section are as follows:

- **Aesthetics:** The visual character and quality of the built and natural environment and how a project may affect that visual environment from the perspective of public viewpoints.
- **Scenic vistas:** A scenic vista is typically understood as a long-range or panoramic public view of a valued natural or cultural landscape, such as mountain ranges, coastlines, valleys, or rivers; historic landmarks or skylines; or undeveloped open spaces or natural features visible from public viewpoints (e.g., highways, trails, parks, or public gathering spaces). In the context of the impact criteria in Appendix G of the CEQA Guidelines, scenic vistas are recognized for their visual quality, often protected through policies or special designations, and subject to degradation by obstructive or incompatible development.

- **Scenic resources:** Scenic resources include natural features (e.g., rock outcroppings, trees or other vegetation), built features (e.g., historic landmarks), or other features that contribute to the values of an area recognized for its scenic qualities. In the context of the impact criteria in Appendix G of the CEQA Guidelines, the impact analysis for scenic resources is focused on those that occur within state scenic highways or other scenic corridors.
- **State scenic highways:** According to the California State Scenic Highway Program, a state scenic highway is a highway (including freeway, road, or other public right-of-way) that has been officially designated by the California Department of Transportation (Caltrans) as having outstanding scenic quality and providing travelers with memorable views of natural landscapes, historic features, or other visually important resources. Eligible state scenic highways are highways recognized by Caltrans as having scenic potential but not yet officially designated.
- **Other scenic corridors:** In addition to state scenic highways, other scenic corridors (i.e., roads, highways, trails, or rivers) can be formally recognized, such as by a local agency (city or county), or federal agency and policies may be established to preserve their visual or scenic values. Locally designated corridors are typically identified in a General Plan, specific plan, or local ordinance. Various federal programs establish scenic corridors and their protection, including the National Scenic Byways Program, Wild and Scenic Rivers Act, National Trails System, and National Heritage Areas.
- **Visual character:** Visual character refers to the distinctive and recognizable pattern of visual elements in a landscape or built environment, including landforms, vegetation, structures, and infrastructure. It reflects what the environment looks like, not whether it is considered attractive or unattractive.
- **Visual quality:** Visual quality refers to the aesthetic value or scenic attractiveness of a visual environment as perceived by the public. It is a measure of how visually pleasing an area is, based on formal aesthetic criteria and public perception. Visual quality is subjective and influenced by the viewer's position and biases. The FHWA's *Guidelines for the Visual Impact Assessment of Highway Projects* (2015) identifies three key concepts or elements of visual quality:
  - **Natural harmony:** What a viewer likes and dislikes about the natural environment. The viewer labels the visual resources of the natural environment as being either harmonious or inharmonious. Harmony is considered desirable; disharmony is undesirable.
  - **Cultural order:** What a viewer likes and dislikes about the cultural environment. The viewer labels the visual resources of the cultural environment as being either orderly or disorderly. Orderly is considered desirable; disorderly is undesirable.
  - **Project coherence:** What a viewer likes and dislikes about the project environment. The viewer labels the visual resources of the project environment

as being either coherent or incoherent. Coherent is considered desirable; incoherent is undesirable.

- **Landscape character unit (LCU):** An LCU is a distinct geographic area defined by a cohesive and recognizable pattern of visual, ecological, and cultural elements that give it a unique visual identity. LCUs are often delineated to support the analysis of aesthetic impacts by organizing the landscape into units that can be consistently described, compared, and evaluated.
- **Nonurbanized areas:** Nonurbanized areas refer to a rural, natural, or lightly developed setting where the natural landscape or open space dominates and development, if present, is sparse or agricultural in nature. Projects in nonurbanized areas are more likely to result in significant impacts if they alter scenic views, degrade visual character, or introduce urban features into a rural landscape.
- **Urbanized area:** Urbanized areas are characterized by high-density development, such as residential neighborhoods, commercial centers, industrial parks, or mixed-use areas, with substantial alteration of the natural landscape and a dominance of built features. Aesthetic impacts are often considered less significant in urbanized areas unless the project introduces stark visual incompatibilities, blocks iconic views, or increases light/glare.
- **Key observation point (KOP):** A KOP is a representative and strategically selected public viewpoint used in visual impact assessments to evaluate and illustrate how a project would affect the visual environment. KOPs are typically chosen based on their visibility to sensitive viewers, their location relative to scenic resources or visual character units, and their potential to capture the range and scale of anticipated aesthetic impacts.
- **Visual simulation:** Two- or three-dimensional depiction of the current visual character of a landscape or of future conditions following a proposed alteration. Forms of simulation include artistic renderings and computer animations.
- **Viewers:** Individuals or groups who observe the project site or its visual setting—either directly or from publicly accessible vantage points—and may be affected by changes to the visual character, quality, or scenic integrity of the landscape.
- **Viewer sensitivity:** The degree to which the public is likely to notice, be affected by, and express concern over visual changes in the landscape caused by a project. It reflects both individual and collective attitudes toward the visual setting, influenced by cultural, functional, and experiential factors.
- **Distance Zones:** Spatial categories that describe how visual elements are perceived based on their distance from the viewer. These zones help assess the visibility, scale, contrast, and potential impact of a project in relation to the viewer's location. Distance zones used in this section include foreground (0 to 0.5 mile), middle-ground (0.5 to 5 miles), and background (5 miles and beyond).
- **Light:** Man-made (artificial) illumination emitted by sources such as streetlights, building exteriors, parking lots, signage, etc., that is visible beyond the project site.

- **Glare:** Glare is uncomfortable or disabling brightness caused by reflected or direct light sources, typically from reflective surfaces such as glass, metal, or water, or high-intensity lighting (e.g., floodlights).

A description of additional terminology used in this section can be found in the FHWA's *Guidelines for the Visual Impact Assessment of Highway Projects* (2015).

Scenic Vistas

No designated or widely recognized scenic vistas occur within or adjacent to the Proposed Project site. While portions of the Proposed Project site are located along the Delta shoreline, which has some scenic value, these areas have limited or no scenic viewing opportunities and occur adjacent to existing wind energy developments in the vicinity of Collinsville and existing industrial development in the City of Pittsburg. Furthermore, there are no prominent vantages in the Project area where structures introduced by the Project would be noticeable in the landscape.

State Scenic Highways

No designated or eligible state scenic highways occur within or adjacent to the Proposed Project area. The nearest state scenic highways in the region are Route 160 (officially designated), approximately 4.7 miles southeast of the LSPGC 230 kV overhead segment, and Route 84 (eligible) approximately 3 miles northwest of PG&E transposition site D.

Other Scenic Corridors

No other local, state, or federally designated scenic corridors occur within or adjacent to the Proposed Project site. Route 4 near Discovery Bay, a designated Contra Costa County scenic route, is located approximately 0.5 mile north of PG&E transposition site D (Contra Costa County 2024). Route 12, a designated Solano County scenic roadway just north of Birds Landing, is located approximately 0.7 mile west of PG&E transposition site B (Solano County 2008).

Visual Character and Visual Quality

Landscape Character Units

Five LCUs were identified for the Proposed Project where new transmission facilities are proposed, including all of the LSPGC project component sites, the proposed PG&E 500 kV interconnection lines alignment, the PG&E 12 kV distribution line alignment, and the PG&E telecommunication yard. The LCUs identified for the Project are shown in Figure 4.1-1 and described in Table 4.1-1.

The four PG&E transposition sites are not within defined LCUs as these sites would involve limited structure modifications along the existing PG&E 500 kV Vaca Dixon-Tesla Transmission Line corridor and adjacent to other existing transmission structures. These areas occur within agricultural areas that have similar landscape characteristics to the LCU 1 – Montezuma Hills. Similarly, two of the three existing PG&E substations that would be modified within their existing footprint are not within defined landscape characteristic units. These areas are

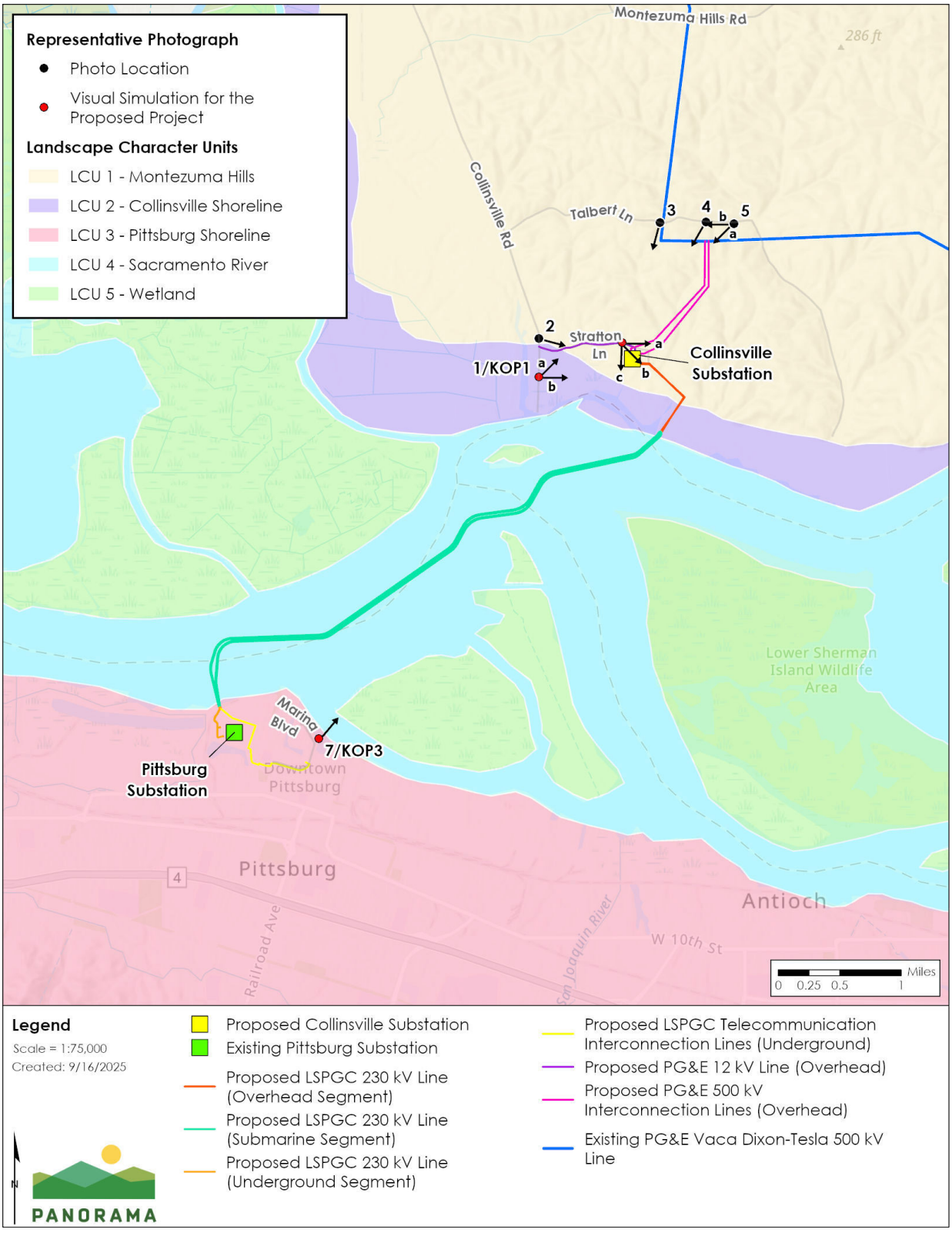
developed industrial sites, and the existing landscape character and visual qualities in these areas would not be degraded by the Project. The existing PG&E Pittsburg Substation is coincidentally within LCU 3 – Pittsburg Shoreline.

Representative Viewpoints and Key Observation Points
Seven representative viewpoints were selected at publicly accessible locations, shown in Figure 4.1-1, from which the primary Proposed Project components would be visible, and photographs were taken from the viewpoints for one or more viewing direction to document existing landscape conditions (refer to Figure 4.1-2). Table 4.1-2 includes a summary of the representative viewpoints, photograph numbers, prominent backdrop information, and visual quality rating.

Three of the viewpoints were selected as KOPs for visual simulation and impact analysis (refer to Appendix D, Figure D-1 through D-6. because they represent the most important visual conditions where views of key Project features would occur. The visual simulations and impact discussion for the three KOPs are provided in Section 4.1.4.

The methodology employed for preparing the visual simulations includes systematic site photography, computer modeling, and digital rendering techniques. Photographs were taken using a digital single-lens reflex camera with fixed focal length 50-millimeter lens, which represents an approximately 40-degree horizontal view angle. Photography viewpoint locations were documented in the field using photo log sheet notation, global positioning system (GPS) recording, and basemap annotation. Digital aerial photographs and project design information supplied by LSPGC provided the basis for developing three-dimensional computer modeling of the Proposed Project components. Digital visual simulation images were then produced based on computer renderings of the three-dimensional modeling combined with selected digital site photographs.

Figure 4.1-1 Landscape Character Units, Representative Viewpoints, and Key Observation Points



Source: (Arcadis 2024)

Table 4.1-1 Description of Landscape Character Units and Visual Quality Evaluation

LCU	Visual quality evaluation	Project components within LCU
LCU 1 – Montezuma Hills: The Montezuma Hills range in elevation from 25 to 350 feet above mean sea level, and the portions within the Proposed Project area contain mainly valley floor grasslands. Portions of the Montezuma Hills are periodically cultivated for the dryland production of oats, wheat, and barley. The hills are monochromatic in color most of the year due to the limited variation in vegetation. The landscape is honey brown in the dry season and lush green in the wetter season. Wind turbines dot the hills and winding access roads carve through the landscape. The predominate uses are energy production (wind) and grazing. There is little to no residential use in this area. LCU 1 comprises nonurbanized areas. Refer to Viewpoints 2, 3, 4, 5 and 6.	• **Natural harmony (high):** The Montezuma Hills are an iconic landscape in California. The landscape is harmonious and highly valued; however, the dominance of wind turbines keeps it from being outstanding and provide strong evidence of human alteration that reduces the natural harmony. • **Cultural order (high):** There is very little in the way of cultural resources in this LCU other than the wind turbines. The wind turbines are orderly and majestic in the landscape. • **Project coherence (high):** Overall, the existing landscape reads as coherent. The rolling hills dotted with wind turbines appear harmonious and orderly.	• LSPGC Collinsville Substation • LSPGC 230 kV overhead segment • PG&E 500 kV interconnection lines • PG&E 12 kV distribution line
LCU 2 – Collinsville Shoreline: The Collinsville Shoreline includes the unincorporated community of Collinsville and the Suisun Marsh. The Suisun Marsh is the largest brackish water wetland on the West Coast. It is managed for recreational purposes such as fishing and hunting and is cherished for its biodiversity. It is home to birds, mammals, fish, amphibians, and reptiles. The visual landscape has a complex texture with a variety of grasses and low-growing shrubs with varied colors from light tan to deep brown and vibrant green in the drier season, with varying shades of green in the wetter season. It also features larger trees that are absent from the Montezuma Hills LCU discussed above. It is less than 25 feet above mean sea level and is therefore subject to tidal influence. LCU 2 comprises nonurbanized areas. Refer to Viewpoint 1.	• **Natural harmony (high):** The shoreline appears natural and harmonious. Human interference to accommodate recreation and agriculture blend in the landscape and generally appear in harmony. The residential development is small scale and does not overpower the natural landscape. • **Cultural order (moderately high):** The cultural development is low impact and does not overwhelm the natural landscape. It is orderly and focused along Collinsville Road in a community setting. However, some properties are untidy and have not been rebuilt after the previous fire in 2014. • **Project coherence (moderately high):** Collinsville has been a recreation destination in the past, and evidence of this is still present. The low impact housing and the natural landscape is visually desirable; however, the lack of maintenance on certain properties keeps the project coherence at moderately high rather than high.	• LSPGC 230 kV overhead segment and submarine segment

LCU	Visual quality evaluation	Project components within LCU
LCU 3 – Pittsburg Shoreline: The Pittsburg shoreline is along the New York Slough on the south side of the Sacramento River. The shoreline features a mix of waterfront uses including a public marina, private yacht club, parks, multiple residential developments, and industrial complexes. The area is urban in nature and highly developed, with manicured landscaping and a mix of colors and textures from lush green to steel grey. The industrial areas stand in stark contrast to the wetlands, the river, and developed parklands in the Pittsburg area. LCU 3 comprises urbanized areas. Refer to Viewpoint 7.	• **Natural harmony (high):** The Pittsburg Shoreline has attractive views of the San Joaquin – Sacramento River Delta and Montezuma Hills. • **Cultural order (moderate):** There are areas of the shoreline that have high visual quality and others that are of low visual quality when reviewing the cultural elements. The areas around the marinas and parks have a high attention to detail, providing pleasant places for people to participate in recreational activities and enjoy the waterfront views while the areas in between lack cultural order and are unattractive. The percentage of attractive waterfront is far lower than the percentage of unattractive and/or inaccessible waterfront. • **Project coherence (moderate):** There are areas along the shoreline that have a high level of attractiveness and a greater percentage that have a low level of attractiveness and coherence. Overall, the coherence is moderate.	• LSPGC 230 kV submarine segment and underground segment • LSPGC telecommunication interconnection lines • PG&E Pittsburg Substation modifications
LCU 4 – San Joaquin – Sacramento River: The San Joaquin River and Sacramento River come together in the Proposed Project area. The water in this area varies in color from bright blue in the marina areas to blue green to green-grey dependent on the water depth and vegetation. The waterways are used for recreational purposes such as fishing and boating but are also a sensitive ecosystem. LCU 4 comprises nonurbanized areas.	• **Natural harmony (high):** The river has a high level of natural harmony; it is a destination for recreation but requires special equipment to appreciate the views from this landscape unit. Views of this landscape unit may be appreciated from LCUs 1, 2, 3, and 5. • **Cultural order (moderately high):** The river is mostly a natural landscape, with the exception of the shoreline recreation amenities and industrial facilities that interface with the river. The cultural elements related to recreation are generally attractive and in keeping with the overall landscape character of the river; however, the industrial facilities along the south shore stand in contrast and reduce the overall attractiveness of the river in the Proposed Project area. • **Project coherence (moderately high):** The river unit is generally attractive and coherent, but the attractiveness is reduced by the industrial activities that interact with the river edge.	• LSPGC 230 kV submarine segment

LCU	Visual quality evaluation	Project components within LCU
LCU 5 – Wetland: There are many islands in the San Joaquin River and Sacramento River within the Proposed Project area. Chain Island, Winter Island and Browns Island are along the Proposed Project alignment with Van Sickle Island and Chipps Island to the west, all of which are rich in natural habitat and diverse species creating a visually complex landscape with colors varying from tan to brown to vivid green. None of these islands are inhabited by humans. LCU 5 comprises nonurbanized areas.	• **Natural harmony (outstanding):** The wetlands in the Proposed Project area are highly valued for their aesthetics, diversity, and ecological function. They are a destination for recreation and research. They appear visually harmonious when viewed at the scale of the Project. • **Cultural order (high):** There is little in the way of cultural resources within the wetland. There are cultural elements that support recreation and research, but they are not dominant in the landscape. The unit appears to be orderly, with nature being prioritized. • **Project coherence (high):** From the scale of the Project, the wetland unit appears coherent. The wetland appears natural with minimal cultural features.	None
Undefined: Areas where no LCUs were established because the Proposed Project features involve limited structure modifications or are within existing PG&E substations.	NA	• PG&E transposition sites A, B, C, and D along the existing 500 kV Vaca Dixon-Tesla Transmission Line • PG&E existing Vaca Dixon Substation • PG&E existing Tesla Substation

Notes:

NA = not applicable

Source: (Arcadis 2024)

Table 4.1-2 Summary of Representative Viewpoints and Key Observation Points for the Proposed Project

Viewpoint and photo number	Visual quality rating	Visual quality comments	Primary viewers	Distance zone	Viewer sensitivity rating	Selected as KOP?
1a and 1b. Collinsville Road	High	Typical Montezuma Hills view with existing energy infrastructure on rolling hills with a grassland landscape	• Landowners • Residents	Middle-ground	Moderate to high	KOP 1
2. Collinsville Road	High	Typical Montezuma Hills view with existing energy infrastructure on rolling hills with a grassland landscape	• Landowners • Agricultural and energy facility workers • Residents • Recreationalists	Middle-ground	Moderate	—
3. Talbert Lane	Moderately low	Dry grassland, short view with lattice tower dominant	• Landowners • Agricultural and energy facility workers	Foreground	Low	—
4. Talbert Lane	Moderately low	Dry grassland, short view with lattice tower and wind turbines over the crest of the hill	• Landowners • Agricultural and energy facility workers	Foreground	Low	—
5a and 5b. Talbert Lane	Moderately low	Dry grassland, short view dominated by lattice towers, power poles, and wind turbines	• Landowners • Agricultural and energy facility workers	Foreground	Low	—
6a, 6b, and 6c. Stratton Lane	Moderately high	Dry annual grassland in foreground and middle-ground. Short view due to topography. Views of the river and distant Diablo range	• Landowners • Agricultural and energy facility workers	Middle-ground	Low to moderate	KOP 2
7. Pittsburg Marina	Moderately high	View of marina in the foreground, river in the middle-ground and Montezuma Hills dotted with wind turbines in the background. This view is higher than average in the area and is a destination for the public	• Residents • Regional visitors • Recreationalists	Background	Moderate	KOP 3

Source: (Arcadis 2024)

Figure 4.1-2 Photographs from Representative Viewpoints



Photograph 1a (looking northeast)



Photograph 1b/KOP1 (looking east)



Photograph 2 (looking east-southeast)



Photograph 3 (looking south-southwest)

Source: (Arcadis 2024)

Figure 4.1-2 *(Continued)* **Photographs from Representative Viewpoints**



Photograph 4 (looking southwest)



Photograph 5a (looking southwest)



Photograph 5b (looking west)



Photograph 6a (looking east)

Source: (Arcadis 2024)

Figure 4.1-2 *(Continued)* **Photographs from Representative Viewpoints**



Photograph 6b/KOP2 (looking east-southeast)



Photograph 6c (looking southeast)



Photograph 7/KOP3 (looking northeast)

Source: (Arcadis 2024)

Figure 4.1-3 Photographs of PG&E Transposition Sites



Transposition Site A



Transposition Site B



Transposition Site C



Transposition Site D

Source: (Insignia Environmental 2025)

Figure 4.1-4 Photographs of Existing PG&E Substations



Pittsburg Substation



Vaca Dixon Substation



Tesla Substation

Source: (Google 2021; 2024)

Visual Quality Rating

Visual quality was evaluated for the LCUs (refer to Table 4.1-1) and at the representative viewpoint locations (refer to Table 4.1-2) according to the FHWA's visual quality concepts (i.e., natural harmony, cultural order, and project coherence) and rating scale definitions. The visual quality rating scale definitions are provided in Table 4.1-3.

Table 4.1-3 Visual Quality Rating Scale

Rating	Description
Low	Landscapes that have low scenic value. They may contain visually discordant human alterations and often provide little visual interest. Levels of natural harmony, cultural order and/or project coherence are low.
Moderately low	Landscapes that have below average scenic value. They may contain visually discordant human alterations, but these features do not dominate the landscape. They often lack spaces that people perceive as inviting. Levels of natural harmony, cultural order and/or project coherence are below average.
Moderate	Landscapes that are common or typical landscapes with average scenic value. They usually lack significant human or natural features. Levels of natural harmony, cultural order and/or project coherence are average.
Moderately high	Landscapes that are above average but not of high scenic value. They usually contain interesting or pleasing cultural or natural features. Their level of natural harmony, cultural order and or project coherence are moderate to high.
High	Landscapes that have a high-quality scenic value due to cultural or natural features or the arrangement of spaces creating visual interest. These landscapes have high levels of natural harmony, cultural order, and project coherence and people are attracted to them.
Outstanding	Reserved for landscapes with exceptionally high visual quality. These landscapes are regionally and/or nationally significant. Contain exceptional natural or cultural features that contribute to a level of iconic landscape that people are attracted to.

Source: (Arcadis 2024)

Viewers and Viewer Sensitivity

Accepted visual assessment methods establish sensitivity levels as a measure of public concern for changes to scenic quality. Viewer sensitivity, one of the criteria used to evaluate visual impact significance, can be divided into high, moderate, and low categories. Factors considered in assigning a sensitivity level include viewer activity, view duration, viewing distance, adjacent land use, and special management or planning designation. Visual sensitivity will vary with the type of user. The primary viewer groups within the Proposed Project area are as follows:

- **Motorists:** Motorists include local travelers who are familiar with the visual setting and regional travelers using area roadways on an occasional basis, including those commuting to or from work, and residents of Collinsville. Regional motorists include those visiting the area for recreational activities. The duration of motorists' views is generally brief due to the topography and winding nature of the local

road and averages a few seconds; therefore, motorist viewer sensitivity is considered low to moderate.

- **Residents:** The largest viewer group is residents. The Proposed Project site vicinity includes the community of Collinsville. The community is small, with fewer than twenty residential structures. In contrast, the residential area surrounding the Pittsburg Marina includes hundreds of residential structures but is at a greater distance and experiences obstructed views of the Proposed Project site. The views of the Proposed Project site from the two residential areas vary greatly. Residential views tend to be long in duration; therefore, resident viewer sensitivity is considered moderate to high.
- **Recreationalists:** Another primary viewer group is recreationalists who may be local or visiting. Boaters were excluded from this group because the average member of the public would not experience these views. Recreationalists are defined as those who walk, bike, fish, or sightsee in the area. This group generally places a high value on scenic resources, and views tend to be long in duration; therefore, recreationalist viewer sensitivity is considered moderate to high.
- **Workers:** Land use in the Proposed Project site vicinity is largely agriculture and energy production; workers harvesting crops or tending energy facilities are the second largest viewer group. The duration of worker views can be long depending on the work being performed; however, worker viewer sensitivity is considered low.

Viewer sensitivity was evaluated for the representative viewpoint locations (refer to Table 4.1-2) according to the FHWA's viewer sensitivity concepts and rating scale definitions. The viewer sensitivity rating scale definitions are provided in Table 4.1-1.

Table 4.1-4 Viewer Sensitivity Rating Scale

Rating	Description
Low	Viewers are not sensitive to changes in the landscape and may not notice changes.
Low to moderate	Viewers may notice changes but will likely be accepting of changes without mitigation.
Moderate	Viewers will notice changes and may accept changes without mitigation, or they may require mitigation.
Moderate to high	Viewers will notice changes and mitigation may be required.
High	Viewers will notice changes and redesign or extensive mitigation may be required.

Source: (Arcadis 2024)

Light and Glare

Visual effects from outdoor lighting are generally attributable to light pollution, light trespass and encroachment, and glare. Light pollution is generally associated with ground-reflected light, which results in the sky glow found in urban areas. Light trespass or encroachment and nuisance glare result from unwanted light affecting viewers at adjacent properties. Glare ranges

in severity from unwanted brightness that creates a nuisance to levels causing physical discomfort or disability. There are existing residential light sources stemming from the community of Collinsville and the City of Pittsburg in the Proposed Project site vicinity. Pervasive sources of glare in the Proposed Project site vicinity include reflective architectural elements on the existing PG&E facilities. Any lighting at the existing PG&E facilities would not constitute a significant light source.

4.1.2 Regulatory Setting

Federal

There are no applicable federal regulations, plans, or policies pertaining to aesthetics that are applicable.

State

California Department of Transportation's State Scenic Highway Program

The State Scenic Highway Program was established by the Legislature in 1963 to preserve and enhance the natural beauty of California. The State Scenic Highway System includes highways that are either eligible for designation as scenic highways or have been designated as such. The status of a state scenic highway changes from "eligible" to "officially designated" when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives the designation from Caltrans. A city or county may propose adding routes with outstanding scenic elements to the list of eligible highways; however, state legislation is required. As discussed in Section 4.1.1, there are no state scenic highways in the Proposed Project area.

Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the Proposed Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters."

Solano County

Solano County General Plan

The Solano County General Plan (2008) includes goals, policies, and implementation measures related to the protection of the visual quality within the county on a long-term basis. The Resources Chapter of the Solano County General Plan includes the following policies that are relevant to the Proposed Project (Solano County 2008):

> **Policy RS.G-4:** Preserve, conserve, and enhance valuable open space lands that provide wildlife habitat; conserve natural and visual resources; convey cultural identity; and improve public safety.

Policy RS.G-6: Preserve the visual character and identity of communities by maintaining open space areas between them.

Policy RS.P-35: Protect the unique scenic features of Solano County, particularly hills, ridgelines, wetlands, and water bodies.

Policy RS.P-36: Support and encourage practices that reduce light pollution and preserve views of the night sky.

Policy RS.P-37: Protect the visual character of designated scenic roadways.

Policy RS.P-58: Require the siting of energy facilities in a manner compatible with surrounding land uses, including Travis Air Force Base, and in a manner that will protect scenic resources.

Solano County Zoning Code

Solano County's Zoning Regulations, detailed in Chapter 28 of the County Code, implement the General Plan's policies through specific zoning districts and overlay zones. For instance, the Marsh Protection (MP) District is designed to preserve the ecological and visual integrity of the Suisun Marsh area and overlaps the Proposed Project near the community of Collinsville. Additionally, Policy Plan Overlay Districts, such as PP-01-03 (Dove Creek Trail) and PP-15-01 (Canon Partners), provide tailored development standards to protect scenic corridors and resources. These zoning provisions establish development standards, including restrictions on building placement, height, and design, to minimize visual impacts on scenic areas (Solano County 2025). PP-15-01 is located approximately 2.5 miles west of PG&E transposition site A, and PP-01-03 is located approximately 1.5 miles northeast of PG&E's existing Vaca-Dixon substation; however, none of the Proposed Project components are located within these Policy Plan Overlay Districts (Solano County 2022).

Sacramento County

The only Proposed Project component site located within Sacramento County is a portion of the LSPGC 230 kV submarine segment. These areas of Sacramento County are entirely within the Delta, where scenic resources do not occur and where Proposed Project features would not be visible. Therefore, there are no relevant land use or zoning policies.

Contra Costa County

Contra Costa County General Plan

The 2024 Contra Costa General Plan includes policies and implementation measures to identify, preserve, and enhance scenic routes in the county. The following policies from the Transportation and Circulation Element are relevant to the Proposed Project (Contra Costa County 2024):

Policy COS-P12.2: Require redesign of project components that negatively impact viewsheds or visual quality of the area

Policy COS-P12.4: Preserve the scenic qualities of hillsides by encouraging designs that are sensitive to a site's topography and prohibiting unnecessary grading and vegetation removal.

Policy COS-P12.5: Require restoration of natural contours and vegetation after grading and other land disturbances.

Policy COS-P12.8: Require a visual impact analysis for projects with potential to significantly impact public views along designated scenic routes.

Contra Costa County Zoning Ordinance

Contra Costa County implements a "Scenic Corridor Design Review (-DS) Combining Zone" to safeguard the aesthetic resources of its scenic roadways. This overlay zone establishes regulations and design guidelines aimed at preserving the visual quality of designated scenic corridors. The DS Combining Zone extends 1.5 miles on either side of the ultimate road right-of-way of State and County designated Scenic Highways (Contra Costa County 2008). Route 4, a designated Contra Costa County scenic route, is located approximately 0.5 mile north of PG&E transposition site D and, therefore, is within the DS Combining Zone (Contra Costa County 2008).

Alameda County

Alameda County General Plan

The Scenic Route Element of Alameda County's 1966 General Plan identifies and establishes policies to preserve the aesthetic quality of designated scenic routes within the unincorporated areas of the county. This element articulates the County's commitment to protecting visual resources by outlining criteria for the designation of scenic roadways and promoting development standards that maintain the natural and rural character of these corridors. It emphasizes the importance of preserving views of ridgelines, open space, and natural landforms and supports limitations on signage, grading, and building placement within designated corridors. The element serves as a foundational policy tool for land use planning and environmental review, supporting the objectives of CEQA by promoting the avoidance and minimization of visual impacts resulting from development along these scenic routes. The Scenic Route Element also laid the groundwork for implementing overlay zoning districts—such as the Scenic Corridor Combining District (SC)—to ensure that future development is compatible with the visual character of these protected corridors.

Alameda County Zoning Ordinance

Alameda County's Scenic Corridor "SC" is a zoning overlay established to implement the goals and policies of the 1966 Scenic Route Element of the General Plan. The SC district applies to designated scenic roadways in the county's unincorporated areas and is intended to preserve and enhance the visual and aesthetic quality of these corridors. It establishes additional development standards and design guidelines to regulate land use, structure placement, grading, landscaping, and signage within view of the scenic route. These regulations are intended to ensure that new development does not detract from important public views of

natural landforms, open space, and rural landscapes. The SC district supports CEQA objectives by reducing potential adverse impacts on visual resources through regulatory controls that maintain the scenic integrity of these corridors. Development proposals within the SC overlay are subject to discretionary review to ensure consistency with the County's scenic preservation goals (Alameda County 2025).

Notable corridors in the SC district include Altamont Pass Road, Byron-Bethany Road, Flynn Road, Grant Line Road, and portions of I-580. None of the Proposed Project component sites are in the vicinity of these corridors.

City of Pittsburg

City of Pittsburg General Plan

The recently adopted *Envision Pittsburg 2040 General Plan* emphasizes the preservation and enhancement of the city's aesthetic and environmental assets. While it does not establish formal scenic corridor designations, the plan includes policies aimed at protecting visual resources, particularly in areas such as the waterfront, open spaces, and key view corridors. These policies guide development to ensure compatibility with the city's scenic character and to maintain public access to natural vistas (City of Pittsburg 2024).

Notable areas of scenic and recreational value within Pittsburg include the Pittsburg Marina, Riverview Park, and the Delta de Anza Regional Trail. These locations offer residents and visitors opportunities to engage with the city's natural beauty and contribute to its overall visual appeal. None of the aboveground Proposed Project components would be located in the vicinity of these features. The LSPGC underground telecommunication interconnection lines would be approximately 600 feet or greater from the Pittsburg Marina.

City of Pittsburg Zoning Code

The City of Pittsburg's zoning code includes provisions aimed at protecting scenic resources, particularly within its waterfront and hillside areas, as outlined in Chapter 18.04 of the Pittsburg Municipal Code. The zoning code establishes specific districts and overlay zones that contribute to the protection of scenic resources, including the Waterfront Commercial (CW) district, which is approximately 300 feet north of the LSPGC telecommunication interconnection lines, neighboring the Marina Community Center; however, none of the Proposed Project component sites are actually located within this district.

4.1.3 Approach to Impact Analysis

The analysis of impacts on aesthetics applies the impact criteria and significance thresholds defined in the following subsection. The LSPGC applicant proposed measures (APMs) and PG&E construction measures (CMs) are considered when making the impact determinations for aesthetics, as shown in Table 4.1-5. Impacts are evaluated for the Proposed Project including separate analysis of LSGPC and PG&E project components, analysis of LSPGC and PG&E project components combined where appropriate, cumulative impacts, and alternatives. Mitigation measures are defined to reduce or avoid significant impacts, where feasible.

Impact Criteria and Thresholds of Significance

The following impact criteria questions have been derived from Appendix G of the CEQA Guidelines to evaluate impacts on aesthetics. Appendix G of the CEQA Guidelines ask whether a project would:

- Impact AES-1: Have a substantial adverse effect on a scenic vista?
- Impact AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- Impact AES-3: In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality?
- Impact AES-4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Applicant Proposed Measures and Construction Measures

LSPGC APMs and PG&E CMs identified in Section 2: Project Description that are relevant to the aesthetics impact analysis are provided in Table 4.1-5, below.

Table 4.1-5 APMs and CMs Relevant to Aesthetics

LSPGC APMs and PG&E CMs
APM AES-1: Staging Area Maintenance and Restoration. All Proposed Project sites would be maintained in a clean and orderly state. Temporary nighttime lighting would be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of Proposed Project construction, staging and temporary work areas would be returned to pre-Proposed Project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.
APM BIO-2: Develop and Implement Restoration Plan ***(Superseded by MM BIO-2).*** A Proposed Project-specific restoration plan would be prepared for the Proposed Project and submitted to the CPUC for approval prior to the start of construction activities. The restoration plan would include procedures for restoration activities, including plant species to be planted, procedures to reduce weed encroachment, and expected timeframes and success criteria for restoration and revegetation. Revegetation activities would be conducted in accordance with the Proposed Project SWPPPs and restoration plan.
APM BIO-12: Project Lighting. The use of outdoor lighting during construction would be minimized whenever practicable. Photocell-controlled lighting (i.e., motion detection) would be provided at a level sufficient to provide safe entry and exit to the proposed LSPGC Collinsville Substation and control enclosures. All lighting would be selectively placed, shielded, and directed downward and away from sensitive habitat and resources to the maximum extent practicable.
APM GEO-1: Geological Hazards and Disturbance to Soils. The following measures would be implemented during construction to minimize impacts from geological hazards and disturbance to soils: • Keep vehicles and construction equipment within the limits of the Proposed Project and in approved construction work areas to reduce disturbance to topsoil. • Salvage any disturbed topsoil during temporary grading activities to a maximum depth of 6 inches or to the actual depth if shallower (as identified in a site-specific geotechnical engineering report) to avoid the mixing of soil horizons.

LSPGC APMs and PG&E CMs
• Avoid construction in areas with saturated soils where topsoil salvage has not occurred whenever practical to reduce impacts to soil structure and allow safe access. Similarly, avoid topsoil salvage in saturated soils to maintain soil structure. • Keep topsoil material on site in the immediate vicinity of the temporary disturbance or at a nearby approved work area to be used in the restoration of temporarily disturbed areas. Recontour temporarily disturbed areas following construction to match pre-construction grades. Site and manage on-site material storage in accordance with all required permits and approvals. • Keep vegetation removal and soil disturbance to a minimum and limited to only the areas needed for construction and to provide adequate vegetation removal to meet initial electrical clearance and wildfire prevention requirements. Dispose of removed vegetation off site at an appropriate licensed facility, or it can be chipped on site to be used as mulch during restoration.
CM AES-1: Aesthetics. All work areas would be maintained in a clean and orderly state.
CM BIO-11: Construction Hours and Lighting. Construction activities would cease 30 minutes before sunset and would not begin prior to 30 minutes after sunrise, where feasible. Night work would be limited in extent, duration, and brightness, to the extent feasible. If temporary construction lighting is required, PG&E would use shielded construction light fixtures, or otherwise screen or direct lighting away from nearby residences except in the cases of emergency.

4.1.4 Impact Analysis – Proposed Project

Table 4.1-6 below, presents a summary of the CEQA significance criteria and impacts on aesthetics that would occur during construction, operation, and maintenance of the Proposed Project.

Table 4.1-6 Summary of Impacts on Aesthetics for the Proposed Project

Impact Criteria: Would the project …	APMs and CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
Impact AES-1: Have a substantial adverse effect on a scenic vista?	None	LTS	None	NA
Impact AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	None	NI	None	NA
Impact AES-3: In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	APM AES-1 APM BIO-2* APM GEO-1 CM AES-1	LTS	None	NA

Impact Criteria: Would the project …	APMs and CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
Impact AES-4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	APM BIO-12 CM BIO-11	LTS	None	NA

Notes:

LTS = less than significant

NI = no impact

NA = not applicable

* APM BIO-2 is superseded by MM BIO-2

Impact AES-1: Would the Proposed Project have a substantial adverse effect on a scenic vista? ***(Less than significant)***

LSPGC Project Components

As discussed in Section 4.1.1, no designated or widely recognized scenic vistas occur within or adjacent to the LSPGC project component sites. While portions of the Proposed Project would be located along the Delta shoreline, which has some scenic value, these areas have limited or no scenic viewing opportunities and occur adjacent to existing wind energy developments in the vicinity of Collinsville and existing industrial development in the City of Pittsburg. Furthermore, there are no prominent vantages in the Proposed Project area where proposed structures and construction activities would be noticeable in the landscape. Therefore, the LSPGC project components would not result in substantial adverse effects on a scenic vista. Impacts would be less than significant.

PG&E Project Components

As discussed for the LSPGC project components, no designated or widely recognized scenic vistas occur within or adjacent to the PG&E project component sites, and there are no prominent vantages where proposed structures and construction activities would be noticeable in the landscape. Therefore, the PG&E project components would not result in substantial adverse effects on a scenic visit. Impacts would be less than significant.

Impact AES-2: Would the Proposed Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ***(No impact)***

LSPGC Project Components

As discussed in Section 4.1.1, no designated or eligible state scenic highways or other scenic corridors occur within or adjacent to the Proposed Project site. Therefore, the LSPGC project components would not substantially damage scenic resources within a scenic corridor. No impact would occur.

PG&E Project Components

As discussed for the LSPGC project components, no designated or eligible state scenic highways or other scenic corridors occur within or adjacent to the PG&E project components sites. Therefore, the PG&E project components would not substantially damage scenic resources within a scenic corridor. No impact would occur.

Impact AES-3: Would the Proposed Project substantially degrade the existing visual character or quality of public views of the site and its surroundings in nonurbanized areas, or conflict with applicable zoning and other regulations governing scenic quality in urbanized areas? *(Less than significant)*

Visual impacts associated with construction are temporary and generally short-term in nature. The Proposed Project area surrounding the community of Collinsville is considered non-urbanized, whereas the Proposed Project area within the City of Pittsburg is considered urbanized and industrial. Following construction of Proposed Project components, visual impacts associated with operation and maintenance would typically be permanent and long-term. As discussed in Section 4.1.1, visual simulations were prepared for three selected viewpoints (KOPs 1, 2, and 3, as shown in Figure 4.1-1) that depict a post-construction scenario after general restoration and revegetation of temporarily disturbed areas. The visual simulations were then used to evaluate long-term visual effects compared to existing conditions. The existing and simulated views of the Proposed Project components are provided in Appendix D D-1 through D-7, and a summary of the visual effects are provided in Table 4.1-7.

The short-term construction impacts discussed below are based on a qualitative assessment informed by the visual simulations that demonstrate where the project areas and construction activities are expected to be seen; however, the visual simulations do not depict construction activities.

Construction

LSPGC Project Components

LSPGC Collinsville Substation, LSPGC 230 kV Transmission Line Overhead Segment, Submarine Segment (On-Land Northern Approach)

Construction of the LSPGC project components would take approximately 27 months. Construction activities associated with the LSGPC Collinsville Substation (including the PG&E telecommunication yard), the 230 kV overhead segment, and the 230 kV submarine segment on-land northern approach would be visible to local residents in the community of Collinsville, landowners, agricultural and energy facility workers, motorists, and recreationalists. The proposed substation and 230 kV overhead segment and submarine segment on-land northern approach alignments are located on agricultural lands and lands adjacent to existing wind energy infrastructure. Existing visual quality in the area ranges from moderate to high, and viewer sensitivity ranges from low to high (refer to Table 4.1-2 viewpoints 1, 2, and 6). These areas are considered nonurbanized despite the presence of the existing wind energy infrastructure to the north of Stratton Lane.

Table 4.1-7 Summary of Long-term Visual Effects at Selected Key Observation Points

KOP	Existing conditions	Proposed Project conditions and description of visual change
KOP 1. Collinsville Road	• **Viewing distance:** Middle-ground (approximately 0.7 mile to proposed substation site) • **Viewers:** Landowners, workers, residents, and recreationalists • **Viewer sensitivity rating and factors:** Moderate to high. Local road used for access to the community of Collinsville. A small group of generally long-term residents who would notice changes in the surrounding landscape. Historically an agricultural and holiday home community. Pittsburg area is more densely populated, with recreation areas and views of the Montezuma Hills. Montezuma Hills are associated with energy production and may make the facility more acceptable to residents and visitors. • **Visual quality rating and factors:** High. Typical Montezuma Hills view with existing energy infrastructure on rolling hills with a grassland landscape.	• **Project elements within view:** New steel lattice towers and steel poles supporting conductor and optical ground wire; new wood pole line and conductor; new Collinsville Substation. • **Visual quality rating and factors:** Moderate. The view would be impacted by the addition of the substation and new transmission poles that would be located in the middle-ground of the view. The addition of the substation introduces elements that are discordant. • **Change to visual quality and character:** The visual quality would be degraded by the addition of the substation, poles, and transmission structures and conductor within the view. The new steel structures clustered together at the substation would clutter the view more than the existing wind turbines. Some of the structures would daylight the hilltops and work against the generally pleasing pattern of the wind turbines. While the existing view contains energy infrastructure, it is harmonious and rhythmic, while the proposed infrastructure would be dominant and visually discordant, creating an inharmonious landscape reducing the quality of the view. • **Resulting visual impact:** The viewers in the area of KOP 1 are residential landowners, workers, and recreationalists. The number of viewers is low as the community is small; however, the residents and recreationalist would have views of long duration and would notice the change to the landscape. The view of the Sacramento- San Joaquin River Delta is unaffected. The landowners and agricultural workers would also notice the change but are less likely to be sensitive to the change. Overall, the resulting visual impact at KOP 1 would be perceptible, and the Proposed Project would reduce the natural harmony and project coherence by introducing a cultural infrastructure (i.e., built by man) into a perceived natural landscape.
KOP 2. Stratton Lane	• **Viewing distance:** Foreground (approximately 400 feet to proposed substation) • **Viewers:** Landowners and workers • **Viewer sensitivity rating and factors:** Low to moderate. Characteristic agricultural landscape with annual grasses and wire fences. Unpaved local rural road with no	• **Project elements within view:** New steel structures, conductor, and optical ground wire; other Proposed Project elements include foreground views of a new wood pole line and conductor, the wall surrounding the substation, and substation equipment. • **Visual quality rating and factors:** Moderately low to moderate. The substation, new lattice towers, and wood pole line would all be highly visible from Stratton Lane. The Proposed Project components would change the view measurably from the vantage point of the KOP. From further distances, the visibility would decrease due to topography and distance. The substation, lattice towers, and wood pole line are new at this location, with no other vertical

KOP	Existing conditions	Proposed Project conditions and description of visual change
	residential, commercial, or recreation on it. Low number of viewers, moderate speeds. • **Visual quality rating and factors:** Moderately high. The view from Stratton Lane is typical to the Montezuma Hills, containing fields of annual grasses and gently undulating topography with views of the river and distant Diablo range at varying points along the roadway. The view from this vantage point of the KOP is average. The levels of natural harmony, cultural order and project coherence are average.	features in view on the south side of Stratton Lane; therefore, viewers could be sensitive to the change. • **Change to visual quality and character:** The visual quality would be degraded by the introduction of the substation, new lattice towers, and wood poles within the view. While this view is typical, it is part of a larger attractive viewshed, and the introduction of the vertical elements contrasts the otherwise horizontal landscape, reducing the coherence and therefore the visual quality. There is currently little to no visible energy infrastructure south of Stratton Lane. The introduction of the Proposed Project would change the agricultural character. • **Resulting visual impact:** The duration of views would be relatively short, and the number of viewers would be low from Stratton Lane. Given the short view duration and the low to moderate viewer sensitivity, the addition of the vertical elements would result in a moderate overall impact. The substation would be visible from certain locations along the road but obscured at others due to changes in topography. Overall, the resulting visual impact at KOP 2 would be perceptible, and the Proposed Project would reduce the natural harmony and project coherence by introducing cultural infrastructure into a perceived natural landscape.
KOP 3. Pittsburg Marina	• **Viewing distance:** Background (approximately 3.9 miles to proposed substation) • **Viewers:** Residents and recreationists • **Viewer sensitivity rating and factors:** Moderate. Public recreation area where views of the Montezuma Hills are likely of high value. Views are of long duration with moderate viewer sensitivity. • **Visual quality rating and factors:** Moderately high. The view includes the marina and river in the foreground to middle-ground and the Montezuma Hills in the background dotted with wind turbines. The annual grassland hills dotted with turbines has become an iconic landscape in the area.	• **Project elements within view:** New steel structures supporting conductor and optical ground wire; new Collinsville Substation. • **Visual quality rating and factors:** Moderately high – The additional infrastructure would be visible in the background but, due to the visual dominance of the wind turbines, the distance from the viewer to the Proposed Project, and the vibrancy of the elements in the foreground, the new infrastructure wouldn't change the view perceptibly. It would be difficult to perceive the additional infrastructure in the landscape from this distance. • **Change to visual quality and character:** The visual quality and the character would be unchanged. • **Resulting visual impact:** The change to the visual quality would be imperceptible to most viewers and does not perceptibly change the quality of the view.

Source: (Arcadis 2024)

Construction activities associated with the LSPGC project components north of the Delta would temporarily degrade visual character and quality in the area where the construction activities would be visible, such as but not limited to public viewing locations in the Community of Collinsville, Collinsville Road, Stratton Lane, and along the Delta waterway. Construction of the substation and overhead segment would involve vegetation clearing, grading, and other excavation to install the Proposed Project components. Equipment, materials, and topsoil would be stored at temporary staging areas and other work areas. In addition, dust would be generated during construction that may be visible periodically over greater distances. LSPGC would implement APM AES-1, which involves visual BMPs and restoration procedures, APM GEO-1, which requires LSPGC follow procedures to minimize ground disturbance and vegetation removal, and manage topsoil stockpiles, and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), which requires the development and implementation of a restoration plan, including SWPPPs. Implementation of the APMs and MM BIO-2 would further reduce construction impacts associated with the substation, 230 kV overhead segment, and the northern shore on-land portion of the 230 kV submarine segment. The temporary visibility of construction activities would not substantially degrade the existing visual character or quality of public views and lands would be restored to existing conditions following construction. Impacts would be less than significant.

LSPGC 230 kV Transmission Line Submarine Segment (In-Water)

The LSPGC 230 kV submarine segment would be installed within the Delta waterways using a submerged hydroplow or similar equipment that is pulled along the riverbed behind a barge. The submarine segment would be installed over an approximately 6-month period. The barge would be similar in appearance to other marine vessels operating in the Delta. Therefore, construction of the submarine segment would not substantially degrade the existing visual character or quality of public views. Impacts would be less than significant.

LSPGC 230 kV Transmission Line Underground Segment and Submarine Segment (On-land Southern Approach)

Construction of the LSPGC 230 kV underground segment and submarine segment on-land southern approach would occur in a heavily industrialized area, the City of Pittsburg, that has an existing degraded visual environment and is inaccessible to the public due to site security fencing. Construction of the underground segment would involve the installation of an onshore underground utility vault and two underground duct banks with features at and below grade. Construction of the underground segment would be temporary and take place over an approximately 3-month period. Construction of the underground segment would not conflict with applicable zoning or any of the other regulations governing scenic quality in the City of Pittsburg and Contra Costa County. Therefore, impacts would be less than significant.

LSPGC Telecommunication Interconnection Lines

Construction of the LSPGC underground telecommunication interconnection lines would occur within or adjacent to a heavily industrialized area and within public roadways in the City of Pittsburg. Construction of the telecommunication interconnection lines would utilize horizontal directional drilling methods. Areas of visible excavation would be limited to small handholes

and tie-in locations positioned along the proposed alignment. All features associated with the telecommunication interconnection lines in public areas would be installed at or below grade or adjacent to existing telecommunication equipment. Construction equipment would be positioned along the proposed alignment at the tie-in and handhole locations along the proposed alignment. Where these areas are located within and along public roadways, construction activities would be periodically visible over an approximately 3-month period. Construction of the telecommunication interconnection lines would not conflict with applicable zoning or any of the other regulations governing scenic quality in the City of Pittsburg and Contra Costa County. Therefore, impacts would be less than significant.

PG&E Project Components

PG&E 500 kV Interconnection Lines, PG&E 12 kV Distribution Line, and PG&E Telecommunication Yard

Construction of the PG&E project components would take place over the course of 27 months. As with the LSPGC project components north of the Delta, construction activities associated with the PG&E 500 kV interconnection lines, 12 kV distribution line, and PG&E telecommunication yard at the Collinsville Substation would be visible to local residents in the Community of Collinsville, landowners, agricultural and energy facility workers, motorists, and recreationalists. These project components occur on agricultural lands and lands within and adjacent to existing wind energy infrastructure. Existing visual quality in the area ranges from moderate to high, and viewer sensitivity ranges from low to high (refer to Table 4.1-2, Viewpoints 1, 2, and 6). These areas are considered nonurbanized despite the presence of the existing wind energy infrastructure to the north of Stratton Lane and surrounding the proposed 500 kV interconnection lines alignment.

As with the LSPGC project components, construction activities associated with the PG&E project components north of the Delta would temporarily degrade visual character and quality in the area where the construction activities would be visible, such as but not limited to public viewing locations in the Community of Collinsville, along Collinsville Road, along Stratton Lane, and along the Delta waterway. Construction of the substation and construction of the overhead segment would involve vegetation clearing, grading, and other excavation to install the Proposed Project components. Equipment, materials, and topsoil would be stored at temporary staging areas and other work areas which could result in temporary visual impacts. PG&E would implement CM AES-1, which would require that all PG&E work areas be maintained in a clean and orderly state, which would reduce any temporary visual impacts. In addition, dust would be generated during construction that may be visible periodically over greater distances. The temporary visibility of construction activities would not substantially degrade the existing visual character or quality of public views Impacts would be less than significant.

PG&E 500 kV Transposition Sites

Construction at the four PG&E transposition sites (A, B, C, and D, as shown in Appendix A: Detailed Route Maps) would take place over an approximately 9-month period in total.

Construction activities at the transposition sites would involve accessing existing structures, installing new transposition structures, and removing existing structures with PG&E's existing ROW for the Vaca Dixon-Tesla 500 kV Transmission Line. The transposition site work areas occur in relatively flat agricultural areas and adjacent to existing wind energy facilities, where views of the existing structures are available from adjacent roadways, farms, and residences. Viewer sensitivity and visual quality were not formally evaluated at the transposition sites; however, viewer sensitivity is generally expected to be low, and visual quality is generally expected to be low to moderate due to the presence of existing energy facilities and agricultural activities and infrastructure with undeveloped areas and vegetation that have some scenic value (refer to Figure 4.1-3). As with construction of the other PG&E project components, construction at the PG&E transposition sites would temporarily degrade visual character and quality where the construction activities would be visible. PG&E would implement CM AES-1, which would require that all PG&E work areas be maintained in a clean and orderly state, which would reduce any temporary visual impacts. The temporary visibility of construction activities would not substantially degrade the existing visual character or quality of public views. Impacts would be less than significant.

PG&E Substation Modifications

The proposed modifications at the existing Pittsburg, Vaca Dixon, and Tesla substations would take place over an approximate 12-month period. All substation modifications would occur within the existing substation footprints, which are industrial areas with extensive existing transmission infrastructure where viewer sensitivity and visual quality are expected to be low (refer to Figure 4.1-4). Construction activities at the existing substations, if visible to the public at all, would not degrade visual character and quality. No impact would occur.

Operation and Maintenance

As discussed above, three viewpoints were selected as for visual simulation (KOPs 1, 2, and 3, as show in Figure 4.1-1) to depict long-term visual effects from key public viewing locations where the primary and new Proposed Project components would be seen from public areas. The primary new Proposed Project components shown in the visual simulations are all located north of the Delta and include the LSPGC Collinsville Substation, LSPGC 230 kV overhead segment, PG&E 500 kV interconnection lines, PG&E 12 kV distribution line, and PG&E telecommunication yard. The LSPGC 230 kV submarine and underground segments and LSPGC telecommunication interconnection lines would not be visible except for a few small components at grade or low to the ground. The PG&E 500 kV transposition sites and existing substation modifications would involve minor changes to existing facilities. The visual changes that would occur at the proposed subsurface and existing PG&E facilities would be minor and would not result in substantial degradation of the existing visual character or visual quality at each location. Therefore, these features are not depicted in visual simulation and the impacts are addressed qualitatively.

The Proposed Project LSPGC and PG&E components would be operated remotely. Operation and maintenance activities, including inspections, equipment repair and replacement, and vegetation management, would occur as needed and periodically over the life of the facilities.

Visual impacts associated with operation and maintenance would be similar but far less than the construction phase; therefore, the discussion of visual impacts associated with the operation and maintenance phase are focused on the visibility of permanent Project features.

The existing and simulated views of the Proposed Project components are provided in Appendix D, Figure D-1 through Figure D-6, and a summary of the visual effects is provided in Table 4.1-7. Impacts associated with the LSPGC and PG&E project components are discussed separately in the following sections.

LSPGC Project Components

LSPGC Collinsville Substation and LSPGC 230 kV Transmission Line Overhead Segment
As shown in the visual simulations for KOPs 1, 2, and 3, the LSPGC project components north of the Delta would be visible from Collinsville Road, Stratton Lane, and the Delta waterway. The selected KOP simulations represent a range of potential views that are expected in the region where Proposed Project features would been seen from public areas. Table 4.1-7 provides a summary of the long-term visual effects at each KOP shown in the visual simulations. As described in Section 2: Project Description, the proposed Collinsville Substation security wall would have a non-reflective finish and a neutral earth-tone color. In addition, all substation control enclosures would be painted a non-reflective American National Standards Institute 70 light grey or similar neutral tone that would not result in a significant contrast with the surrounding environment. All other substation components, including the substation security fencing, would have a non-reflective finish to the extent that such components are commercially available. These factors have been depicted in the visual simulations and considered in the determination of long-term visual effects.

The visual simulation for KOP 1 shows a representative view from Collinsville Road. Visual quality at KOP 1 is considered high because the Montezuma Hills are an iconic landscape with high levels of natural harmony, cultural order, and coherence. Viewers at KOP 1 would predominately be Collinsville residents who have a moderate to high sensitivity to visual change due to the long duration of their residential view of the substation and overhead segment. The aboveground LSPGC project components north of the Delta would be noticeable in the landscape from KOP 1. Existing visual character and quality as seen from KOP 1 would be permanently reduced by introducing man-made structures to an undeveloped area; however, the visual change would not be substantial due to the presence of existence wind energy facilities, the viewing distance (approximately 0.7 mile and greater), and the intervening vegetation and other landscape features in the foreground, and surrounding the Project components would remain unaffected.

The visual simulation for KOP 2 shows a representative view from Stratton Lane passing immediately adjacent to the proposed Collinsville Substation site. Visual quality at KOP 2 is considered moderate to high because the Montezuma Hills are an iconic landscape but views at this location are diminished due to obstruction by the adjacent topography and the visual dominance of nearby wind turbines. Viewers at KOP 2 would be predominantly agricultural

and wind energy workers and landowners who have a low to moderate sensitivity to visual change. At this location and adjacent areas along Stratton Lane, the substation and surrounding infrastructure would be highly visible and would dominate views for short durations during travel through the area. Existing visual character and quality as seen from KOP 2 would be permanently reduced by introducing man-made structures to an undeveloped area; however, the visual change would not be substantial due to the presence of existence wind energy facilities as well as low viewer volume and exposure durations along a portion of Stratton Lane, and the landscape surrounding the Proposed Project components would remain unaffected.

The visual simulation for KOP 3 shows a representative view from the Pittsburg Marina in the City of Pittsburg, which would include a view of the project components north of the Delta in the distance (approximately 3.9 miles). Visual quality at KOP 3 is considered moderately high because the foreground and middle-ground views of the Delta and background views of the Montezuma Hills are dotted with existing wind turbines. Viewers at KOP 3 would be predominately residents and recreationalists who have a moderate sensitivity to visual change. At this location and other areas along the Delta and southern shore region areas, the substation and surrounding infrastructure may be visible to some degree but would not draw the attention or be noticeable to most viewers. Existing visual character and quality as seen from KOP 3 are not expected to change due to the viewing distance and the remaining unaffected views of the Delta waterway in foreground and middle-ground and the Montezuma Hills in the background.

For the reasons described above for KOPs 1, 2, and 3, the proposed LSPGC project components north of the Delta would not substantially degrade the existing visual character or quality of public views or conflict with applicable zoning and other regulations governing scenic quality. This determination is based on the LSPGC project components both independently and in combination with the PG&E project components. Impacts would be less than significant.

LSPGC 230 kV Transmission Line Submarine Segment, LSPGC 230 kV Transmission Line Underground Segment, and LSPGC Telecommunication Interconnection Lines

The LSPGC 230 kV submarine and underground segments and LSPGC telecommunication interconnection lines would be installed underwater or underground, where they would not be visible except for a few small components at grade or low to the ground. Furthermore, the area where the 230 kV underground segment and a portion of the telecommunication interconnection lines would be installed near Pittsburg Substation is in a heavily developed and industrialized area where public access is restricted (refer to the Pittsburg Substation photograph in Figure 4.1-4). The visual changes that would occur at the proposed subsurface facilities would be minor and would not result in substantial degradation of the existing visual character or visual quality at each location. Impacts would be less than significant.

PG&E Project Components

PG&E 500 kV Interconnection Lines, PG&E 12 kV Distribution Line, and PG&E Telecommunication Yard

The PG&E 500 kV interconnection lines, 12 kV distribution line, and telecommunication yard are located in the vicinity of the LSPGC Collinsville Substation and 230 kV overhead segment in the Montezuma Hills area and wind energy facilities adjacent to the community of Collinsville. As shown in the visual simulations for KOPs 1, 2, and 3, the PG&E project components north of the Delta would be visible from Collinsville Road, Stratton Lane, and the Delta waterway. In addition, while not shown in a simulation, the PG&E 500 kV interconnection lines would also be visible from Talbert Lane (refer to Viewpoints 3, 4, and 5 in Figure 4.1-1 and Figure 4.1-2).

The same viewer conditions, existing visual character, and existing visual quality at KOPs 1, 2, and 3 described above for the LSPGC project components north of the Delta also apply to the PG&E project components that would be adjacent and connect to the Collinsville Substation (refer to Table 4.1-7). The primary visual impact associated with the Proposed Project would be the visibility and concentration of electrical facilities at and surrounding the Collinsville Substation. The associated PG&E project component locations are dependent on the location of the Collinsville Substation. These features would be viewed alongside the LSPGC project components and would contribute to the overall reduction in visual character and quality described above but, ultimately, less than the proposed Collinsville Substation. While the PG&E facilities have somewhat unique visual characteristics, they are still similar to the LSPGC project components, and the associated visual impacts are considered in combination and not independently.

At KOP 1 (Collinsville Road), the proposed 500 kV LSTs and TSPs would be visible extending north from the substation into the Montezuma Hills and wind resource area. The tall geometric form of the LSTs would be noticeable in the landscape but would be viewed immediately adjacent to significantly taller white wind turbines. Wooden poles associated with the 12 kV distribution line would be visible along Stratton Lane. The poles would appear thin and short in comparison to the LSTs and substation features. The telecommunication yard, including the microwave tower, would be positioned adjacent to the substation features and would be visually indistinguishable when viewed from KOP 1.

At KOP 2 (Stratton Lane), two of the 500 kV TSPs (three-pole structures) and two of the wood distribution poles are shown between Stratton Lane and the substation perimeter. Similar to KOP 1, the communication yard features would be viewed with the substation and would be visually indistinguishable. In addition, while not shown in the selected view for KOP 2, other 500 kV LSTs would be visible north of the substation, and wood distribution poles would be visible along Stratton Lane west of the substation.

At KOP 3 (Pittsburg Marina), the proposed 500 kV LSTs would be visible to some degree extending north from the substation into the Montezuma Hills and wind resource area. The LSTs can be seen in the KOP 3 simulation immediately adjacent to significantly taller white

wind turbines. At this viewing distance (approximately 3.9 miles and greater), the 500 kV structures, microwave tower, and Collinsville Substation features visually blend together and are indistinguishable, except for a few of the LSTs that are visible on the ridgeline above the substation. The 12 kV distribution line poles are not visible from this distance.

As described for the LSPGC project components, the PG&E project components north of the Delta would not substantially degrade the existing visual character or quality of public views. This determination is based both on the PG&E project components independently and in combination with the LSPGC project components. Impacts would be less than significant.

PG&E 500 kV Transposition Sites

The PG&E 500 kV transposition sites would involve minor changes to existing facilities along PG&E's Vaca Dixon-Tesla 500 kV Transmission Line. In these areas, viewer sensitivity is generally expected to be low, and visual quality is generally expected to be low to moderate (refer to Figure 4.1 3). At transposition sites A, B, and D, one new TSP would be installed between existing LSTs. At transposition site C, two existing LSTs and two existing LSPs would be removed and two new TSPs (three-pole structures) would be installed. The new and replaced structures may be visible to some viewers, but the visual change would be minor. Therefore, the proposed modifications to PG&E's existing 500 kV transposition sites would not substantially degrade the existing visual character or quality of public views or conflict with applicable zoning and other regulations governing scenic quality. Impacts would be less than significant.

PG&E Substation Modifications

The proposed modifications of PG&E's existing Pittsburg, Vaca Dixon, and Tesla substations would occur within the existing substation footprints, which are industrial areas with extensive existing transmission infrastructure. Viewer sensitivity and visual quality in these areas are expected to be low (refer to Figure 4.1-4). The modified elements of the substations, if visible at all, would be indistinguishable from other areas of the substations. Therefore, the proposed PG&E substation modifications would not substantially degrade the existing visual character or quality of public views or conflict with applicable zoning and other regulations governing scenic quality. Impacts would be less than significant.

LSPGC and PG&E Project Components Combined

Community of Collinsville

As stated above, the Proposed Project area surrounding the community of Collinsville is considered non-urbanized. The construction schedule of the proposed LSPGC Collinsville Substation, 230 kV overhead segment, and on-land northern approach of the 230 kV submarine segment, in combination with the proposed PG&E 500 kV interconnection lines, 12 kV distribution line, and PG&E telecommunication yard at the Collinsville Substation would largely overlap. Construction of these components and the associated visual effects would be simultaneously visible to viewers in the region. As stated above, these components occur on agricultural lands within and adjacent to existing wind energy infrastructure and the existing

visual quality in the area ranges from moderate to high, with viewer sensitivity ranging from low to high (refer to Table 4.1-2, Viewpoints 1, 2, and 6). The combined visual impacts of simultaneous construction activities associated with these components would temporarily degrade visual character and quality in the area where the construction activities would be visible, such as but not limited to public viewing locations in the Community of Collinsville, along Collinsville Road, along Stratton Lane, and along the Delta waterway.

Following construction of Proposed Project components, visual impacts associated with operation and maintenance are typically permanent and long-term. The visual simulations prepared for the three selected viewpoints (KOPs 1, 2, and 3, as shown in Figure 4.1-1) are inclusive of both LSPGC and PG&E project components and illustrate the expected views of these features after general restoration and revegetation of temporarily disturbed areas. The existing and simulated views for KOPs 1, 2, and 3 are provided in Appendix D, Figure D-1 through Figure D-7, and a summary of the visual effects are provided in Table 4.1-7.

LSPGC would implement APM AES-1, APM GEO-1, and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), which would reduce temporary visual effects and ensure site restoration following construction activities. In conjunction, PG&E would implement CM AES-1 to minimize temporary visual effects. Therefore, the combined visual impacts associated with the construction and operation of the LSPGC and PG&E project components surrounding the nonurbanized Community of Collinsville would not result in a significant impact or substantially greater impacts beyond those addressed for each project component alone. Impacts would be less than significant.

City of Pittsburg

The LSPGC 230 kV underground segment, the western portion of the underground LSPGC telecommunication interconnection lines (approximately 0.5 mile), and the existing PG&E Pittsburg Substation within the City of Pittsburg are in a heavily developed and industrialized area where public access is restricted (refer to the Pittsburg Substation photograph in Figure 4.1-4). The construction schedule of these adjacent components would overlap; however, public views of the area are limited and the industrial landscape is not visually sensitive. The easter portion of the underground LSPGC telecommunication interconnection lines (approximately 0.7 mile), would be constructed within residential areas along public roadways. The telecommunication lines would be installed underground using HDD methods and construction activities would be limited to handhole locations. Therefore, the combined visual impact associated with the construction and operation of the LSPGC and PG&E project components within the City of Pittsburg would not result in a significant impacts or substantially greater impacts beyond those addressed for each project component alone, and would not conflict with applicable zoning and other regulations governing scenic quality. Impacts would remain less than significant.

Impact AES-4: Would the Proposed Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(Less than significant)***

Construction

LSPGC Project Components

Construction of the LSPGC project components would take place over the course of 27 months. Construction activities would predominately occur Monday through Saturday, during daytime hours (7:00 a.m. to 7:00 p.m.); however, construction activities may be scheduled outside of these periods or night work may be required under limited circumstances, such as to address emergencies. LSPGC may require up to 30 days of nightwork to support schedule recovery, such as due to weather delays or for system commissioning of the proposed LSPGC Collinsville Substation. Installation of the LSPGC 230 kV submarine segment would occur over an approximately 6-month period. While the submarine cables are installed across the Delta, work would occur continuously for 24 hours per day and 7 days per week. Construction lighting would be temporary and limited to the necessary work areas. Staging areas may also be illuminated with temporary lighting for staging and security purposes. The temporary use of lighting during construction would not create a new source of substantial light.

Glare resulting from reflective surfaces associated with construction equipment (i.e., glass windows) and stockpiled materials (i.e., metals, plastics, and coatings) would depend on the time of day and the position of viewers relative to the sun; however, such glare would be minor and temporary due to the movement of equipment in the regular course of construction and the movement of the sun throughout the day, in addition to the fact that reflective surfaces would not be aligned or oriented in a manner that could reflect high levels of glare in the same direction.

LSPGC would implement APM BIO-12, which requires the use of outdoor construction lighting to be minimized whenever practicable and that all lighting be selectively placed, shielded, and directed downward and positioned away from sensitive areas to the maximum extent practicable thus reducing any temporary lighting impacts. Construction of the LSPGC project components would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Impacts would be less than significant.

PG&E Project Components

Construction of the PG&E project components would take place over the course of 27 months. Construction activities would predominately occur Monday through Saturday, during daytime hours (7:00 a.m. to 7:00 p.m.); however, PG&E may require night work for emergency outage restoration at PG&E's existing facilities or the proposed PG&E 500 kV interconnection lines. The use of temporary construction lighting may be used in a similar manner as described for the LSPGC project components, which would not create a new source of substantial light. PG&E would implement CM BIO-11, which restricts PG&E construction activities to occur during daylight periods, including 30 minutes after sunrise to 30 minutes before sunset, where feasible. Night work would be limited in extent, duration, and brightness, to the extent feasible. If temporary construction lighting is required, PG&E would use shielded construction light

fixtures or otherwise screen or direct lighting away from nearby residences except necessary due to emergency conditions. As described for the LSPGC project components, any glare caused by construction of the PG&E project components would be minor and temporary due to the intermittent stockpiling of equipment and materials that could reflect light in the regular course of construction , and the fact that the concentration of glare would change throughout the day. Construction of the PG&E project components would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Impacts would be less than significant.

Operation and Maintenance

LSPGC Project Components

LSPGC Collinsville Substation

The structures and equipment installed at the proposed LSPGC Collinsville Substation, including security fencing, would have non-reflective finishes and neutral earth-tone colors to the extent commercially available. All lighting at the substation would be installed and would conform to the NESC requirements and other applicable outdoor lighting codes. The facility would not require 24-hour illumination, and no aeronautical obstruction lighting would be required for the Proposed Project. Motion detection photocell lighting would be used to provide safety lighting at a level sufficient for safe entry and exit of the substation and control equipment enclosure. Additional manually controlled lights would be provided to ensure a safe working environment. Lighting would be shielded and pointed downward to minimize glare onto surrounding habitat. LSPGC would implement APM BIO-12, which requires the use of motion sensors and that all lighting would be selectively placed, shielded, and directed downward and away from sensitive habitat and resources to the maximum extent practicable. The Proposed Project would be remotely monitored on a day-to-day basis and would require quarterly inspections of the proposed LSPGC Collinsville Substation. Therefore, operation of the LSPGC Collinsville Substation would not create a new source of substantial light or glare that would affect day or nighttime views of the area. Impacts would be less than significant.

LSPGC 230 kV Transmission Line Overhead Segment

The LSPGC 230 kV overhead segment structures would have a non-reflective finish and would be a neutral grey color. Conductors installed on the 230 kV overhead segment would be non-specular, meaning the outer layer of the conductors will have been treated so that any glare would be diffused. No lighting including aeronautical obstruction lighting would be required. Any glare that could result from these features would be minor and similar to existing sources of glare in the general vicinity (e.g., existing traffic, residential and agricultural structures, wind turbines, water). Therefore, the 230 kV overhead segment would not create a new source of substantial light or glare that would affect day or nighttime views of the area. Impacts would be less than significant.

LSPGC 230 kV Transmission Line Submarine Segment, LSPGC 230 kV Transmission Line Underground Segment, and LSPGC Telecommunication Interconnection Lines

The LSPGC 230 kV submarine and underground segments and the LSPGC telecommunication interconnection lines would be installed in subsurface positions, with minimal features visible at or above grade. These project components would not require lighting or become a source glare that would adversely affect day or nighttime views. Impacts would be less than significant.

PG&E Project Components

PG&E 500 kV Interconnection Lines, PG&E 500 kV Transposition Sites, and PG&E 12 kV Distribution Line

The structures associated with the PG&E 500 kV interconnection lines, 500 kV transposition sites, and 12 kV distribution line would have a non-reflective finish and would be a neutral grey color or wood. Conductors installed on the lines would be non-specular. No lighting including aeronautical obstruction lighting would be required. Any glare that could result from these features would be minor and similar to existing sources of glare in the general vicinity (i.e., existing traffic, residential and agricultural structures, wind turbines, water, etc.). Therefore, these features would not create a new source of substantial light or glare that would affect day or nighttime views of the area. Impacts would be less than significant.

PG&E Telecommunication Yard

The PG&E telecommunication yard would be immediately adjacent to the LSPGC Collinsville Substation. Like the substation, the communication yard would be surrounded by a security fence similar to the substation fence that would be a neutral earth tone. The facilities within the communication yard would be consistent with the substation features and would have a neutral color and non-reflective finishes. The microwave tower would be a dull gray color. No aeronautical obstruction lighting would be required; however, small lighting fixtures would be installed at the gate entrance and at equipment enclosures that would be consistent with the substation lighting. The PG&E telecommunications yard would not create a new source of substantial light or glare that would affect day or nighttime views of the area. Impacts would be less than significant.

PG&E Substation Modifications

Modifications to the existing PG&E Pittsburg, Vaca-Dixon, and Tesla substation would occur within the existing substation footprints. Any lighting installed at the modified substation features would be small and consistent with existing lighting and would not constitute a new source of substantial light. Additionally, no aeronautical obstruction lighting would be required. Any glare associated with the modified substation features would be similar to the existing features. Therefore, no new sources of substantial light or glare would be created by the PG&E substation modifications. Impacts would be less than significant.

LSPGC and PG&E Project Components Combined

The LSPGC Collinsville Substation, 230 kV overhead segment, and on-land northern approach of the 230 kV submarine segment, in combination with the proposed PG&E 500 kV interconnection lines, 12 kV distribution line, and PG&E telecommunication yard at the Collinsville Substation would be visible to local residents in the Community of Collinsville, landowners, agricultural and energy facility workers, motorists, and recreationalists during construction and operation of the Proposed Project. Similarly, the area where the LSPGC 230 kV underground segment, a portion of the LSPGC telecommunication interconnection lines, and the location of the existing PG&E Pittsburg Substation that would be modified, all would be constructed and operate within the City of Pittsburg. Construction and operation of the Project components would result in low levels of light and glare, as discussed above. Therefore, the light and glare resulting from construction equipment, permanent lighting fixtures, or other sources of construction and operational lighting and glare at outlined above, would not combine to result in a significant source of light or glare that could impact individuals in the community of Collinsville or those within the city of Pittsburg.

4.1.5 Impact Analysis – Cumulative

CEQA defines a cumulative impact as "an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts" (CEQA Guidelines Section 15130(a)(1)). Cumulative impacts can result from "individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines Section 15355). An EIR must discuss cumulative impacts if the incremental effect of a project, combined with the effects of other projects, is "cumulatively considerable" (CEQA Guidelines Section 15130(a)). The projects with the potential to combine with the Proposed Project and result in cumulative impacts are listed in Table 4.0-1 of Section 1: Introduction and include residential and commercial development, recreational, transportation, utility, mining, habitat restoration, and wind development projects. Of the 21 projects listed in this table, three exhibit visual characteristics that could be cummulatively considerable in combination with the Proposed Project. These projects are as follows:

- Bay Walk Mixed Use Project – Phases I, II, and III
- AT&T Rooftop Wireless Facility

The impact analysis below discusses the potential for cumulatively considerable impacts associated with aesthetics, including degrading the existing visual character or quality of public views in non-urbanized areas or conflicting with applicable zoning or regulations governing scenic quality in urbanized areas (Impact AES-3) and creating a new source of substantial light or glare (Impact AES-4). No designated or widely recognized scenic vistas (Impact AES-1) or designated or eligible state scenic highways or other scenic corridors (Impact AES-2) occur within or adjacent to the Proposed Project components; therefore, no cumulatively considerable impacts would occur on scenic vistas or corridors, and these impacts are not discussed further.

Impact AES-3: In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? ***(Less than significant)***

Impact AES-4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(Less than significant)***

Construction

Regarding Impacts AES-3 and AES-4, temporary cumulative impacts to aesthetic resources through the views of construction-related activities, equipment, soil disturbance, workers, construction lighting and glare, and fugitive dust could occur if the cumulative projects occur at the same time as the Proposed Project and within the same viewshed of visually sensitive areas. The temporary cumulative impacts during construction could be significant, depending on the extent and duration of overlapping visual impacts.

The Bay Walk Mixed Use Project locations would occur in the same areas as the Proposed Project in the vicinity of and surrounding the existing PG&E Pittsburg Substation, where the LSPGC 230 kV submarine segment southern approach, 230 kV underground segment, and telecommunication interconnection lines would be located. These areas are heavily industrialized and not visually sensitive, and public access is restricted. The Bay Walk project would involve decommissioning existing industrial facilities and converting the areas to residential and commercial uses. Construction activities would be extensive and occur over multiple phases and several years. The Bay Walk project timeline is currently unknown, but the likelihood that construction would overlap with the Proposed Project is low. Regardless, if construction did overlap, the duration of overlap would be short-term (a few months), and any cumulative construction impacts would not be considerable due to the existing industrialized land uses and lack of visual sensitivity.

The AT&T Rooftop Wireless Facility is located approximately 0.3 mile south of the LSPGC telecommunication interconnection lines. The current construction timeline for this project is unknown. The cumulative project area is not visually sensitive, and construction activities of the Proposed Project is not likely to affect the same viewshed. Therefore, visual impacts associated with construction would not combine to create cumulatively considerable visual impacts.

The Proposed Project would not result in any cumulative considerable construction impacts on aesthetics in combination with any other project. Impacts would be less than significant. Implementation of APM AES-1, APM GEO-1, APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), and APM BIO-12 would further reduce visual impacts associated with construction of the LSPGC project components in the vicinity of the Bay Walk project and AT&T Rooftop Wireless Facility, as discussed for the Proposed Project under Impact AES-3 and Impact AES-4.

Operation and Maintenance

The result of the Bay Walk project would improve visual quality compared to existing conditions and increase public access to views of the Delta. The Proposed Project features that would overlap and occur adjacent to the Bay Walk project would be consistent with the existing industrial and energy uses in the area, and nearly all the component features would be at or below grade where they would not be visible at all. No cumulatively significant impacts would occur during operation and maintenance.

The AT&T wireless facility project would be 0.3 mile away. Cumulative impacts would not occur due to this distance and the limited visibility of the Proposed Project features that would be primarily at or below grade and contained within industrial and developed areas.

The Proposed Project's incremental contribution to visual impacts (Impacts AES-3 and AES-4) resulting from operation and maintenance would not be cumulatively considerable.

4.1.6 Alternative 1: Collinsville Substation North of Talbert Lane

Environmental Setting – Alternative 1

Alternative 1 involves relocating the proposed LSPGC Collinsville Substation to a different site, approximately 1.2 miles north of the Proposed Project substation site. Alternative 1 would also include an approximately 500-foot segment of PG&E 500 kV interconnection lines, approximately 700-foot segment of 12 kV distribution line, and an approximately 2-mile-long segment of LSPGC 230 kV overhead line. Alternative 1 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 1.

The Alternative 1 substation site, PG&E 500 kV interconnection lines, and LSPGC 230 kV overhead segment would neighbor the nonurbanized community of Collinsville area, similar to the Proposed Project, however the topography of the Montezuma Hills would obscure distant views of the Alternative 1 substation from the City of Pittsburg. The Alternative 1 substation site is located approximately 500 feet north of Talbert Lane and approximately 1 mile east of Collinsville Road and, therefore, the alternative is less visible from travel routes in comparison to the Proposed Project.

Figure 4.1-5 Key Observation Points for Alternatives 1 and 2



Table 4.1-8 Summary of Key Observation Points for Alternatives 1 and 2

KOP	Alternatives Visible	Visual quality rating	Visual quality comments	Primary viewers	Distance zone	Viewer sensitivity rating
KOP 4. Pittsburg Marina	Alternative 1 Alternative 2 (230 kV Only)	Moderately high	View of marina in the foreground, river in the middle-ground and Montezuma Hills dotted with wind turbines in the background. This view is higher than average in the area and is a destination for the public	• Residents • Regional visitors • Recreationalists	Background	Moderate
KOP 5. Talbert Lane (Looking West)	Alternative 1	Moderately low	Dry grassland, short view with lattice tower dominant	• Landowners • Agricultural and energy facility workers	Foreground	Low
KOP 6. Talbert Lane (Looking East)	Alternative 1 Alternative 2 (230 kV Only)	Moderately low	Dry grassland, short view with lattice tower and wind turbines over the crest of the hill	• Landowners • Agricultural and energy facility workers	Foreground	Low
KOP 7. Birds Landing Road (Looking South)	Alternative 2	High	Typical Montezuma Hills view with existing energy infrastructure on rolling hills with a grassland landscape	• Landowners • Residents	Middle-ground	Moderate to high
KOP 8. Montezuma Hills Road (Looking West)	Alternative 2	High	Typical Montezuma Hills view with existing energy infrastructure on rolling hills with a grassland landscape and existing fence line	• Landowners • Agricultural and energy facility workers • Residents • Recreationalists	Middle-ground	Moderate

Impact Analysis – Alternative 1

Similar to the Proposed Project, no designated or widely recognized scenic vistas occur within or adjacent to Alternative 1 (Impact AES-1). Additionally, no designated or eligible state scenic highways or other scenic corridors occur within or adjacent to Alternative 1 (Impact AES-2). For analysis of Impact AES-3 for Alternative 1, three viewpoints were selected as KOPs for visual simulation and impact analysis (refer to Appendix D, Figures D-7 through D-8 and Figures D-10 through D-13) because they represent the most important visual conditions where views of key Alternative 1 features would occur. Figure 4.1-5 provides the location of Alternative 1 and the chosen KOP locations.

Impact AES-3: Would Alternative 1, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality? *(Less than significant)*

Construction

The Alternative 1 substation site is located near the community of Collinsville, in a nonurbanized portion of Solano County. Similar to the Proposed Project, the Alternative 1 substation site would be visible to local residents in the community of Collinsville, landowners, agricultural and energy facility workers, motorists, and recreationalists; however, in comparison to the Proposed Project, the visibility of the Alternative 1 substation site would be reduced in comparison to the Proposed Project as this site is more integrated into the existing wind development in the area and is located away from roadways, as discussed above. The existing visual quality in the area would be similar to the Proposed Project in this area, ranging from moderate to high, and viewer sensitivity would range from low to high (refer to Table 4.1-8). Construction activities, similar to the Proposed Project, would temporarily degrade visual character and quality in the area where the construction activities would be visible, such as, but not limited to, public viewing locations on Talbert Lane (KOPs 5 and 6) and distant views from the Pittsburg Marina (KOP 4).

Similar to the Proposed Project, construction activities associated with Alternative 1 would temporarily degrade the visual character and quality in the area where the construction activities would be visible. Construction of the Alternative 1 substation would involve vegetation clearing, grading, and excavation, similar to the Proposed Project. Notably, however, under Alternative 1, excavation would require approximately 60,000 more cubic yards of cut and fill than the Proposed Project and grading activity would be extended by approximately 2 months. Similar to the Proposed Project, APM AES-1, APM GEO-1, APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), and CM BIO-11, would be implemented for the respective LSPGC and PG&E project components proposed under this alternative (refer to Section 4.1.4). The temporary visibility of construction activities would not substantially degrade the existing visual character or quality of public views and lands would be restored to existing conditions following construction. Impacts would be less than significant.

Operation and Maintenance

Alternative 1 is located in the same vicinity as the Proposed Project components within the Montezuma Hills area and wind energy facilities adjacent to the community of Collinsville; however, Alternative 1 is more integrated into the existing wind development in the area and is located away from roadways in comparison to the Proposed Project. As shown in the visual simulations for KOP 4, 5, and 6 (Refer to Appendix D), Alternative 1 would be visible from Talbert Lane and the Pittsburg Marina, however views from the Pittsburg Marina (KOP 4) are largely obscured due to the Montezuma Hills. As shown in KOP 4 (Appendix D, Figure D-8), the existing visual character and quality is not expected to change due to the viewing distance and the remaining unaffected views of the Delta waterway in foreground and middle-ground and the Montezuma Hills in the background, similar to the Proposed Project.

The selected KOP simulations represent a range of potential views that are expected in the region where the Alternative 1 features would be seen from public areas. As shown in Figure D-11 (KOP 5) and Figure D-13 (KOP 6) the proposed substation features, including telecommunication yard, would be visible from Talbert Lane, in addition to views of the overhead segment structures and the structures associated with the 500 kV interconnection lines. Existing visual character and quality as seen from KOP 5 and KOP 6 would be permanently reduced by introducing man-made structures to an undeveloped area; however, the visual change would not be substantial due to the presence of existence wind energy facilities as well as low viewer volume and exposure durations along Talbert Lane, and the landscape surrounding the Proposed Project components would remain unaffected.

The same viewer conditions, existing visual character, and existing visual quality experienced at KOPs 1, 2, and 3 described in Section 4.1.4 for the Proposed Project north of the Delta also apply to the Alternative 1 (refer to Table 4.1-8). Identical to the Proposed Project, the proposed substation under Alternative 1 would include a security wall with a non-reflective finish and be neutral earth-tone color. In addition, all substation control enclosures would be painted a non-reflective American National Standards Institute 70 light grey or similar neutral tone that would not result in a significant contrast with the surrounding environment. All other substation components, including the substation security fencing, would have a non-reflective finish to the extent that such components are commercially available. For those reasons, Alternative 1 would not substantially degrade the existing visual quality of the site and its surroundings. Impacts would be less than significant.

Impact AES-4: Would Alternative 1 create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? *(Less than significant)*

Construction

Any construction light and glare as result of Alternative 1 would be identical to that of the Proposed Project. Construction activities would predominately occur Monday through Saturday, during daytime hours (7:00 a.m. to 7:00 p.m.); however, construction activities may be scheduled outside of these periods or night work may be required under limited circumstances, such as to address emergencies. Construction lighting would be temporary and limited to the

necessary work areas. Staging areas may also be illuminated with temporary lighting for staging and security purposes. The temporary use of lighting during construction would not create a new source of substantial light. Glare resulting from construction equipment would depend on the time of day and the position of viewers relative to the equipment and sun; however, such glare would be minor and temporary due to intermittent stockpiling of equipment and materials that could reflect light, and the concentration of glare would change throughout the day. The APMs and CMs outlined in Section 4.1.4 would be applicable to Alternative 1, therefore impacts would be less than significant.

Operation and Maintenance

Light and glare generated by the Alternative 1 components would be similar to the Proposed Project. Under Alternative 1, structures would have a non-reflective finish and would be a neutral grey color or wood, as applicable. Conductors would be non-specular. No lighting including aeronautical obstruction lighting would be required, with the exception of the Substation which includes security lighting which would conform to the NESC requirements and other applicable outdoor lighting codes. Lighting would be shielded and pointed downward to minimize glare onto surrounding habitat and LSPGC would implement APM BIO-12 to further reduce lighting impacts (refer to Section 4.1.4). Any glare that could result from the Alternative 1 features would be minor and similar to existing sources of glare in the general vicinity, such as the existing wind energy development. Therefore, these features would not create a new source of substantial light or glare that would affect day or nighttime views of the area. Impacts would be less than significant.

4.1.7 Alternative 2: Collinsville Substation East of Wind Energy Substations

Environmental Setting – Alternative 2

Alternative 2 involves relocating the proposed LSPGC Collinsville Substation to a different site, approximately 3.0 miles north of the location proposed under the Proposed Project. Alternative 2 would also include an approximately 1,200-foot-long segment of PG&E 500 kV interconnection lines and a four-mile-long segment of LSPGC 230 kV overhead line, as well as an approximately 0.3-mile-long PG&E 12 kV distribution line. Alternative 2 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 2.

The location of Alternative 2 would neighbor the nonurbanized Community of Collinsville area, similar to the Proposed Project and Alternative 1.

Impact Analysis – Alternative 2

Similar to the Proposed Project, no designated or widely recognized scenic vistas occur within or adjacent to the Alternative 2 substation site (Impact AES-1). Additionally, no designated or eligible state scenic highways or other scenic corridors occur within or adjacent to the Alternative 2 substation site (Impact AES-2). For analysis of Impact AES-3 for Alternative 2, three viewpoints were selected as KOPs for visual simulation and impact analysis (refer to

Appendix D, Figure D-7, Figure D-9, and Figure D-12 and Figures D-14 through D-18) because they represent the most important visual conditions where views of key Alternative 1 features would occur. Figure 4.1-5 provides the location of Alternative 2 and the chosen KOP locations.

Impact AES-3: Would Alternative 2, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality? *(Less than significant)*

Construction

The Alternative 2 substation site is located near the community of Collinsville, in a nonurbanized portion of Solano County. Similar to the Proposed Project, Alternative 2 would be visible to local residents in the community of Collinsville, landowners, agricultural and energy facility workers, motorists, and recreationalists; however, in comparison to the Proposed Project, the visibility of the Alternative 2 substation site would be reduced in comparison to the Proposed Project as this site is more integrated into the existing wind development in the area and is located away from roadways, as discussed above. The existing visual quality in the area ranges would be identical to the Proposed Project in this area, ranging from moderate to high, and viewer sensitivity would range from low to high (refer to Table 4.1-8). Construction activities, similar to the Proposed Project, would temporarily degrade visual character and quality in the area where the construction activities would be visible, such as, but not limited to, public viewing locations on Talbert Lane (KOPs 4), Montezuma Hills Road (KOP 8), Birds Landing Road (KOP 7), and distant views from the Pittsburg Marina (KOP 4).

Similar to the Proposed Project, construction of Alternative 2 would involve vegetation clearing, grading, and excavation. Notably, however, under Alternative 2, excavation would require approximately 40,000 more cubic yards of cut and fill than the Proposed Project and grading activity would be extended by 1 month. Similar to the Proposed Project, APM AES-1, APM GEO-1, APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), and CM BIO-11, would be implemented for the respective LSPGC and PG&E project components proposed under this alternative (refer to Section 4.1.4). The temporary visibility of construction activities would not substantially degrade the existing visual character or quality of public views and lands would be restored to existing conditions following construction. Impacts would be less than significant.

Operation and Maintenance

The Alternative 2 substation site is located in the same vicinity as the Proposed Project components within the Montezuma Hills area and wind energy facilities adjacent to the community of Collinsville; however, the Alternative 2 substation is more integrated into the existing wind development in the area and is located away from roadways in comparison to the Proposed Project. As shown in the visual simulations for the Proposed Project at KOP 4, 6, 7, and 8 (Refer to Appendix D), the Alternative 2 substation would be visible from Talbert Lane, Birds Landing Road, Montezuma Hills Road, and the Pittsburg Marina, however views from the Pittsburg Marina (KOP 4) are largely obscured due to the Montezuma Hills. As shown in

KOP 4 (Appendix D, Figure D-8), the existing visual character and quality is not expected to change due to the viewing distance and the remaining unaffected views of the Delta waterway in foreground and middle-ground and the Montezuma Hills in the background, similar to the Proposed Project.

The selected KOP simulations represent a range of potential views that are expected in the region where the Alternative 2 features would been seen from public areas. As shown in Figure D-14, KOP 6, Figure D-16, KOP 7, and Figure D-18, KOP 8, the structures of the 230 kV overhead segment would be visible from Talbert lane, in addition to views of the proposed substation, overhead segment structures and the structures associated with the 500 kV interconnection lines would be visible from Montezuma Hills Road and Birds Landing Road. Existing visual character and quality as seen from KOP 6, KOP 7, and KOP 8 would be permanently reduced by introducing man-made structures to an undeveloped area; however, the visual change would not be substantial due to the presence of existence wind energy facilities as well as low viewer volume and exposure durations along Talbert Lane, Montezuma Hills Road, and Birds Landing Road, and the landscape surrounding Alternative 2 would remain unaffected.

The same viewer conditions, existing visual character, and existing visual quality experienced at KOPs 1, 2, and 3 described in Section 4.1.4 for the Proposed Project north of the Delta also apply to the Alternative 2, refer to Table 4.1-8. Consistent with the Proposed Project, the proposed substation under Alternative 2 would include a security wall with a non-reflective finish and be neutral earth-tone color. In addition, all substation control enclosures would be painted a non-reflective American National Standards Institute 70 light grey or similar neutral tone that would not result in a significant contrast with the surrounding environment. All other substation components, including the substation security fencing, would have a non-reflective finish to the extent that such components are commercially available. For those reasons, Alternative 2 would not substantially degrade the existing visual quality of the site and its surroundings. Impacts would be less than significant.

Impact AES-4: Would Alternative 2 create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? *(Less than significant)*

Construction

Any construction light and glare as result of Alternative 2 would be identical to that of the Proposed Project. Construction activities would predominately occur Monday through Saturday, during daytime hours (7:00 a.m. to 7:00 p.m.); however, construction activities may be scheduled outside of these periods or night work may be required under limited circumstances, such as to address emergencies. Construction lighting would be temporary and limited to the necessary work areas. Staging areas may also be illuminated with temporary lighting for staging and security purposes. The temporary use of lighting during construction would not create a new source of substantial light. Glare resulting from construction equipment would depend on the time of day and the position of viewers relative to the equipment and sun; however, such glare would be minor and temporary due to intermittent stockpiling of

equipment and materials that could reflect light, and the concentration of glare would change throughout the day. The APMs and CMs outlined in Section 4.1.4 would be applicable to Alternative 2, therefore impacts would be less than significant.

Operation and Maintenance

Light and glare generated by the Alternative 2 components would be similar to the Proposed Project. Under Alternative 2, structures would have a non-reflective finish and would be a neutral grey color or wood, as applicable. Conductors would be non-specular. No lighting including aeronautical obstruction lighting would be required, with the exception of the Substation which include security lighting which would conform to the NESC requirements and other applicable outdoor lighting codes. Lighting would be shielded and pointed downward to minimize glare onto surrounding habitat and LSPGC would implement APM BIO-12 to further reduce lighting impacts (refer to Section 4.1.4). Any glare that could result from the Alternative 2 features would be minor and similar to existing sources of glare in the general vicinity, such as the existing wind energy development. Therefore, these features would not create a new source of substantial light or glare that would affect day or nighttime views of the area. Impacts would be less than significant.

4.1.8 Alternative 3: 500 kV Interconnection Lines on Entirely TSPs

Environmental Setting – Alternative 3

Alternative 3 involves constructing the PG&E 500 kV interconnection lines on entirely TSPs, instead of the combination of LSTs and three-pole TSPs under the Proposed Project. The Alternative 3 500 kV interconnection lines would be in the same general alignment as the Proposed Project 500 kV interconnection lines. Alternative 3 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 3.

Impact Analysis – Alternative 3

Identical to the Proposed Project, no designated or widely recognized scenic vistas occur within or adjacent to the Alternative 3 (Impact AES-1). Additionally, no designated or eligible state scenic highways or other scenic corridors occur within or adjacent to Alternative 3 (Impact AES-2).

Impact AES-3: Would Alternative 3, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality? *(Less than significant)*

As stated, Alternative 3 has the same environmental setting and placement of structures as the Proposed Project, therefore the impact analysis detailed in Section 4.1.4 is largely applicable to Alternative 3; however, one key difference is that LSTs are visually distinct from TSPs. Specifically, LSTs consist of an open, crisscrossed metal framework with a wide base, while TSPs are solid, smooth, cylindrical structures with a narrow footprint and have no visible lattice

therefore TSPs have less ability to blend into the environmentally background and are less visually indistinguishable in comparison to LSTs. Overall, the number of structures under this alternative would be the same as the Proposed Project. Due to the existing presence of wind energy development in proximity to Alternative 3, similar to the Proposed Project, the visual change to the environment in the nonurbanized area would be minor and would not result in substantial degradation of the existing visual character or visual quality at each location. Impacts would be less than significant.

Impact AES-4: Would Alternative 3 create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(Less than significant)***

Construction

Any construction light and glare as result of Alternative 3 would be identical to that of the Proposed Project. Construction activities would predominately occur Monday through Saturday, during daytime hours (7:00 a.m. to 7:00 p.m.); however, construction activities may be scheduled outside of these periods or night work may be required under limited circumstances, such as to address emergencies. Construction lighting would be temporary and limited to the necessary work areas. Staging areas may also be illuminated with temporary lighting for staging and security purposes. The temporary use of lighting during construction would not create a new source of substantial light. Glare resulting from construction equipment would depend on the time of day and the position of viewers relative to the equipment and sun; however, such glare would be minor and temporary due to intermittent stockpiling of equipment and materials that could reflect light, and the concentration of glare would change throughout the day. The APMs and CMs outlined in Section 4.1.4 would be applicable to Alternative 3, therefore impacts would be less than significant.

Operation and Maintenance

Similar to the Proposed Project, under Alternative 3, the TSP structures supporting the PG&E 500 kV interconnection line would have a non-reflective finish and would be a neutral grey color or wood. No lighting would be required. Any glare that could result from these features would be minor and similar to existing sources of glare in the general vicinity, such as from the existing traffic, residential and agricultural structures, wind energy development. Impacts would be less than significant.

4.1.9 Alternative 4: 230 kV Overhead Segment Alternative Route

Environmental Setting – Alternative 4

Alternative 4 involves relocation of a short segment of the LSPGC 230 kV overhead segment between the proposed LSPGC Collinsville Substation and the Delta, west of the proposed LSPGC 230 kV overhead segment route. Additionally, the northern end of the LSPGC 230 kV submarine segment would be rerouted to meet up with the southern end of the Alternative 4 230 kV submarine segment. Alternative 4 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout

this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 4.

Impact Analysis – Alternative 4

Similar to the Proposed Project, no designated or widely recognized scenic vistas occur within or adjacent to the Alternative 4 (Impact AES-1). Additionally, no designated or eligible state scenic highways or other scenic corridors occur within or adjacent to Alternative 4 (Impact AES-2).

Impact AES-3: Would Alternative 4, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality? ***(Less than significant)***

Alternative 4 would locate the LSPGC 230 kV overhead segment directly south of the proposed LSPGC Collinsville Substation and would require four pier-mounted or direct bury 230-kV TSPs for the overhead segment and two pier-mounted TSP overhead riser structures at the transition to the submarine segment. The 230 kV TSPs and riser structures would be equivalent to those under the Proposed Project. Alternative 4 would also relocate an 0.3-mile-long segment of the submarine cables to the west of the Proposed Project resulting in an approximately 100-foot increase in the length of the submarine cables. Despite the minor shift in components, Alternative 4 would have similar impacts to the Proposed Project due to the equivalent appearance of structures and location of Alternative 4 and the Proposed Project being nearly identical within the nonurbanized area neighboring the Community of Collinsville.

Impact AES-4: Would Alternative 4 create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(Less than significant)***

Construction

Any construction light and glare as result of Alternative 4 would be identical to that of the Proposed Project. Construction activities would predominately occur Monday through Saturday, during daytime hours (7:00 a.m. to 7:00 p.m.); however, construction activities may be scheduled outside of these periods or night work may be required under limited circumstances, such as to address emergencies. Construction lighting would be temporary and limited to the necessary work areas. Staging areas may also be illuminated with temporary lighting for staging and security purposes. The temporary use of lighting during construction would not create a new source of substantial light. Glare resulting from construction equipment would depend on the time of day and the position of viewers relative to the equipment and sun; however, such glare would be minor and temporary due to intermittent stockpiling of equipment and materials that could reflect light, and the concentration of glare would change throughout the day. The APMs and CMs outlined in Section 4.1.4 would be applicable to Alternative 4, therefore impacts would be less than significant.

Operation and Maintenance

Light and glare generated by the Alternative 4 components would be similar to the Proposed Project. Under Alternative 4, structures would have a non-reflective finish and would be a neutral grey color or wood, as applicable. Conductors would be non-specular. Any glare that could result from the Alternative 4 features would be minor and similar to existing sources of glare in the general vicinity, such as the existing wind energy development. Therefore, these features would not create a new source of substantial light or glare that would affect day or nighttime views of the area. Impacts would be less than significant.

4.1.10 Alternative 5: 230 kV Submarine Segment Alternative Route

Environmental Setting – Alternative 5

Alternative 5 involves rerouting a portion of the proposed LSPGC 230 kV submarine segment to the east of its current alignment as it approaches the southern shoreline in Pittsburg. The submarine segment cable would be installed in the same manner as the Proposed Project. Alternative 5 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 5.

Impact Analysis – Alternative 5

Alternative 5 occurs in-water and would not impact any designated or widely recognized scenic vistas (Impact AES-1). Additionally, no designated or eligible state scenic highways or other scenic corridors would be impacted by Alternative 5, as it occurs entirely in-water (Impact AES-2). Additionally, the LSPGC 230 kV submarine segment realignment under Alternative 5 would be installed in subsurface positions with minimal features visible at or above grade and would have less than significant impacts related to light and glare (Impact AES-4).

Impact AES-3: Would Alternative 5, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality? *(Less than significant)*

Construction

Under Alternative 5, the LSPGC 230 kV submarine segment would be slightly modified in comparison to the Proposed Project, however it would be installed within the Delta waterways using a submerged hydroplow or similar equipment that is pulled along the riverbed behind a barge, identical to the methods proposed under Proposed Project. Under Alternative 5 additional site preparation would be needed to address the steep slopes of two underwater ridges. Site preparation would include dredging at the northern ridge to create a smooth cable lay area allowing the hydroplow to bury the cables at the appropriate depth. The additional excavation needs of Alternative 5 would require the presence of equipment within the Delta to last for approximately 2 weeks longer than the Proposed Project in-water construction window. Identical to the Proposed Project, the presence of the barge used for cable installation would be similar in appearance to other marine vessels operating in the Delta. Overall, the construction period of Alternative 5 would be similar to the Proposed Project. Therefore, construction of the

submarine segment would not substantially degrade the existing visual character or quality of public views and the impact of Alternative 5 would be less than significant.

Operation and Maintenance
During operation of Alternative 5, similar to the Proposed Project, the LSPGC 230 kV submarine segment would not be visible to the public. Alternative 5, identical to the Proposed Project, is not anticipated to require regular maintenance. Any maintenance activity required to prevent submarine segment exposure would be determined and approved in coordination with local, state, and federal agencies, but may include placing concrete mattresses over areas or covering areas with stone. If any portion of the Alternative 5 submarine cable were to become defective, a replacement segment of cable would be spliced to repair it, and the defective portion would be abandoned in place. Any required submarine cable or cable segment replacement would involve similar methods and impacts as those associated with initial construction .during the life of the project The visual changes that would occur as result of the modified LSPGC 230 kV submarine segment would be minor and would not result in substantial degradation of the existing visual character or visual quality.

4.1.11 Alternative 6a/6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh Protection Plan Management

Environmental Setting – Alternative 6a/6b

Alternative 6a/6b would locate the LSPGC 230 kV transmission line on primarily PG&E-owned property south of the proposed Collinsville Substation site (similar to Alternative 4). Alternative 6a/6b would be installed in conduit underground. Alternative 6a differs from Alternative 6b only at the northern end of the segment where options are provided for connection to the Proposed Project Collinsville Substation or Alternatives 1 or 2. Two overhead riser structures would be installed at the northern end of the Alternative 6a/6b underground duct bank where the LSPGC 230 kV line would transition between an overhead and underground position. Alternative 6a/6b would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 6a/6b.

The location of Alternative 6a/6b would neighbor the nonurbanized Community of Collinsville area, similar to the 230 kV overhead segment described for the Proposed Project and Alternative 4.

Impact Analysis – Alternative 6a/6b

Similar to the Proposed Project, no designated or widely recognized scenic vistas occur within or adjacent to the Alternative 6a/6b (Impact AES-1). Additionally, no designated or eligible state scenic highways or other scenic corridors occur within or adjacent to Alternative 6a/6b (Impact AES-2).

Impact AES-3: Would Alternative 6a/6b, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point) or, in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality? *(Less than significant)*

Alternative 6a/6b would involve installing portions of the 230 kV transmission line in an underground position on land within the Suisun Marsh Protection Plan Management Areas. Operationally these undergrounded portions would not result in degradation of visual character or quality of public views. The LSPGC 230 kV riser structures would be equivalent to those under the Proposed Project and would be collocated with the proposed substation and would have identical visual impacts to those discussed in Section 4.1.4 related to the proposed substation. Construction of the 230 kV underground lines north of the Delta associated with Alternative 6a/6b would involve similar construction equipment and methods as the 230 kV underground segment south of the Delta identified for the Proposed Project. Alternative 6a/6b would replace roughly 0.7 to 1.0 mile of 230 kV overhead lines with approximately 0.5 mile of LSPGC 230 kV underground lines. Underground installation of the 230 kV lines would involve greater excavation and would take approximately twice as long (6 months) to complete compared to the LSPGC 230 kV overhead lines that would be replaced. Although construction would be approximately 3 months longer and involve greater ground disturbance, impacts would remain short-term and similar to those described for the Proposed Project in Section 4.1.4. Alternative 6a/6b would not substantially degrade the existing visual character or quality of public views and the impact of Alternative 6a/6b would be less than significant. Additionally, with respect to permanent visual impacts associated with operation and maintenance of Alternative 6a/6b, this alternative would largely occur underground with the exception of the riser structures and connection points to the overhead structures and would not have the potential to result in long term visual impacts. Impacts would be less than significant.

Impact AES-4: Would Alternative 6a/6b create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? *(Less than significant)*

Construction

Any construction light and glare as result of Alternative 6a/6b would be identical to that of the Proposed Project. Construction activities would predominately occur Monday through Saturday, during daytime hours (7:00 a.m. to 7:00 p.m.); however, construction activities may be scheduled outside of these periods or night work may be required under limited circumstances, such as to address emergencies. Construction lighting would be temporary and limited to the necessary work areas. Staging areas may also be illuminated with temporary lighting for staging and security purposes. The temporary use of lighting during construction would not create a new source of substantial light. Glare resulting from construction equipment would depend on the time of day and the position of viewers relative to the equipment and sun; however, such glare would be minor and temporary due to intermittent stockpiling of equipment and materials that could reflect light, and the concentration of glare would change throughout the day. The APMs and CMs outlined in Section 4.1.4 would be applicable to Alternative 6a/6b, therefore impacts would be less than significant.

Operation and Maintenance

Light and glare generated by the Alternative 6a/6b LSPGC 230kv riser structures would be similar to the Proposed Project. The underground portions would not generate light or glare. The LSPGC 230 kV riser structures would have a non-reflective finish and would be a neutral grey color or wood, as applicable. Conductors would be non-specular. Any glare that could result from the Alternative 6a/6b features would be minor and similar to existing sources of glare in the general vicinity, such as the existing wind energy development. Therefore, these features would not create a new source of substantial light or glare that would affect day or nighttime views of the area. Impacts would be less than significant.

4.1.12 No Project Alternative

Environmental Setting – No Project Alternative

Under the No Project Alternative, the LSPGC Collinsville Substation and associated LSPGC 230 kV transmission line, PG&E 500 kV interconnection lines, and PG&E 12 kV distribution line would not be constructed. The existing aesthetic conditions described in Section 4.1.1 would apply to the No Project Alternative.

Impact Analysis – No Project Alternative

The No Project Alternative would not have the potential to impact any designated or widely recognized scenic vistas (Impact AES-1). Additionally, no designated or eligible state scenic highways or other scenic corridors would be impacted by the No Project Alternative (Impact AES-2). The No Project Alternative would not substantially degrade the existing visual character or quality of public views (Impact AES-3) and would not introduce new sources of light or glare to the area (Impact AES-4) No aesthetics impacts would occur under the No Project Alternative.

4.1.13 Mitigation Measures

LSPGC Mitigation Measures

No mitigation is required. MM BIO-2: Habitat Restoration would be implemented in lieu of APM BIO-2 (refer to Section 4.4: Biological Resources).

PG&E Mitigation Measures

No mitigation is required.

4.1.14 References

Alameda County. 2025. “Chapter 17.30 - S DISTRICTS | Code of Ordinances.” Municode Library, August 6. https://library.municode.com/ca/alameda_county/codes/code_of_ordinances?nodeId=TIT17ZO_CH17.30SDI_ARTVIIISCDI.

Arcadis. 2024. Visual Resources Technical Report LS Power Grid California, LLC Collinsville 500/230 Kilovolt Substation Project. Solano, Sacramento, and Contra Costa Counties, California.

City of Pittsburg. 2024. City of Pittsburg General Plan 2040. https://www.pittsburgca.gov/services/community-development/planning/advanced-planning-special-projects/general-plan-update.

Contra Costa County. 2008. "17.27.110 SCENIC CORRIDOR DESIGN REVIEW (-DS) COMBINING ZONE." https://www.contracosta.ca.gov/DocumentCenter/View/55589/El-Dorado-County---Public-Review-Draft-Scenic-Corridor-Ordinance-2008.

Contra Costa County. 2024. Contra Costa County 2045 General Plan. Available: https://www.contracosta.ca.gov/4732/General-Plan.

Federal Highway Administration (FHWA). 2015. Guidelines for the Visual Impact Assessment of Highway Projects. U.S. Department of Transportation. https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.aspx.

Google. 2021. "Street View Imagery of Tesla Substation." Version Google Maps. September. https://maps.app.goo.gl/CYzKoHiDU1CGaM879.

Google. 2024. "Street View Imagery of Vaca Dixon Substation." Version Google Maps. November. https://maps.app.goo.gl/aTv7LsXdvRJDznFv7.

Insignia Environmental. 2025. Terrestrial Biological Resources Technical Report Addendum: Collinsville 500/230 Kilovolt Substation Project.

Solano County. 2008. "Chapter 4: Resources." In Solano County General Plan. Available: https://www.solanocounty.com/depts/rm/planning/general_plan.asp.

Solano County. 2022. "Solano County Policy Plan Overlay." October. Last update: June 24, 2024. https://solanocountygis.com/portal/home/item.html?id=1e6dfab2b0c9408dbad4bfaac49cea05#overview.

Solano County. 2025. "Article II Districts and Allowable Uses." August 6. https://www.codepublishing.com/CA/SolanoCounty/html/SolanoCounty2800/SolanoCounty2802.html#28.68.

4.2 Agriculture and Forestry Resources

This section presents the environmental setting and analysis of impacts on agriculture and forestry resources resulting from the Proposed Project and alternatives. This section describes existing agriculture and forestry conditions, applicable regulations, and environmental impacts and provides mitigation measures to reduce or avoid significant effects of the Proposed Project and alternatives, where feasible.

The following scoping comments are relevant to the analysis of agriculture and forestry as discussed in the Scoping Report (Appendix B):

- Existing agricultural land uses should be allowed to continue where possible, and mitigation should be adopted where agricultural land uses cannot continue including mitigation to preserve equivalent or greater agricultural land that is lost.
- Analyze the extent to which agricultural land will be converted (e.g., Prime Farmland and Farmland of Statewide Importance) for utility infrastructure purposes, including direct impacts within the development footprint and indirect impacts associated with ancillary features and project implementation, where the project could individually or cumulatively contribute to loss of farmland (e.g., utility vegetation management practices, limitations on farmworker access, sensitive species disruption that aid agricultural production).

4.2.1 Environmental Setting

Agricultural Resources

Farmland Mapping and Monitoring Program

The California Department of Conservation (CDOC) classifies land according to agricultural suitability through the Farmland Mapping and Monitoring Program (FMMP) based on land uses, irrigation, and soil conditions (CDOC 2024). Public Resources Code section 21060.1 defines "agricultural land" as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland ("Farmland"). The FMMP also includes Farmland of Local Importance and Grazing Land categories; however, these categories are not applicable to the CEQA analysis pursuant to Appendix G of the CEQA Guidelines and are therefore not discussed further. FMMP categories applicable to CEQA are defined as follows (CDOC 2025):

- **Prime Farmland.** Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. Land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland like Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.

Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

- **Unique Farmland.** Farmland of lesser quality soils used to produce the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.

FMMP Farmland categories are identified on the CDOC's web map: California Important Farmland Finder (CDOC 2025). Figure 4.2-1 identifies the FMMP-designated Farmland categories in the Proposed Project area.

FMMP-designated Prime Farmland, Farmland of Statewide Importance, and Unique Farmland occur along portions of PG&E's existing 500 kV Vaca Dixon-Tesla Transmission Line; however, none of the Proposed Project component sites are located within these Farmland categories. The CDOC mapping categories within which Proposed Project component sites are located include Farmland of Local Importance[1] (Transposition Site D), Grazing Land, Urban and Built-Up Land, and Water Area. FMMP categories of Urban and Built-Up Land indicate the area is developed and there is no agricultural use of areas designated as Urban or Built-Up Land.

Williamson Act Contract Lands

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open-space use for periods of 10 to 20 years (CDOC n.d.). Figure 4.2-2 identifies lands that are subject to Williamson Act contracts in the vicinity of the Proposed Project site.

Lands subject Williamson Act contracts are located along portions of PG&E's existing 500 kV Vaca Dixon-Tesla Transmission Line and within portions of the Solano Wind Resource Area. PG&E Transposition Sites B and C, along the existing Vaca Dixon-Tesla 500 kV Transmission Line, are located on lands subject to Williamson Act contracts. No other Proposed Project components occur within lands subject to a Williamson Act contract.

Agricultural Land Uses and Zoning Designated by Local Jurisdictions

Land uses and zoning for agriculture are established by cities and counties independent of the FMMP. The Proposed Project is located within unincorporated areas of Solano County, Sacramento County, Contra Costa County, and Alameda County as well as areas within the City of Pittsburg in Contra Costa County. While the Proposed Project is located within areas identified as Sacramento County, these areas occur with the Delta waterway where the

[1] Farmland of Local Importance is defined as land of importance to the local agricultural economy as determined by each county's board of supervisors and local advisory committee (CDOC 2025).

proposed LSPGC 230 kV submarine segment is located, and the Proposed Project would not coincide with Sacramento County parcels (Sacramento County, n.d.).

Local land use and zoning categories, including those associated with agriculture, are discussed in Section 4.11 Land Use and Planning (refer to Table 4.11-2 and Table 4.11-3, and Figure 4.2-1 and Figure 4.2-2). Local agricultural land use designations and zoning are discussed by project component below.

Active Agricultural Operations

Agricultural operations, including existing permits or leases, may occur on land that is not FMMP-designated farmland or subject to local agricultural land use or zoning designations. Active agricultural operations that may be important to the region, but are not within designated agricultural areas, are considered agricultural resources in this EIR. Active agricultural operations include areas where there is evidence of existing agricultural activities both within and outside FMMP-designated Farmland, local land uses and zoning designations, or lands subject to Williamson Act contract. Active agricultural operations include land subject to an existing permit or lease for grazing or other agricultural uses and sites identified in aerial imagery or during field investigations as areas of agricultural production.

Evidence of grazing and hay or grain production is visible in aerial imagery (2023) and 2022 crop mapping (Land IQ, California Department of Water Resources 2022) in the Collinsville area and within the Solano Wind Resource Area, including areas where the Proposed Project components are located. In addition, portions of PG&E's existing 500 kV Vaca Dixon-Tesla Transmission Line cross land where there is evidence of similar agricultural activities, including at all four of the PG&E transposition sites. Potentially active agricultural operations are discussed by project component below.

Agricultural Resources by Project Component

LSPGC Collinsville Substation

The LSPGC Collinsville Substation property is not located within any of the Important Farmland categories designated by the FMMP. The substation site and surrounding area are designated as Grazing Land. The LSPGC Collinsville Substation property is not located on lands subject to a Williamson Act contract.

The LSPGC Collinsville Substation is in Solano County. The proposed LSPGC Collinsville Substation property is designated as Agriculture (AG) and zoned as Suisun Marsh Agriculture (ASM-160) (south of Stratton Lane) and Exclusive Agriculture (A-160) (north of Stratton Lane). Evidence of grazing and hay or grain production is visible in aerial imagery (2023) and 2022 crop mapping (Land IQ, California Department of Water Resources 2022) within and surrounding the LSPGC Collinsville Substation property; however, the area is not subject to intensive crop production.

LSPGC 230 kV Transmission Line

The proposed LSPGC 230 kV transmission line is not located within any of the Important Farmland categories designated by the FMMP (CDOC 2024). The proposed 230 kV overhead segment is located on land designated as Grazing Land. The proposed 230 kV underground segment is located on land designated as Urban and Built-Up Land. The proposed 230 kV submarine segment is located within the Delta waterway. Areas designated as Urban and Built-Up Land and the Delta waterway are not considered agricultural resources under the applicable CEQA impact criteria. The proposed 230 kV overhead segment is not located on lands subject to a Williamson Act contract.

The proposed 230 kV overhead segment is located in Solano County within areas designated as Agriculture (AG) and zoned as Exclusive Agriculture (A-160) (Solano County 2024). Similar to the proposed LSPGC Collinsville Substation site, there is evidence of grazing and hay or grain production along the overhead segment that is visible in aerial imagery (2023) and 2022 crop mapping (Land IQ, California Department of Water Resources 2022).

The 230 kV submarine segment of the line is in Solano County, Sacramento County, Contra Costa County, and the City of Pittsburg. The proposed submarine segment is located primarily with the Delta waterway, except for the northern and southern ends that are located onshore at the overhead and underground transition points. The small portion of the proposed submarine segment on the northern shore of the Delta is within these same agriculture areas as the proposed overhead segment, including areas designated as Agriculture (AG) and zoned as Exclusive Agriculture (A-160) (Solano County 2024); no other areas of the proposed submarine segment are subject to agriculture designations. No active agricultural operations occur along the submarine segment.

The proposed 230 kV underground segment is in the City of Pittsburg in an industrial area. No agricultural land use or zoning designations or active agricultural operations occur within the proposed 230 kV underground segment.

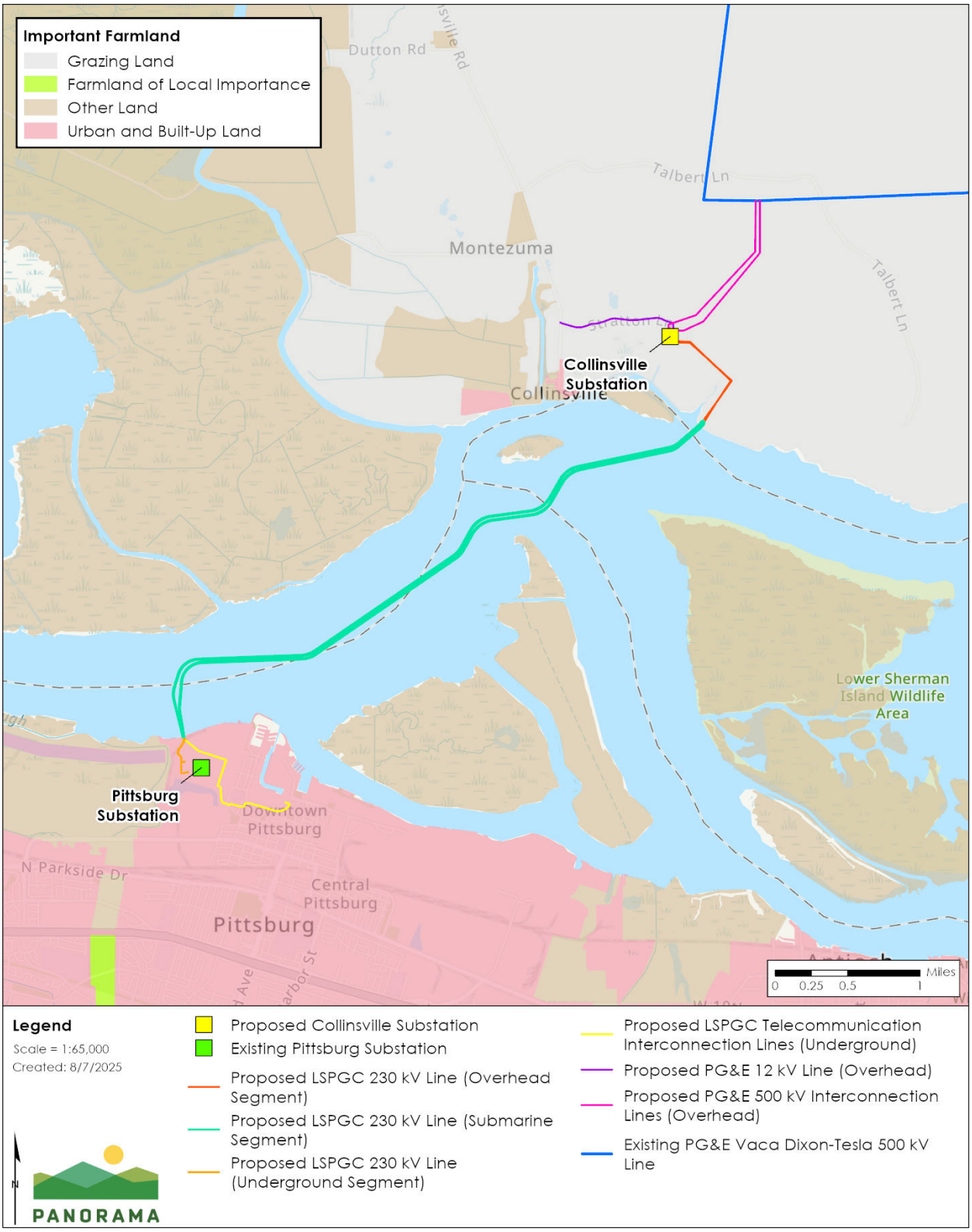
LSPGC Telecommunication Interconnection Lines

The proposed LSPGC telecommunication interconnection lines are located in the City of Pittsburg in areas subject to industrial, residential, and commercial development. FMMP Important Farmland, Williamson Act contract lands, agricultural land use and zoning designations, and agricultural operations do not occur within the proposed LSPGC telecommunication interconnection lines area.

PG&E 500 kV Interconnection Lines

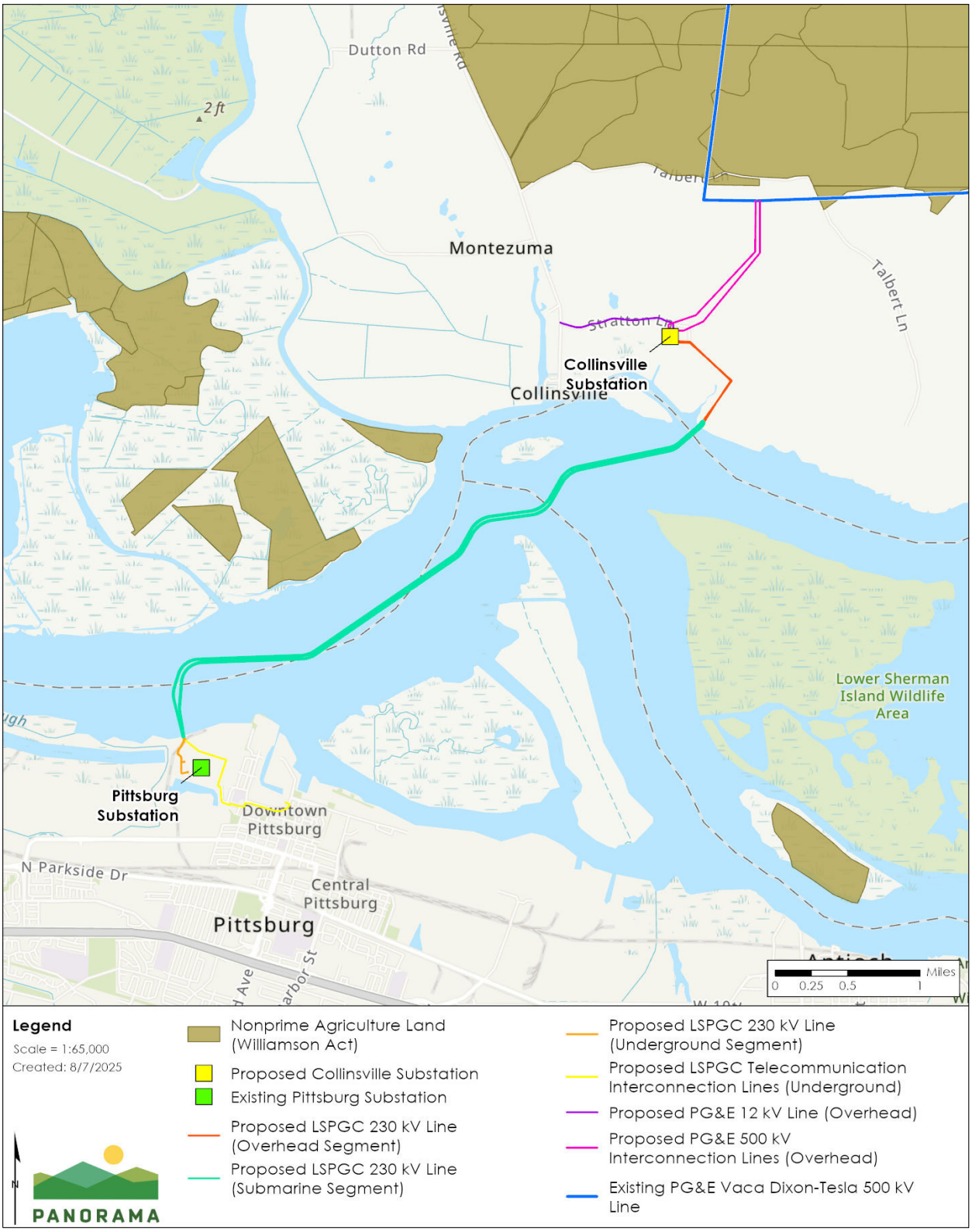
The proposed PG&E 500 kV interconnection lines are not located within any of the Important Farmland categories designated by the FMMP. The proposed PG&E 500 kV interconnection lines are located on land designated as Grazing Land, which is not applicable to the CEQA impact criteria for agricultural resources. The PG&E 500 kV interconnection lines are not located on lands subject to a Williamson Act contract.

Figure 4.2-1 FMMP Farmland Categories in the Proposed Project Vicinity



Source: (California Department of Conservation (CDOC) 2024)

Figure 4.2-2 Williamson Act Contract Lands in the Proposed Project Vicinity



Source: (California Department of Conservation 2024)

The proposed PG&E 500 kV interconnection lines are in Solano County and within the same land use and zoning designations as the proposed LSPGC Collinsville Substation site, including areas designated as Agriculture (AG) and zoned as Suisun Marsh Agriculture (ASM-160) (south of Stratton Lane) and Exclusive Agriculture (A-160) (north of Stratton Lane). As similar to the LSPGC Collinsville Substation site, there is evidence of grazing and hay or grain production along the proposed PG&E 500 kV interconnection lines that is visible in aerial imagery (2023) and 2022 crop mapping (Land IQ, California Department of Water Resources 2022).

PG&E Transposition Sites

The PG&E transposition sites are not located within any of the Important Farmland categories designated by the FMMP. Transposition Sites A, B, and C are located on land designated as Grazing Land. Transposition Site D is located on land designated as Farmland of Local Importance. PG&E Transposition Sites B and C along the existing Vaca Dixon-Tesla 500 kV Transmission Line are located on lands subject to Williamson Act contracts.

Transposition Sites A, B, and C are in Solano County. Transposition Site A is designated as Agriculture (AG) and zoned as Exclusive Agriculture (A-80). Transposition Sites B and C are both designated as Agriculture (AG) and zoned as Exclusive Agriculture (A-160). Transposition Site D is in Contra Costa County and is designated as Agricultural Lands (AL) and zoned as General Agriculture (A-2) and Heavy Agriculture (A-3).

All four of the PG&E transposition sites along PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line are within areas subject to active agricultural operations.

PG&E 12 kV Distribution Line

The PG&E 12 kV distribution line proposed along the north side of Stratton Lane is not located within any of the important Farmland categories designated by the FMMP. The area of the proposed PG&E 12 kV distribution line is designated as Grazing Land, which is not applicable to the CEQA impact criteria for agricultural resources.

The proposed PG&E 12 kV distribution line is in Solano County and within the same agricultural land use and zoning designations as the proposed LSPGC Collinsville Substation site, including areas designated as Agriculture (AG) and zoned as Suisun Marsh Agriculture (ASM-160) (south of Stratton Lane) and Exclusive Agriculture (A-160) (north of Stratton Lane). The proposed 12 kV distribution line would follow Stratton Lane between Collinsville Road and the proposed Collinsville Substation site. No agricultural operations occur with the road corridor.

PG&E Collinsville Substation Telecommunications Yard

The PG&E telecommunications yard would be located immediately east of the LSPGC Collinsville Substation. These areas are designated by the FMMP as Grazing Land. The telecommunications yard is not located on lands subject to Williamson Act contracts.

The PG&E telecommunications yard is in the same area of Solano County as the proposed LSPGC Collinsville Substation site, which is designated as Agriculture (AG) and zoned as

Suisun Marsh Agriculture (ASM-160) (south of Stratton Lane) and Exclusive Agriculture (A-160) (north of Stratton Lane). Evidence of grazing and hay or grain production is visible in aerial imagery (2023) and 2022 crop mapping (Land IQ, California Department of Water Resources 2022) within and surrounding the LSPGC Collinsville Substation site where the telecommunications yard would be located; however, the area is not subject to intensive crop production.

PG&E Substation Modifications

The existing PG&E Vaca Dixon and Tesla substations are located on lands designated as Grazing Land, and the PG&E Pittsburg Substation is designated as Urban and Built-Up Land (CDOC 2024). Urban and Built-Up Land designations are developed and do not contain agricultural resources. The existing PG&E substations are not located on lands subject to Williamson Act contracts.

The existing PG&E substations would be modified within their existing footprints, which are developed and industrial areas. Land where the Vaca Dixon Substation is located in Solano County is zoned as Exclusive Agriculture (A-20), and land where the Tesla Substation is located in Alameda County is designated and zoned as Agriculture (CDA 2024); however, agriculture resources do not occur within PG&E's existing substations.

Forestry Resources

Forestry resources are defined broadly in the California Public Resource Code (PRC) as follows:

- **Forest Land (PRC § 12220(g)).** Land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.
- **Timberland (PRC § 4526).** Land, other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection (board) as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis.
- **Timberland Production Zone (California Government Code § 51104(g)).** With respect to the general plans of cities and counties, "timberland preserve zone" means "timberland production zone". Timber production zones are areas that have been zoned for and are devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined below. "Compatible use" is any use that does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber and shall include, but not be limited to, any of the following, unless in a specific instance such a use would be contrary to the preceding definition of compatible use:
  - Management for watershed
  - Management for fish and wildlife habitat or hunting and fishing

- A use integrally related to the growing, harvesting, and processing of forest products, including but not limited to roads, log landings, and log storage areas.
- The erection, construction, alteration, or maintenance of gas, electric, water, or communication transmission facilities
- Grazing
- A residence or other structure necessary for the management of land zoned as timberland production

No forestry resources occur within or in the vicinity of the Proposed Project, including forest land, timberland, timberland production zones, national and state forests, or native tree forests. For this reason, the regulatory setting and impact discussion focuses on agricultural resources.

4.2.2 Regulatory Setting

Federal

Farmland Protection Policy Act

The Agriculture and Food Act of 1981 is contained the Farmland Protection Policy Act, which is intended to minimize the impact that federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that federal programs are administered to be compatible with states, local units of government, and private programs and policies to protect farmland to the extent possible. Federal agencies are required to develop and review their policies and procedures to implement the Farmland Protection Policy Act every two years (NRCS n.d.).

State

Farmland Mapping and Monitoring Program

The CDOC established the FMMP to help assess the location, quantity, and quality of agricultural lands and the conversion of these lands to nonagricultural uses (CDOC n.d.-a). The FMMP uses USDA Natural Resources Conservation Service soil classifications, land inventories, and monitoring criteria to prepare digitized maps of farmland in California. These maps and associated statistics are updated every 2 years and are used in general plans, in regional studies of agricultural land conversion, and in assessing project impacts on farmland. More information about the FMMP, including the definitions of Important Farmland applicable to the CEQA impact criteria for agricultural resources, is provided in Section 4.2.1. FMMP-designated mapping categories in the Proposed Project site and vicinity are identified in Figure 4.2-1.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, was enacted to encourage preservation of agricultural and open space lands. The Williamson Act facilitates voluntary agreements through which private landowners enter into 10-year contracts with counties and cities to restrict their land to agricultural and compatible open space uses. In return, restricted parcels are taxed at a lower rate. Contracts are automatically renewed

unless the landowner files for nonrenewal or petitions for cancellation. Section 51238 of the Williamson Act indicates that, unless local organizations declare otherwise, the erection, construction, alteration, and maintenance of gas, electric, water, or communication facilities are compatible with Williamson Act contracts. Solano County, Sacramento County, Contra Costa County, and Alameda County all participate in the Willamson Act program. Lands within 1 mile of the Proposed Project that are subject to a Williamson Act contract are shown on Figure 4.2-2.

Delta Protection Act of 1992

The Delta Protection Act of 1992 established the Delta Protection Commission (DPC) and declared the Delta as a natural resource of statewide, national, and international significance and is the policy of the State to recognize, preserve, and protect Delta resources for the use and enjoyment of current and future administrations. The act mandated the designation of primary and secondary zones within the legal delta and completion of a Land Use and Resource Management Plan for the primary zone of the Delta. The Secondary Zone is not within the planning area of the DPC and is subject to the land use authority of the surrounding local governments. The Land Use and Resource Management Plan for the Primary Zone of the Delta outlines policies for utilities and infrastructure in the Primary Zone. Portions of the Proposed Project that are within the Primary and Secondary Zones are identified in Table 4.11-2 and Figure 4.11-5 fo Section 4.11: Land Use and Planning.

The following policies are relevant to the Proposed Project (Delta Protection Commission 2024):

> **Utilities and Infrastructure Policy P-1:** Impacts associated with construction of transmission lines and utilities can be mitigated by locating new construction in existing utility or transportation corridors, or along property lines, and by minimizing construction impacts. Before new transmission lines are constructed, the utility should determine if an existing line has available capacity. To minimize impacts on agricultural practices, utility lines shall follow edges of fields. Pipelines in utility corridors or existing rights-of-way shall be buried to avoid adverse impacts to terrestrial wildlife. Pipelines crossing agricultural areas shall be buried deep enough to avoid conflicts with normal agricultural or construction activities. Utilities shall be designed and constructed to minimize any detrimental effect on levee integrity or maintenance, agricultural uses and wildlife within the Delta. Utilities shall consult with communities early in the planning process for the purpose of creating an appropriate buffer from residences, schools, churches, public facilities and inhabited marina.
>
> **Water Policy P-1:** State, federal and local agencies shall be strongly encouraged to preserve and protect the water quality of the Delta both for in-stream purposes and for human use and consumption.
>
> **Natural Resource Policy P-1:** Preserve and protect the natural resources of the Delta. Promote protection of remnants of riparian and aquatic habitat. Encourage compatibility between agricultural practices, recreational uses and wildlife habitat.

Natural Resource Policy P-3: Lands managed primarily for wildlife habitat should be managed to maximize ecological values. Appropriate programs, such as "Coordinated Resource Management and Planning" (Public Resources Code Section 9408(c)) should ensure full participation by local government and property owner representatives.

Natural Resource Policy P-7: Incorporate, to the maximum extent feasible, suitable and appropriate wildlife protection, restoration and enhancement on publicly-owned land as part of a Delta-wide plan for habitat management.

Agriculture Policy P-2: Conversion of land to non-agriculturally-oriented uses should occur first where productivity and agricultural values are lowest.

Local

Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters."

Solano County

Solano County General Plan

The following policies from the Agriculture Chapter of the 2008 Solano County General Plan are relevant to agricultural resources (Solano County 2008):

- AG.P-1: Ensure that agricultural parcels are maintained at a sufficient minimum parcel size so as to remain a farmable unit. Farmable units are defined as the size of parcels a farmer would consider viable for leasing or purchasing for different agricultural purposes. A farmable unit is not considered the sole economic function that will internally support a farm household.
- AG.P-4: Require farmland conversion mitigation for either of the following actions:
  - General Plan amendment that changes the designation of any land from an agricultural to a nonagricultural use or
  - an application for a development permit that changes the use of land from production agriculture to a nonagricultural use, regardless of the General Plan designation.

There are no policies in Solano County's Geneal Plan related to forestry resources that apply to the Proposed Project.

Solano County Zoning Code

The portions of the Proposed Project located in Solano County are zoned as Suisun Marsh Agriculture (ASM-160) and Exclusive Agriculture (A-80 and A-160). The definitions and allowed uses within these zones are as follows:

- **Suisun Marsh Agriculture (ASM-160).** The purpose and intent of the A-SM zone is to preserve lands best suited for permanent agricultural use while limiting

certain intensive agricultural practices which may conflict with adjoining sensitive lands. A primary intent of the A-SM is to assure the retention of upland and lowland grasslands adjacent to the Suisun Marsh in uses compatible with its protection.

  - Any development within the Suisun Marsh, as defined by Section 29114 of the Public Resources Code, shall be subject to obtaining a Marsh Development Permit pursuant to the Suisun Marsh Preservation Act of 1977, and as provided for in Section 28.104. When a land use subject to a Marsh Development Permit is proposed in both the Primary Management Area and Secondary Management Area, as defined in the Suisun Marsh Preservation Act of 1977, the land use shall be subject to a Use Permit covering the whole of the project.
  - Utility facilities or infrastructure are allowed in the A-SM Districts with a Use Permit (see Table 28.22A in Solano County Zoning Code Section 28.22.20).

- **Exclusive Agriculture (A-80).** The Exclusive Agriculture (A-80) zoning designates land primarily for agricultural use, with regulations designed to protect the viability of family farms and prevent incompatible land uses. These regulations include allowing agricultural support uses and excluding non-agricultural activities. Transposition Site A is zoned as Exclusive Agriculture (A-80).
- **Exclusive Agriculture (A-160).** The purpose of the A-160 is to preserve agriculture by allowing agricultural-related support uses, excluding incompatible uses, and protecting the viability of the family farm. The A-160 zone is supposed to help support the family farm by allowing a secondary dwelling for family members that acts as a form of affordable housing and, for farms with larger acreage, permits a reasonable number of farm labor housing on or near the farming activity.
  - Utility facilities or infrastructure are allowed in the A-160 zone with a Use Permit (see Table 28.21A in Solano County Zoning Code Section 28.21.20).

Solano County Agricultural Mitigation Program

In November 2024, Solano County amended Chapter 2.2 of the Solano County Code by adding Article III to define and implement an agricultural mitigation program and ordinance as directed by Solano County's 2008 General Plan Implementation Program AG.1-1. The ordinance establishes a regulatory program for avoiding or reducing significant environmental impacts to farmland in the county and ensures that future impacts to farmland are minimized and mitigated through a consistent and standardized regulatory program. Each of the following actions requires mitigation as set forth in Chapter 2.2-330:

- **General Plan Amendment**: A General Plan amendment to redesignate land from an Agricultural Designation to any other designation, except for redesignations consistent with General Plan Land Use Policy LU.P-3 and Agricultural Policies AG.P-31 to -36.
- **Rezoning**: A Rezoning petition to change the County zoning assigned to land from any Agricultural zoning district to any other zoning district, as defined in Chapter 28 of the Solano County Code, except for Resource Conservation Districts.

- **Communication and Infrastructure Uses**: An application for an Administrative Permit, Minor Use Permit, or Use Permit for Communication and Infrastructure Use on land within any Agricultural zoning district, as defined and set forth in Chapter 28 of the Solano County Code.

The mitigation must meet the following requirements as stated in Chapter 2.2-330(a):

- Projects that convert Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance shall be mitigated at a replacement ratio up to 3:1. This means that for every acre converted or developed, up to three (3) acres shall be protected.
- Projects that convert Grazing Land shall be mitigated at a replacement ratio of 1.5:1. This means for every acre converted or developed, one and a half (1.5) acres shall be protected.
- Projects that convert land comprising a mix of Farmland classifications may mitigate at the highest applicable ratio.
- For purposes of calculating the mitigation obligation under this section, a General Plan Amendment or Rezone application shall require mitigation for the full area of the legal parcel affected by the conversion and not merely any lesser portion of the parcel that may be sought to be developed or converted to another use at the time conversion is proposed. An application seeking an Administrative, Minor Use, or Use Permit for a Communication and Infrastructure Use shall require mitigation only for the exact acreage within the full legal parcel to be converted.
- The mitigation ratio shall be determined based upon the most current published FMMP mapping and Farmland classification of the land.
- Farmland mitigation can be achieved through agricultural conservation easements, in-lieu fees, or alternative mitigation.

The following criteria for mitigation are included in Chapter 2.2-350:

- If the area to be converted is 20 acres or more in size, the applicant shall grant an agricultural conservation easement on land located within the agricultural reserve overlay or within the same agricultural region (as designated by the agricultural chapter of general plan) as the land converted. If, after at least one good faith effort, the applicant cannot locate an agricultural conservation easement on lands meeting that criterion, then the applicant shall grant an agricultural conservation easement elsewhere in the unincorporated area of Solano County. If, after at least one additional good faith effort, the applicant cannot locate an agricultural easement anywhere in the unincorporated area of Solano County, the applicant shall pay in-lieu fees or complete alternative mitigation to satisfy their mitigation obligation (2.2-350(a)(1)).
- If the area to be converted is less than 20 acres in size, the applicant shall grant an agricultural conservation easement anywhere in the unincorporated area of Solano County, pay in-lieu fees, or complete alternative mitigation to satisfy their mitigation obligation (2.2-350(a)(2)).

Sacramento County

The only Proposed Project component site located within Sacramento County is a portion of the LSPGC 230kV submarine segment. These areas of Sacramento County are entirely within the Delta where agricultural and forestry land uses do not occur. Therefore, there are no relevant land use or zoning policies.

Contra Costa County

Contra Costa County General Plan

The Contra Costa 2045 General Plan was adopted in November 2024 and includes provisions designed to support the preservation and promotion of agricultural activities as an important aspect of the local economy and culture. The relevant policies are as follows (Contra Costa County 2024):

- **COS-P2.1**: Preserve large, contiguous areas of the county for agricultural production. Deny applications for projects that would lead to fragmentation of agricultural areas.
- **COS-P2.2**: Preserve and protect productive agricultural land from conversion to urban uses, especially land designated as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland on the Important Farmland Map prepared by the California Department of Conservation; land containing Class 1 or Class 2 soils; and land designated Agricultural Core.
- **COS-P2.4**: Consult with the Delta Protection Commission to identify mitigation strategies as relevant, if a change in land use that converts agriculture would significantly affect the sustainability of the Delta agricultural economy.
- **COS-P2.5**: Require new projects adjacent to agriculture to establish buffers on their properties as necessary to minimize conflicts and protect agriculture. Determine appropriate buffers in consultation with the County Agricultural Commissioner.
- **COS-P2.6**: When resolving conflicts between agricultural uses and urban uses, prioritize maintaining the viability of the agricultural uses.
- **COS-P2.8**: Encourage owners of qualifying agricultural land to participate in the Williamson Act (Agricultural Preserve) Program.

There are no policies in Contra Costa County's Geneal Plan related to forestry resources that apply to the Proposed Project.

City of Pittsburg

City of Pittsburg General Plan

There are no lands within the City of Pittsburg that are designated for agricultural use. Prime Farmland, Unique Farmland, or Farmland of Statewide Importance lands are not found in the City of Pittsburg's Planning Area. The City of Pittsburg's Planning Area contains approximately 6,694 acres of Grazing Land and 16 acres of Farmland of Local Importance. The City of Pittsburg General Plan does not include policies related to agriculture or forestry (City of Pittsburg 2024).

City of Pittsburg Zoning Code

The City of Pittsburg Zoning Code does not include policies to agricultural or forestry resources.

4.2.3 Approach to Impact Analysis

The analysis of impacts on agriculture and forestry resources applies the impact criteria and significance thresholds defined in the following subsection. The LSPGC applicant proposed measures (APMs) and PG&E construction measures (CMs) are considered when making the impact determinations for agriculture and forestry resources, as shown in Table 4.2-1. Impacts are evaluated for the Proposed Project including separate analysis of LSGPC and PG&E project components, analysis of LSPGC and PG&E project components combined where appropriate, cumulative impacts, and alternatives. Mitigation measures are defined to reduce or avoid significant impacts, where feasible.

Impact Criteria and Thresholds of Significance

The following impact criteria questions have been derived from Appendix G of the CEQA Guidelines to evaluate impacts on agriculture and forestry. Appendix G of the CEQA Guidelines ask whether a project would:

- Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use?
- Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract?
- Impact AG-3: Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)?
- Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use?
- 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?

Applicant Proposed Measures and Construction Measures

LSPGC APMs and PG&E CMs identified in Section 2: Project Description that are relevant to the agriculture and forestry impact analysis are provided in Table 4.2-1.

Table 4.2-1 APMs and CMs Relevant to Agriculture and Forestry

LSPGC APMs and PG&E CMs
APM AG-1: Landowner Coordination. LSPGC would coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Notice would be provided to landowners outlining construction activities and restoration efforts.

LSPGC APMs and PG&E CMs
• Areas disturbed by construction of the Proposed Project would be restored in accordance with lease agreements, applicable O&M standards, and environmental permit requirements. • In areas containing permanent crops (e.g., grapevines and orchard crops) that must be removed to gain access to pole sites for construction purposes, LSPGC would provide compensation to the farmer and/or landowner in coordination with the landowner.
APM BIO-2: Develop and Implement Restoration Plan ***(Superseded by MM BIO-2).*** A Proposed Project-specific restoration plan would be prepared for the Proposed Project and submitted to the CPUC for approval prior to the start of construction activities. The restoration plan would include procedures for restoration activities, including plant species to be planted, procedures to reduce weed encroachment, and expected timeframes and success criteria for restoration and revegetation. Revegetation activities would be conducted in accordance with the Proposed Project SWPPPs and restoration plan.
CM AG-1: Landowner Coordination. PG&E would coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Provide notice to landowners outlining construction activities and restoration efforts. • Areas disturbed by construction of the Proposed Project restored in accordance with lease agreements, applicable operation and maintenance standards, and environmental permit requirements. • In areas containing permanent crops (i.e., grape vines, orchard crops, etc.) that must be removed to gain access to pole sites for construction purposes, PG&E may provide compensation to the farmer and/or landowner in coordination with the landowner.

4.2.4 Impact Analysis – Proposed Project

Table 4.2-2 presents a summary of the CEQA significance criteria and impacts on agriculture and forestry that would occur during construction, operation, and maintenance of the Proposed Project.

Table 4.2-2 Summary of Impacts on Agriculture and Forestry Resources for the Proposed Project

Impact Criteria: Would the project …	APMs/CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use?	None	NI	None	NA
Impact AG-2: Conflict with existing zoning for agricultural use, or a Williamson Act contract?	APM AG-1 APM BIO-2* CM AG-1	S	MM AG-1	LTSM

Impact Criteria: Would the project …	APMs/CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
Impact AG-3: Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	None	NI	None	NA
Impact AG-4: Result in the loss of forest land or conversion of forest land to non-forest use?	None	NI	None	NA
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?	APM AG-1 APM BIO-2* CM AG-1	S	MM AG-1 MM BIO-2	LTSM

Notes:

NI = no impact

LTSM = less than significant with mitigation

S = significant

NA = not applicable

* APM BIO-2 is superseded by MM BIO-2

Impact AG-1: Would the Proposed Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use? ***(No impact)***

LSPGC Project Components

As described in Section 4.2.1, none of the Proposed Project component sites occur within the FMMP-designated Important Farmland categories (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance). The LSPGC project components are located on lands designated as Grazing Land, Urban and Built-Up Land, and Water Areas. Therefore, the proposed LSPGC project components would not convert FMMP-designated Important Farmland to non-agricultural use. No impact would occur.

PG&E Project Components

As with the LSPGC project components, none of the PG&E project components occur within the FMMP-designated Important Farmland categories (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance). The PG&E project components are located on lands designated as Grazing Land and Urban and Built-Up Land, with the exception of Transposition Site D, which is located on lands designated as Farmland of Local Importance. Therefore, the proposed PG&E project components would not convert FMMP-designated Important Farmland to non-agricultural use. No impact would occur.

Impact AG-2: Would the Proposed Project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(Less than significant with mitigation)***

Construction

LSPGC Project Components

Construction of the LSPGC project components would result in temporary disturbance and impacts to land zoned for agricultural uses; the LSPGC project components are not located on land that is under a Williamson Act contract. Impacts would occur where temporary staging areas, access roads, and structure work areas are proposed within the proposed substation property and along the proposed 230 kV transmission line. Construction activities would disturb land zoned for agricultural uses and have the potential to disrupt active agricultural operations.

LSPGC has proposed APM AG-1 and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources). APM AG-1 requires coordination with landowners prior to construction and during restoration efforts; restoration of temporarily disturbed areas; and compensation for the removal of any permanent crops. APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources) requires the development and implementation of a restoration plan to ensure adequate restoration occurs and the spread of invasive weeds is minimized. Through implementation of APM AG-1 and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), areas of temporary impact during construction would be restored to agricultural use. As a result, the temporary construction impact from conflict with zoning for agricultural use would be less than significant.

PG&E Project Components

As with the LSPGC project components, construction of the PG&E project components would result in temporary disturbance and impacts to land zoned for agricultural uses. Impacts would occur where temporary work areas and access roads are proposed along the PG&E 500 kV interconnection lines and at the four PG&E transposition sites. In addition, construction activities at Transposition Sites A and B, which are located along PG&E's existing 500 kV transmission line, would disturb land subject to Williamson Act contracts. While the 500 kV interconnection line work areas are located in areas zoned for agricultural use, the 500 kV interconnection line is located within the Solano Wind Farm and no agricultural use currently occurs within the area of the 500 kV interconnection lines. The transposition site work areas are located within PG&E's existing right-of-way. In addition, PG&E has proposed CM AG-1, which requires construction in accordance with lease agreements. As the construction activities would be within an existing lease area and consistent with the existing lease agreements, the construction activities would not conflict with a Williamson Act contract. Construction of PG&E project components would thus not conflict with the existing agricultural zoning or Williamson Act contracts and the impact would be less than significant.

Operation and Maintenance

LSPGC Collinsville Substation

The proposed LSPGC Collinsville Substation would develop approximately 13 acres of the substation parcel; however, it is assumed that use of the undeveloped areas of the property would not be compatible with the existing agricultural designations and that the area within the developed substation including the detention basin would be permanently converted to utility uses. The conversion of agricultural designated land to a utility use and loss of grazing and agricultural production land within the developed substation site would be a significant impact.

The CPUC has sole and exclusive jurisdiction over the siting and design of the Proposed Project. The project is not subject to local regulations or the underlying land use and zoning requirements established by Solano County, and LSPGC is not required to obtain local discretionary permits.

While the Proposed Project would not be subject to local regulations, the proposed Collinsville Substation site is within the Delta Plan Secondary Zone (refer to Figure 4.11-3 in Section 4.11 Land Use and Planning). The preservation of agricultural land within the Delta Plan area is important to the overall sustainability of Delta agriculture and permanent development of the substation site within the Delta Plan Secondary Zone in areas zoned for agricultural use would conflict with both local and Statewide planning zoning for agricultural use. The impact from conversion of areas zoned for agriculture to non-agricultural use would be significant.

MM AG-1 (refer to Section 4.2.13) requires LSPGC to allow existing agricultural activities to continue on undeveloped portions of the LSPGC Collinsville Substation parcel following construction, except where such activities would be unsafe or conflict with operation and maintenance of the Proposed Project. Allowing continued agricultural use on the undeveloped portions of the parcel would avoid conflicts with the zoning for agricultural use within those undeveloped areas. Where agricultural land is permanently converted or agricultural activities cannot continue after construction at the LSPGC Collinsville Substation, MM AG-1 requires LSPGC to preserve agricultural lands to offset the loss of agricultural uses within areas zoned agriculture. The mitigation is consistent with the Solano County Agricultural Mitigation Ordinance and would resolve conflicts with development on areas zoned for agricultural use. Impacts from conflict with zoning for agricultural use would be less than significant with implementation of MM AG-1.

LSPGC 230 kV Overhead Segment

Approximately four of the proposed 230 kV transmission line TSPs along the overhead segment would be located in areas zoned for agricultural use. The 230 kV TSPs would occupy an area of less than 0.01 acre. While the TSPs would be located in areas zoned for agricultural use, agricultural activities could continue underneath the overhead line and surrounding the TSPs with the exception of a 10-foot buffer surrounding each pole. According to Solano County Code Section 28.78.20, electrical lines (such as the 230 kV overhead line) are allowed in any zoning designation, including agricultural zones, provided certain requirements are met. Because the CPUC has exclusive jurisdiction over siting and design of the Proposed Project (GO 131-D),

those local requirements would not apply; however, the allowance for infrastructure uses demonstrates that overhead electrical lines are a conditionally compatible use in agricultural zones. As agricultural uses could continue surrounding and underneath the 230 kV overhead segment and electrical lines are allowed in agricultural zoned areas, the 230 kV overhead segment would not conflict with zoning for agricultural use and the impact would be less than significant.

LSPGC 230 kV Submarine and Underground Segments and Telecommunication Lines
The LSPGC 230 kV submarine segment, 230 kV underground segment, and proposed telecommunication lines are not located in areas zoned for agricultural use or within areas under a Williamson Act contract. Construction of the 230 kV submarine and underground segments and telecommunication lines would not conflict with zoning for agricultural use or a Williamson Act contract. No impact would occur.

PG&E Project Components
The proposed structures for the PG&E 500 kV interconnection lines, the four transposition sites, and the 12 kV distribution line would also permanently occupy small areas of land zoned for agricultural use. In addition, Transposition Sites B and C are located on land subject to Williamson Act contracts. The PG&E telecommunications yard and structures that would be within the LSPGC Collinsville Substation site are considered part of the substation impacts discussed above and LSPGC would be responsible for addressing impacts within the whole of the substation site. The 500 kV interconnection lines would be located within an existing windfarm, the 12 kV distribution line would follow an existing road ROW, and the transposition sites would be located within existing easements and rights-of-way for PG&E's existing Vaca Dixon-Tesla 500 kV Transmission Line. According to the Solano County Code Section 28.78.20, overhead transmission and distribution lines are allowed within any zoning designation, including agricultural zones, provided certain requirements are met. Because the CPUC has exclusive jurisdiction over siting and design of the Proposed Project (GO 131-D), those local requirements would not apply; however, the allowance for infrastructure uses demonstrates that overhead electrical lines are a conditionally compatible use in agricultural zones. In addition, agricultural uses could continue underneath the overhead lines and surrounding the new poles; therefore, the overhead lines would not conflict with zoning for agricultural use. Furthermore, the installation and modification of structures at Transposition Sites B and C would not lead to inconsistencies or violate conditions of a Williamson Act contract because these features would occur within the existing ROW of PG&E's Vaca Dixon-Tesla 500 kV Transmission Line and adjacent to existing transmission structures and would be consistent with the terms of the ROW and easements.

Therefore, the PG&E project components would not conflict with zoning for agricultural use or a Williamson Act contract and the impact would be less than significant.

Impact AG-3: Would the Proposed Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? ***(No impact)***

LSPGC Project Components

As described in Section 4.2.1, none of the Proposed Project components or surrounding areas are zoned as forest land or timberland of any type, and no forestry or timberland production land uses occur in the Proposed Project vicinity. Therefore, the LSPGC project components would not conflict with zoning or cause rezoning of forest land or timberland. No impact would occur.

PG&E Project Components

As with the LSPGC project components, none of the PG&E project components would conflict with zoning or cause rezoning of forest land or timberland. No impact would occur.

Impact AG-4: Would the Proposed Project result in the loss of forest land or conversion of forest land to non-forest use? ***(No impact)***

LSPGC Project Components

As described in Section 4.2.1, none of the Proposed Project components or surrounding areas occur within forest land. The Proposed Project sites do not occur within forest or native tree vegetation communities. No mature trees have been identified within temporary or permanent impact areas defined for the Proposed Project, and the need to remove trees is not anticipated; however, vegetation would be cleared to establish construction access where necessary, and vegetation clearances would be maintained around all proposed equipment locations in accordance with State and federal requirements. While no tree trimming or removal is anticipated, the need to remove trim or remove mature trees could arise in the future, including during construction or operation and maintenance. Regardless, no forest land is present, and maintaining vegetation clearances would not result in the loss or conversion of forest land; therefore, the LSPGC project components would not result in the loss or conversion of forest land to non-forest use. No impact would occur.

PG&E Project Components

As with the LSPGC project components, no tree trimming or removal is anticipated for the PG&E project components; however, as-needed vegetation clearing would occur to establish construction access and maintain minimum vegetation clearances, which could include trimming or removal of trees. The PG&E project components would not result in the loss or conversion of forest land because no forest land is present, and maintaining vegetation clearances would not result in the loss or conversion of forest land. No impact would occur.

Impact AG-5: Would the Proposed Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? ***(Less than significant with mitigation)***

Overview

Potential impacts on FMMP-designated Important Farmland, agricultural land use and zoning designations, and Williamson Act lands are discussed under Impacts AG-1 and AG-2. Potential impacts related to the conversion of forest land are discussed under Impacts AG-3 and AG-4. The Proposed Project would not result in additional direct or indirect changes in the existing environment that would result in the conversion of FMMP-designated Farmland to non-agricultural use or forest land to non-forest use. Therefore, the discussion for Impact AG-5 is focused on potential impacts to active agricultural operations that occur within or adjacent to the Proposed Project areas.

As described in Section 4.2.1, evidence of grazing and hay or grain production is visible in aerial imagery (2023) and 2022 crop mapping (Land IQ, California Department of Water Resources 2022) in the Collinsville area and within the Solano Wind Resource Area where Proposed Project features are identified, including the LSPGC Collinsville Substation site, the proposed 230 kV overhead segment, the proposed PG&E 500 kV interconnection lines, and the PG&E telecommunication yard within the Collinsville Substation site. In addition, portions of PG&E's existing 500 kV Vaca Dixon-Tesla Transmission Line cross land where there is evidence of agricultural activities, including at all four of the PG&E transposition sites.

Construction

LSPGC Project Components

As described under Impact AG-2, construction of the LSPGC project components would result in ground disturbance and the use of temporary work areas, which could interfere with active agricultural operations that occur in the same areas, such as grazing and hay production. In addition, construction traffic could periodically interfere with access along roads used for agricultural operations for brief periods. The construction impacts would be temporary, and a relatively small amount of land would be affected compared to the available agricultural land in each Proposed Project area. Construction of the LSPGC project components would not result in substantial effects on existing agricultural operations that would indirectly cause land use changes and lead to agricultural land conversion due to the temporary nature of the impacts. In addition, LSPGC has proposed APM AG-1 and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources). APM AG-1 requires coordination with landowners prior to construction and during restoration efforts; restoration of temporarily disturbed areas; and compensation for the removal of any permanent crops. APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources) requires the development and implementation of a restoration plan to ensure adequate restoration occurs and the spread of invasive weeds is minimized. With restoration of the temporarily impacted areas, impacts from other changes in the environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use conversion of Farmland to non-agricultural use would be less than significant.

PG&E Project Components

As with the LSPGC project components, construction of the PG&E project components could interfere with active agricultural operations that occur in the same areas or use the same roads, including grazing and hay production along the 500 kV interconnection lines and 12 kV distribution line, and where agricultural activities occur at the transposition sites. Construction of the PG&E project components would not result in substantial effects on existing agricultural operations that would indirectly cause land use changes and lead to agricultural land conversion due to the temporary nature of the impacts. In addition, PG&E has proposed CM AG-1, which requires coordination with landowners prior to construction and during restoration efforts; restoration of temporarily disturbed areas; and compensation for the removal of any permanent crops. With restoration of the temporarily impacted areas, impacts from other changes in the environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use conversion of Farmland to non-agricultural use would be less than significant.

Operation and Maintenance

LSPGC Project Components

LSPGC Collinsville Substation

Operation of the LSPGC 230 kV transmission line would result in permanent impacts where approximately three structures would be installed in areas within or adjacent to agricultural operations along the overhead segment. Operation and maintenance of the proposed 230 kV transmission line would not result in substantial effects on existing agricultural operations because the areas affected by transmission structures would be small and spread out, and overhead transmission would not prevent the agricultural operations from continuing. Impacts associated with the 230 kV transmission line would be less than significant.

As discussed under Impact AG-2, it is assumed that operation and maintenance of the Collinsville Substation would result in the loss of agricultural zoned land that is designated as Grazing land in the FMMP and currently used for agricultural production. The proposed Collinsville Substation site is within the Delta Plan Secondary Zone (refer to Figure 4.11-3 in Section 4.11, Land Use and Planning), and a loss of agricultural land for the permanent development of the substation site within the Delta Plan area would be a significant impact due to the conversion of zoned and designated Farmland to non-agricultural use.

MM AG-1 (refer to Section 4.2.13) would be implemented to allow existing agricultural activities to continue on undeveloped portions of the LSPGC Collinsville Substation site following construction, except where such activities would be unsafe or conflict with operation and maintenance of the Proposed Project. Allowing continued agricultural use on the undeveloped portions of the parcel would avoid conversion of those areas to a non-agricultural use. Where agricultural land is permanently converted or agricultural activities cannot continue after construction at the LSPGC Collinsville Substation, MM AG-1 requires LSPGC to preserve agricultural lands to offset the conversion of Farmland areas that are currently used for agricultural production. The mitigation would preserve similar Farmland for agricultural use

and would offset the conversion of Farmland. The resulting impact from conversion of Farmland would be less than significant with mitigation.

LSPGC 230 kV Overhead Segment

Approximately four of the proposed 230 kV transmission line TSPs along the overhead segment would be located in Farmland areas. The 230 kV TSPs would occupy an area of less than 0.01 acre. While the TSPs would be located in areas zoned for agricultural use, agricultural activities could continue underneath the overhead line and surrounding the TSPs with the exception of a 10-foot buffer surrounding each pole. As agricultural uses could continue surrounding and underneath the 230 kV overhead segment, the 230 kV overhead segment would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use, and the impact would be less than significant.

LSPGC 230 kV Submarine and Underground Segments and Telecommunication Lines

The LSPGC 230 kV submarine segment, 230 kV underground segment, and proposed telecommunication lines are not located in agricultural use areas or areas containing Farmland. Construction of the 230 kV submarine and underground segments and telecommunication lines would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. No impact would occur.

PG&E Project Components

As described for the LSPGC 230 kV transmission line, the PG&E 500 kV interconnection lines and 12 kV distribution line would not result in substantial effects on existing agricultural operations because the areas affected by the structures would be small and spread out, and overhead lines would not prevent the agricultural operations from continuing. The PG&E telecommunications yard would be located within the Collinsville Substation property, and the effects are considered with the overall use of the property discussed above and would be the responsibility of LSPGC. Impacts from the PG&E project components on agricultural operations would be less than significant.

4.2.5 Impact Analysis – Cumulative

The geographic scope for the analysis of cumulative impacts associated with agriculture is the area within Solano County, Sacramento County, Contra Costa County, Alameda County, and City of Pittsburg, throughout which agricultural land is being converted to other land uses. This geographic scope accounts for regional cumulative impacts on agriculture and forestry resources.

The Proposed Project would have no impact on Prime Farmland, Farmland of Statewide Importance, and Unique Farmland (Impact AG-1), timberland, or lands zoned forestland (Impact AG-3 and Impact AG-4) and would thus not contribute to any cumulative impact on those resources; however, the Proposed Project would result in the permanent conversion of a small amount of Grazing Land zoned for agricultural use at the Collinsville Substation site.

The potential future California Forever LP Project could convert approximately 17,500 acres of land zoned for agricultural use to residential and commercial uses. The potential future Humboldt 500 kV Substation with 500/115 kV Transformer and a 500 kV line to Collinsville would also contribute to agricultural land use changes—though at a smaller scale. The other cumulative projects are located near the Delta or within urbanized areas away from existing agriculture operations. The cumulative impact from conflict with zoning for agricultural use from the Proposed Project and California Forever conversion of approximately 17,500 acres of land zoned for agricultural use to nonagricultural use would be significant.

As stated in Impact AG-2 and Impact AG-5, operation and maintenance of the LSPGC project components would result in a significant impact from conflicts with zoning for agricultural use and conversion of farmland to a non-agricultural use because the Collinsville Substation would result in conversion of land that is zoned for agricultural use and farmland to a utility use. MM AG-1 (refer to Section 4.2.13) requires compensatory mitigation for permanent impacts on land zoned for agricultural use, including allowing agricultural activities to continue on undeveloped portions of the Collinsville Substation property (where safe) and preserving an equal or greater area of similar agricultural land. With implementation of MM AG-1, the Proposed Project's impacts would be less than significant, and the Proposed Project's contribution to the potential cumulative impact from California Forever's conversion of land zoned for agriculture would not be cumulatively considerable.

4.2.6 Alternative 1: Collinsville Substation North of Talbert Lane

Environmental Setting – Alternative 1

Alternative 1 involves relocating the proposed Collinsville Substation to a different site, approximately 1.2 miles north of the Proposed Project substation site. Alternative 1 would also include an approximately 500-foot segment of PG&E 500 kV interconnection lines, approximately 700-foot segment of 12 kV distribution line, and an approximately 2-mile-long segment of LSPGC 230 kV overhead line. Alternative 1 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 1.

The Alternative 1 Collinsville Substation site, 500 kV interconnection lines, 12 kV distribution line, and 230 kV overhead segment would be on land designated as Grazing Land and zoned for agricultural use. The Alternative 1 substation site including the 500 kV interconnection transmission lines, 12 kV distribution line, and a segment of 230 kV overhead line north of Talbert Lane are on land under Williamson Act contract as depicted in Figure 4.2-3. Additionally, as depicted in Figure 4.11-4 in Section 4.11: Land Use and Planning, the Alternative 1 site is zoned Agricultural in the Solano County General Plan. There are no current agricultural production activities at the Alternative 1 substation site; however, there is evidence of grazing and hay or grain production in 2023 aerial imagery and 2022 crop mapping along the 230 kV overhead segment roughly south of Talbert Lane (Land IQ, California Department of Water Resources 2022).

Alternative 1 is not located within Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Farmland of Local Importance. No forest land or timberland is located within the Alternative 1 site.

Impact Analysis – Alternative 1

Similar to the Proposed Project, Alternative 1 would have no impact on Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Impact AG-1), forestland, or timberland zoned Timberland Production (Impact AG-3) or loss of forestland or conversion of forestland to a non-forest use (Impact AG-4). The Alternative 1 potential for conflict with a Williamson Act contract or zoning for agricultural use (Impact AG-2) and conversion of Farmland to a non-agricultural use (Impact AG-5) are discussed below.

Impact AG-2: Would Alternative 1 conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(Less than significant with mitigation)***

Impact AG-5: Would Alternative 1 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? ***(Less than significant with mitigation)***

Construction

Alternative 1 LSPGC Collinsville Substation

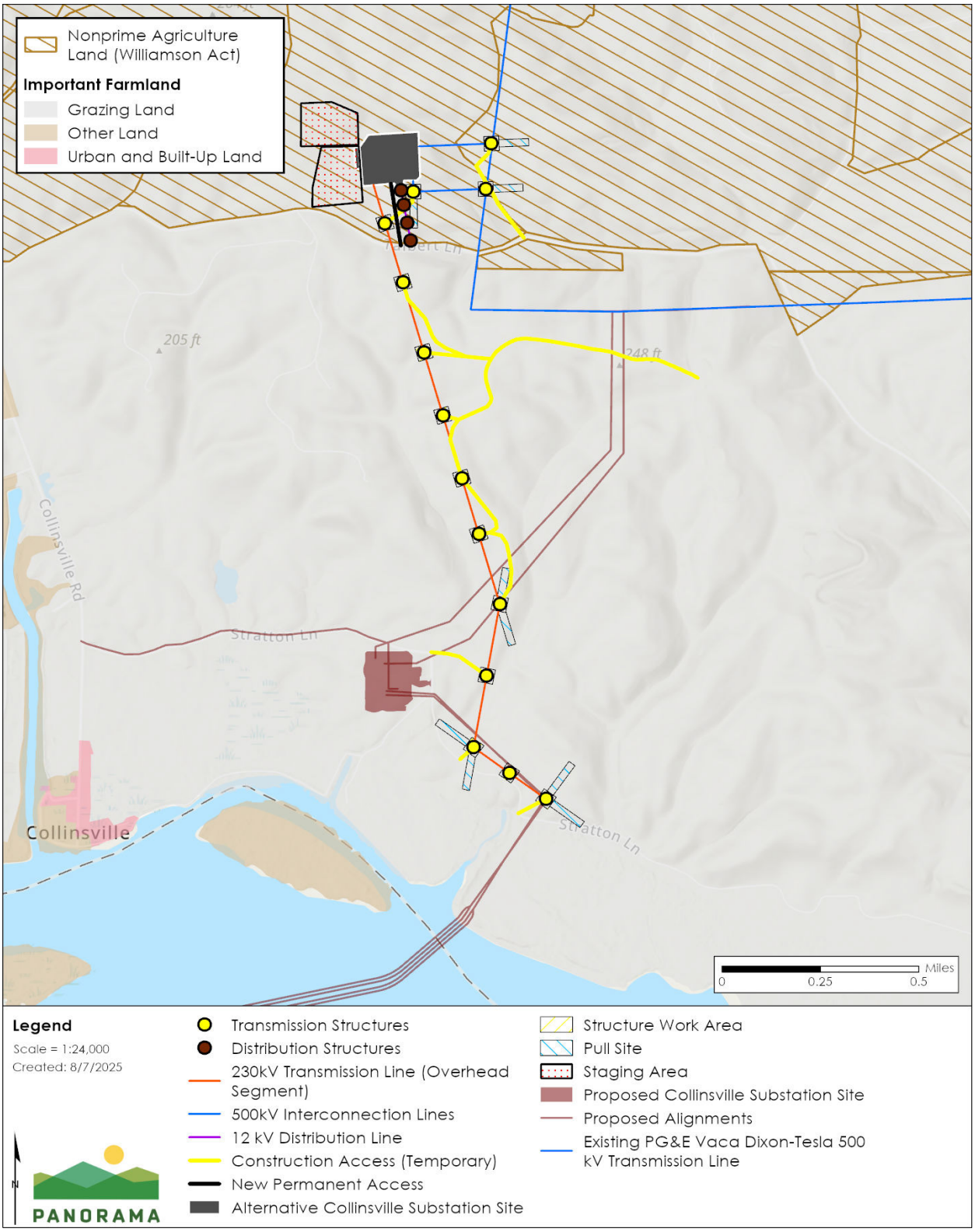
The Alternative 1 Collinsville Substation and staging areas would be located on land zoned for agricultural use and under Williamson Act contract (Figure 4.2-3).

Construction of Alternative 1 would disturb land zoned for agricultural use and under Williamson Act contract; however, the construction impacts (e.g., staging areas and access roads) would be temporary. LSPGC would implement APM AG-1, which requires landowner coordination and restoration of temporarily disturbed areas, and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), which requires preparation and implementation of a restoration plan for all temporarily disturbed areas. Together, these measures would ensure that disturbed areas are restored following construction. Due to the temporary nature of impacts from construction, the impact from conflicts with zoning for agricultural use or a Williamson Act contract or conversion of Farmland to a non-agricultural use would be less than significant as agricultural uses could remain within temporarily impacted areas following construction.

Alternative 1 LSGPC 230 kV Overhead Segment

The Alternative 1 230 kV overhead segment would be longer than the Proposed Project, which would result in a greater extent of temporary ground disturbance on agricultural land during construction and a larger number of support structures and access routes crossing agriculturally zoned areas. Similar to the Proposed Project, the 230 kV overhead segment would cross land zoned for agricultural use (Figure 4.2-3). LSPGC would implement APM AG-1, which requires landowner coordination and restoration of temporarily disturbed areas following construction, and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), which requires preparation and implementation of a restoration plan for all disturbed areas. Together,

Figure 4.2-3 Alternative 1 Farmland Categories



Source: (California Department of Conservation (CDOC) 2024)

these measures would ensure that disturbed areas are restored following construction. Because agricultural uses could continue underneath and adjacent to the line, and because no additional permanent conversion of agricultural land would occur, the longer Alternative 1 alignment would not result in substantially different or greater impacts than those identified for the Proposed Project. Due to the temporary nature of impacts from construction, the construction impact from conflicts with zoning for agricultural use or a Williamson Act contract or conversion of Farmland to a non-agricultural use would be less than significant.

Alternative 1 PG&E 500 kV Interconnection Lines

The Alternative 1 500 kV interconnection lines would be shorter than the Proposed Project interconnection line, which would reduce the overall extent of temporary ground disturbance on agricultural land Similar to the Proposed Project, the 500 kV interconnection lines would cross land zoned for agricultural use (Figure 4.2-3) and PG&E would implement CM AG-1, which would requires coordination with landowners prior to construction and during restoration efforts; restoration of temporarily disturbed areas; and compensation for the removal of any permanent crops. Because the alignment would be shorter, the potential for conflict with agricultural zoning designation or Williamson Act contracts would be incrementally less than under the Proposed Project; however, as with the Proposed Project, these impacts would be temporary and reversible. Therefore, the construction impact from conflicts with zoning for agricultural use or a Williamson Act contract or conversion of Farmland to non-agricultural use would be less than significant.

Operation and Maintenance

Alternative 1 LSPGC Collinsville Substation

The Alternative 1 Collinsville Substation would permanently convert agricultural grazing lands under Williamson Act contract and zoned for agricultural use to a utility use (Figure 4.2-3). The impact from conflict with a Williamson Act contract, zoning for agricultural use, and conversion of grazing lands to non-agricultural use would be significant. MM AG-1 (refer to Section 4.2.13) requires LSPGC to allow existing agricultural activities to continue on undeveloped portions of the Collinsville Substation site following construction, except where such activities would be unsafe or conflict with operation and maintenance of the Proposed Project. MM AG-1 also requires preservation of agricultural lands to offset conversion of Williamson Act contract lands, lands zoned for agricultural use, and grazing lands to a non-agricultural use. The Alternative 1 Collinsville Substation impact from conflicts with a Williamson Act contract and zoning for agricultural use would be less than significant with mitigation.

Alternative 1 LSPGC 230 kV Overhead Segment

One of the Alternative 1 230 kV overhead segment TSPs would be located on Williamson Act contract land and all of the Alternative 1 230 kV overhead segment TSPs would be located on land zone for agricultural use. Similar to the Proposed Project, agricultural activities could continue under the Alternative 1 230 kV overhead segment. According to Solano County Code Section 28.78.20, electrical lines (such as the 230 kV overhead lines) are allowed in any zoning designation, including agricultural zones, provided certain requirements are met. Because the

CPUC has exclusive jurisdiction over siting and design of the Proposed Project (GO 131-D), those local requirements would not apply; however, the allowance for infrastructure uses demonstrates that overhead electrical lines are a conditionally compatible use in agricultural zones. As agricultural uses could continue surrounding and underneath the 230 kV overhead segment and electrical lines are allowed in agricultural zoned areas, the 230 kV overhead segment would not conflict with a Williamson Act contract or zoning for agricultural use. In addition, since agricultural activities could continue under the 230 kV overhead segment, the overhead transmission line would not otherwise convert farmland to a non-agricultural use and the impact would be less than significant.

Alternative 1 PG&E 500 kV Interconnection Lines and 12 kV Distribution
The Alternative 1 500 kV interconnection lines and 12 kV distribution line would be shorter than the Proposed Project and would require fewer transmission structures and poles in lands zoned for agricultural use or under Williamson Act contract. Similar to the Proposed Project, agricultural activities could continue underneath the 500 kV interconnection lines and 12 kV distribution line. In addition, according to Solano County Code Section 28.78.20, electrical lines (such as the 500 kV interconnection lines and 12 kV distribution lines) are allowed in any zoning designation, including agricultural zones, provided certain requirements are met. Because the CPUC has exclusive jurisdiction over siting and design of the Proposed Project (GO 131-D), those local requirements would not apply; however, the allowance for infrastructure uses demonstrates that overhead electrical lines are a conditionally compatible use in agricultural zones. As agricultural uses could continue surrounding and underneath the 500 kV interconnection lines and 12 kV distribution line and electrical lines are allowed in agricultural zoned areas, the 500 kV interconnection lines and 12 kV distribution line would not conflict with a Williamson Act contract or zoning for agricultural use. In addition, since agricultural activities could occur under the 500 kV interconnection lines and 12 kV distribution line, the 500 kV interconnection lines and 12 kV distribution line would not otherwise convert farmland to non-agricultural use and the impact would be less than significant.

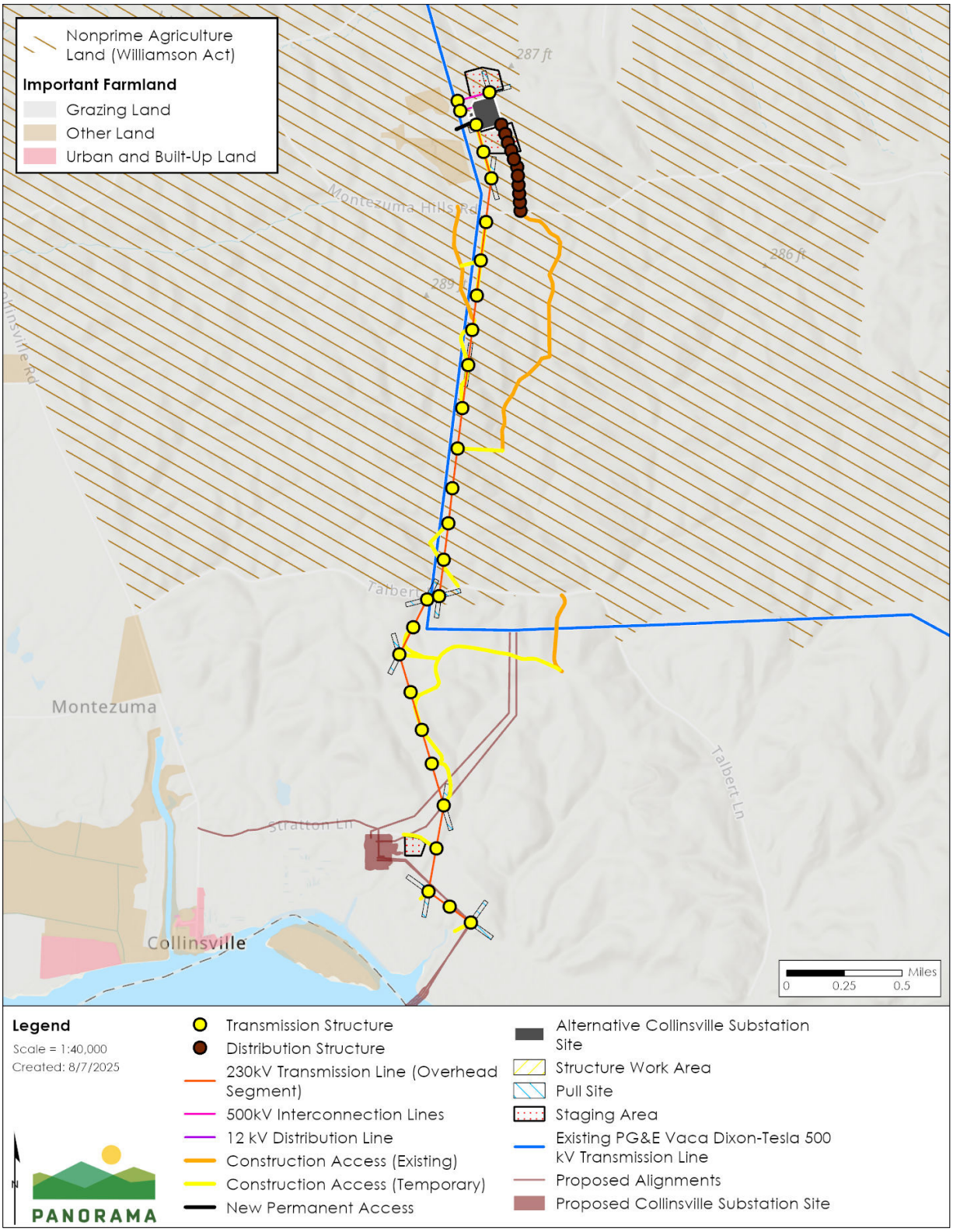
4.2.7 Alternative 2: Collinsville Substation East of Wind Energy Substations

Environmental Setting – Alternative 2

Alternative 2 involves relocating the proposed LSPGC Collinsville Substation to a different site, approximately 3.0 miles north of the location proposed under the Proposed Project. Alternative 2 would also include an approximately 1,200-foot-long segment of PG&E 500 kV interconnection lines and a four-mile-long segment of LSPGC 230 kV overhead line, as well as an approximately 0.3-mile-long PG&E 12 kV distribution line. Alternative 2 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 2.

The Alternative 2 substation site, 230 kV overhead segment, and 500 kV interconnection lines would be on land designated as Grazing Land. Additionally, the Alternative 2 substation site, 500 kV interconnection lines, and portions of the 230 kV overhead segment would be on land

Figure 4.2-4 Alternative 2 Farmland Categories



Source: (California Department of Conservation (CDOC) 2024)

under a Williamson Act contract. No active agricultural operations are located at the Alternative 2 substation site; however, there is evidence of grazing and hay or grain production in 2023 aerial imagery and 2022 crop mapping along the 230 kV overhead segment roughly south of Talbert Lane (Land IQ, California Department of Water Resources 2022).

Alternative 2 is not located within Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Farmland of Local Importance. No forest land or timberland is located within the Alternative 2 site.

Impact Analysis – Alternative 2

Similar to the Proposed Project, Alternative 2 would have no impact on Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Impact AG-1), forestland, or timberland zoned Timberland Production (Impact AG-3) or loss of forestland or conversion of forestland to a non-forest use (Impact AG-4). Alternative 2 potential for conflict with a Williamson Act contract and zoning for agricultural use (Impact AG-2), and conversion of Farmland to a non-agricultural use (Impact AG-5) are discussed below.

Impact AG-2: Would Alternative 2 conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(Less than significant with mitigation)***

Impact AG-5: Would Alternative 2 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? ***(Less than significant with mitigation)***

Construction

Alternative 2 LSGC Collinsville Substation

Construction of the Alternative 2 Collinsville Substation would disturb land designated for agricultural uses (Figure 4.2-4); however, the construction impact would be temporary. LSPGC would implement APM AG-1 which requires landowner coordination and restoration of temporarily disturbed areas, and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), which requires preparation and implementation of a restoration plan for all temporarily disturbed areas. Together, these measures would ensure that disturbed areas are restored following construction. Due to the restoration of areas of temporary disturbance, Alternative 2 Collinsville Substation construction impacts from conflicts with zoning for agricultural use or a Williamson Act contract or conversion of Farmland to non-agricultural use would be less than significant.

Alternative 2 LSGPC 230 kV Overhead Segment

The Alternative 2 230 kV overhead segment would be longer than the Proposed Project, which would result in a greater extent of temporary ground disturbance on agricultural land during construction and a larger number of support structures and access routes crossing agriculturally zoned areas. Similar to the Proposed Project, the 230 kV overhead segment would cross land zoned for agricultural use (Figure 4.2-4) and LSPGC would implement AG-1, which requires landowner coordination and restoration of temporarily disturbed areas, and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), which requires

preparation and implementation of a restoration plan for all temporarily disturbed areas. Together, these measures would ensure that disturbed areas are restored following construction. Because agricultural uses could continue underneath and adjacent to the line, and because no additional permanent conversion of agricultural land would occur, the longer Alternative 2 alignment would not result in substantially different or greater impacts than those identified for the Proposed Project. Due to the temporary nature of impacts from construction, the impact from conflicts with zoning for agricultural use or a Williamson Act contract or conversion of Farmland to a non-agricultural use would be less than significant.

Alternative 2 PG&E 500 kV Interconnection Lines

The Alternative 2 500 kV interconnection lines would be shorter than the Proposed Project interconnection lines, which would reduce the overall extent of temporary ground disturbance on agricultural land and the number of parcels partially crossed. Similar to the Proposed Project, the 500 kV interconnection lines would cross lands zoned for agricultural use (Figure 4.2-4) and PG&E would implement CM AG-1, which would involve landowner coordination and restoration of temporarily disturbed areas. Because the alignment would be shorter, the potential for conflict with agricultural zoning designation or Williamson Act contracts would be less than under the Proposed Project; however, as with the Proposed Project, these impacts would be temporary and reversible. Therefore, the construction impact from conflicts with zoning for agricultural use or a Williamson Act contract or conversion of Farmland to a non-agricultural use would be less than significant.

Operation and Maintenance

Alternative 2 Collinsville Substation

The Alternative 2 Collinsville Substation would permanently convert agricultural grazing lands under Williamson Act contract and zoned for agricultural use to a utility use (Figure 4.2-4). The impact from conflict with a Williamson Act contract, zoning for agricultural use, and conversion of grazing lands to non-agricultural use would be significant. MM AG-1 (refer to Section 4.2.13) requires LSPGC to allow existing agricultural activities to continue on undeveloped portions of the Collinsville Substation site following construction, except where such activities would be unsafe or conflict with operation and maintenance of the Proposed Project. MM AG-1 also requires preservation of agricultural lands to offset conversion of Williamson Act contract lands, lands zoned for agricultural use, and grazing lands to a non-agricultural use. The Alternative 2 Collinsville Substation impact from conflicts with a Williamson Act contract and zoning for agricultural use would be less than significant with mitigation.

Alternative 2 LSPGC 230 kV Overhead Segment

Similar to the Proposed Project, agricultural activities could continue under the Alternative 2 230 kV overhead segment. Due to the increased length of the 230 kV overhead segment, there would be more TSPs located in areas zoned for agricultural use and located in areas under a Williamson Act contract than for the Proposed Project. According to Solano County Code Section 28.78.20, electrical lines (such as the 230 kV overhead line) are allowed in any zoning designation, including agricultural zones, provided certain requirements are met. Because the

CPUC has exclusive jurisdiction over siting and design of the Proposed Project (GO 131-D), those local requirements would not apply; however, the allowance for infrastructure uses demonstrates that overhead electrical lines are a conditionally compatible use in agricultural zones. In addition, electrical lines do not conflict with Williamson Act contracts as they allow agricultural uses to remain under the lines. As agricultural uses could continue surrounding and underneath the 230 kV overhead segment and electrical lines are allowed in agricultural zoned areas and areas under Williamson Act contract, the 230 kV overhead segment would not conflict with a Williamson Act contract or zoning for agricultural use. In addition, since agricultural activities could continue under the 230 kV overhead segment, the overhead transmission line would not otherwise convert farmland to a non-agricultural use and the impact would be less than significant.

Alternative 2 PG&E 500 kV Interconnection Lines and 12 kV Distribution Line
The Alternative 2 500 kV interconnection lines and 12 kV distribution line would be shorter than the Proposed Project and would require fewer transmission structures and poles in lands zoned for agricultural use; however the structures would be located on lands under Williamson Act contract. According to Solano County Code Section 28.78.20, electrical lines (such as the 500 kV overhead lines and 12 kV line) are allowed in any zoning designation, including agricultural zones, provided certain requirements are met. Because the CPUC has exclusive jurisdiction over siting and design of the Proposed Project (GO 131-D), those local requirements would not apply; however, the allowance for infrastructure uses demonstrates that overhead electrical lines are a conditionally compatible use in agricultural zones. In addition, electrical lines do not conflict with Williamson Act contracts as they allow agricultural uses to remain under the lines. As agricultural uses could continue surrounding and underneath the 500 kV interconnection lines and 12 kV line and electrical lines are allowed in agricultural zoned areas, the 500 kV interconnection lines and 12 kV distribution line would not conflict with a Williamson Act contract or zoning for agricultural use. In addition, since agricultural activities could continue under the 500 kV interconnection lines, the 500 kV interconnection lines would not otherwise convert farmland to a non-agricultural use and the impact would be less than significant.

4.2.8 Alternative 3: 500 kV Interconnection Lines on Entirely TSPs

Environmental Setting – Alternative 3

Alternative 3 involves constructing the PG&E 500 kV interconnection lines on entirely TSPs, instead of the combination of LSTs and three-pole TSPs under the Proposed Project. The Alternative 3 500 kV interconnection lines would be in the same general alignment as the Proposed Project 500 kV interconnection lines. Alternative 3 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 3.

The environmental setting for Alternative 3 is the same as the setting for the PG&E 500 kV interconnection lines addressed in Section 4.2.1.

Impact Analysis – Alternative 3

Similar to the Proposed Project, Alternative 3 would have no impact on Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Impact AG-1), forestland, or timberland zoned Timberland Production (Impact AG-3) or loss of forestland or conversion of forestland to a non-forest use (Impact AG-4). Alternative 3 would also result in the same types of potential impacts as the Proposed Project related to conflicts with zoning for agricultural use or Williamson Act contract (Impact AG-2) and conversion of Farmland to a non-agricultural use (Impact AG-5), because the interconnection lines would follow the same general alignment across agricultural lands. Impacts are discussed below.

Impact AG-2: Would Alternative 3 conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(Less than significant)***

Impact AG-5: Would Alternative 3 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? ***(Less than significant)***

The impact of Alternative 3 500 kV interconnection lines from conflicts with a Williamson Act contract, zoning for agricultural use or conversion of agricultural land to a non-agricultural use would be the same as the impact of the Proposed Project 500 kV interconnection lines addressed in Section 4.2.5 (above).

While Alternative 3 would include more TSPs than the Proposed Project. This change in structure type and quality would not alter the compatibility of the transmission lines agricultural zoning or Williamson Act contracts and would not result in additional conversion of Farmland to a non-agricultural use. The impact would be less than significant.

4.2.9 Alternative 4: 230 kV Overhead Segment Alternative Route

Environmental Setting – Alternative 4

Alternative 4 involves relocation of a short segment of the 230 kV overhead segment between the proposed LSPGC Collinsville Substation and the Delta, west of the proposed 230 kV overhead segment route. Additionally, the northern end of the LSPGC 230 kV submarine segment would be rerouted to meet up with the southern end of the Alternative 4 230 kV submarine segment. Alternative 4 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 4.

The relocated Alternative 4 230 kV overhead segment would be within land designated by the FMMP as Grazing Land and zoned agriculture. No FMMP-designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, Williamson Act contract land forest land, or timberland occurs within the Alternative 4 area.

Impact Analysis – Alternative 4

Similar to the Proposed Project, Alternative 4 would have no impact on Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Impact AG-1), forestland, or timberland

zoned Timberland Production (Impact AG-3) or loss of forestland or conversion of forestland to a non-forest use (Impact AG-4). Alternative 4 would result in the same types of potential impacts as the Proposed Project related to conflicts with a Williamson Act contract or zoning for agricultural use (Impact AG-2) and conversion of Farmland to a non-agricultural use (Impact AG-5), because the overhead 230 kV transmission line would be located one lands with the same agricultural designation as the Proposed Project 230 kV overhead segment. The impacts are discussed below.

Impact AG-2: Would Alternative 4 conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(Less than significant)***

Impact AG-5: Would Alternative 4 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? ***(Less than significant)***

Construction

The impacts of Alternative 4 would include all of the same construction-related impacts identified for the Proposed Project; the only difference is that a short segment of the 230 kV line would be relocated west of the Proposed Project alignment. The Alternative 4 relocated 230 kV line TSPs would be constructed on land zoned for agricultural use and designated as Grazing Land. Similar to the Proposed Project, LSPGC would implement APM AG-1, which requires landowner coordination and restoration of temporary disturbance within agricultural areas, and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), which requires preparation and implementation of a restoration plan for all temporarily disturbed areas. Together, these measures would ensure that disturbed areas are restored following construction. Because agricultural uses could continue underneath and adjacent to the Alternative 4 230 kV line, Alternative 4 construction would not result in substantially different or greater impacts than those identified for the Proposed Project. The impact from Alternative 4 230 kV transmission line construction would thus not conflict with zoning for agricultural use or convert Farmland to a non-agricultural use and the impact would be less than significant.

Operation and Maintenance

Similar to the Proposed Project 230 kV overhead segment, the Alternative 4 230 kV overhead segment would allow for agricultural activities to continue under the 230 kV overhead transmission line. In addition, electrical lines are generally compatible with agricultural designations under Solano County Code Section 28.78.20. The Alternative 4 230 kV overhead segment would not convert or conflict with agricultural land use and zoning designations due to the continued agricultural use under the 230 kV transmission line. Therefore, the impact would be less than significant.

4.2.10 Alternative 5: 230 kV Submarine Segment Alternative Route

Environmental Setting – Alternative 5

Alternative 5 involves rerouting a portion of the proposed LSPGC 230 kV submarine segment to the east of its current alignment as it approaches the southern shoreline in Pittsburg. The

submarine segment cable would be installed in the same manner as the Proposed Project. Alternative 5 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 5.

The 230 kV submarine segment would be directly buried in the riverbed of the Sacramento River and would not be within FMMP-designated Important Farmland (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance), forest land, or timberland. Additionally, the 230 kV submarine segment would not be on land that has been zoned for agricultural use and the land is not under a Williamson Act contract.

Impact Analysis – Alternative 5

Alternative 5 would be directly buried in the riverbed of the Sacramento River and would be on land designated as Water Areas.

Alternative 5 would have no impact on FMMP-designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, Williamson Act contract, lands zoned for agricultural use, forest land, timberland. As such, the Alternative 5 segment would have no impact on agriculture or forestry resources.

4.2.11 Alternative 6a/6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh Protection Plan Management

Environmental Setting – Alternative 6a/6b

Alternative 6a/6b would locate the LSPGC 230 kV transmission line on primarily PG&E-owned property south of the proposed Collinsville Substation site (similar to Alternative 4). Alternative 6a/6b would be installed in conduit underground. Alternative 6a differs from Alternative 6b only at the northern end of the segment where options are provided for connection to the Proposed Project Collinsville Substation or Alternatives 1 or 2. Two overhead riser structures would be installed at the northern end of the Alternative 6a/6b underground duct bank where the LSPGC 230 kV line would transition between an overhead and underground position. Alternative 6a/6b would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 6a/6b.

Alternative 6a/6b are located on land designated as Grazing Land by the FMMP and zoned for agricultural use by Solano County. No Williamson Act contract land, FMMP-designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or timberland is present within either site.

Impact Analysis – Alternative 6a/6b

Similar to the Proposed Project, Alternative 6a/6b would have no impact on Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Impact AG-1), forestland, or timberland zoned Timberland Production (Impact AG-3) or loss of forestland or conversion of forestland to a non-forest use (Impact AG-4). Alternative 6a/6b would impacts from conflicts with a

Williamson Act contract or zoning for agricultural use (Impact AG-2) and conversion of Farmland to a non-agricultural use (Impact AG-5) would be similar to the Proposed Project; however, agricultural activities are not anticipated to be allowed over the duct bank. The impacts are discussed below.

Impact AG-2: Would Alternative 4 conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(Less than significant)***

Impact AG-5: Would Alternative 4 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? ***(Less than significant)***

Construction

Alternative 6a/6b would result in temporary disturbance of land zoned for agricultural use during construction of the underground duct bank. The Alternative 6a/6b duct bank would be covered with soil following construction activities. LSPGC would implement APM AG-1 and APM BIO-2 (superseded by MM BIO-2; refer to Section 4.4: Biological Resources), which require landowner coordination and restoration of temporarily disturbed areas in accordance with a restoration plan. Therefore, agricultural uses could continue following construction in areas of temporary disturbance, and the impact from temporary conversion of farmland would be less than significant.

Operation and Maintenance

The Alternative 6a/6b underground duct bank would be a permanent conversion of the land to support the buried electrical conduit. The duct bank would be covered with 12 to 18 inches of soil and the duct bank would need to be protected to ensure electrical functions. As a result, agricultural activities would not be allowed on top of the duct bank resulting in permanent impacts on 0.6 acre of areas zoned for agricultural use. Due to the small area occupied by the duct bank and the ability to conduct agricultural activities adjacent the duct bank, the impact form conflict with zoning for agricultural use or conversion of farmland to agricultural use would be less than significant.

4.2.12 No Project Alternative

Environmental Setting – No Project Alternative

Under the No Project Alternative, the Proposed Project and alternatives would not be constructed. Existing conditions within the Proposed Project site would continue. The existing agricultural uses within Solano County and Contra Costa County described in Section 4.2.1 would apply to the No Project Alternative.

Impact Analysis – No Project Alternative

Because the No Project Alternative would avoid construction and operation of new substations, overhead or underground lines, and other facilities, it would not result in temporary or permanent conversion of farmland to non-agricultural use, would not conflict with agricultural zoning or Williamson Act contracts, and would not result in loss of forestland or timberland

(Impact AG-1, Impact AG-2, Impact AG-3, Impact AG-4, Impact AG-5). No impact on agriculture and forestry resources would occur.

4.2.13 Mitigation Measures

LSPGC Project Components

MM AG-1: Agricultural Mitigation

LSPGC shall allow existing agricultural activities to continue on undeveloped portions of the LSPGC Collinsville Substation property following construction, except where such activities would be unsafe or conflict with operation and maintenance of the project. Where agricultural land is permanently converted or agricultural activities cannot continue at the substation property, LSPGC shall preserve agricultural land at a ratio of 1.5:1 (mitigation:impact) for impacts on grazing lands as set forth in the Solano County Agricultural Mitigation Program. Mitigation lands shall meet the following criteria:

1. Be assigned an agricultural land use designation under the Solano County general plan;
2. Be assigned an agricultural zoning district under the Solano County Code;
3. Any legal nonconforming use of the land has been or will be abandoned prior to execution of the agricultural conservation easement or, if maintained, will not interfere with agricultural use of the mitigation land;
4. Be of adequate size, configuration, and location to be viable for continued agricultural operations and use;
5. Be of substantially equivalent FMMP farmland classification or better compared to the land being converted;
6. Have an adequate water supply available for continued agricultural operations and use;
7. The mitigation land is not already subject to an encumbrance or interest that would legally or practicably prevent converting the land, in whole or in part, to a nonagricultural use, such as a conservation easement, open space easement, flowage easement, navigation easement, long-term agricultural lease, profit, or an interest in the subsurface estate that would preclude development of the surface estate. A contract entered pursuant to the Land Conservation Act, Government Code Section 51200 et seq. (Williamson Act) shall not constitute an encumbrance for purposes of this section;
8. Lack physical conditions or contamination that would legally or practicably prevent converting the land, in whole or in part, to a nonagricultural use;
9. The mitigation land does not have an existing home, unless the land proposed for conversion includes an existing home.

The applicant shall grant an agricultural conservation easement anywhere in the unincorporated area of Solano County. The agricultural mitigation plan detailing the proposed agricultural mitigation location and how it meets the criteria of this measure shall be submitted

to the CPUC for review and approval at least 120 days prior to operation of the Collinsville Substation.

PG&E Project Components

No mitigation is required.

4.2.14 References

California Department of Conservation. 2024. "California Williamson Act Enrollment Finder." https://maps.conservation.ca.gov/dlrp/WilliamsonAct/.

California Department of Conservation (CDOC). 2024. "DLRP Important Farmland Finder." December 4. https://maps.conservation.ca.gov/DLRP/CIFF/.

California Department of Conservation (CDOC). n.d.-a. "California Williamson Act Enrollment Finder." Accessed April 22, 2025. https://maps.conservation.ca.gov/dlrp/WilliamsonAct/App/index.html.

California Department of Conservation (CDOC). n.d.-b. "Williamson Act Program." CA.Gov. https://www.conservation.ca.gov/dlrp/wa.

CDOC. 2025. "Important Farmland Categories." https://www.conservation.ca.gov/dlrp/fmmp/Pages/Important-Farmland-Categories.aspx.

City of Pittsburg. 2024. *Pittsburg 2040 General Plan: Revised Adoption Draft*. Available: https://pittsburg.generalplan.org/documents-and-maps.

Community Development Agency. 2024. "General Plan Land Use For Alameda County, CA." Map Viewing Application. Using Arc GIS Online (02/26/25), May 1. Map service. Last updated May 2, 2020. https://www.arcgis.com/apps/mapviewer/index.html?layers=e40225091e504813bfac8f32614d7de7.

Contra Costa County. 2024. *Contra Costa County 2045 General Plan*. https://envisioncontracosta2040.org/wp-content/uploads/2025/03/Contra-Costa-County-General-Plan_Final_Adopted_November_5_2024_Optimized.pdf.

Delta Protection Commission. 2024. "Delta Protection Act." Archived on:, May 21. https://delta.ca.gov/delta-protection-act/.

Land IQ, California Department of Water Resources. 2022. "Planning/i15_Crop_Mapping_2022_Provisional." Feature Layer. https://www.arcgis.com/apps/mapviewer/index.html?url=https://gis.water.ca.gov/arcgis/rest/services/Planning/i15_Crop_Mapping_2022_Provisional/MapServer&source=sd.

Natural Resource Conservation Service (NRCS). n.d. "Farmland Protection Policy Act." Accessed April 22, 2025. https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/land/cropland/farmland-protection-policy-act.

Sacramento County. n.d. "Online Map." Webmap. Accessed March 14, 2025. Available: https://planning.saccounty.gov/Pages/PlanningandCommunityMaps.aspx.

Solano County. 2008. *Solano County General Plan*. [Online]. https://www.solanocounty.com/depts/rm/planning/general_plan.asp.

Solano County. 2024. "Solano County Parcel Viewer." December 4. https://solanocountygis.com/portal/apps/webappviewer/index.html?id=b2a40316824143fc9f361d5d81c51a7a.

4.3 Air Quality

This section presents the environmental setting and analysis of impacts on air quality resulting from implementation of the Proposed Project and alternatives. This section includes information on existing air quality conditions in the Proposed Project area, regulations applicable to air quality, environmental impacts, and mitigation measures to reduce or avoid any significant effects from the Proposed Project or alternatives, where feasible.

The following scoping comments are relevant to air quality as discussed in the Scoping Report (Appendix B):

- The EIR should analyze air quality emission impacts and ensure the Project would not conflict with an existing air quality plan.

4.3.1 Approach to Data Collection

Existing air quality data was collected from the California Air Resources Board's (CARB's) iAdam database (https://www.arb.ca.gov/adam) the U.S. Environmental Protection Agency's (EPA's) Air Data website (https://www.epa.gov/outdoor-air-quality-data), and CARB's Air Quality and Meteorological Information System (AQMIS), which provide daily measurements and annual summaries of observed air quality data from air quality monitoring stations . Air quality data was collected for the last 3 years from the nearest air quality monitoring stations to the Proposed Project area where data was available for monitoring years 2022 through 2024.[1] Ambient air quality data was collected from the following air quality monitoring stations:

- Fairfield-Chadborne: Approximately 15 miles northwest of the proposed LSPGC Collinsville Substation site
- Vacaville-Merchant: 20 miles northwest of the proposed LSPGC Collinsville Substation site
- Bethel Island: Approximately 14 miles east of the proposed LSPGC telecommunication interconnection lines
- Rio Vista: Approximately 8.5 miles northeast of the PG&E 500 kV interconnection lines

[1] Finalized air quality monitoring data was not available from the EPA or iAdam for the entirety of 2024. Therefore, 2024 preliminary data was collected from AQMIS.

Figure 4.3-1 Air Districts and Air Quality Monitoring Stations for the Proposed Project Area



Source: (CARB 2023a; EPA 2019)

4.3.2 Environmental Setting

Air Basins

The Proposed Project site is predominantly situated within the San Francisco Bay Area Air Basin (SFBAAB), under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Transposition Site C falls within the portion of the SVAB that is under the jurisdiction of the Yolo Solano Air Quality Management District (YSAQMD). Additionally, a small portion of the proposed LSPGC 230 kV submarine cable is within the Sacramento Valley Air Basin (SVAB), under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD) (as shown in Figure 4.3-1).

Climate and Meteorology

The climate of the SFBAAB is characterized by a high-pressure system over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system shifts to the south, allowing more storms to pass through the region. In summer and early fall, when few storms pass through the region, emissions within the SFBAAB can combine with abundant sunshine under the restraining influences of topography and atmospheric inversions[2] to create conditions that are conducive to the formation of photochemical pollutants, such as ozone (O_3), and secondary particulates, such as nitrates and sulfates (BAAQMD 2010).

The climate in the Proposed Project area is influenced by the mixture of cool air that flows from the Pacific Ocean and San Francisco Bay to lower areas in Solano County. The area experiences high wind speeds due to temperature and atmospheric pressure differences between the Bay and Sacramento valley. The predominant wind patterns in the Proposed Project area are shaped by its location at the confluence of the Sacramento and San Joaquin Rivers, adjacent to the Carquinez Strait. This positioning facilitates the movement of marine air from the Pacific Ocean inland through the Strait, significantly influencing local wind behavior. Sustained westerly winds blowing from the Pacific Ocean inland through the Carquinez Strait have been observed to significantly influence hydrodynamic conditions in the Sacramento–San Joaquin Delta, including eliminating ebb tides during strong low-pressure events (Burau et al. 2000). Based on modeled climate data from Buchanan Field Airport, which is the nearest long-term station with wind data (approximately 12 miles southwest of Collinsville), winds in the Proposed Project area generally blow from the west year-round, with average wind speeds ranging from approximately 5 to 7 miles per hour. Wind speeds tend to increase during the spring and early summer months. These prevailing winds, driven by marine air moving inland through the Carquinez Strait, influence local air quality and pollutant dispersion (Meteoblue 2025).

Existing Air Quality

To protect human health and the environment, the U.S. Environmental Protection Agency (EPA) has set thresholds for ambient concentrations of CAPs called the National Ambient Air

[2] In meteorology, an inversion refers to an increase in temperature with height, a departure from the usual trend of decrease in temperature with increasing altitude. Temperature inversions occur when the air above a certain level is warmer than the air below.

Quality Standards, or NAAQS. *Primary* standards are set for all CAPs to protect human health, particularly for children and the elderly, as well as for individuals who suffer from chronic lung conditions (e.g., asthma and emphysema). For some CAPs, *secondary* standards are also set to protect the natural environment and prevent further adverse effects on animals, crops, vegetation, and buildings (EPA 2024f). Each CAP with NAAQS ambient concentration thresholds is discussed below.

Ozone (O_3): Ozone is found in the upper atmosphere (as the ozone layer) as well as at ground level. At ground level, O_3 is considered a pollutant. Ozone forms when O_3 precursors (i.e., reactive organic gases [ROGs], CO, nitrogen oxides [NO_X], and volatile organic compounds [VOCs]) react with sunlight in the atmosphere. Sources of these precursors include fuel combustion in vehicles and industrial processes, gasoline vapors, and chemical solvents. Ozone can cause respiratory problems (i.e., chest pain, coughing, throat irritation) and exacerbate existing respiratory problems, such as asthma and bronchitis systems (California Air Resources Board (CARB) 2023d).

Sulfur dioxide (SO_2): is a colorless, acidic gas with a strong odor. It is produced by the combustion of sulfur- containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage building materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease. SO_2 is a precursor to the formation of atmospheric sulfate and particulate matter, and contributes to potential atmospheric sulfuric acid formation that can precipitate downwind as acid rain (EPA 2025).

Carbon monoxide (CO): CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest in the winter morning when surface-based inversions trap the pollutant at ground level. CO is emitted directly from internal combustion engines. The primary source of CO in urban areas is from motor vehicles. High concentrations of CO are therefore found along transportation corridors. Exposure to CO results in reduced oxygen- carrying capacity of the blood. High CO concentrations can result in health risks, particularly for individuals with compromised cardiovascular systems (EPA 2024b).

Nitrogen dioxide (NO_2): Nitrogen dioxide is formed during combustion of fossil fuels from vehicles and industrial processes. NO_2 is an ozone precursor, which can also cause acid rain and acid snow. Health effects of NO_2 include airway inflammation in healthy people and exacerbation of preexisting asthma (EPA 2024d).

Lead: Lead has a range of adverse neurotoxin health effects and was formerly released into the atmosphere primarily via leaded gasoline products. The phase-out of leaded gasoline in California resulted in decreasing levels of atmospheric lead. Most aviation gasoline (general aviation fuel for piston engines) also contains lead. Lead is a highly stable compound that accumulates in the environment and in living organisms. In humans, lead exposures can interfere with the maturation and development of red blood cells, affect liver and kidney functions, and cause nervous system damage (EPA 2024c)

Respirable particulate matter (PM_{10}): Particulate matter is a combination of liquid or solid particles suspended in the air. PM_{10} particles are smaller than 10 micrometers in diameter, and typically include dust, pollen, and mold. Liquid particles include those from sprays and other toxic chemical compounds. PM_{10} particles are a threat to health because they can enter the lungs and are small enough that the respiratory system cannot naturally filter them out. PM_{10} can exacerbate asthma and bronchitis, and potentially contribute to premature death (EPA 2024g).

Fine particulate matter ($PM_{2.5}$): Particulate matter is a combination of liquid or solid particles suspended in the air. $PM_{2.5}$ particles are smaller than 2.5 micrometers in diameter and typically include combustion particles, organic compounds, and metal particles. $PM_{2.5}$ is a complex mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, organics and sulfates; and complex mixtures such as diesel exhaust and wood smoke. $PM_{2.5}$ can be emitted directly and also can be formed in the atmosphere through reactions among different pollutants (BAAQMD 2022c). $PM_{2.5}$ is considered more hazardous to human health than PM_{10} because it can contain a larger variety of dangerous components than PM_{10} and can travel farther into the lungs, potentially causing scarring of lung tissue and reduced lung capacity (EPA 2024g).

In addition to NAAQS, California has established its own ambient air quality standards, the California Ambient Air Quality Standards, or CAAQS. The CAAQS set maximum ambient concentration thresholds for the CAPs covered under NAAQS, in some cases more stringent than the NAAQS, as well as four additional air pollutants: visibility-reducing particles (VRPs), sulfates, hydrogen sulfide (H_2S), and vinyl chloride (CARB n.d.-d).

Sulfates: Sulfates are a family of chemicals that contain the fully oxidized ionic form of sulfur (SO_4^{2-}) in combination with metal and/or hydrogen ions. In California, emissions of sulfur-containing compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. A small amount of sulfate is directly emitted from combustion of sulfur-containing fuels, but most ambient sulfate is formed in the atmosphere. First, emitted sulfur in the fuel is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate particulate matter through chemical reactions in the atmosphere. Thus, sulfates are a sub-fraction of ambient particulate matter. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological characteristics (CARB n.d.-c).

Hydrogen sulfide (H_2S): Hydrogen sulfide is a colorless gas with the odor of rotten eggs. The most common sources of H_2S emissions are oil and natural gas extraction and processing, and natural emissions from geothermal fields. It is also formed during bacterial decomposition of human and animal wastes and is present in emissions from sewage treatment facilities and landfills. Industrial sources include petrochemical plants, coke oven plants, and kraft paper mills (CARB 2025b). Exposure to low concentrations of H_2S may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of H_2S (greater than 500 ppm) can cause a loss of consciousness and possibly death (California Air Resources Board (CARB) 2025b).

Visibility-reducing particles: Particulate matter (PM) pollution impacts the environment by decreasing visibility (haze). These particles vary greatly in shape, size and chemical composition, and come from a variety of natural and manmade sources. Some haze-causing particles are directly emitted to the air such as windblown dust and soot. Others are formed in the air from the chemical transformation of gaseous pollutants (e.g., sulfates, nitrates, organic carbon particles) which are the major constituents of fine PM. These fine particles, caused largely by combustion of fuel, can travel hundreds of miles causing visibility impairment (CARB n.d.-e).

Vinyl chloride (C_2H_3Cl): Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used in the process of making polyvinyl chloride (PVC) plastic and vinyl products, thus may be emitted from industrial processes. Vinyl chloride has been detected near landfills, sewage treatment plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents, although levels above the standard have not been measured in California since the 1970's. Today, vinyl chloride exposure is primarily an occupational concern (CARB n.d.-d).

The NAAQS and CAAQS are for each CAP are summarized in Table 4.3-1, below.

Table 4.3-1 California and National Ambient Air Quality Standards

Pollutant	Averaging time	CAAQS [a]	NAAQS (primary) [b]	NAAQS (secondary)
Ozone (O_3)	8 hours	0.070 ppm	0.070 ppm	0.070 ppm
Ozone (O_3)	1 hour	0.09 ppm	—	—
Carbon monoxide (CO)	8 hours	9.0 ppm	9 ppm	—
Carbon monoxide (CO)	1 hour	20 ppm	35 ppm	—
Nitrogen dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm	—
Nitrogen dioxide (NO_2)	Annual	0.030 ppm	0.053 ppm	0.053 ppm
Sulfur dioxide (SO_2)	24 hours	0.04 ppm	0.14 ppm	—
Sulfur dioxide (SO_2)	4 hours	—	0.5 ppm	—
Sulfur dioxide (SO_2)	1 hour	0.25 ppm	0.075 ppm	—
Sulfur dioxide (SO_2)	Annual	—	0.030 ppm	0.01 ppm
Respirable particulate matter (PM_{10})	Annual	20 µg/m^3	—	—

Pollutant	Averaging time	CAAQS [a]	NAAQS (primary) [b]	NAAQS (secondary)
Respirable particulate matter (PM_{10})	24 hours	50 µg/m^3	150 µg/m^3	150 µg/m^3
Fine particulate matter ($PM_{2.5}$)	Annual	12 µg/m^3	9 µg/m^3	15 µg/m^3
Fine particulate matter ($PM_{2.5}$)	24 hours	—	35 µg/m^3	150 µg/m^3
Hydrogen sulfide (H_2S)	1 hour	0.03 ppm	—	—
Vinyl chloride	24 hours	0.01 ppm	—	—
Sulfates	24 hours	25 µg/m^3	—	—
Lead	30 days	1.5 µg/m^3	—	—
Lead	Calendar quarter	—	1.5 µg/m^3	—
Lead	3 months (rolling average)	—	0.15 µg/m^3	0.15 µg/m^3
Visibility reducing particles	8 hours	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more due to particles when relative humidity is less than 70%	—	—

Notes:

[a] California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and PM (PM_{10}, $PM_{2.5}$, and VRP) are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in section 70200 of Title 17 of the California Code of Regulations.

[b] NAAQS (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

Source: (EPA 2024f; CARB 2016)

Attainment Status

Air quality compliance and implementation of planning documents is addressed at the air basin level. It is the responsibility of the BAAQMD and SMAQMD to ensure that the CAAQS and NAAQS are achieved and maintained in their geographical jurisdictions (BAAQMD 2022a; SMAQMD 2020a). Attainment of the CAAQS and NAAQS protects sensitive receptors and the public from CAPs that are known to have adverse human health effects. Air basins that exceed either the NAAQS or the CAAQS for any CAPs are designated as nonattainment areas for that pollutant. Three designations can be applied to an area for a particular CAP:

- Nonattainment: Ambient air concentrations of CAPs exceed standards.
- Attainment: Ambient air concentrations of CAPs fall below standards.
- Unclassified: There is not sufficient air quality monitoring data to determine attainment or nonattainment (Bay Area Air Quality Management District (BAAQMD), n.d.).

The majority of the Proposed Project site is within the jurisdiction of BAAQMD, with a small portion of the LSPGC 230 kV submarine segment located within the jurisdiction of SMAQMD and Transposition Site C located within the jurisdiction of YSAQMD. Table 4.3-2, Table 4.3-3, and Table 4.3-4 below, list the state and federal attainment statuses for BAAQMD, SMAQMD, and YSAQMD for each CAP. As shown in in Table 4.3-2, BAAQMD is in federal and state nonattainment for O_3 and $PM_{2.5}$ and state nonattainment for PM_{10}. As shown in Table 4.3-3, SMAQMD is in federal and state nonattainment for O_3, federal nonattainment for $PM_{2.5}$, and state nonattainment for PM_{10}. As shown in Table 4.3-4, YSAQMD is in federal and state nonattainment for O_3, federal nonattainment for $PM_{2.5}$, and state nonattainment for PM_{10}.

Table 4.3-2 BAAQMD State and Federal Air Quality Attainment Statuses

Criteria air pollutant (CAP)	State	Federal
O_3	Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Unclassified
CO	Attainment	Unclassified/attainment
NO_2	Attainment	Unclassified/attainment
SO_2	Attainment	Unclassified/attainment
Sulfates	Attainment	NA
Pb	Attainment	Unclassified/attainment
H_2S	Unclassified	NA
VRP	Unclassified	NA

Source: (BAAQMD n.d.)

Table 4.3-3 SMAQMD State and Federal Air Quality Attainment Statuses

Criteria air pollutant (CAP)	State	Federal
O_3	Nonattainment	Nonattainment
$PM_{2.5}$	Attainment	Nonattainment
PM_{10}	Nonattainment	Attainment
CO	Attainment	Unclassified/attainment
NO_2	Attainment	Unclassified/attainment
SO_2	Attainment	Unclassified/attainment
Sulfates	Attainment	Na
Pb	Attainment	Unclassified/attainment
H_2S	Unclassified	NA
VRP	Unclassified	NA

Source (SMAQMD n.d.)

Table 4.3-4 YSAQMD State and Federal Air Quality Attainment Statuses

Criteria air pollutant (CAP)	State	Federal
O_3	Nonattainment	Nonattainment
$PM_{2.5}$	Unclassified	Nonattainment
PM_{10}	Nonattainment	Unclassified
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Sulfates	Attainment	Attainment
Pb	Attainment	NA
H_2S	Unclassified	NA
VRP	Unclassified	NA

Source: (YSAQMD 2025)

Baseline Air Quality

The BAAQMD, SMAQMD, and YSAQMD operate a system of air monitoring stations that analyze air quality data on an hourly basis throughout their respective jurisdictions. The nearest air quality monitoring stations to the Proposed Project site that monitor for O_3 are the Fairfield-Chadbourne Road air quality monitoring station, located approximately 15 miles northwest of the proposed LSPGC Collinsville Substation site and 11 miles southwest of PG&E Transposition Site A, and the Bethel Island air quality monitoring station, approximately 14 miles east of the

proposed LSPGC telecommunications line interconnection alignment and 9 miles north of Transposition Site D. The air quality monitoring station nearest to the Proposed Project site that monitors for $PM_{2.5}$ is the Rio Vista air quality monitoring station, located approximately 8 miles northeast of proposed PG&E 500 kV interconnection lines alignment and 9 miles northeast of Transposition Site C. The nearest station to the Proposed Project site that monitors for PM_{10} is the Vacaville-Merchant Street air quality monitoring station, located approximately 20 miles northwest of the proposed LSPGC Collinsville substation and 5 miles northwest of Transposition Site A (EPA 2019).

Table 4.3-5, below, provides maximum and average ambient air quality concentrations for each criteria pollutant of concern (O_3, $PM_{2.5}$. and PM_{10}) for the years 2022 through 2024 as measured at the nearest monitoring station to the Project site along with the corresponding and CAAQS. Figure 4.3-1 shows the location of each air quality monitoring site for which data was used in the analysis of existing air quality.

Table 4.3-5 Criteria Ambient Air Quality Data in the Project Area and Relevant Standards

Monitoring station	CAP	Averaging time	Value applied	2022	2023	2024	CAAQS	NAAQS
Fairfield-Chadbourne Road	O_3	1 hour	Highest concentration	0.079 ppm	0.065 ppm	0.084 ppm	0.090 ppm	—
Fairfield-Chadbourne Road	O_3	8 hours	Highest concentration	0.064 ppm	0.065 ppm	0.074 ppm	0.070 ppm	—
Fairfield-Chadbourne Road	O_3	8 hours	4th-highest concentration [a]	0.061 ppm	0.054 ppm	0.059 ppm	—	0.070 ppm
Bethel Island	O_3	1 hour	Highest concentration	0.093 ppm	0.078 ppm	0.080 ppm	0.090 ppm	—
Bethel Island	O_3	8 hours	Highest concentration	0.079 ppm	0.065 ppm	0.069 ppm	0.070 ppm	—
Bethel Island	O_3	8 hours	4th-highest concentration [a]	0.067 ppm	0.058 ppm	0.064 ppm	—	0.070 ppm
Rio Vista-St. Francis Way	$PM_{2.5}$	1 year	Annual arithmetic mean	10.5 µg/m³	11.5 µg/m³	9.8 µg/m³	12 µg/m³	9 µg/m³
Rio Vista-St. Francis Way	$PM_{2.5}$	24 hours	98th percentile [b]	35.0 µg/m³	46.4 µg/m³	27.9 µg/m³	35 µg/m³	150 µg/m³
Rio Vista-St. Francis Way	$PM_{2.5}$	24-hour	Highest concentration	27.7 µg/m³	23.0 µg/m³	19.9 µg/m³	35 µg/m³	150 µg/m³
Vacaville-Merchant Street	PM_{10}	24 hours	Highest concentration	33 µg/m³	39 µg/m³	15 µg/m³	50 µg/m³	150 µg/m³
Vacaville-Merchant Street	PM_{10}	1 year	Annual arithmetic mean	12 µg/m³	*	*	20 µg/m³	—

Notes:

[a] The primary and secondary NAAQS for ozone (O_3) established in 2015 is for the fourth-highest daily maximum 8-hour concentration, averaged across three consecutive years.

[b] For $PM_{2.5}$, the NAAQS is attained when the 98th percentile of 24-hour concentrations in one year, averaged over three years, is equal to or less than the 35 µg/m^3 standard.

[c] Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

[d] A * entry indicates there was insufficient or no data to determine the value.

Source: (CARB 2016; 2025c; EPA 2024f)

Table 4.3-6, below, lists the number of CAAQS and NAAQS exceedances per year for each criteria pollutant of concern (O_3, $PM_{2.5}$. and PM_{10}) as measured by the nearest monitoring station to the Project site for the years 2022 through 2024. The $PM_{2.5}$ CAAQS is an annual arithmetic mean (AAM) (i.e., an average) not to be exceeded annually (CARB 2016; 2025c; EPA 2024f).

Table 4.3-6 Number of Ambient CAP Concentration Exceedances Per Year

Standard	Monitoring station	Number of exceedances: 2022	Number of exceedances: 2023	Number of exceedances: 2024
Ozone 1-hour	Fairfield-Chadbourne Road	0	0	0
Ozone 8-hour	Fairfield-Chadbourne Road	0	0	0
Ozone 1-hour	Bethel Island	1	0	0
Ozone 8-hour	Bethel Island	1	0	0
$PM_{2.5}$ AAM [a]	Rio Vista-St. Francis Way	0	3	0
PM_{10} 24-hour	Vacaville-Merchant Street	0	*	*

Notes:

[a] AAM: Annual arithmetic mean

[b] A * entry indicates there was insufficient or no data to determine the value.

Source: (CARB 2025c; 2025d)

Toxic Air Contaminants

Under the 1990 Federal Clean Air Act Amendments, 189 substances are regulated as *hazardous air pollutants* (HAPs). *Toxic air contaminants* (TACs) comprises those substances that have been federally listed as HAPs as well as additional substances and groups of substances as listed in California Code of Regulations (CCR) title 17 section 93000 (CARB n.d.-a). The current California list of TACs includes approximately 200 compounds, including *diesel particulate matter* (DPM) emissions from diesel-fueled engines, that were identified by CARB in 1998 (CARB n.d.-a).

The California Health and Safety Code section 39655 defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." TACs may be emitted from a variety

of common sources, including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Exposure to TACs can cause serious health effects, including cancer and birth defects. Other adverse health effects can include damage to the immune system, as well as neurological, reproductive (reduced fertility), development, and respiratory problems (BAAQMD 2022c).

TACs and HAPs are regulated under state and federal laws, respectively. Section 4.3.3 includes a description of how HAPs and TACs are regulated. TACs are not included in state ambient air quality standards but are regulated by BAAQMD using a risk-based approach. This approach uses a project health risk assessment (HRA) to evaluate the potential human health risks associated with exposure to TACs and inform permitting decisions accordingly. An HRA is an analysis of the exposure to toxic substances and human health risks from exposure to toxic substances, based on the potency of the toxic substances.[3]

Air Toxic Hot Spots

Under the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Health and Safety Code section 39655 et seq.), certain industrial and commercial facilities are required to report emissions TACs to local air districts. Facilities that emit TACs in a manner that may result in a significant localized health risk are designated as *air toxics hot spots*, defined as any area where emissions of hazardous air pollutants from a facility expose individuals to a potential health risk, especially due to routine or predictable releases of TACs, or concentrations that result in elevated cancer risk or non-cancer health hazards. These locations are identified based on emissions inventories, dispersion modeling, and HRAs using methodologies established by the California Office of Environmental Health Hazard Assessment (OEHHA) (OEHHA 2015). The purpose of the Hot Spots Program is to assess potential health risks to nearby residents and workers from facility-level emissions and to inform the public about associated risks.

BAAQMD maintains an updated inventory of these facilities and identifies estimated cancer risks and hazard indices associated with individual sources, which are used to assess whether a project would locate sensitive receptors in proximity to existing air toxics hot spots or contribute substantially to cumulative health risks in areas already affected by elevated TAC emissions. The BAAQMD threshold of significance is an increased cancer risk from stationary TAC-emitting sources is 10 in one million and a chronic hazard index of 1.0 (BAAQMD 2022b). Using CARB's Stationary Source Screening Map, no permitted stationary sources were identified within 1,000 feet of Project site. The nearest permitted significant source of TAC emissions to the Project site is the Pittsburg Valero gas station, located at 1005 Railroad Avenue, approximately 0.3 mile from the proposed LSPGC telecommunication lines interconnection

3 A health risk assessment is required for permitting approval if the BAAQMD concludes that projected emissions of a specific toxic air contaminant from a proposed new or modified source suggests a potential public health risk. Such an assessment generally evaluates chronic, long-term effects, calculating the increased risk of cancer as a result of exposure to one or more TACs.

alignment, with an increased cancer risk of 11.29 in one million and a chronic hazard index of 0.05 (CARB 2025e).

Odors

The presence of and impact of odors to ambient air quality can be subjective. Reactions to the same odor can vary and range from psychosocial to physiological, including symptoms such as nausea, vomiting, and headache as well as circulatory and respiratory symptoms. While an unfamiliar odor is more likely to be detected and experienced as objectionable, a person can become desensitized to a familiar odor, only detecting it if it increases in strength. The subjective experience of odor is influenced by two main properties: quality and intensity. The quality of an odor (e.g., sweet, flowery) depends on the nature of the source while the intensity depends on the concentration of the source particles in the air. Below a certain concentration, an odor will be undetectable.

Although offensive odors from stationary sources rarely cause any physical harm, they are unpleasant and can lead to public distress, generating complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors (BAAQMD 2022c).

BAAQMD provides examples of odor sources, which include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. The BAAQMD's significance criteria for odors are subjective and are based on the number of odor complaints generated by a project (BAAQMD 2022c). Generally, the BAAQMD considers any project with the potential to frequently expose members of the public to objectionable odors to cause a significant impact.

There are no documented odor-generating facilities in the vicinity of the Proposed Project north of the Delta. The Sunoco LP Pittsburg Terminal is located approximately 1.75 miles from the proposed LSPGC telecommunication lines interconnection alignment and includes at least eight large aboveground storage tanks and primarily stores and handles asphalt and petroleum-based products. Emissions of volatile organic compounds (VOCs) and sulfur-containing compounds during storage, transfer, or heating of asphalt, such as that stored at the Sunoco LP Pittsburg Terminal, can produce noticeable hydrocarbon or "tar-like" odors, particularly under warm weather conditions or during maintenance events (EPA 1973). The Delta Diablo Wastewater Treatment Plant is located approximately 3 miles east of the Proposed Project site. Because the plant is well beyond BAAQMD's recommended 2-mile odor screening distance for wastewater treatment facilities, and the Project would not introduce new sensitive receptors near the facility, the plant does not represent a potential source of objectionable odors affecting the Project site.

While SMAQMD does not have a specific rule or thresholds for odors, SMAQMD prohibits emissions that cause a public nuisance or adversely affect public health and welfare. Facilities emitting odors must implement appropriate control measures to minimize odor impacts. The

portion of the Proposed Project site that is within the jurisdiction of SMAQMD is within the Delta, and there are no potential odor-generating sources within the Delta.

Sensitive Receptors

Certain community members are more susceptible to poor air quality. These individuals, referred to as *sensitive receptors*, are typically children, the elderly, and those with preexisting serious health problems. Land uses where sensitive receptors are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers and preschools, hospices, dormitories, prisons, nursing homes, hospitals, and residential communities (BAAQMD 2022c).

Sensitive receptors/land uses in proximity to the Proposed Project site are listed in Table 4.3-7 and Table 4.3-8 and are shown in Figure 4.3-2, Figure 4.3-3, and Figure 4.3-4.

Table 4.3-7 Sensitive Receptors Near the Proposed Project Site – LSPGC Components

Sensitive receptor	Nearest Proposed Project component	Distance to sensitive receptor (approximate)	Jurisdictions
AQ-SR1: Residences along Collinsville Road	LSPGC Collinsville Substation	1 mile	Solano County; BAAQMD
AQ-SR2: Residences between Halsey Court and Gridley Drive	LSPGC telecommunication line interconnection	< 50 feet	City of Pittsburg; BAAQMD
AQ-SR3: Residences along Linda Vista Ave	LSPGC telecommunication line interconnection	522 feet	City of Pittsburg; BAAQMD
AQ-SR4: Residences between Halsey Way and Mariner Park	LSPGC telecommunication line interconnection	<50–331 feet	City of Pittsburg; BAAQMD
AQ-SR5: Residences between Marina Blvd and W 9th Street	LSPGC telecommunication line interconnection	<50–1000 feet	City of Pittsburg; BAAQMD
AQ: SR6: Residences between Marina Blvd and Pelican Loop	LSPGC telecommunication line interconnection	<50–1000 feet	City of Pittsburg; BAAQMD
AQ-SR7: St. Martyr School	LSPGC telecommunication line interconnection	35 feet	City of Pittsburg; BAAQMD
AQ-SR8: Marina Vista Elementary School	LSPGC telecommunication line interconnection	974 feet	City of Pittsburg; BAAQMD
AQSR-9: Marina Nohrra Kids Playground	LSPGC telecommunication line interconnection	330 feet	City of Pittsburg; BAAQMD
AQ-SR10: Mariner Park	LSPGC telecommunication line interconnection	357 feet	City of Pittsburg; BAAQMD
AQ-SR11: John Buckley Square	LSPGC telecommunication line interconnection	116 feet	City of Pittsburg; BAAQMD
AQ-SR12: Marina Walk Park (W. 7th Street & Cutter Street)	LSPGC telecommunication line interconnection	213 feet	City of Pittsburg; BAAQMD

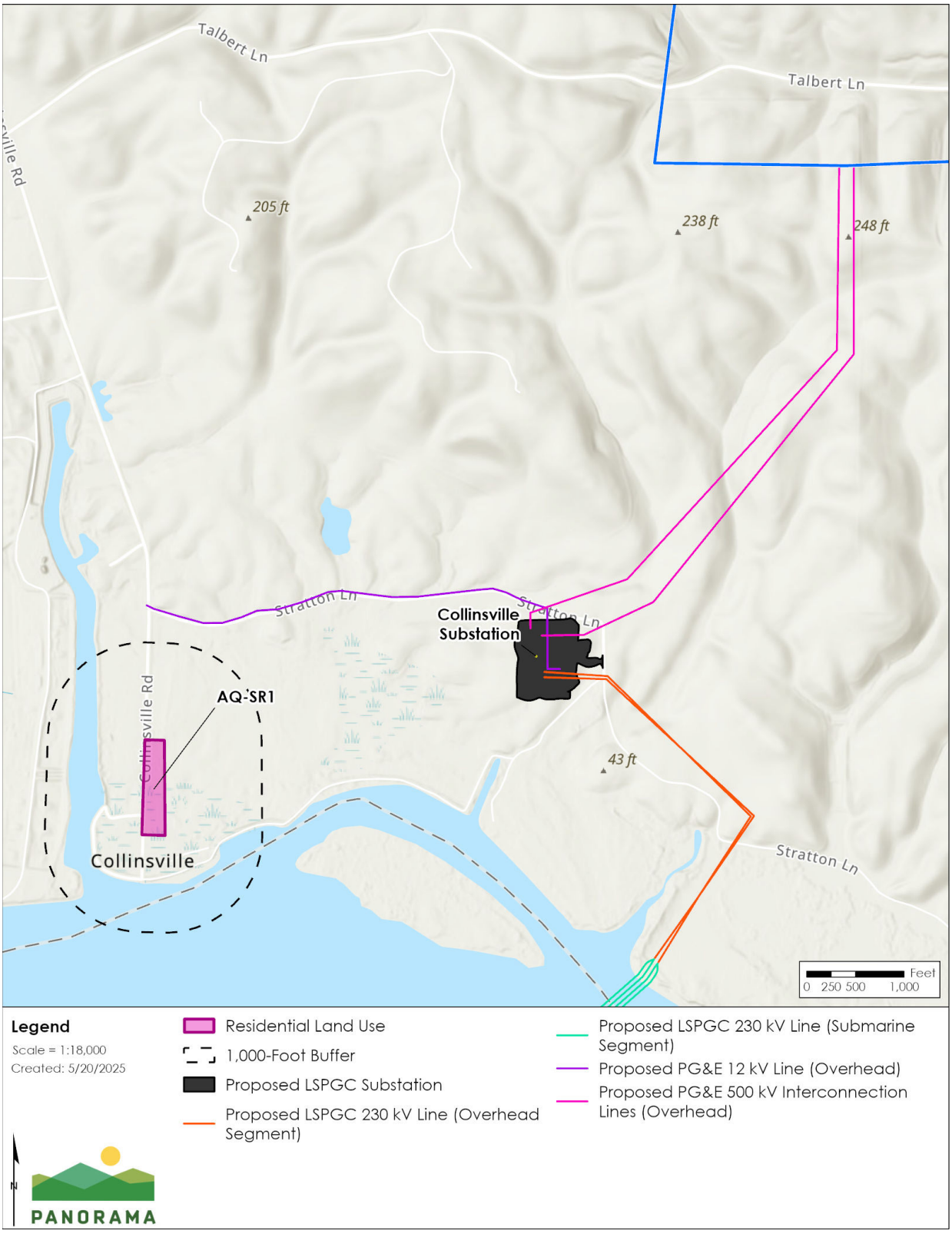
Source: (ESRI® 2009; 2017)

Table 4.3-8 Sensitive Receptors Near the Project Site – PG&E Components

Sensitive receptor	Project component	Distance to sensitive receptor (approximate)	Jurisdictions
AQ-SR1: Residences along Collinsville Road	PG& E 12 kV distribution line	0.25 mile	Solano County; BAAQMD
AQ-SR2: Residences between Halsey Court and Gridley Drive	PG&E Pittsburg Substation	275 feet	City of Pittsburg; BAAQMD
AQ-SR3: Residences along Linda Vista Ave	PG&E Pittsburg Substation	548 feet	City of Pittsburg; BAAQMD
AQ-SR4: Residences between Halsey Way and Mariner Park	PG&E Pittsburg Substation	953 feet	City of Pittsburg; BAAQMD
AQ-SR7: St. Martyr School	PG&E Pittsburg Substation	830 feet	City of Pittsburg; BAAQMD
AQ-SR14: Residence on Box Ranch Road	PG&E transposition site A	1,475 east	Solano County; BAAQMD
AQ-SR15: Residence on Maud Lane	PG&E transposition site B	670 west	Solano County; BAAQMD
AQ-SR16: Residence on Birds Landing Road	PG&E transposition site C	2,000 north	Solano County; BAAQMD
AR-SR17: Residence on Kellog Creek Road	PG&E transposition site D	330 west	City of Pittsburg; BAAQMD

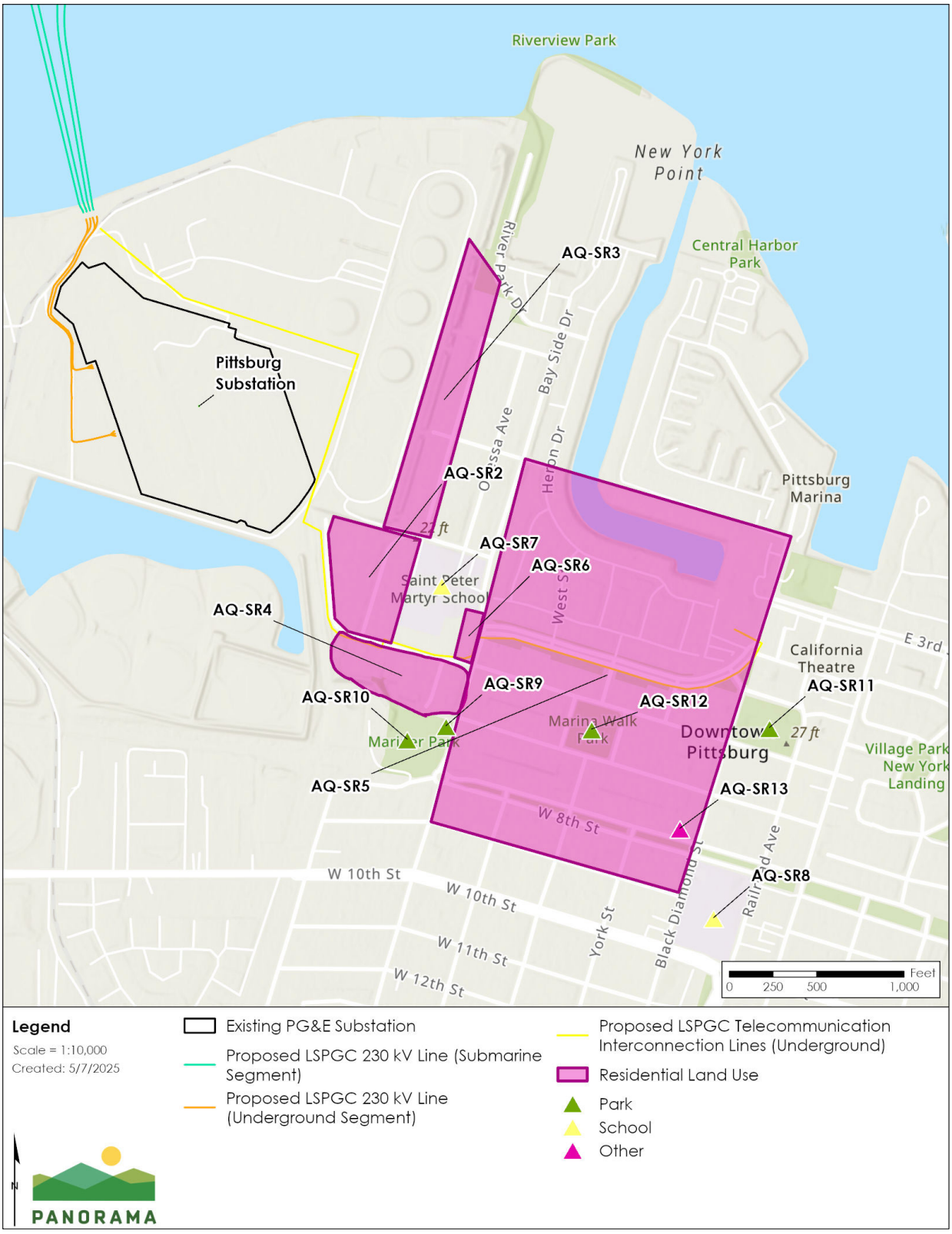
Source: (ESRI® 2009; 2017)

Figure 4.3-2 Sensitive Receptors Near the Proposed Project Site – North Side of Delta



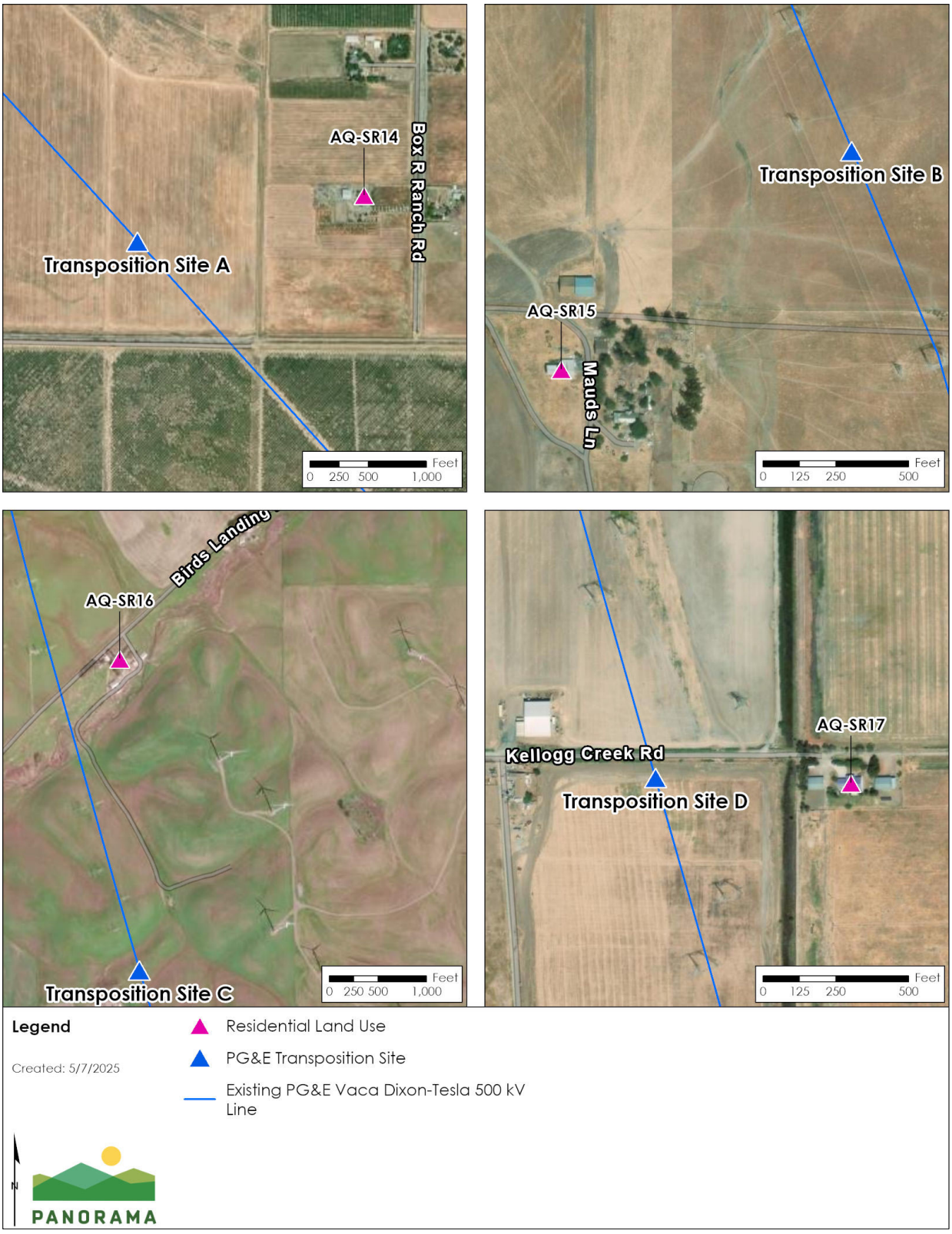
Source: (ESRI® 2009; 2017)

Figure 4.3-3 Sensitive Receptors Near the Proposed Project Site – South Side of Delta



Source: (ESRI® 2009; 2017)

Figure 4.3-4 Sensitive Receptors Near Proposed Project Site – PG&E Transposition Sites



Source: (ESRI® 2009; 2017)

4.3.3 Regulatory Setting

Federal, state, and local regulations were reviewed for applicability to the Proposed Project and alternatives.

Federal

The Clean Air Act (CAA) of 1970 established ambient air quality standards for six CAPs—O_3, PM_{10}, CO, NO_2, SO_2, and Pb—that are known to have adverse impacts on human health and the environment (EPA 2024e). The CAA also requires each state to develop and maintain a *state implementation plan* (SIP) for each CAP for which the NAAQS is exceeded in a given geographic area, such as an air basin. The SIP serves as a tool to reduce levels of pollutants known to cause impacts if they exceed ambient thresholds and to achieve compliance with the NAAQS. In 1990, the CAA was further amended to strengthen regulation of both stationary and mobile emission sources for the CAPs (Congression Research Service [CRS] 2022).

State

California Clean Air Act

The California Clean Air Act of 1988 (CCAA) provides the framework for the management of air quality throughout the state. The CCAA requires local air quality management districts to develop and implement strategies to attain the CAAQS and mandates that the air quality management districts prepare air quality management plans that specify how both NAAQS and CAAQS will be attained. The CARB sets the laws and regulations for air quality on the state level. CARB enforces the CAAQS and works with the State's Office of Environmental Health Hazard Assessment in identifying *toxic air contaminants* (TACs) and enforcing rules related to TACs, including the Air Toxic Hot Spots Information and Assessment Act of 1987, which was enacted to identify TAC hot spots where emissions from specific sources may expose individuals to an elevated risk of adverse health effects and requires that a business or other establishment identified as a significant source of toxic emissions to provide the affected population with information about health risks posed by those emissions.

California Air Resources Board

The CARB is responsible for establishing and reviewing the state standards, compiling the California SIP and securing approval of the SIP from the EPA, conducting research and planning, and identifying TACs. The CARB also regulates mobile sources of emissions in California, such as that from construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. County or regional air quality management districts primarily are responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas, and for preparing the air quality plans that are required under the federal CAA and California CAA.

In 1983, the California legislature adopted Assembly Bill (AB) 1807, establishing a process for identifying TACs and providing the CARB with the authority for developing retrofit air toxics control measures on a statewide basis. Air toxics in California also are regulated because of

another State law, the Air Toxics "Hot Spots" Information and Assessment Act of 1987, or AB 2588, as described next.

Health Risk Assessments
The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risks from air toxics sources but does not directly regulate air toxics emissions. Under the Air Toxics "Hot Spots" Information and Assessment Act of 1987, TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a HRA and, if specific thresholds are violated, communicate the results to the public in the form of notices and public meetings. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures.

The BAAQMD implements AB 2588 and is responsible for prioritizing facilities that emit air toxics, reviewing HRAs, and implementing risk reduction procedures. Pursuant to the requirements of AB 2588, the BAAQMD publishes an air toxics emissions inventory that details the TAC emissions of facilities throughout its jurisdiction.

California Public Resources Code
Sections 21000–21189.57 (Environmental Quality) in Division 13 of the California Public Resources Code requires that a project within 0.25 mile of a school that involves construction or alteration of a facility that reasonably may be anticipated to emit hazardous air emissions, and that may impose a health or safety hazard to persons who would attend or would be employed at the school, must meet all requirements per Section 15186 (b)(1)(2) of the state *CEQA Guidelines*. The lead agency must consult with the affected school district or districts regarding the potential impact of the project on the school and notify the affected school district(s) of the Project in writing, not less than 30 days before approval or certification of the Negative Declaration or Environmental Impact Report.

Regional

Bay Area Air Quality Management District
The BAAQMD has jurisdiction over all of or portions of the nine counties—Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma—that surround the San Francisco Bay. The following rules established by the BAAQMD to regulate air quality are relevant to the portions of the Proposed Project located within the jurisdiction of BAAQMD (BAAQMD 2018a; 2018b):

> *Rule 6-1*: General Requirements: Limits the quantity of particulate matter through the establishment of limitations on emission rates, emission concentrations, visible emissions, and opacity, including:
>
> > A person shall not emit from any source for a period or aggregate periods of no more than 3 minutes in any hour a visible emission that is as dark or darker than No. 1 in the Ringelmann Chart or to obscure an observer's view to an equivalent or greater degree.

A person shall not emit from any source for a period or aggregate periods of no more than 3 minutes in any hour an emission equal to or greater than 20-percent opacity.

A person shall not emit from any source for a period or aggregate periods of no more than 3 minutes in any hour a visible emission that is as dark or darker than No. 2 in the Ringelmann Chart, or to obscure an observer's view to an equivalent or greater degree, or be equal to or greater than 40 percent opacity from internal combustion engines of less than 25 liters displacement.

No person shall emit particles from any operation in sufficient number to cause annoyance to any other person where the particles are large enough to be visible as individual particles at the emission point, or of such size and nature as to be visible individually as incandescent particles. This Section shall only apply if such particles fall on real property other than the property of the person responsible for the emission.

Rule 6-6: Prohibition of Trackout: Limits the quantity of particulate matter through control of trackout onto paved public roads (Bay Area Air Quality Management District (BAAQMD) 2018b, 6).

2022 BAAQMD CEQA Guidelines

The BAAQMD's CEQA Guidelines were developed to assist lead agencies in evaluating air quality and climate impacts from proposed land use projects and plans in the SFBAAB (BAAQMD 2022a). The guidelines are designed to provide BAAQMD-recommended procedures for evaluating potential air quality and climate impacts during the environmental review process. More specifically, the guidelines establish numerical thresholds that can be used to evaluate a project's potential impacts. BAAQMD has established numerical thresholds for emissions of criterial air pollutants (CAPs) for construction and for operation of a project. These thresholds are presented in Table 4.3-9, below.

Table 4.3-9 BAAQMD Project-level CAP Emissions Thresholds of Significance

CAP	Construction: average daily emissions (lbs./day)	Operation: average daily emissions (lbs./day)	Operation: annual emissions (tons/year)
NO_X	54	54	10
Reactive organic gas (ROG)	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best management practices	None	None

Note:

No numerical threshold exists for construction-related emissions of fugitive dust. The BAAQMD strongly recommends implementing all feasible fugitive dust management practices as presented in its CEQA Guidelines.

Source: (BAAQMD 2022b, tbl. 3-1)

For emissions of $PM_{2.5}$ and PM_{10} as fugitive dust, BAAQMD has not established numerical thresholds. Rather, BAAQMD requires *best management practices* (BMPs) to be implemented to minimize fugitive dust emissions to a less-than-significant level (BAAQMD 2022b). BAAQMD strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses. Additionally, individual project incremental annual $PM_{2.5}$ emissions are not to increase concentrations above 0.3 µg/m^3 (BAAQMD 2022b).

BAAQMD has also established significance thresholds to evaluate health risks to local communities associated with individual projects ((BAAQMD 2022c). These risk and hazards thresholds of significance apply in determining whether a new source of pollution would result in unacceptable risks to the community. Health risk impacts are categorized into carcinogens and non-carcinogens for both acute and chronic exposures. An individual project cannot increase the cancer risk for a sensitive receptor beyond 10 individuals per one million exposed. For non-carcinogens, an individual project's increase in the hazard index for both acute and chronic exposures must not exceed 1.0 for a sensitive receptor (BAAQMD 2022b). BAAQMD's local risks and hazards thresholds for project construction and operation are presented in Table 4.3-10.

Table 4.3-10 BAAQMD Local Risks and Hazards Thresholds

Risk Category	Construction	Operation
Risks and hazards for new sources and receptors (cumulative threshold)	Same as operational thresholds*	Cancer risk: >100 in a million (from all local sources) Non-cancer risks: >10.0 Hazard Index (chronic, from all local sources) PM2.5: >0.8 µg/m3 annual average (from all local sources)
Risks and hazards for new sources and receptors (individual project)	Same as operational thresholds*	Increased cancer risk >10.0 in a million Increased non-cancer > 1.0 Hazard Index (chronic or acute) PM2.5 increase: > 0.3 µg/m3 annual average

Source: (BAAQMD 2022b, tbl. 3-1)

BAAQMD has not established any significance thresholds for odors generated by project construction. The significance threshold for odors generated by operation of a project is five complaints per year averaged over three years (BAAQMD 2022b, tbl. 3-1).

Bay Area 2017 Clean Air Plan: Spare the Air, Cool the Climate

The *Bay Area 2017 Clean Air Plan: Spare the Air, Cool the Climate* was adopted April 19, 2017, and replaces the previous 2010 Clean Air Plan (BAAQMD 2017b). The updated document provides a comprehensive plan to improve the air quality and protect public health in the San Francisco Bay Area, with an emphasis on climate change and its effects. This plan defines control

strategies that the BAAQMD will implement to reduce emissions of harmful pollutants, reduce exposure of communities to air pollutants, and reduce greenhouse gas (GHG) emissions; and sets specific goals to accomplish by the year 2050. The 2017 Clean Air Plan lists four key priorities necessary to protect public health and the climate: reduce CAPs and TACs, reduce emissions of "Super-GHGs," reduce demand for fossil fuels, and decarbonize the energy system.

Bay Area 2005 Ozone Strategy

The *Bay Area 2005 Ozone Strategy* was prepared in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments. This plan provides a roadmap showing how the San Francisco Bay Area will achieve compliance with the state 1-hour standard for O_3. This plan also addresses national O_3 standards, climate change, PM emissions, and the environmental review process (BAAQMD 2006).

Particulate Matter 2.5 Nonattainment (24-hour)

The BAAQMD is currently in nonattainment status for the 24-hour $PM_{2.5}$ NAAQS and CAAQS and is working closely with local, state, and federal partners to implement key strategies that address this pollutant. Some of these strategies include regulations and permit requirements for new construction to limit PM emissions, restrictions on wood-burning activities during times when the "Spare the Air Alert" is activated, and public outreach activities to solicit input on PM planning (BAAQMD 2017b). Additionally, in fall of 2019, the BAAQMD's Advisory Council began convening a symposium series on $PM_{2.5}$ to facilitate a discussion with nationally recognized scientists and stakeholders to identify the most effective measures to further protect public health (BAAQMD 2023).

Community Air Risk Evaluation

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor air toxics in the Bay Area. Based on the findings in the latest report, DPM accounts for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light-duty trucks also were identified as significant contributors. The most significant sources of cancer risk-weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75-percent reduction in DPM was predicted between 2005 and 2015, when the inventory accounted the CARB's diesel regulations. Overall, cancer risk from TACs dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for state diesel regulations and other reductions (BAAQMD 2014b). Modeled cancer risks from TACs were highest near sources of DPM: near core urban areas, along major roadways and freeways, and near maritime shipping terminals. As part of the CARE Program, the BAAQMD identified seven "impacted communities," areas where air pollution's health impacts are relatively high in the San Francisco Bay Area, which include a portion of the city of Pittsburg (BAAQMD 2014a). The portion of the Proposed Project site located within the city of Pittsburg is not within the CARE program's impacted communities (BAAQMD 2017a).

According to CARB's 2017 California Air Toxics Assessment (CATA), the population-weighted cancer risk within the SFBAB, as determined both by pollution levels and existing health vulnerabilities in a community, was 510 per million at risk of cancer from inhalation of TACs (CARB 2023b). The 2017 CATA cancer risk from TACs for communities in proximity to the Proposed Project site are listed in Table 4.3-11.

Table 4.3-11 Existing Cancer Risk from Inhalation of TACs in Vicinity of the Proposed Project Site

Community	Risk of cancer (per million people)
Solano County	322
Contra Costa County	300
City of Pittsburg	279

Source: (CARB 2023c; n.d.-b)

Air Toxics Program

The BAAQMD's Air Toxics Program integrates federal and state air toxics mandates with local goals that have been established by the BAAQMD's Board of Directors. The program consists of several elements that are designed to identify and reduce public exposure TACs. Proposed projects are reviewed for potential health impacts, with the requirement that significant new/modified sources use the *best available control technology* (BACT) to minimize TAC emissions. All applications for new or modified permits are reviewed for air toxics impacts, in accordance with the BAAQMD's Risk Management Policy and BAAQMD Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.

Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District (SMAQMD) has jurisdiction over the western portion of El Dorado County and all of Sacramento County, including the Sacramento Valley Air Basin portion of the Proposed Project area. SMAQMD has established the following rules to regulate air quality are relevant to the portion of the Proposed Project within the jurisdiction of SMAQMD (SMAQMD 1970; 1971; 1977; 1978; 1983; 1996):

> **Rule 201 General Permit Requirements**: The purpose of this rule is to require any person constructing, altering, replacing or operating any source operation which emits, may emit, or may reduce emissions to obtain a permit.
>
> **Rule 401 Ringelmann Chart**: A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour which is:
>
> > As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or

> Of such opacity as to obscure a human observer's view, or a certified calibrated in-stack opacity monitoring system to a degree equal to or greater than does smoke.

Rule 402 Nuisance: A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

Rule 403 Fugitive Dust: A person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. Reasonable precautions shall include, but are not limited to:

> Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways or the clearing of land.
>
> Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts;
>
> Other means approved by the Air Pollution Control Officer.

Rule 404 Particulate Matter: A person shall not discharge into the atmosphere from any source particulate matter in excess of 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot).

Rule 441 Organic Solvents: The purpose of this rule is to limit the emissions from the use of organic solvents. This rule also specifies the reduction, monitoring, reporting, and disposal requirements.

Guide to Air Quality Assessment in Sacramento County

SMAQMD's Guide *to Air Quality Assessment in Sacramento County* (CEQA Guide) (SMAQMD 2020a) provides methods for the analysis and review of CAP emissions from development projects located in the district's jurisdiction. The CEQA Guide provides suggested methods for quantifying emissions, required BMPs for reducing project emissions, and numerical thresholds for mass emissions of CAPs that can be used to evaluate a project's potential impacts. SMAQMD also sets concentration thresholds of significance for CO, NO_2, SO_2, lead, visibility reducing particles, sulfates, H_2S, and vinyl chloride based on CAAQs. SMAQMD emissions thresholds and concentration thresholds are listed in Table 4.3-12 and Table 4.3-13, below.

Table 4.3-12 SMAQMD Project-level CAP Emissions Thresholds of Significance

Pollutant	Construction: daily (lbs./day)	Annual (tons/year)	Operation: daily (lbs./day)	Annual (tons/year)
NO_X	85	None	65	None
ROG	None	None	65	None
PM_{10}	80	14.6	80	14.6
$PM_{2.5}$	82	15	82	15

Note:

PM_{10} and $PM_{2.5}$ thresholds during construction and operation only apply if all feasible best available control technology/BMPs are applied. If these measures are not applied, all thresholds are 0.

Source: (SMAQMD 2020b)

Table 4.3-13 SMAQMD CAP Concentration Thresholds of Significance

Pollutant	Threshold
CO	20 ppm 1-hour standard (23 mg/m^3); 9 ppm 8-hour standard (10 mg/m^3)
NO_2	0.18 ppm 1-hour standard (339 $\mu g/m^3$); 0.03 ppm Annual Arithmetic Mean (57 $\mu g/m^3$)
SO_2	0.25 ppm 1-hour standard (665 $\mu g/m^3$); 0.04 ppm 24-hour standard (105 $\mu g/m^3$)
Lead	1.5 $\mu g/m^3$ 30-day average
Visibility reducing particles	Extinction coefficient of 0.23 per kilometer—visibility of 1- miles or more due to particles when relative humidity is less than 70 percent
Sulfates	25 $\mu g/m^3$ 24-hour standard
H_2S	0.03 ppm (42 $\mu g/m^3$) 1-hour standard
Vinyl chloride	0.01 ppm (26 $\mu g/m^3$) 24-hour standard

Source: (SMAQMD 2020b)

SMAQMD has not established a quantitative threshold of significance for construction-related TAC emissions. Therefore, the District recommends that lead agencies address this issue on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and its proximity to off-site receptors.

SMAQMD has not established any significance thresholds for odors generated by project construction. The significance threshold for odors generated by operation of a project is five complaints per year averaged over three years (SMAQMD 2020b)

Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan

The Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan (SMAQMD 2017b) is the applicable air quality plan for the jurisdiction of SMAQMD. The plan was developed to demonstrate how the Sacramento nonattainment area

will meet the federal 2008 8-hour ozone National Ambient Air Quality Standard (NAAQS) of 0.075 parts per million, established by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act.

The plan was jointly prepared by SMAQMD, the Yolo-Solano Air Quality Management District, the Placer County Air Pollution Control District, the El Dorado County Air Quality Management District, and the Feather River Air Quality Management District, in coordination with the California Air Resources Board (CARB). It was adopted by local air districts in 2017 and subsequently submitted by CARB to EPA as a revision to the California State Implementation Plan (SIP) (SMAQMD 2017b).

The 2017 plan includes the following:

- Emissions inventories for NO_x and ROG
- Adopted control measures for stationary and mobile sources
- Reasonable further progress (RFP) targets
- Transportation conformity budgets
- And commitments to continued rule implementation and emissions tracking.

The plan supports attainment of the ozone standard by the required deadline and informs the air quality conformity process for regional transportation plans.

Yolo-Solano Air Quality Management District

The YSAQMD is the regional air quality management agency for all of Yolo County and the northeastern portion of Solano County. The YSAQMD is entirely within the SVAB. YSAQMD is responsible for implementing and enforcing state and federal air quality regulations, including stationary source permitting, rule development, and air quality planning within its jurisdiction. The YSAQMD does not provide formal CEQA significance thresholds and instead recommends the use of thresholds developed by neighboring agencies, such as BAAQMD or SMAQMD, for evaluating project-level air quality impacts. Relevant YSAQMD rules that apply to the portion of the Proposed Project site (Transposition Site C) within the jurisdiction of YSAQMD are Rule 2.3 (Ringelmann Chart), Rule 2.5 (Nuisance), Rule 2.11 (Particulate Matter), Rule 2.14 (Architectural Coatings), and Rule 2.28 (Cutback and Emulsified Asphalt).Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the Proposed Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the counties' and cities' regulations are not applicable as the counties and cities do not have jurisdiction over the Proposed Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

Solano County General Plan

The following goal listed in the Solano County General Plan, Chapter 5 Public Health and Safety, is relevant to the Proposed Project (Solano County 2024):

- **Goal HS.G-9**: Maintain equitable and healthy air quality in Solano County through actions that avoid and minimize health risks from localized pollution sources and regional wildfire smoke.

Sacramento County General Plan

The following goals, objectives, and policies listed in the Sacramento County General Plan Air Quality Element are relevant to the Proposed Project (Sacramento County 2022):

Objective: The integration of air quality planning with land use, transportation and energy planning processes to provide a safe and healthy environment.

Policy AQ-3: Buffers and/or other appropriate exposure reduction measures shall be established on a project-by project basis and incorporated during review to provide for protection of sensitive receptors from sources of air pollution or odor. The California Air Resources Board's "Strategies to Reduce Air Pollution Exposure Near High Volume Roadways" Technical Advisory and the AQMD's "Mobile Sources Air Toxics Protocol" or applicable AQMD guidance shall be utilized when establishing these exposure reduction measures.

Policy AQ-4: Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or Greenhouse Gases (GHG) as adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD), shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District. AQ-4. Developments which meet or exceed thresholds of significance for ozone precursor pollutants, and/or Greenhouse Gases (GHG) as adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD), shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan and/or a Greenhouse Gas Reduction Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District.

Objective: Compliance with federal and state air quality standards to reduce all air pollutants, including ozone-depleting compounds to ensure the protection of the stratospheric ozone layer.

Policy AQ-16. Prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in anyone-hour period.

Policy AQ-19. Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.

Contra Costa County General Plan

The following goals and policies listed in the Contra Costa County General Plan , Chapter 9 Health and Safety Element, are relevant to the Project (Contra Costa County 2024):

Policy HS-P1.5: Require new sources of air pollution that will generate significant new air quality impacts or expose sensitive receptors to substantial increases in harmful emissions of TACs to prepare a Health Risk Assessment that identifies appropriate mitigation consistent with BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines, based on the findings of the Health Risk Assessment.

Policy HS-P1.6: Require that any mitigation of air quality impacts occur onsite to the extent feasible to provide the greatest benefit to residents in neighboring communities most impacted. For mitigation that relies on offsets, require that the offsets be obtained from sources as near to the project site as possible or from sources that would improve air quality in an Impacted Community. If the project site is within or adjacent to an Impacted Community, require offsets/mitigation within that community unless determined infeasible by the County.

Policy HS-P1.9: Require construction activities that involve large grading operations to implement additional construction measures identified in BAAQMD's CEQA Guidelines to reduce air pollutant emissions.

City of Pittsburg General Plan

The following goals and policies listed in the City of Pittsburg 2040 General Plan Resource Conservation & Open Space Element are relevant to the Proposed Project (City of Pittsburg 2024):

Goal 9-G-10: Reduce the potential for human discomfort or illness due to local concentrations of toxic contaminants, odors and dust.

*Policy 9-P-30***:** Cooperate with Bay Area Air Quality Management District to ensure compliance with dust abatement measures during construction. These measures would reduce particulate emissions from construction and grading activities.

4.3.4 Approach to Impact Analysis

The analysis of impacts on air quality applies the impact criteria and significance thresholds defined in the following subsection. The LSPGC applicant proposed measures (APMs) and

PG&E construction measures (CMs) are considered when making the impact determinations for air quality, as shown in Table 4.3-14. Impacts are evaluated for the Proposed Project including separate analysis of LSGPC and PG&E project components, analysis of LSPGC and PG&E project components combined where appropriate, cumulative impacts, and alternatives. Mitigation measures are defined to reduce or avoid significant impacts, where feasible.

Air Quality Emissions Modeling

Daily and annual air quality emissions of CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ for the Proposed Project were calculated using the following data sources and methodologies:

- Emission factors and methods from the California Emissions Estimator Model (CalEEMod) v2022.1 User's Guide (California Air Pollution Control Officers Association [CAPCOA] 2022)
- Emission factors from the EPA's AP-42, Compilation of Air Pollutant Emissions Factors from Stationary Sources (EPA 2024a)
- Emissions factors from SMAQMD's Harborcraft, Dredge and Barge Emission Factor Calculator (SMAQMD 2017a)
- CARB vehicle emission models (CARB 2025a)
- Studies for the California Energy Commission and California Department of Resources Recycling and Recovery (CalRecycle) (CAPCOA 2022)
- For helicopter emissions, the Swiss FOCA Guidance on the Determination of Helicopter Emissions (Federal Office Civil Aviation [FOCA] 2015)

See Appendix E for complete emissions modeling results.

Construction Emissions

For construction emissions, average daily emissions from off-road equipment (including watercraft) and vehicle exhaust were estimated by calculating daily emissions for each day of construction, and the resulting daily emissions for each year of construction were then averaged over the total number of working days per year. Construction emissions were calculated for the following sources:

- Exhaust from off-road equipment
- Exhaust and entrained road dust from on-road vehicle travel
- Fugitive dust from earthwork activities
- Exhaust and dust from helicopter use
- Exhaust from watercraft

The daily average construction emissions reflect the total emissions in the year averaged over the number of working days in that year within each air district.[4] The resulting estimated average daily emissions were then compared to applicable BAAQMD and SMAQMD

[4] For the purposes of this EIR, construction is assumed to begin in 2026. If construction were to be delayed beyond this year, emissions from off-road construction equipment could be lower than those shown in this analysis due to the gradual turnover of fleets and increasingly stringent state emissions standards for engines.

thresholds in order to determine the significance of impacts from construction emissions. Emissions generated within BAAQMD jurisdiction are subject to BAAQMD significance thresholds. Emissions generated within SMAQMD jurisdiction are subject to SMAQMD significance thresholds. The YSAQMD does not provide formal CEQA significance thresholds and instead recommends the use of thresholds developed by neighboring agencies, such as BAAQMD or SMAQMD, for evaluating project-level air quality impacts. Although Transposition Site C is located within the SVAB, the analysis in this EIR applies BAAQMD thresholds, which are more stringent than those of the SMAQMD, to Transposition Site C.

Operation and Maintenance Emissions

For operation and maintenance of the Proposed Project, annual emissions were calculated for the following sources:

- Exhaust and entrained dust from on-road vehicle travel
- Electricity consumption at the proposed LSPGC Collinsville Substation and adjacent PG&E telecommunications yard

The Pittsburg Substation, Vaca-Dixon Substation, and Tesla Substation are existing, and Proposed Project modifications of these substations would not result in additional emissions.

The resulting annual emissions estimates were then compared to applicable BAAQMD and SMAQMD thresholds in order to determine the significance of impacts from operation and maintenance emissions.

Health Risk Assessment

A HRA is an analysis of the exposure to toxic substances and human health risks from exposure to toxic substances, based on the potency of the toxic substances. An HRA was conducted for the Project, following the California Office of Environmental Health Hazard Assessment's (OEHHA) Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015) given the proximity of construction activity on the Proposed Project site to sensitive receptors and duration of construction activity at the Proposed Project site. The HRA is included in Appendix E. The HRA includes a quantitative analysis of Project construction emissions and evaluates whether the Project would cause health risks at nearby receptors that exceed the BAAQMD thresholds. Emissions from operation of the Proposed Project were not included in the HRA because Proposed Project operations would not result in any emissions of toxic substances near sensitive receptors. OEHHA specifies that because of the uncertainty in assessing cancer risk from very short-term exposures, it does not recommend assessing cancer risk for projects lasting less than 2 months. OEHHA recommends that exposure from projects longer than 2 months, but less than 6 months, be assumed to last 6 months, while exposure from projects lasting more than 6 months should be evaluated for the duration of the project.

Construction of the 230 kV and 500 kV transmission lines would proceed along the alignment and construction at each work area would last less than 2 months. Construction at the Collinsville Substation and Pittsburg Substation would last more than 2 months and a screening

level HRA was therefore conducted to evaluate cancer risk relative to BAAQMD thresholds for construction activities lasting more than 2 months (Ldn Consulting, Inc. to LS Power Grid California, LLC, "Collinsville-Pittsburg 500/230 kV Substation Project – Solano and Contra Costa Counties, CA - Health Risk Screening Letter," June 19, 2025). The screening level HRA is a conservative tool for evaluating cancer risk. The tool includes factors for evaluation of cancer risk for children, which are more sensitive than adults. The screening level assessment was conducted for a child receptor to provide a conservative assessment.

Impact Criteria and Significance Thresholds

The following impact criteria questions have been derived from Appendix G of the CEQA Guidelines to evaluate impacts on air quality. Appendix G of the CEQA Guidelines ask whether a project would:

- Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan?
- Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
- Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations?
- Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Applicant Proposed Measures and Construction Measures

LSPGC APMs and PG&E CMs identified in Section 2: Project Description that are relevant to the air quality analysis are provided in Table 4.3-14 below.

Table 4.3-14 APMs and CMs Relevant to Air Quality

LSPGC APMs and PG&E CMs
APM AIR-1: Tier 4 Construction Equipment. Construction equipment with a rating between 100 and 750 hp would be required to use engines compliant with EPA Tier 4 non-road engine standards. In the event that enough Tier 4 equipment is not available, documentation of the unavailability would be provided and engines utilizing a lower standard would be used.
APM AIR-2: Dust Control ***(Superseded by MM AQ-1).*** Measures to control fugitive dust emissions would be implemented during construction. These measures would be included in a Fugitive Dust Control Plan that would be prepared in accordance with BAAQMD and SMAQMD requirements. The measures would be implemented as needed to control dust emissions. These measures would include, but may not be limited to, the following: • Surfaces disturbed by construction activities would 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 would be sufficiently watered or sprayed with a soil stabilizer to create a surface crust, or would be covered. Vehicles hauling soil and other loose material would be covered. • Vehicles would adhere to a speed limit of 15 mph on unpaved access roads without a posted speed limit, Proposed Project-specific construction routes, and within temporary work areas. • Visible mud or dirt trackout onto an adjacent public road would be removed at least once per day using wet power vacuum street sweepers. Excavation, grading, and/or demolition activities would be suspended when

LSPGC APMs and PG&E CMs
average wind speeds exceed 20 mph and dust cannot be suppressed in accordance with the requirements of BAAQMD Rule 6-1. • Unpaved dirt roads providing access to sites located 100 feet or farther from a paved road would be treated with a 6- to 12-inch layer of compacted wood chips, mulch, or gravel. • Publicly visible signs would be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person would respond and take corrective action within 48 hours. The BAAQMD's General Air Pollution Complaints number would also be visible to ensure compliance with applicable regulations.
CM AIR-1: Tier 4 Construction. Equipment Construction equipment with a rating between 100 and 750 hp would be required to use engines compliant with Environmental Protection Agency Tier 4 non-road engine standards. In the event that enough Tier 4 equipment is not available, documentation of the unavailability would be provided and engines utilizing a lower standard would be used.
CM AIR-2: Fugitive Dust Control *(Superseded by MM AQ-1)*. The following actions would be taken, as applicable and feasible, to control fugitive dust during construction. BAAQMD notifications would be made in accordance with any requirements in effect at the time of construction: • Applying water to disturbed areas and to storage stockpiles. • Applying water in sufficient quantities to prevent dust plumes during activities such as clearing and grubbing, backfilling, trenching and other earth moving activities. • Limit vehicle speed to 15 mph. • Load haul trucks with a freeboard (space between top of truck and load) of six inches or greater. • Cover the top of the haul truck load. • Clean-up track-out at least daily.

4.3.5 Impact Analysis—Proposed Project

Table 4.3-15 presents a summary of the CEQA significance criteria and impacts on air quality that would occur during construction, operation, and maintenance of the Proposed Project.

Table 4.3-15 Summary of Impacts on Air Quality for the Proposed Project

Impact Criteria: Would the project …	APMs/CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
Impact AQ-1: Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan?	APM AIR-2 CM AIR-2	S	MM AQ-1	LTSM
Impact AQ-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	APM AIR-1 APM AIR-2* CM AIR-1 CM AIR-2*	S	MM AQ-1 MM AQ-2	SU
Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations?	APM AIR-1 CM AIR-1	S	MM AQ-1	LTSM

Impact Criteria: Would the project …	APMs/CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	None	LTS	None	NA

Notes:

LTS = less than significant

LTSM = less than significant with mitigation

NA = not applicable

S = significant

SU = significant and unavoidable

* APM AIR-2 and CM AIR-2 are superseded by MM AQ-1

Impact AQ-1: Would the Proposed Project conflict with or obstruct implementation of the applicable air quality plan? ***(Less than significant with mitigation)***

A project would be considered inconsistent with an air quality plan if it would conflict with the growth assumptions or emissions reduction strategies used to develop the relevant air quality plan—typically through unanticipated population or employment growth or through emissions that substantially interfere with regional attainment goals. The Proposed Project is evaluated for consistency with the air quality plans of the three air districts within which the Proposed Project site is located—BAAQMD, SMAQMD, and YASQMD—and the following analysis is organized accordingly.

Bay Area Air Quality Management District

The BAAQMD *2017 Clean Air Plan* (BAAQMD 2017b) is the applicable air quality plan for portions of the Proposed Project within the SFBAAB. The *2017 Clean Air Plan* includes control strategies targeting reductions in ozone precursors (ROG and NO_x), particulate matter (PM_{10} and PM_{25}), and other pollutants from construction activities, mobile sources, and energy use. In determining consistency with the applicable air quality plan, the analysis considered whether the project would (1) support the primary goals of the plan, (2) include applicable control measures, if any, and (3) avoid disrupting or hindering implementation of control measures. If it can be concluded with substantial evidence that a project would be consistent with the above three criteria, then the BAAQMD considers it to be consistent with air quality plans prepared for the Bay Area.

The measures most applicable to the project are transportation control measures and energy and climate control measures (the project's impacts with respect to GHG emissions are discussed in Section 4.8: Greenhouse Gas Emissions). Workers and contractors would commute to and from the project site during construction, and heavy equipment and vehicles would be required to conduct various construction activities. The following transportation control measure would be applicable to the project:

- Deploy construction and farm equipment with Tier III or IV off-road engines (TR22).

Construction

LSPGC Project Components

Construction of the LSPGC project components (i.e., the Collinsville Substation, Collinsville–Pittsburg 230 kV transmission line, and telecommunications lines) within the jurisdiction of BAAQMD would not induce population growth and would not generate new permanent jobs (see Section 4.14: Population and Housing for additional discussion of growth-related impacts). Therefore, it would not conflict with the regional growth projections or planning assumptions used to develop the Clean Air Plan.

Temporary construction emissions of criteria air pollutants and fugitive dust would result from off-road diesel equipment, on-road vehicle use, and other equipment use (e.g., helicopter and marine access). Fugitive dust emissions would be minimized through compliance with BAAQMD Regulation 6, Rule 1 (Particulate Matter – General Requirements), which requires suppression of visible dust emissions and stabilization of disturbed surfaces during construction. Compliance with this rule ensures consistency with Clean Air Plan control strategies targeting particulate matter emissions.

LSPGC has proposed APM AIR-2, which requires implementation of fugitive dust control measures during construction activities. However, APM AIR-2 does not include all BAAQMD recommended fugitive dust control BMPs, so the impact would remain significant. MM AQ-1 supersedes APM AIR-2 and requires implementation of all fugitive dust control BMPs listed in Chapter 5, Table 5.2 of BAAQMD's CEQA Guidelines (refer to Section 4.3.14). These measures are consistent with the dust-control specific strategies identified in the 2017 BAAQMD Clean Air Plan. With implementation of MM AQ-1, all BMPs required by BAAQMD for fugitive dust control would be implemented and the impact from fugitive dust within the jurisdiction of BAAQMD would be less than significant.

Construction of the LSPGC project components would not induce population or employment growth and would not generate long-term increases in vehicle miles traveled (See Section 4.17: Transportation) and would therefore not conflict with BAAQMD strategies related to energy efficiency and transportation emissions reductions, specifically Strategy EN2 (Energy Efficiency) and Strategy TR9 (Transportation Demand Management). The Proposed Project would not introduce emissions or growth inconsistent with regional attainment goals and, therefore, would not conflict with or obstruct implementation of the applicable air quality plan during construction in the BAAQMD air basin. The impact would be less than significant with mitigation.

PG&E Project Components

Construction of PG&E project components within the jurisdiction of BAAQMD (i.e., the 12 kV distribution line, the 500 kV interconnection lines, and the new transposition structures) would not interfere with the emissions reduction strategies identified in BAAQMD's 2017 Clean Air

Plan, specifically Strategy EN2 (Energy Efficiency) and Strategy TR9 (Transportation Demand Management), because PG&E project components would not induce population or employment growth (see Section 4.14: Population and Housing) and would not generate long-term increases in vehicle miles traveled (see Section 4.17: Transportation). Construction of PG&E project components would not conflict with the regional growth projections or planning assumptions used to develop the Clean Air Plan. Therefore, construction of the PG&E project components would not conflict with or obstruct implementation of the applicable air quality plan, and the impact would be less than significant.

Temporary use of off-road equipment, grading of staging yards, helicopter support for transmission line installation, and worker vehicle trips would result in temporary emissions, including emissions of fugitive dust. PG&E has proposed CM AIR-2, which requires implementation of fugitive dust control measures during construction activities. However, CM AIR-2 does not include all BAAQMD recommended fugitive dust control BMPs, so the impact would remain significant. MM AQ-2 supersedes CM AIR-2 and requires implementation of all fugitive dust control BMPs listed in Chapter 5, Table 5.2 of BAAQMD's CEQA Guidelines. These measures are consistent with the dust-control specific strategies identified in the 2017 BAAQMD Clean Air Plan. With implementation of MM AQ-2, all BMPs required by BAAQMD for fugitive dust control would be implemented and the impact from fugitive dust within the jurisdiction of BAAQMD would be less than significant.

Operation and Maintenance

LSPGC Project Components

Operation of the LSPGC components within the jurisdiction of BAAQMD jurisdiction (i.e., the Collinsville Substation, 230 kV transmission line, and telecommunications line interconnection) would not induce new population growth, long-term employment, or a measurable increase in regional vehicle miles traveled. Monitoring and control of the substation would be performed remotely by LSPGC's control center in Austin, Texas, with periodic on-site maintenance by existing LSPGC staff and contractors.

Emissions from operation and maintenance of LSPGC Project components would be limited to infrequent vehicle trips for inspection and maintenance and electricity consumption at the Collinsville Substation (385 megawatts per year; see Appendix E). These minor activities would not result in long-term air pollutant emissions that conflict with regional attainment strategies or exceed planning assumptions in the 2017 Clean Air Plan. Emissions from operation and maintenance of LSPGC Project components would therefore not interfere with Clean Air Plan control strategies related to transportation demand, fleet modernization, or stationary energy use.

Operation and maintenance of the LSPGC components would not conflict with or obstruct implementation of the applicable air quality plan, and impacts would be less than significant.

PG&E Project Components

Operation and maintenance of the proposed PG&E components within the jurisdiction of BAAQMD (i.e., 500 kV interconnection lines, 12 kV distribution line, and transposition sites) would not involve new staffing, induced growth, or increased VMT beyond existing utility service operations. The Pittsburg Substation would be modified as part of project construction but would not experience any change in function, operation, or emissions during the operational phase. Occasional maintenance activities, such as inspections and repairs, would be conducted using PG&E's existing workforce and standard fleet operations.

Operation and maintenance of proposed new PG&E project components and the existing Pittsburg Substation as modified would not result in new staffing, induce population or employment growth, or increase regional vehicle miles traveled. Operation of the transmission infrastructure would be managed through PG&E's existing systems and protocols, with periodic inspections and maintenance conducted using PG&E's standard workforce and fleet.

Operational activities would be minimal and intermittent, consisting primarily of vehicle trips for inspection or repair, with no new or modified stationary emissions sources introduced. As a result, the PG&E components would not interfere with the emissions reduction strategies identified in the 2017 BAAQMD Clean Air Plan, including strategies targeting mobile-source emissions, operational efficiency, and energy conservation.

Because operation and maintenance of PG&E project components would not contribute to unplanned growth, conflict with control strategies, or result in operational emissions not accounted for in the regional air quality plan, operation and maintenance of the PG&E project components would not conflict with or obstruct implementation of the applicable air quality plan and, therefore, the impact would be less than significant.

Sacramento Metropolitan Air Quality Management District

The only portion of the Proposed Project within SMAQMD jurisdiction is a portion of the LSPGC 230 kV submarine segment.

Construction

Within the Sacramento Metropolitan Air Quality Management District (SMAQMD), the applicable air quality plan is the *Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (SMAQMD 2017b).

The LSPGC 230 kV submarine segment would be installed using a submerged hydroplow or similar equipment that is pulled along the riverbed behind a barge in the Sacramento–San Joaquin Delta. No land-based construction activities would occur within the jurisdiction of SMAQMD, and no population growth or new employment would be induced.

The 2022 update to the plan includes control measures primarily targeting on-road vehicle emissions, land use development patterns, and stationary sources. Construction emissions within the jurisdiction of SMAQMD would be limited to temporary exhaust emissions from watercraft and support equipment, as detailed below for Impact AQ-2. Emissions within

SMAAQMD would occur over 37 non-consecutive days over the 122 days of installation of the 230 kV submarine segment cable installation, entirely within the Delta, within Year 2 of construction. Proposed Project activities would not include any new land uses, would not generate additional vehicle trips and would not result in new stationary or area sources of emissions. Therefore, none of the applicable control measures or transportation control strategies apply to the Project activities within SMAQMD.

Because the Proposed Project would not introduce unplanned growth, would not result in emissions inconsistent with applicable air quality planning assumptions, and would not interfere with emissions reduction strategies identified in SMAQMD plans, construction of the project segment within the jurisdiction of SMAQMD would not conflict with or obstruct implementation of the applicable air quality plan. Therefore, the impact would be less than significant.

Operation and Maintenance

The LSPGC 230 kV submarine segment would not generate operational or maintenance emissions as no active facilities, electrical infrastructure, or ground-based maintenance activities are proposed within the jurisdiction of SMAQMD. Operation of the submarine segment would not require staffing, induce population or employment growth, or increase regional vehicle miles traveled.

Operation and maintenance of the Proposed Project within the jurisdiction of SMAQMD would not conflict with or obstruct implementation of the applicable air quality plan, and the impact would be less than significant.

Yolo Solano Air Quality Management District

PG&E transposition site C is the only portion of the Proposed Project located within the YSAQMD.

Construction

The applicable air quality plan to Transposition Site C within the SVAB is the *Sacramento Regional 2008 National Ambient Air Quality Standards Attainment and Reasonable Further Progress Plan (2022 Update)*, (SMAQMD 2017b), which outlines emissions reductions strategies to attain federal ozone standards. Construction activities at Site C would be limited in scope and duration, consisting of the replacement of a single transposition structure using typical off-road equipment. The Proposed Project would not result in substantial or unanticipated growth, population increases, or changes in land use that would affect the growth assumptions underlying the applicable air quality plan. In addition, emissions generated during construction would be temporary and localized, and would not interfere with the region's ability to meet or maintain attainment or progress targets for ozone or other criteria pollutants. The applicable air quality plan to Transposition Site C within the SVAB is the *Sacramento Regional 2008 National Ambient Air Quality Standards Attainment and Reasonable Further Progress Plan (2022 Update)*, (SMAQMD 2017b), which outlines emissions reductions strategies to attain federal ozone

standards. Therefore, construction within the jurisdiction of YSAQMD would not conflict with the applicable air quality plan, and impacts would be less than significant.

Operation and Maintenance

As noted above, Transposition Site C is located within the jurisdiction of the YSAQMD, which is part of the SVAB. The applicable air quality planning document is the *Sacramento Regional 2008 National Ambient Air Quality Standards Attainment and Reasonable Further Progress Plan (2022 Update*). The transposition structure at Site C would not require ongoing staffing, would not result in population growth or changes in land use, and would not introduce new stationary sources of emissions. Routine inspection and maintenance would occur infrequently and would involve minimal vehicle use. Accordingly, operation and maintenance of the structure would not conflict with the growth assumptions or emissions reduction strategies identified in the applicable air quality plan and impacts would be less than significant.

Impact AQ-2: Would the Proposed Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? *(Significant and unavoidable)*

Construction

Bay Area Air Quality Management District

Ozone Precursors and Particulate Matter as Exhaust

Combined LSPGC and PG&E Emissions

Construction of the LSPGC Collinsville Substation, LSPGC 230 kV transmission line, and LSPGC telecommunication lines would require the use of off-road construction equipment, on-road vehicles, and light-duty helicopters. In addition, installation of the submarine segment of the 230 kV transmission line would involve use of a cable lay barge supported by tugboats, jet sled pumps, linear cable engines, generators, winches, and small boats. Equipment to be used for construction of the Proposed Project is itemized in Table 2-9: Proposed Construction Equipment in Section 2: Project Description. The use of this equipment would generate emissions $PM_{2.5}$ and PM_{10}, for which BAAQMD is in state nonattainment, and precursors of ozone (O_3), for which BAAQMD is in both state and federal nonattainment. In addition, fugitive dust emissions due to ground disturbance would contribute to $PM_{2.5}$ and PM_{10}.

The Proposed Project would generate emissions of ozone precursors ROG and NO_x within the jurisdiction of BAAQMD, which is in nonattainment for ozone. In its CEQA Guidelines (BAAQMD 2022b), BAAQMD provides project-level thresholds of significance for air quality impacts. Average daily emissions of criteria air pollutants for the Proposed Project within BAAQMD are presented in Table 4.3-16.

Table 4.3-16 Proposed Project Uncontrolled Construction Emissions within BAAQMD

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhuast; lbs./day)
Year 1 (2026)	5.4	47.4	2.5	2.0
Year 2 (2027)	25.1	**242.7**	13.7	11.4
Year 3 (2028)	5.7	48.2	2.8	2.2
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

As shown in Table 4.3-16, uncontrolled emissions of NOx would exceed thresholds in 2027. LSPGC has proposed APM AIR-2, and PG&E has proposed CM AIR-1, which require use of off-road construction equipment equipped with Tier 4 engines. Table 4.3-17, below, provides project emissions in BAAQMD with the implementation of APM AIR-1 and CM AIR-1. While APM AIR-1 and CM AIR-1 would reduce Project emissions within BAAQMD, average daily emissions of NOx would still exceed thresholds in 2027, which would be a significant impact. The most significant source of NOx emissions in 2027 is marine vessels used for installation of the 230 kV submarine segment, and peak emissions during 2027 are concentrated in the 122 workdays during which the 230 kV submarine segment would be installed. Table 4.3-18, below, provides the Proposed Project emissions during and outside of this 122-day peak emissions period.

The Proposed Project emissions would only exceed the NOx threshold during the installation of the LSPGC 230 kV submarine segment. To reduce the impact form NOx emissions, MM AQ-2 (refer to Section 4.3.14) requires use of marine vessels equipped with Tier 4 or, at minimum, Tier 3 engines, depending upon availability at the time of construction[5]. Table 4.3-19 presents the average daily emissions from operation of marine vessels for submarine segment construction (exclusive of other construction activities) before mitigation (uncontrolled) and after MM AQ-2 (controlled) averaged over the 122 days of LSPGC 230 kV submarine cable installation. The emissions from the submarine segment construction alone would exceed the BAAQMD NOx threshold of 54 lbs./day.

[5] While marine vessels with Tier 4 engines are commercially available, they are operational in California to a limited extent (CARB 2024, tbl. ES-2), and LSPGC's inquiries have indicated there is currently one marine vessel equipped with a Tier 4 engine in the greater San Francisco Bay Area. Additionally, availability of Tier 4 marine vessels for Proposed Project activities would be limited by the need to avoid introduction of invasive marine species into the Delta (see Section 3.4 Biological Resources). The analysis therefore conservatively assumes use of Tier 3 engines as marine vessels with Tier 4 engines may not be available at the time of construction.

Table 4.3-17 Proposed Project Construction Emissions within BAAQMD with APM AIR-1 and CM AIR-1

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	2.9	22.6	1.5	1.1
Year 2 (2027)	18.6	**174.3**	11.3	9.2
Year 3 (2028)	3.4	23.2	1.8	1.3
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

Table 4.3-18 Proposed Project Emissions within BAAQMD During and Outside of 230 kV Submarine Segment Installation

	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Emissions during 230 kV submarine segment installation (122 days)	45.8	**482.4**	25.0	22.0
Exceeds threshold during 230 kV submarine segment installation?	No	Yes	No	No
Emissions outside of 230 kV submarine segment installation	5.6	46.7	2.7	2.3
Exceeds threshold outside of 230 kV submarine segment installation	No	No	No	No
Significance threshold	54	54	82	54

Source: (BAAQMD 2022b; Insignia Environmental 2025)

Table 4.3-19 Marine Vessel Average Daily Emissions in BAAQMD (Before and After Mitigation)

	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Uncontrolled	33.0	391.5	22.0	19.6
Controlled (with MM AQ-1)	33.0	225.2	4.6	4.1
Total reduction with MM AQ-1	0.0	166.3	17.4	15.5

Source: (Insignia Environmental 2025)

The total Proposed Project emissions averaged over the entire construction year, after implementation of MM AQ-2 are presented in Table 4.3-20. After implementation of MM AQ-2, emissions of NOx within the jurisdiction of BAAQMD would exceed the NOx threshold in Year 2, and the impact would be significant and unavoidable.

Table 4.3-20 Proposed Project Mitigated Construction Emissions within BAAQMD

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	2.9	22.5	1.5	1.1
Year 2 (2027)	18.7	**126.1**	6.1	4.7
Year 3 (2028)	3.4	23.1	1.8	1.3
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

LSPGC Project Components

LSPGC project component construction uncontrolled emissions are presented in Table 4.3-21. APM AIR-1 requires use of Tier 4 engines in all off-road construction equipment, which would reduce emissions; however, emissions would exceed thresholds even with implementation of the APM. MM AQ-2 applies to LSPGC 230 kV submarine segment construction as described for the Proposed Project above. NOx emissions from LSPGC construction after implementation of mitigation are presented in Table 4.3-22 and would remain significant and unavoidable, as described for the entire Proposed Project, above.

Table 4.3-21 LSPGC Uncontrolled Construction Emissions within BAAQMD

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	4.9	41.9	2.2	13.2
Year 2 (2027)	20.9	**212.8**	11.2	15.9
Year 3 (2028)	4.0	35.2	2.0	15.0
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

Table 4.3-22 LSPGC Mitigated Construction Emissions within BAAQMD

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	2.6	19.9	1.3	1.0
Year 2 (2027)	15.5	**107.1**	4.1	3.4
Year 3 (2028)	2.2	15.0	1.2	0.9
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

PG&E Project Components

PG&E project component construction emissions with implementation of CM AIR-1, which requires implementation of Tier 4 construction equipment, are presented in Table 4.3-23. PG&E construction emissions alone would not exceed BAAQMD thresholds. Impacts from PG&E construction alone would be less than significant.

Table 4.3-23 PG&E Construction Emissions within BAAQMD

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	1.1	10.1	0.7	0.5
Year 2 (2027)	3.1	19.0	2.0	1.3
Year 3 (2028)	1.5	10.6	0.8	0.5
Significance threshold	54	54	82	54
Threshold exceeded?	No	No	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

Particulate Matter as Fugitive Dust

As noted in Table 4.3-9, BAAQMD does not set a numerical threshold to evaluate the significance of emissions of particulate matter as fugitive dust from construction projects. Rather, BAAQMD requires projects to implement all feasible BMPs to reduce fugitive dust emissions as provided in its CEQA Guidelines Chapter 5, Table 5-2. As discussed above for Impact AQ-1, the Project would implement MM AQ-2, which requires implementation of all dust-control BMPs required by BAAQMD. The impact from fugitive dust within the jurisdiction of BAAQMD would be less than significant with mitigation.

Operation and Maintenance

LSPGC Project Components

The anticipated annual emissions from planned operation and maintenance of the LSPGC components were estimated and the emissions are listed in Table 4.3-24, below. The anticipated operation and maintenance emissions would fall well below all applicable BAAQMD thresholds, and impacts would be less than significant.

Table 4.3-24 LSPGC Proposed Project Operation and Maintenance Emissions and BAAQMD Significance Thresholds

	ROG	NO_x	PM_{10}	$PM_{2.5}$
Annual emissions (tons/year)	0.001	0.007	0.001	0.001
Significance threshold	10	10	15	10
Threshold exceeded?	No	No	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

The cables associated with the proposed LSPGC 230 kV submarine segment would not require regular maintenance; however, in the event of a defective cable, the cable segment would need to be replaced. Replacement of a cable segment would require similar watercraft operation to the initial construction and result in similar emissions as shown in Table 4.3-19. The impact from use of watercraft for replacement of a defective cable would be significant. MM AQ-2 would apply to cable replacement activities. However, as similar to the Proposed Project construction, the impact would remain significant and unavoidable.

PG&E Project Components

As previously described, operation and maintenance activities associated with the PG&E project components would be similar to those currently performed by PG&E for its existing facilities. The anticipated annual emissions within the BAAQMD from the incremental increase in routine maintenance activities were estimated and are listed in Table 4.3-25, below.

Table 4.3-25 PG&E Proposed Project Operation and Maintenance Emissions and BAAQMD Significance Thresholds

	ROG	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Annual emissions (tons/year)	0.001	0.007	<0.001	0.001	0.001
Significance threshold	10	10	—	15	10
Threshold exceeded?	No	No	N/A	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

PG&E Proposed Project components would be located entirely within the jurisdiction of BAAQMD; therefore, no operational emissions associated with these components would occur within the jurisdiction of SMAQMD. As shown, the anticipated emissions would be well below all applicable BAAQMD thresholds, and impacts would be less than significant.

SMAQMD

Construction

Construction activities within the jurisdiction of the SMAQMD consist of installation of the LSPGC 230 kV submarine cables. All construction activities within SMAQMD would occur within Year 2 of the Proposed Project construction phase. SMAQMD is in both state and federal nonattainment for ozone and in state nonattainment for $PM_{2.5}$ and PM_{10}. Table 4.3-23 below, presents Proposed Project average daily construction emissions in the jurisdiction of SMAQMD. LSPGC would implement APM AIR-1, which requires all off-road construction equipment to be equipped with engines with a rating between 100 and 750 horsepower (hp) to comply with EPA Tier 4 non-road engine standards, and this would apply to deck-mounted construction equipment such as cranes, winches, pumps, generators, and cable handling systems used during submarine cable installation activities. Emissions of NO_x within SMAQMD would remain significant after implementation of APM AIR-1. To reduce this impact, MM AQ-2 requires use of Tier 3 engines, at a minimum, on marine vessels and use of Tier 4 engines contingent on availability. Because marine vessels equipped with Tier 4 engines are operating in

California to a limited extent (CARB 2024), this EIR conservatively assumes use of Tier 3 engines with implementation of MM AQ-2. With implementation of MM AQ-2, emissions of NO_x would still exceed SMAQMD thresholds as presented in Table 4.3-23. The resulting impact from a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment would be significant and unavoidable.

Table 4.3-26 Proposed Project Construction Emissions within SMAQMD

	ROG (lbs./day)	NOx (lbs./day)	PM10 (exhaust; lbs./day)	PM2.5 (exhaust; lbs./day)
Average daily emissions: uncontrolled	49.4	**556.4**	28.0	25.0
Average daily emissions with APM AIR-1	38.2	**439.5**	24.8	22.1
Average daily emissions with APM AIR-1 and MM AQ-2	38.2	**260.8**	5.6	5.1
Significance threshold	No threshold	85	80	82
Threshold exceeded?	NA	Yes	No	No

Source: (SMAQMD 2020b; Insignia Environmental 2025)

Operation and Maintenance

The cables associated with the proposed LSPGC 230 kV submarine segment would not require regular maintenance; however, in the event of a defective cable, the cable segment would need to be replaced. Replacement of a cable segment would require similar watercraft operation to the initial construction and result in similar NOx emissions as shown in Table 4.3-19. The impact from use of watercraft for replacement of a defective cable would be significant due to exceedance of the NOx threshold. MM AQ-2 would apply to cable replacement activities. However, similar to the Proposed Project construction, the impact in SMAQMD and BAAQMD (depending on the maintenance activity) would remain significant and unavoidable.

YSAQMD

Construction

PG&E Transposition Site C is located within the jurisdiction of YSAQMD, within the SVAB. Construction at this site would consist of limited, short-term activities to replace a single transposition structure using typical off-road equipment. The SVAB is designated non-attainment for ozone (under both state and federal standards) and $PM_{2.5}$ under the state standard. Table 4.3-27 presents the modeled Proposed Project emissions within the jurisdiction of YSAQMD.

Table 4.3-27 Proposed Project Construction Emissions within YSAQMD

Year	ROG (lbs./day)	NOX (lbs./day)	PM10 (exhaust; lbs./day)	PM2.5 (exhaust; lbs./day)
Year 2 (2027)	0.4	2.6	0.2	0.1

Year 3 (2028)	1.0	2.0	0.3	0.1
Significance threshold	54	54	82	54
Threshold exceeded?	No	No	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

As shown Table 4.3-27, emissions of criterial air pollutants within the jurisdiction of YSAQMD would fall well below the applicable thresholds and would therefore not be considered cumulatively considerable in the context of regional attainment. Therefore, construction of the Proposed Project at Transposition Site C would not result in a cumulatively considerable net increase of any non-attainment pollutant, and the impact would be less than significant.

Operation and Maintenance

As previously described, operational activities associated with the PG&E project components, including Transposition Site C, would be similar to those currently performed by PG&E for its existing facilities since the transposition structure is part of PG&E's existing transmission line. The transposition structure would not increase inspection or maintenance activities compared to baseline conditions and there would be no air quality emissions impact during operation and maintenance as a result of the transposition structure.

Impact AQ-3: Would the Proposed Project expose sensitive receptors to substantial pollutant concentrations? *(Less than significant with mitigation)*

Construction

LSPGC Collinsville Substation and Staging Yards

Construction activities at the Collinsville Substation including the substation staging yards would produce TACs, primarily as DPM and $PM_{2.5}$ emissions from the exhaust of diesel-fueled off-road construction as well as heavy-duty truck trips. Exposure of receptors in the Proposed Project area to elevated concentrations of DMP or $PM_{2.5}$ could lead to an increase in the risk of cancer or other health impacts. An HRA was conducted to determine the localized health risks that could be generated from construction-related TACs and $PM_{2.5}$ at nearby receptors (included in Appendix E) (Ldn Consulting, Inc. to LS Power Grid California, LLC, "Collinsville-Pittsburg 500/230 kV Substation Project – Solano and Contra Costa Counties, CA - Health Risk Screening Letter," June 19, 2025). As discussed in Section 4.3.2, the nearest sensitive receptor to the proposed Collinsville Substation site is a group of 18 residences along Collinsville Road (AQ SR-1), located approximately, 0.77 mile from the substation site (see Figure 4.3-2), which would be considered the Maximum Exposed Individual Receptor for the Collinsville Substation portion of the Project site. The maximum off-site DPM and $PM_{2.5}$ annual concentrations as modeled using AERMOD at AQ SR-1 under the uncontrolled scenario and with the implementation of APM AIR-1, which requires use of off-road construction equipment equipped with Tier 4 engines.

Over the 533-day construction period at the existing Collinsville Substation, the Proposed Project is expected to emit an estimated 0.366 tons of DPM under uncontrolled conditions and

0.217 tons under controlled conditions. Table 4.3-28, below, presents the modeled cancer risk for DPM, $PM_{2.5}$. concentrations and DPM hazard indexes for construction of the proposed Collinsville Substation at the maximum exposed individual receptor.

Table 4.3-28 Collinsville Substation Construction Health Impacts

Category	Cancer Risk child (per 1 million)	Hazard Index	$PM_{2.5}$ Concentrations ($\mu g/m^3$)
Proposed Project Construction without control measures	6.75	0.004	0.147
Significance Threshold	10	1.0	0.3
Exceeds Threshold?	**No**	**No**	**No**
Proposed Project Construction with MM AQ-1	3.99	0.003	0.063
Significance Threshold	10	1.0	0.3
Exceeds Threshold?	**No**	**No**	**No**

Source: (BAAQMD 2022b; Ldn Consulting, Inc. to LS Power Grid California, LLC, "Collinsville-Pittsburg 500/230 kV Substation Project – Solano and Contra Costa Counties, CA - Health Risk Screening Letter," June 19, 2025)

As shown in Table 4.3-28, the cancer risk, hazard index for DPM, and $PM_{2.5}$ concentrations would not exceed BAAQMD significance thresholds. Because the modeled annual cancer risk, modeled concentration of $PM_{2.5}$, and the hazard index for DPM do not exceed BAAQMD significance thresholds for the maximally exposed receptor, impacts from exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

LSPGC 230 kV Transmission Line (Overhead, Submarine, and Underground Segments) and Telecommunication Interconnection Lines

Construction of the 230 kV transmission line overhead, underground, and submarine segments would proceed along the alignment and would last less than two months in any location. Similarly, HDD construction for the telecommunication lines would last approximately 10 days at each site. Based on OEHHA guidance, short-term activities of less than 2 months in duration are not expected to result in long-term cancer risks. Therefore, construction-related DPM and $PM_{2.5}$ emissions from construction of the 230 kV transmission line and telecommunication lines would not expose sensitive receptors to substantial pollutant concentrations, and the impact would be less than significant.

PG&E 12kV Distribution Line and 500 kV Interconnection Lines

Construction of the PG&E 500 kV interconnection lines and 12 kV distribution line would proceed along the alignment with construction lasting less than 2 months at each location. Based on OEHHA guidance, short-term activities of less than 2 months in duration are not expected to result in long-term cancer risks. Therefore, construction-related TAC and $PM_{2.5}$ emissions from construction of the 500 kV interconnection lines and 12 kV distribution line would not expose sensitive receptors to substantial pollutant concentrations and the impact would be less than significant.

PG&E Pittsburg Substation

As with the proposed Collinsville Substation, construction activities at the Pittsburg Substation would produce TACs, primarily as DPM and $PM_{2.5}$ emissions from the exhaust of diesel-fueled construction equipment as well as heavy-duty truck trips. Exposure of receptors in the Proposed Project area to elevated concentrations of DMP or $PM_{2.5}$ could lead to an increase in the risk of cancer or other health impacts. An HRA was conducted to determine the localized risks that could be generated from construction-related TACs and $PM_{2.5}$ at nearby receptors. As discussed in Section 4.3.2, the nearest sensitive receptors to the Pittsburg Substation is the group of residences between Halsey Court and Gridley Drive (AQ SR-2), 275 feet from the site (see Figure 4.3-2), which would be considered the Maximum Exposed Individual Receptor for the Pittsburg Substation portion of the Project site. The maximum annual concentrations DPM and $PM_{2.5}$ at this receptor was modeled using AERMOD under the uncontrolled scenario and with the implementation of CM AIR-1, which requires use of off-road construction equipment equipped with Tier 4 engines.

Over the 396-day construction period at the existing Pittsburg Substation, the Proposed Project is expected to emit an estimated 0.055 tons of DPM under uncontrolled conditions and 0.036 tons under controlled conditions. Table 4.3-29, below, presents BAAQMD's local risk and hazards thresholds in comparison with modeled annual cancer risk, $PM_{2.5}$ concentrations, and DPM hazard indexes for construction activities at the existing Pittsburg Substation at the nearest sensitive receptor.

Table 4.3-29 Pittsburg Substation Construction Health Impacts with and without Control Measures

Source	Cancer Risk child (per 1 million)	Hazard Index	$PM_{2.5}$ Concentrations ($\mu g/m^3$)
Proposed Project Construction	6.53	0.004	**0.74**
Significance Threshold	10	1.0	0.3
Exceeds Threshold?	**No**	**No**	**Yes**
Proposed Project Construction with MM AQ-1	4.22	0.003	0.22
Significance Threshold	10	1.0	0.3
Exceeds Threshold?	**No**	**No**	**No**

Source: (BAAQMD 2022b; Ldn Consulting, Inc. to LS Power Grid California, LLC, "Collinsville-Pittsburg 500/230 kV Substation Project – Solano and Contra Costa Counties, CA - Health Risk Screening Letter," June 19, 2025)

As shown in Table 4.3-29, the cancer risk and hazard index for DPM concentrations would not exceed BAAQMD significance thresholds for the Maximum Exposed Individual Receptor; however, the $PM_{2.5}$ concentrations would exceed the threshold. MM AQ-1 applies fugitive dust controls that would reduce $PM_{2.5}$ concentrations below the significance threshold (refer to Section 4.3.14). Therefore, impacts from exposure of sensitive receptors to substantial pollutant concentrations would be less than significant with mitigation.

Operation and Maintenance

LSPGC and PG&E Components

Operation and maintenance of the Proposed Project would involve limited and intermittent activities, including periodic inspections and routine vegetation management along transmission and distribution alignments and at substation facilities. These activities would generate minimal mobile-source emissions (e.g., diesel exhaust from light-duty trucks or utility vehicles) during site visits. The only stationary combustion equipment would be an emergency generator that would only be operated during power outages and up to 50 hours per year for testing during the operational phase. In the event of damage to a portion of the submarine cable, the cable would be replaced using similar methods to those used for the construction. The cable replacement would be short in duration and would not be in proximity to sensitive receptors. Given the overall short-term nature of maintenance activities in any location (i.e., less than 2 months), maintenance activity emissions would not expose receptors to substantial pollutant concentrations and the impact would be less than significant.

Impact AQ-4: Would the Proposed Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? ***(Less than significant)***

Construction

LSPGC Project Components

Construction of the LSPGC project components may create temporary odors from the combustion of fuel associated with heavy equipment and on-road vehicle use. No other emissions would be generated. As discussed previously, the nearest sensitive receptors to the Collinsville Substation site are 0.77 miles from the construction site, and exhaust odors are not noticeable at a distance of 0.77 miles away due to the dispersive nature of diesel exhaust odors. While there are sensitive receptors within 1,000 feet of the proposed LSPGC telecommunication lines construction sites, the HDD activities would last approximately 10 days and due to the highly dispersive nature of diesel exhaust the construction exhaust odors would not adversely affect a substantial number of people.

PG&E Project Components

Construction and modification of PG&E project components may create temporary odors from the combustion of fuel associated with heavy equipment and on-road vehicle use. The nearest sensitive receptors to the PG&E Pittsburg Substation is a group of residences located between Halsey Court and Gridley Drive, at a distance of 275 feet from the staging yard east of the substation. However, emissions of odors associated with operation of equipment at the staging yard would not expose a substantial number of people to odors due to the highly dispersive nature of diesel exhaust odors and limited number of people near the staging yard.

Operation and Maintenance

LSPGC Project Components

Maintenance activities may create temporary odors from the combustion of fuel associated with heavy equipment and on-road vehicle use. Because maintenance activities would be limited in

duration and at a distance from receptors with the exception of the telecommunication lines, where no diesel exhaust odors would be anticipated, the impact of odors during operation and maintenance would be less than significant.

PG&E Project Components
Operation and maintenance activities for PG&E Project components would be the same as for the existing PG&E transmission and distribution lines and substations that are being modified or replaced. Therefore, there would be no new source of odors from operation and maintenance of PG&E Project components, and there would be no impact.

4.3.6 Impact Analysis – Cumulative

Air pollution is largely a cumulative impact, and no single project would likely be sufficient in size, by itself, to result in non-attainment of the regional air quality standards. A project's emissions may be individually limited but cumulatively considerable when taken in combination with past, present, and future development within an air basin. Per CEQA Guidelines section 15064(h)(3), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.

The geographic extent for the analysis of cumulative impacts related to air quality includes the SFBAAB, under the jurisdiction of the BAAQMD, and the SVAB, under the jurisdiction of SMAQMD and YSAQMD. Future attainment of state and federal ambient air quality standards is a function of successful implementation of each air district's attainment plans. Consequently, the application of each air basin's thresholds of significance for criteria pollutants is a relevant way to determine whether a project's individual emissions would have a cumulatively significant impact on air quality. Cumulative projects are listed in Table 4.0-1. One cumulative project, the Sacramento River 30-foot Channel maintenance project, is located within the jurisdiction of the SMAQMD (see Table 4.0-1 in Section 4.0: Environmental Setting, Impacts, and Mitigation Measures)-. All other cumulative projects are located within the jurisdiction of the BAAQMD.

As discussed in Section 4.3.5, under Impact AQ-2, the BAAQMD and the SMAQMD have set significance thresholds for project-level emissions of criteria pollutants that would be emitted from construction and operation of the Proposed Project. BAAQMD and SMAQMD project-level thresholds are also cumulative thresholds that have been set to achieve air quality conformity in consideration of all cumulative impacts in the air basin. Because both BAAQMD and SMAQMD are in non-attainment status for ozone and $PM_{2.5}$, emissions of ozone precursors and $PM_{2.5}$ have a significant cumulative impact within the jurisdiction of each air district. Both LSPGC and PG&E project components would generate fugitive dust, which could contribute considerably to the cumulative impact from $PM_{2.5}$. To reduce this impact, MM AQ-1 requires

implementation of BAAQMD fugitive dust BMPs, which would reduce the Proposed Project contribution to a cumulative fugitive dust impact to less than significant (refer to Section 4.3.14). As discussed in Impact AQ-2, construction of the 230 kV submarine segment in BAAQMD and SMAQMD jurisdiction would exceed both BAAQMD and SMAQMD thresholds and the project contribution to a cumulative impact would be considerable. MM AQ-2 requires the use of marine vessels equipped with Tier 3 engines, at a minimum, and Tier 4 engines contingent upon availability to reduce emissions of the ozone precursor NO_x to the extent feasible. However, even after mitigation, the Proposed Project contribution to a cumulative impact in BAAQMD and SMAQMD would remain significant and unavoidable.

A cumulative health risk during construction could exist if another large project were occurring simultaneously to the Proposed Project using diesel construction equipment. However, for cumulative health risks to reach the threshold of 100 excess cancer cases per million exposed (BAAQMD cumulative threshold), construction equipment usage would need to be up to 10 times more intensive than what is currently proposed. No nearby construction projects would be expected to meet these diesel equipment conditions given the timing of Proposed Project construction and cumulative project construction. The cumulative impact from generation of substantial pollutant concentrations would thus be less than significant.

4.3.7 Alternative 1: Collinsville Substation North of Talbert Lane

Environmental Setting – Alternative 1

Alternative 1 involves relocating the proposed LSPGC Collinsville Substation to a different site, approximately 1.2 miles north of the Proposed Project substation site. Alternative 1 would also include an approximately 500-foot segment of PG&E 500 kV interconnection lines, approximately 700-foot segment of 12 kV distribution line, and an approximately 2-mile-long segment of LSPGC 230 kV overhead line. Alternative 1 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 1.

Alternative 1 is located within the jurisdiction of BAAQMD. The nearest sensitive receptor to Alternative 1 substation site is a single-family residence on Collinsville Road north of Talbert Lane, located at a distance of approximately 5,400 feet from the substation site. Existing air quality conditions are the same as those for the Proposed Project, as discussed in Section 4.3.2.

Impact Analysis – Alternative 1

Alternative 1 is not located in proximity to any residential receptors (not within 1,000 feet) and would not expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3) or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4). These impacts are not discussed further.

Air quality emissions modeling for Alternative 1 is provided in Appendix E.

Impact AQ-1: Would Alternative 1 conflict with or obstruct implementation of the applicable air quality plan? *(Less than significant with mitigation)*

Alternative 1 would not induce population growth and would not generate new permanent jobs (see Section 4.14: Population and Housing for additional discussion of growth-related impacts). Construction of Alternative 1 would not induce population or employment growth and would not generate long-term increases in vehicle miles traveled (See Section 4.17: Transportation) and would therefore not conflict with BAAQMD strategies related to energy efficiency and transportation emissions reductions, specifically Strategy EN2 (Energy Efficiency) and Strategy TR9 (Transportation Demand Management). Alternative 1 would not introduce emissions or growth inconsistent with regional attainment goals. Therefore, Alternative 1 would not conflict with the regional growth projections or planning assumptions used to develop the Clean Air Plan.

Similar to the Proposed Project, temporary construction emissions of criteria air pollutants and fugitive dust would result from off-road diesel equipment, on-road vehicle use, and other equipment use (e.g., helicopter and marine access). LSPGC has proposed APM AIR-2 and PG&E has proposed CM AIR-2, which require implementation of fugitive dust control measures during construction activities. However, APM AIR-2 and CM AIR-2 do not include all BAAQMD recommended fugitive dust control BMPs, so the impact would remain significant. MM AQ-1 supersedes APM AIR-2 and CM AIR-2 and requires implementation of all fugitive dust control BMPs listed in Chapter 5, Table 5.2 of BAAQMD's CEQA Guidelines (refer to Section 4.3.14). These measures are consistent with the dust-control specific strategies identified in the 2017 BAAQMD Clean Air Plan. With implementation of MM AQ-1, all BMPs required by BAAQMD for fugitive dust control would be implemented and the impact from fugitive dust and resulting conflict with the air quality plan within the jurisdiction of BAAQMD would be less than significant.

Impact AQ-2: Would Alternative 1 result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? *(Significant and unavoidable)*

Construction

Ozone Precursors Particulate Matter as Exhaust

Alternative 1 would require the use of off-road construction equipment, on-road vehicles, and light-duty helicopters. Alternative 1 would require use of the same construction equipment as the Proposed Project (listed in Table 2-9: Proposed Construction Equipment in Section 2: Project Description). The duration of each Alternative 1 construction activity differs from the Proposed Project and is defined in Section 3: Alternatives.

CAP emissions were modeled for Alternative 1 with the Proposed Project emissions in all other segments. Alternative 1 would generate emissions of $PM_{2.5}$ and PM_{10}, for which BAAQMD is in state nonattainment, and ROG and NO_x, precursors of ozone (O_3), for which BAAQMD is in both state and federal nonattainment. Construction emissions are evaluated as the daily average

of the total emissions from construction averaged over the construction year.[6] Average daily emissions of criteria air pollutants for Alternative 1 within BAAQMD are presented in Table 4.3-30, below.

Table 4.3-30 Alternative 1 Uncontrolled Construction Emissions within BAAQMD

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	5.6	49.0	2.4	1.9
Year 2 (2027)	24.6	**245.1**	13.1	11.2
Year 3 (2028)	6.8	52.6	4.6	3.2
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

Average daily emissions from construction of Alternative 1 (in combination with the Proposed Project in other segments) would exceed NOx thresholds in Year 2. LSPGC has proposed APM AIR-2, and PG&E has proposed CM AIR-1, which require use of off-road construction equipment equipped with Tier 4 engines. While APM AIR-1 and CM AIR-1 would reduce Alternative 1 emissions within BAAQMD, average daily emissions of NOx would still exceed thresholds in 2027 due to concurrent Proposed Project submarine segment construction, which cannot be avoided by the alternative. The impact would be significant and as discussed in Section 4.3.5, the impact is unavoidable.

Table 4.3-31, below, provides project emissions in BAAQMD with the implementation of APM AIR-1 and CM AIR-1.

While APM AIR-1 and CM AIR-1 would reduce Alternative 1 emissions within BAAQMD, average daily emissions of NOx would still exceed thresholds in 2027 due to concurrent Proposed Project submarine segment construction, which cannot be avoided by the alternative. The impact would be significant and as discussed in Section 4.3.5, the impact is unavoidable.

Table 4.3-31 Alternative 1 Average Daily Construction Emissions within BAAQMD with APM AIR-1 and CM AIR-1

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	2.6	19.7	1.3	1.0

[6] For the purposes of this analysis, construction is assumed to begin in 2026 based on the schedule provided by LSPGC and PG&E for each Alternative 1 construction activity. If construction were to be delayed beyond this year, emissions from off-road construction equipment could be lower than those shown in this analysis due to the gradual turnover of fleets and increasingly stringent state emissions standards for engines.

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 2 (2027)	17.8	**126.1**[1]	10.5	8.9
Year 3 (2028)	5.8	31.0	3.6	2.3
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Note:

[1] The analysis assumes implementation of MM AQ-2 to allow for comparison to the Proposed Project; Alternative 1 does not affect the submarine segment construction and therefore the air emission are unrelated to the submarine segment.

Source: (BAAQMD 2022b; Insignia Environmental 2025)

Fugitive Dust

Alternative 1 would require 76 percent more grading than the Proposed Project for preparation of the Collinsville Substation site. BAAQMD does not set a numerical threshold to evaluate the significance of fugitive dust emissions from construction projects. Rather, BAAQMD requires projects to implement all feasible BMPs to reduce fugitive dust emissions as provided in its CEQA Guidelines Chapter 5, Table 5-2. As with the Proposed Project, Alternative 1 would implement MM AQ-1, which requires implementation of all dust-control BMPs required by BAAQMD (refer to Section 4.3.14). The impact from fugitive dust within the jurisdiction of BAAQMD would be less than significant with mitigation.

Operation and Maintenance

Operation of Alternative 1 would involve use of the same operational equipment within the substation as the Proposed Project. Alternative 1 operation and maintenance emissions would be the same as those presented in Table 4.3-24 and Table 4.3-25. The impact from Alternative 1 operation and maintenance would be less than significant.

4.3.8 Alternative 2: Collinsville Substation East of Wind Energy Substations

Environmental Setting – Alternative 2

Alternative 2 involves relocating the proposed LSPGC Collinsville Substation to a different site, approximately 3.0 miles north of the location proposed under the Proposed Project. Alternative 2 would also include an approximately 1,200-foot-long segment of PG&E 500 kV interconnection lines and a four-mile-long segment of LSPGC 230 kV overhead line, as well as an approximately 0.3-mile-long PG&E 12 kV distribution line. Alternative 2 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 2.

Alternative 2 is located within the jurisdiction of BAAQMD. The nearest sensitive receptor to Alternative 2 substation site is a single-family residence on Birds Landing Road, located at a

distance of approximately 3,780 feet from the substation site. Existing air quality conditions are the same as those for the Proposed Project, as discussed in Section 4.3.2.

Impact Analysis – Alternative 2

Alternative 2 is not located in proximity to any residential receptors and would not expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3) or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4). These impacts are not discussed further.

Air quality emissions modeling for Alternative 2 is provided in Appendix E.

Impact AQ-1: Would Alternative 2 conflict with or obstruct implementation of the applicable air quality plan? *(Less than significant with mitigation)*

Alternative 2 would not induce population growth and would not generate new permanent jobs (see Section 4.14: Population and Housing for additional discussion of growth-related impacts). Construction of Alternative 1 would not induce population or employment growth and would not generate long-term increases in vehicle miles traveled (See Section 4.17: Transportation) and would therefore not conflict with BAAQMD strategies related to energy efficiency and transportation emissions reductions, specifically Strategy EN2 (Energy Efficiency) and Strategy TR9 (Transportation Demand Management). Alternative 2 would not introduce emissions or growth inconsistent with regional attainment goals. Therefore, Alternative 2 would not conflict with the regional growth projections or planning assumptions used to develop the Clean Air Plan.

Similar to the Proposed Project, Alternative 2 temporary construction emissions of criteria air pollutants and fugitive dust would result from off-road diesel equipment, on-road vehicle use, and other equipment use (e.g., helicopter and marine access). LSPGC has proposed APM AIR-2 and PG&E has proposed CM AIR-2, which requires implementation of fugitive dust control measures during construction activities. However, APM AIR-2 and CM AIR-2 do not include all BAAQMD recommended fugitive dust control BMPs, so the impact would remain significant. MM AQ-1 supersedes APM AIR-2 and CM AIR-2, and requires implementation of all fugitive dust control BMPs listed in Chapter 5, Table 5.2 of BAAQMD's CEQA Guidelines (refer to Section 4.3.14). These measures are consistent with the dust-control specific strategies identified in the 2017 BAAQMD Clean Air Plan. With implementation of MM AQ-2, all BMPs required by BAAQMD for fugitive dust control would be implemented and the impact from fugitive dust and resulting conflict with the air quality plan within the jurisdiction of BAAQMD would be less than significant.

Impact AQ-2: Would Alternative 2 result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? *(Significant and unavoidable)*

Construction

Ozone Precursors and Particulate Matter as Exhaust

Alternative 2 would require the use of off-road construction equipment, on-road vehicles, and light-duty helicopters. Alternative 2 would require use of the same construction equipment as the Proposed Project (listed in Table 2-9: Proposed Construction Equipment in Section 2: Project Description). The duration of each Alternative 2 construction activity differs from the Proposed Project and is defined in Section 3: Alternatives.

Air emissions were modeled for Alternative 2 with the Proposed Project emissions in all other segments. Alternative 2 would generate emissions of $PM_{2.5}$ and PM_{10}, for which BAAQMD is in state nonattainment, and precursors of ozone (O_3), for which BAAQMD is in both state and federal nonattainment. Average daily emissions of criteria air pollutants for Alternative 2 within BAAQMD are presented in Table 4.3-32.

Table 4.3-32 Alternative 2 Uncontrolled Average Daily Construction Emissions within BAAQMD

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	5.5	48.2	2.2	1.8
Year 2 (2027)	25.4	**252.6**	12.0	10.4
Year 3 (2028)	8.7	61.2	2.3	1.9
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Source: (BAAQMD 2022b; Insignia Environmental 2025)

Average daily emissions from construction of Alternative 2 would exceed NOx thresholds in Year 2. LSPGC has proposed APM AIR-2, and PG&E has proposed CM AIR-1, which require use of off-road construction equipment equipped with Tier 4 engines. While APM AIR-1 and CM AIR-1 would reduce Alternative 1 emissions within BAAQMD, average daily emissions of NOx would still exceed thresholds in 2027 due to concurrent Proposed Project submarine segment construction, which cannot be avoided by the alternative. The impact would be significant and as discussed in Section 4.3.5, the impact is unavoidable.

Table 4.3-33 Alternative 2 Average Daily Construction Emissions within BAAQMD with APM AIR-1 and CM AIR-1

Year	ROG (lbs./day)	NO_X (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Year 1 (2026)	2.6	20.2	1.3	1.0
Year 2 (2027)	18.1	**128.2**[1]	5.6	4.5
Year 3 (2028)	5.7	28.8	3.5	2.2
Significance threshold	54	54	82	54
Threshold exceeded?	No	Yes	No	No

Note:

[1] The analysis assumes implementation of MM AQ-2 to allow for comparison to the Proposed Project; Alternative 1 does not affect the submarine segment construction and therefore the air emission are unrelated to the submarine segment.

Fugitive Dust

Alternative 1 would require more grading than the Proposed Project for preparation of the Collinsville Substation site. BAAQMD does not set a numerical threshold to evaluate the significance of fugitive dust emissions from construction projects. Rather, BAAQMD requires projects to implement all feasible BMPs to reduce fugitive dust emissions as provided in its CEQA Guidelines Chapter 5, Table 5-2. As with the Proposed Project, Alternative 1 would implement MM AQ-1, which requires implementation of all dust-control BMPs required by BAAQMD (refer to Section 4.3.14). The impact from fugitive dust within the jurisdiction of BAAQMD would be less than significant with mitigation.

Operation and Maintenance

Operation of Alternative 2 would involve use of the same operational equipment within the substation as the Proposed Project. Alternative 1 operation and maintenance emissions would be the same as those presented in Table 4.3-24 and Table 4.3-25. The impact from Alternative 2 operation and maintenance would be less than significant.

4.3.9 Alternative 3: 500 kV Interconnection Lines on Entirely TSPs

Environmental Setting – Alternative 3

Alternative 3 involves constructing the PG&E 500 kV interconnection lines on entirely TSPs, instead of the combination of LSTs and three-pole TSPs under the Proposed Project. The Alternative 3 500 kV interconnection lines would be in the same general alignment as the Proposed Project PG&E 500 kV interconnection lines. Alternative 3 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 3.

Existing air quality conditions are the same as those for the Proposed Project, as discussed in Section 4.3.2.

Impact Analysis – Alternative 3

The Alternative 3 500 kV interconnection would be located in the same approximate location as the Proposed Project and would involve use of the same construction equipment over the same construction duration. Similar to the Proposed Project, Alternative 3 impacts from generation of fugitive dust would be significant under Impact AQ-1 because PG&E APM AQ-2 does not implement all BAAQMD BMPs for fugitive dust control. MM AQ-1 requires implementation of BAAQMD required BMPs for fugitive dust control (refer to Section 4.3.14). With implementation of MM AQ-1, Alternative 3 construction would not conflict with an air quality plan. The impact would be less than significant with mitigation.

Alternative 3 emissions from construction of the 500 kV interconnection line would be comparable to those presented for Proposed Project 500 kV interconnection line in Section 4.3.5. PG&E emissions alone would be less than significant as summarized in Table 4.3-23; however, the combined construction emissions in Year 2 including construction of the 500 kV interconnection line in combination all other project components would be the same as the Proposed Project and significant and unavoidable as described in Section 4.3.5.

Alternative 3 is not located near sensitive receptors and would not generate substantial pollutant concentrations (Impact AQ-3) or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4).

4.3.10 Alternative 4: 230 kV Overhead Segment Alternative Route

Environmental Setting – Alternative 4

Alternative 4 involves relocation of a short segment of the LSPGC 230 kV overhead segment between the proposed LSPGC Collinsville Substation and the Delta, west of the proposed LSPGC 230 kV overhead segment route. Additionally, the northern end of the LSPGC 230 kV submarine segment would be rerouted to meet up with the southern end of the Alternative 4 230 kV submarine segment. Alternative 4 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 4.

Existing air quality conditions are the same as those for the Proposed Project, as discussed in Section 4.3.2.

Impact Analysis – Alternative 4

Alternative 4 would involve use of the same construction equipment over the same approximate construction duration as the Proposed Project. Similar to the Proposed Project, Alternative 4 impacts from generation of fugitive dust would be significant under Impact AQ-1 and Impact AQ-2 because APM AQ-2 does not implement all BAAQMD BMPs for fugitive dust control. MM AQ-1 requires implementation of BAAQMD required BMPs for fugitive dust control (refer to Section 4.3.14). The impact form conflict with an air quality plan would be the same as the Proposed Project and less than significant with mitigation (refer to Section 4.3.5).

Alternative 4 also involves construction of a portion of the submarine segment. As discussed in Section 4.3.5, the submarine segment construction would exceed NOx. MM AQ-2 requires use of Tier 4 construction equipment where commercially available and use of Tier 3 construction equipment where Tier 4 construction equipment are not available. As described for the Proposed Project, Alternative 4 submarine segment construction would exceed threshold even after implementation of mitigation and the impact from a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment would be significant and unavoidable.

Alternative 4 would not involve construction in any area for more than 2 months and would not expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3). Alternative 4 is not located in proximity to receptors and would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4), and the impacts would be less than significant and the same as the comparable Proposed Project elements (see Section 4.3.5).

4.3.11 Alternative 5: 230 kV Submarine Segment Alternative Route

Environmental Setting – Alternative 5

Alternative 5 involves rerouting a portion of the proposed LSPGC 230 kV submarine segment to the east of its current alignment as it approaches the southern shoreline in Pittsburg. The submarine segment cable would be installed in the same manner as the Proposed Project. Alternative 5 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 5.

Alternative 5 is located within the jurisdiction of BAAQMD. No sensitive receptors are located near Alternative 5. Existing air quality is the same as that for the Proposed Project, as discussed in Section 4.3.2

Impact Analysis – Alternative 5

The Alternative 5 segment (absent the Proposed Project) would not generate fugitive dust and would not conflict with or obstruct the BAAQMD 2017 Clean Air Plan or any other applicable air quality plan (Impact AQ-1) expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3) or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4), and no impact would occur from Segment 5 in the absence of the Proposed Project in other segments. The impacts of the Proposed Project in other areas are discussed in Section 4.3.5.

Air quality emissions modeling for Alternative 5 is provided in Appendix E.

Impact AQ-2: Would Alternative 5 result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? *(Significant and unavoidable)*

Alternative 5 would require the use of marine vessels and deck equipment for site preparation of the 230 kV submarine segment alignment, which would occur in Year 1 of construction. The emissions from Alternative 5 site preparation in combination with the Proposed Project construction of other segments would exceed the BAAQMD NO_x emissions thresholds in Year 1, which would result in a would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment. The impact would be significant. MM AQ-2 requires use of marine vessels equipped with, at minimum, Tier 3 engines and Tier 4 engines to the extent commercially available and operable in California at the time of construction. The analysis conservatively assumes use of Tier 3 marine vessels. With implementation of MM AQ-2, the impact of Alternative 5 site preparation activities would not exceed BAAQMD thresholds, and the impact from a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment would be less than significant with mitigation for Alternative 5 site preparation activities. Impacts of the Proposed Project would remain in all other areas and installation of the submarine cable in Year 2 would result in the same air emissions as the Proposed Project analyzed in Section 4.3.5. The overall impact would be significant and unavoidable.

Table 4.3-34 Alternative 5 Average Added Daily Construction Emissions for Site Preparation within BAAQMD

Category	ROG (lbs./day)	NO_x (lbs./day)	PM_{10} (exhaust; lbs./day)	$PM_{2.5}$ (exhaust; lbs./day)
Average daily emissions: uncontrolled (Year 1)	7.2	**68.2**	3.6	3.1
Average daily emissions: controlled (Year 1)	4.6	42.7	2.6	2.2
Significance threshold	54	54	82	54
Threshold exceeded?	No	No	No	No

Source: (SMAQMD 2020b; Insignia Environmental 2025)

4.3.12 Alternative 6a/6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh Protection Plan Management Areas

Environmental Setting – Alternative 6a/6b

Alternative 6a/6b would locate the LSPGC 230 kV transmission line on primarily PG&E-owned property south of the proposed Collinsville Substation site (similar to Alternative 4). Alternative 6a/6b would be installed in conduit underground. Alternative 6a differs from Alternative 6b only at the northern end of the segment where options are provided for connection to the Proposed Project Collinsville Substation or Alternatives 1 or 2. Two overhead riser structures would be installed at the northern end of the Alternative 6a/6b underground duct bank where

the LSPGC 230 kV line would transition between an overhead and underground position. Alternative 6a/6b would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 6a/6b.

Alternative 6a/6b would be located within the jurisdiction of BAAQMD, and the nearest sensitive receptors would be the same as for the Proposed Project.

Impact Analysis – Alternative 6a/6b

Alternative 6a/6b would not involve construction for more than 2 months in proximity to any sensitive receptors and would not expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3) or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4). Neither impact is discussed further.

Impact AQ-1: Would Alternative 6a/6b have a significant impact on air quality if it would conflict with or obstruct implementation of the applicable air quality plan? *(Less than significant with mitigation)*

Construction of Alternative 6a/6b would not induce population or employment growth and would not generate long-term increases in vehicle miles traveled (See Section 4.17: Transportation) and would therefore not conflict with BAAQMD strategies related to energy efficiency and transportation emissions reductions, specifically Strategy EN2 (Energy Efficiency) and Strategy TR9 (Transportation Demand Management). Alternative 6a/6b would not introduce emissions or growth inconsistent with regional attainment goals. Therefore, Alternative 2 would not conflict with the regional growth projections or planning assumptions used to develop the Clean Air Plan.

Similar to the Proposed Project, Alternative 6a/6b temporary construction emissions of criteria air pollutants and fugitive dust would result from off-road diesel equipment, on-road vehicle use, and other equipment use (e.g., helicopter and marine access). LSPGC has proposed APM AIR-2, which requires implementation of fugitive dust control measures during construction activities. However, APM AIR-2 does not include all BAAQMD recommended fugitive dust control BMPs, so the impact from Alternative 6a/6b conflict with an air quality plan would remain significant. MM AQ-1 supersedes APM AIR-2 and requires implementation of all fugitive dust control BMPs listed in Chapter 5, Table 5.2 of BAAQMD's CEQA Guidelines (refer to Section 4.3.14). These measures are consistent with the dust-control specific strategies identified in the 2017 BAAQMD Clean Air Plan. With implementation of MM AQ-2, all BMPs required by BAAQMD for fugitive dust control would be implemented and the impact from fugitive dust and resulting conflict with the air quality plan within the jurisdiction of BAAQMD would be less than significant.

Impact AQ-2: Would Alternative 6a/6b have a significant impact on air quality if it would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? ***(Significant and unavoidable)***

As with the Proposed Project, Alternative 6a/6b would require the use of heavy equipment to construct the underground duct bank. Construction of the underground duct bank would avoid helicopter emissions associated with construction of the 230 kV overhead segment, but would increase the extent of land disturbance and would require more intensive on land equipment activity. The estimated emissions from Alternative 6a/6b would be similar, but slightly greater, than the Proposed Project and Alternative 1 and 2 individually due to the underground construction. Alternative 6a/6b in combination with the Proposed Project or Alternatives 1 or 2 would result in a cumulatively considerable net increase of NOx, for which the region is non-attainment (see discussion in Section 4.3.5, 4.3.7 and 4.3.8), which would be a significant impact. MM AQ-2 requires use of marine vessels equipped with, at minimum, Tier 3 engines and Tier 4 engines to the extent commercially available and operable in California at the time of construction. With implementation of MM AQ-2, the emissions of NO_x during Year 2 of construction with Alternative 6a/6b and the Proposed Project or Alternatives 1 or 2 in other segments would still exceed BAAQMD thresholds. Alternative 6a/6b would result in a cumulatively considerable net increase of criteria pollutants for which the region is in nonattainment and the impact would remain significant and unavoidable.

Alternative 6a would generate the same amount of fugitive dust as the Proposed Project. Alternative 6b with Alternative 1 or 6b with Alternative 2 would require 76 percent or 23 percent more grading, respectively than the Proposed Project for preparation of the Collinsville Substation site. BAAQMD does not set a numerical threshold to evaluate the significance of fugitive dust emissions from construction projects. Rather, BAAQMD requires projects to implement all feasible BMPs to reduce fugitive dust emissions as provided in its CEQA Guidelines Chapter 5, Table 5-2. As with the Proposed Project, Alternative 1 would implement MM AQ-2, which requires implementation of all dust-control BMPs required by BAAQMD. The impact from fugitive dust within the jurisdiction of BAAQMD would be less than significant with mitigation.

4.3.13 No Project Alternative

Environmental Setting – No Project Alternative

Under the No Project Alternative, the LSPGC Collinsville Substation and associated LSPGC 230 kV transmission line, PG&E 500 kV interconnection lines, and PG&E 12 kV distribution line would not be constructed. The existing air quality conditions described in Section 4.3.2 would apply to the No Project Alternative.

Impact Analysis – No Project Alternative

The No Project Alternative would not involve any construction and would not generate any air pollutant emissions. The No Project Alternative would not conflict with an applicable air quality control plan (Impact AQ-1), result in a cumulatively considerable net increase of any

pollutant that the region is in nonattainment (Impact AQ-2), expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3) or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4). The No Project Alternative would have no impact related to air quality.

4.3.14 Mitigation Measures

LSPGC Mitigation Measures

MM AQ-1: Fugitive Dust Control

To minimize construction-related fugitive dust emissions, LSPGC and PG&E shall implement all dust control BMPs recommended by the Bay Area Air Quality Management District (BAAQMD). These measures shall be implemented throughout all phases of ground-disturbing activity and shall include, at a minimum, the following:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas) shall be watered at least twice daily, or more frequently as necessary to prevent visible dust emissions.
2. All haul trucks transporting soil, sand, or other loose material off site shall be covered to prevent material loss during transit.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
5. All inactive disturbed areas (e.g., disturbed soils that remain idle for more than one day) shall be stabilized using water, soil binders, tarps, or other dust control methods.
6. Excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 miles per hour and dust control measures are not effective at preventing visible dust emissions.
7. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways, especially during grading or stockpiling.
8. The area of disturbed surfaces at any one time shall be minimized to the extent feasible to limit the potential for fugitive dust generation.
9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

MM AQ-2: Watercraft Emission Reduction

LSPGC shall use marine vessels (e.g., tug boards and support vessels) that meet U.S. Environmental Protection Agency (EPA) Tier 4 engine standards to the extent commercially available and operating in the Bay Area during construction. If marine vessels with EPA Tier 4 engines are not available, LSPGC shall submit to the CPUC evidence documenting good faith effort to obtain watercraft with EPA Tier 4 engines. Where watercraft with Tier 4 engines are

not available, LSPGC shall ensure that all marine vessels used during in-water construction activities are powered by engines that meet EPA Tier 3 emission standards for marine compression-ignition engines, as defined in Title 40 of the Code of Federal Regulations (CFR) Part 1042.

PG&E Mitigation Measures

MM AQ-1: Fugitive Dust Control (provided above)

4.3.15 References

BAAQMD. 2023. Fugitive Dust White Paper: Regulatory Analysis and Recommendations to Further Address Fugitive Dust and Particulate Matter Emissions. https://www.baaqmd.gov/~/media/dotgov/files/rules/regulation-6-particulate-matter---common-definitions-and-test-methods/2023-amendment/documents/20230517_dustwhitepaper_r0601and0606-pdf.pdf?la=en&rev=01a.

Bay Area Air Quality Management District (BAAQMD). 2006. Bay Area 2005 Ozone Strategy.

Bay Area Air Quality Management District (BAAQMD). 2010. "Appendix C." In California Environmental Quality Act Air Quality Guidelines. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/draft_baaqmd_ceqa_guidelines_may_2010_final.pdf?la=en&rev=05d7fc5d8d8441828f340bfc46a0579c&utm_source=chatgpt.com.

Bay Area Air Quality Management District (BAAQMD). 2014a. Identifying Areas with Cumulative Impacts from Air Pollution in the San Francisco Bay Area. Version 2. Available: https://www.baaqmd.gov/en/community-health/community-health-protection-program/community-air-risk-evaluation-care-program/documents.

Bay Area Air Quality Management District (BAAQMD). 2014b. Improving Air Quality & Health in Bay Area Communities: Community Air Risk Evaluation Program Retrospective & Path Forward (2004-2013). Available: https://www.baaqmd.gov/en/community-health/community-health-protection-program/community-air-risk-evaluation-care-program/documents.

Bay Area Air Quality Management District (BAAQMD). 2017a. "BAAQMD CARE Communities (2013)." Vector digital data. Using Arc GIS Online (April 7, 2025), January 10. Feature service. Last updated January 18, 2018. https://www.arcgis.com/home/item.html?id=6f2d1c1e901d48c6a540a80b903d9133.

Bay Area Air Quality Management District (BAAQMD). 2017b. Spare the Air: A Blueprint for Clean Air and Climate Protection in the Bay Area. Available: https://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans.

Bay Area Air Quality Management District (BAAQMD). 2018a. Regulation 6 Particulate Matter Rule 1 General Requirements.

Bay Area Air Quality Management District (BAAQMD). 2018b. Regulation 6 Particulate Matter Rule 6 Prohibition of Trackout.

Bay Area Air Quality Management District (BAAQMD). 2022a. California Environmental Quality Act Air Quality Guidelines.. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

Bay Area Air Quality Management District (BAAQMD). 2022b. "Chapter 3 Thresholds of Significance." In California Environmental Quality Act Air Quality Guidelines. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

Bay Area Air Quality Management District (BAAQMD). 2022c. "Chapter 5 Project-Level Air Quality Impacts." In California Environmental Quality Act Air Quality Guidelines.. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

Bay Area Air Quality Management District (BAAQMD). n.d. "Air Quality Standards and Attainment Status." Accessed January 12, 2025. https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status.

Burau, Jon R., Stephen G. Monismith, Mark T. Stacey, Richard N. Oltmann, Jessica R. Lacy, and David H. Schoellhamer. 2000. "Recent Research on the Hydrodynamics of the Sacramento–San Joaquin River Delta and North San Francisco Bay." Interagency Ecological Program Newsletter 13 (2): 45–54.

California Air Pollution Control Officers Association (CAPCOA). 2022. User Guide for CalEEMod Version 2022.1. Developed by ICF in collaboration with the Sacramento Metropolitan Air Quality Management District, Fehr & Peers, STI, and Ramboll. Available: https://www.caleemod.com/user-guide.

California Air Resources Board (CARB). 2016. Ambient Air Quality Standards. Available: https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards.

California Air Resources Board (CARB). 2023a. "California Air District Boundaries." Vector digital data. Using Arc CIS Online (March 26, 26, 2025), July 26. Feature service. Last updated February 25, 2005. https://www.arcgis.com/home/item.html?id=d2721065c3824b0cb69928256d6b6fc6.

California Air Resources Board (CARB). 2023b. California Air Toxics Assessment (CATA) Technical Report.

California Air Resources Board (CARB). 2023c. "CATA 2017 Assessment Feature Layer." Vector digital data, tabular data. August 10. Feature service. Last updated January 19, 2024. https://www.arcgis.com/home/item.html?id=496e24ba7f7d4ef9a6ca0ae59f81c3d2.

California Air Resources Board (CARB). 2023d. "Ozone Health." https://ww2.arb.ca.gov/resources/ozone-and-health.

California Air Resources Board (CARB). 2024. Commercial Harbor Craft Technology Assessment- Review of Tier 4 Engine Technology and Zero Emission Technology.

California Air Resources Board (CARB). 2025a. EMFAC2025 Volume I: User's Guide. https://ww2.arb.ca.gov/sites/default/files/2025-05/EMFAC2025%20User%27s%20Guide_0.pdf.

California Air Resources Board (CARB). 2025b. "Hydrogen Sulfide & Health." https://ww2.arb.ca.gov/resources/hydrogen-sulfide-and-health.

California Air Resources Board (CARB). 2025c. "iADAM Air Quality Data Statistics." Tabular data. January 14. HTML. https://www.arb.ca.gov/adam.

California Air Resources Board (CARB). 2025d. "Solano County Annual $PM_{2.5}$ Summary Data." Tabular data. March 28. HTML. https://www.arb.ca.gov/aqmis2/aqdselect.php.

California Air Resources Board (CARB). 2025e. "Stationary Source Screening Map." Screening Report. June 18. Retrieved from: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=845658c19eae4594b9f4b805fb9d89a3.

California Air Resources Board (CARB). n.d.-a. "CARB Identified Toxic Air Contaminants." Accessed January 12, 2025. https://ww2.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants.

California Air Resources Board (CARB). n.d.-b. "Dashboard for BA 2017." California Air Toxics Assessment (CATA). Accessed April 7, 2025. https://www.arcgis.com/apps/dashboards/7b84d3812b0b45dcaa0d16bbed389691.

California Air Resources Board (CARB). n.d.-c. "Sulfate & Health." Accessed January 12, 2025. https://ww2.arb.ca.gov/resources/sulfate-and-health.

California Air Resources Board (CARB). n.d.-d. "Vinyl Chloride & Health." Accessed January 12, 2025. https://ww2.arb.ca.gov/resources/vinyl-chloride-and-health.

California Air Resources Board (CARB). n.d.-e. "Visibility-Reducing Particles & Health." Accessed January 12, 2025. https://ww2.arb.ca.gov/resources/visibility-reducing-particles-and-health.

City of Pittsburg. 2024. Pittsburg 2040 General Plan: Revised Adoption Draft. Available: https://pittsburg.generalplan.org/documents-and-maps.

Congression Research Service (CRS). 2022. Clean Air Act: A Summary of the Act and Its Major Requirements. Available: Clean Air Act: A Summary of the Act and Its Major Requirements.

Contra Costa County. 2024. "Chapter 9: Health and Safety Element." In Contra Costa County 2045 General Plan. Available: https://www.contracosta.ca.gov/DocumentCenter/View/84957/Contra-Costa-County-2045-General-Plan-PDF---Large-file-782-MB.

ESRI®. 2009. "World Imagery." Raster digital data. Using Arc GIS Online (April 4, 2025), December 12. Map service. Last updated January 29, 2025. https://www.arcgis.com/home/item.html?id=10df2279f9684e4a9f6a7f08febac2a9.

ESRI®. 2017. "Hybrid Reference Layer." Vector digital data. Using Arc GIS Online (April 4, 2025), October 26. Vector tile service. https://www.arcgis.com/home/item.html?id=30d6b8271e1849cd9c3042060001f425.

Federal Office Civil Aviation (FOCA). 2015. Guidance on the Determination of Helicopter Emissions. https://www.bazl.admin.ch/bazl/en/home/specialists/regulations-and-guidelines/environment/pollutantemissions/.

Insignia Environmental. 2025. "Attachment 1.3-A: Air Quality and GHG Calculations." In Proponent's Environmental Assessment for LS Power Grid California, LLC's Collinsville 500/230 Kilovolt Substation Project.

Meteoblue. 2025. Simulated Historical Climate & Weather Data for Buchanan Field Airport. https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/buchanan-field-airport_united-states_5331283.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments. Air, Community, and Environmental Research Branch Office of Environmental Health Hazard Assessment California Environmental Protection Agency. Available: https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0.

Sacramento County. 2022. "Air Quality Element." In Sacramento County General Plan of 2005–2030. Office of Planning and Environmental Review. Available: https://planning.saccounty.gov/PlansandProjectsIn-Progress/Pages/GeneralPlan.aspx.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 1970. "Rule 404 Particulate Matter." March 11. https://www.airquality.org/businesses/rules-regulations.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 1971. "Rule 201 General Permit Requirements." November 29. https://www.airquality.org/businesses/rules-regulations.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 1977. "Rule 403 Fugitive Dust." August 3. https://www.airquality.org/businesses/rules-regulations.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 1978. "Rule 441 Organic Solvents." December 6. https://www.airquality.org/businesses/rules-regulations.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 1983. "Rule 401 Ringlemann Chart." April 19. https://www.airquality.org/businesses/rules-regulations.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 1996. "Rule 402 Nuisance." May 7. https://www.airquality.org/businesses/rules-regulations.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2017a. "Harborcraft, Dredge, and Barge Emissions Factor Calculator." Calculator. July. Excel. Available: https://www.airquality.org/Residents/CEQA-Land-Use-Planning/CEQA-Guidance-Tools.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2017b. Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Progress Plan. Sacramento Metropolitan Air Quality Management District. https://www.airquality.org/ProgramCoordination/Documents/SacramentoRegional2008NAAQSOzoneAttainmentPlan_2017.pdf.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2020a. Guide to Air Quality Assessment in Sacramento County. [Online]. https://www.airquality.org/residents/ceqa-land-use-planning/ceqa-guidance-tools.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2020b. SMAQMD Thresholds of Significance Table. Available: https://www.airquality.org/residents/ceqa-land-use-planning/ceqa-guidance-tools.

Sacramento Metropolitan Air Quality Management District (SMAQMD). n.d. "Air Quality Pollutants and Standards." Accessed January 12, 2025. https://www.airquality.org/air-quality-health/air-quality-pollutants-and-standards.

Solano County. 2024. "Chapter 5 Public Health and Safety." In Solano County General Plan. https://www.solanocounty.com/depts/rm/planning/general_plan.asp.

U.S. Environmental Protection Agency (EPA). 1973. Atmospheric Emisssions from the Asphalt Industry.

U.S. Environmental Protection Agency (EPA). 2019. "AirNow Air Quality Monitoring Site Data (Current)." Vector digital data; tabular data. Using Arc GIS Online (April 4, 2025), April 2. Feature Service. Last updated (April 4, 2025). https://www.arcgis.com/home/item.html?id=2d718d2733a74d1689d72b922c0ac4f4.

U.S. Environmental Protection Agency (EPA). 2024a. AP-42, Compilation of Air Pollutant Emission Factors for Stationary Sources. Available: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors-stationary-sources.

U.S. Environmental Protection Agency (EPA). 2024b. "Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution." June 21. https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution.

U.S. Environmental Protection Agency (EPA). 2024c. "Basic Information about Lead Air Pollution." June 13. https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution.

U.S. Environmental Protection Agency (EPA). 2024d. "Basic Information about NO2." Overviews and Factsheets. July 16. https://www.epa.gov/no2-pollution/basic-information-about-no2.

U.S. Environmental Protection Agency (EPA). 2024e. "Clean Air Act Requirements and History." August 6. https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history.

U.S. Environmental Protection Agency (EPA). 2024f. "NAAQS Table." Other Policies and Guidance. December 16. https://www.epa.gov/criteria-air-pollutants/naaqs-table.

U.S. Environmental Protection Agency (EPA). 2024g. "Particulate Matter (PM) Basics." June 20. https://www.epa.gov/pm-pollution/particulate-matter-pm-basics.

U.S. Environmental Protection Agency (EPA). 2025. "Sulfur Dioxide Basics." January 10. https://www.epa.gov/so2-pollution/sulfur-dioxide-basics.

Yolo-Solano Air Quality Management District (YSAQMD). 2025. Attainment Status. Retrieved from: https://www.ysaqmd.org/plans-data/attainment/.

4.4 Biological Resources

This section presents the environmental setting and analysis of impacts on biological resources resulting from the Proposed Project and alternatives. This section describes existing biological resources information, applicable regulations, environmental impacts, and mitigation measures to reduce or avoid significant effects for the Proposed Project and alternatives, where feasible.

The following scoping comments are relevant to the analysis of biological resources as discussed in the Scoping Report (Appendix B):

- The EIR should analyze impacts on sensitive and special-status species and habitats occurring on California State Land Commission (CSLC) lands under the project.
- Any consultation with California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and National Oceanic and Atmospheric Administration (NOAA) fisheries should be discussed in the EIR, including permit requirements.
- The EIR should analyze impacts related to aquatic invasive species. The Commission's Marine Invasive Species Program can be used as a potential resource for any required mitigation.
- The EIR should analyze potential effects to sensitive and special-status species and Suisun Bay watershed, the Mendocino National Forest, and the proposed PG&E Montezuma Island Mitigation Bank.
- The EIR should analyze collision and electrocution risks to sensitive bird species created by transmission lines.
- The EIR should analyze the effects of noise and vibration on fish and birds and require consultation with appropriate agencies.
- SMUD suggested the use of tubular steel poles (TSPs) for the proposed overhead transmission lines instead of lattice steel towers (LSTs) because LSTs would create new perching and nesting habitat in proximity to existing wind turbines that could result in an increase in bird strikes; the EIR should analyze the effects of the proposed LSTs related to an increase in wind turbine bird strikes.

4.4.1 Approach to Data Collection

Definitions

Definitions applicable to the analysis of biological resource impacts in this EIR are as follows:

- **Sensitive Natural Communities.** Sensitive natural communities are those identified by CDFW's Rarity Ranking (CDFW 2025e), which follows NatureServe's Heritage Methodology (Faber-Langendoen et al. 2016). Each community is given a *global* (G) and *state* (S) imperilment rank. Natural communities with S ranks of S1

(critically imperiled), S2 (imperiled), or S3 (vulnerable) are considered sensitive by CDFW.

- **Special-Status Species.** A *special-status species* is a species that is legally protected under the California Endangered Species Act (CESA) and/or federal Endangered Species Act (FESA) or under other regulations, as well as any species considered sufficiently rare by the scientific community and/or regulatory agencies to qualify for such status. These species are classified under the following categories:
  - Species listed or proposed for listing as threatened or endangered under FESA (50 CFR § 17.12 [listed plants] and § 17.11 [listed animals]) or through notices in the Federal Register [FR], referred to in this document as *proposed species*
  - Species that are candidates for possible future listing as threatened or endangered under FESA (61 FR § 40, February 28, 1996), referred to in this document as *candidate species*
  - Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations [CCR] § 670.5) or that are listed as "*fully protected*" (FP) by the State of California (California Fish and Game Code §§ 3511, 4700, 5050, and 5515)
  - Species that meet the definitions of rare and endangered under CEQA Guidelines section 15380, which provides that a plant or animal species may be treated as "rare or endangered" even if not included in a State or federal list
  - Species designated by CDFW as *Species of Special Concern* (SSC) or *Watch List* (WL)
  - Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code §§ 1900 et seq.)
  - Plant species considered to be rare, threatened, or endangered in California according to the California Native Plant Society's (CNPS's) *California Rare Plant Rank* (CRPR), with a CRPR of 1A, 1B, 2A, or 2B as well as certain rank 3 and 4 species with local significance (CNPS 2001)
  - Species protected under the Migratory Bird Treaty Act (MBTA) (USFWS 2020)
  - Species protected under the federal Bald and Golden Eagle Protection Act (BGEPA) (Bald and Golden Eagle Protection Act 1940)
  - Birds of prey (California Fish and Game Code §§ 3503, 3503.5, 3513, and 3800)
  - Species listed on the USFWS Birds of Conservation Concern (BCC) list (USFWS 2021)
  - Bats considered by the Western Bat Working Group (WBWG) to be "high" or "medium" priority (WBWG 1998)
- **Biological Study Area.** The *biological study area* includes all areas that were evaluated for the presence of special-status plant and wildlife species and sensitive natural communities. The biological study area includes the following:
  - **Initial Survey Area.** The initial survey area encompasses the Collinsville Substation site, 230 kV overhead transmission line, 230 kV underground transmission line, 500 kV interconnection lines, and 12 kV distribution line and

a minimum 50-foot buffer from each of these facilities and all associated work areas. The initial survey area is shown in Appendix F.1. The scope of the initial survey area covers all areas of potential direct impacts. Areas of indirect impacts were evaluated through the literature and data review.

- **Transposition Site Survey Area.** The transposition site survey area includes the four PG&E transposition sites and a minimum 50-foot buffer from all work areas associated with the transposition sites. The transposition site survey area is shown in Appendix F.1. The scope of the transposition site survey area covers all potential work areas that could be directly impacted by the Proposed Project. Areas of indirect impact were evaluated through the literature and data review.
- **Aquatic Study Area.** The *aquatic study area* encompasses the 230 kV submarine segment within the Delta. Analysis of the aquatic study area is based entirely on literature and data review. The analysis addresses species and habitats that are known to occur in the Delta. Any aquatic habitats (e.g., wetlands, ponds, linear water features) on land are not considered part of the aquatic study area.

Literature Review

A literature and database review, including a review of records from the California Natural Diversity Database (CNDDB) (CNDDB 2025b), was conducted of the U.S. Geological Survey (USGS) 7.5-minute quadrangles within and adjacent to the *biological study area*. Records for all known special-status species within 5 miles of the Proposed Project area were compiled and reviewed. The CNPS Inventory of Rare and Endangered Plants of California (CNPS 2025b) was reviewed to obtain additional information regarding special-status plant species. The USFWS *Information for Planning and Consultation* (IPaC) system (USFWS 2025d) was queried for a list of listed and proposed species under FESA known to occur within or near the Proposed Project site and to determine the project's proximity to USFWS designated critical habitat. The USFWS National Wetlands Inventory (USFWS 2024) and USGS National Hydrography Dataset (USGS 2025) were queried to determine aquatic surface resources potentially present within the Proposed Project area.

Field Surveys

- Habitat Assessment and Vegetation Mapping: Surveys to verify vegetation communities and to assess habitat conditions for whether they would support special-status species were conducted within the *initial survey area* in May, June, July, September, and December of 2023. These surveys were conducted within the *transposition site survey area* in February 2025. Detailed survey methods and results may be found in the Proposed Project's Terrestrial Biological Resources Technical Report (Insignia Environmental 2024b) (Appendix F.2).
- Special-Status Plant Surveys: Floristic botanical surveys designed to identify potentially-occurring special-status plant species were conducted in May and July of 2023 and April and July of 2024 within the *initial survey area*. Detailed survey methods and results may be found in the Proposed Project's Botanical Survey Report (Insignia Environmental 2023) and Botanical Survey Report Addendum

(Insignia Environmental 2024a), which are included as attachments to the Terrestrial Biological Resources Technical Report (Appendix F.2). Floristic surveys have yet to be completed for the *transposition site survey area*; these are scheduled for spring of 2026.

- Delineation of Aquatic Features: A preliminary delineation of wetland and water features was conducted for the *initial survey area* during the habitat assessment and vegetation mapping surveys in 2023; the formal aquatic resource delineation was conducted in May through July of 2024 within the initial survey area. A preliminary aquatic delineation was conducted for the *transposition site survey area* in February 2025. Detailed survey methods and results may be found in the Proposed Project's Aquatic Resources Delineation Report (Insignia Environmental 2025a), which is included as an attachment to the Terrestrial Biological Resources Technical Report Addendum (Insignia Environmental 2025d) (Appendix F.2).

4.4.2 Environmental Setting

Vegetation Communities/Land Cover Types

Twenty-four vegetation (or natural) communities or land cover types were mapped within the *biological study area*. Vegetation communities and landcover types occurring within the *biological study area* and the total acreage of each are listed in Table 4.4-1. These communities and land cover types are described in the following subsections. Detailed descriptions of land cover types bare ground, open water, and rip-rap are not provided here because they lack any visible surface vegetation and are monotypic of either dirt, water, or rock. The agriculture land cover type indicates land that is used for various agricultural practices, and could include different varieties of crops. Vegetation communities and land cover types within the *biological study area* are shown in Appendix F.1.

An approximately 2-acre area around the Saint Peter Martyr School was removed from the *initial survey area* south of the Delta due to lack of access, but review of Google Earth aerial imagery suggests this area contains developed, disturbed, and ornamental vegetation land cover types. Portions of the *transposition site survey area* were unable to be surveyed on foot, but the vegetation communities in these limited access areas were able to be field verified from adjacent vantage points with the use of binoculars. These areas are shown in Appendix F.1. The vegetation types associated with each component of the Proposed Project (i.e., occurring within 100 feet of each component) are identified in Table 4.4-2.

Table 4.4-1 Vegetation Communities and Land Cover Types within the Biological Study Area

Vegetation Community Or Land Cover Type	Approximate size in Biological Study Area (acres)	Proportion of Biological Study Area (percent)
Agriculture[†]	53.8	2.4
Allenrolfea occidentalis Shrubland Alliance[†*]	0.6	0.0

Vegetation Community Or Land Cover Type	Approximate size in Biological Study Area (acres)	Proportion of Biological Study Area (percent)
Avena spp. – *Bromus* spp. Herbaceous SNA†	251.1	11.2
Baccharis pilularis Shrubland Alliance	0.1	<0.01
Brassica nigra – Centaurea (*solstitialis, melitensis*) Herbaceous SNA	34.2	1.5
Distichlis spicata - Frankenia salina Coastal Herbaceous Alliance*	21.3	1.0
Juncus arcticus (var. *balticus, mexicanus*) Herbaceous Alliance	1.5	0.1
Lepidium latifolium – Lactuca serriola Herbaceous SNA	7.9	0.4
Lolium perenne Herbaceous SNA	560.1	25.0
Ornamental Vegetation	13.7	0.6
Polygonum lapathifolium – Xanthium strumarium Herbaceous Alliance	0.1	<0.01
Rosa californica Shrubland Alliance*	3.2	0.1
Salix exigua Shrubland Alliance	2.6	0.1
Sarcocornia pacifica (*Salicornia depressa*) Herbaceous Alliance*	1.0	<0.01
Schoenoplectus (*acutus, californicus*) Herbaceous Alliance*	19.6	0.9
Schoenoplectus californicus - Schoenoplectus acutus / Rosa californica Association*	2.1	0.1
Schoenoplectus americanus Herbaceous Alliance*	0.3	<0.01
Typha (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	<0.01	<0.01
Bare Ground	1.6	0.1
Developed	45.2	2.0
Disturbed	35.8	1.6
Open Water	1185.7	52.8
Rip-Rap	0.5	<0.01
Grand Total**	**2,244.0**	**100.0**

†Only applies to the PG&E 500 kV transposition sites.

*CDFW-designated sensitive natural community (State Rarity Rank S1-S3).

**Due to rounding, totals may not sum.

Source: (Insignia Environmental 2024b; 2025d)

The following descriptions of vegetation communities occurring within the biological study area are taken from the Proposed Project's Terrestrial Biological Resources Technical Report (Insignia Environmental 2024b) (Appendix F.2).

***Allenrolfea occidentalis* Shrubland Alliance (S3)**
This community is associated with dry lakebed margins, hummocks, playas perched above current drainages, and seeps. Iodine bush (*Allenrolfea occidentalis*) typically has a greater than 2-percent absolute cover in the shrub canopy and is dominant or co-dominant in the shrub and herbaceous layers with fourwing saltbush (*Atriplex canescens*), saltgrass (*Distichlis spicata*), and alkali heath (*Frankenia salina*). This community was observed within the PG&E 500 kV transposition Site D, along either side of Kellog Creek Road adjacent to roadside drainages. The community is ranked S3 and is a sensitive natural community.

***Avena* spp. – *Bromus* spp. Herbaceous Semi-Natural Alliance**
This community is found in foothills, disturbed areas, rangelands, and opening in woodlands. The dominant species include oats (*Avena* spp.) and bromes (*Bromus* spp.) in the herbaceous layer with at least 50-percent relative cover. Co-dominant species in the herbaceous layer may include Australian saltbush (*Atriplex semibaccata*) and barley (*Hordeum* spp.). This alliance is widespread across PG&E 500 kV transposition sites B, C, and D. Areas where this community occurs are being used for active cattle grazing or agriculture.

***Baccharis pilularis* Shrubland Alliance (S5)**
The *Baccharis pilularis* Shrubland Alliance can be found in coastal bluffs, terraces, stabilized dunes, and river mouths with variable soils ranging from sandy to relatively heavy clay. Coyote brush (*Baccharis pilularis*) is the dominant plant species; it generally occupies at least 50 percent of the shrub canopy or is co-dominant with silk tassel bush (*Garrya elliptica*) or coffeeberry (*Frangula californica*). This community was observed within the *initial survey area* south of the Delta, near PG&E's existing Pittsburg Substation and alongside non-native forbs.

***Brassica nigra – Centaurea (solstitialis, melitensis)* Herbaceous Semi-Natural Alliance**
The *Brassica nigra – Centaurea* (*solstitialis*, *melitensis*) Herbaceous semi-natural alliance is typically associated with disturbed areas where black mustard (*Brassica nigra*) and short-pod mustard (*Hirshfeldia incana*) achieve 80 percent relative cover in the herbaceous layer. Similar ruderal forbs, including tocolote (*Centaurea melitensis*) and yellow star thistle (*Centaurea solstitialis*), may achieve dominance or co-dominance. Within the *biological study area* north of the Delta, this community was generally observed in dense colonies between stands of non-native grassland in areas where heavy cattle grazing historically occurred. This vegetation community can be observed alongside the proposed PG&E 500 kV interconnection line and 12 kV distribution line, including PG&E 500 kV Transposition Site A, where active cattle grazing occurs, and Site D along either side of agricultural canals.

Developed
Developed areas are highly modified and contain some form of human-constructed infrastructure. Maintained paved surfaces, structures, or buildings may be included in this

cover type. Within the *biological study area*, most of the developed land cover is found along roadways and in the vicinity of PG&E's existing Pittsburg Substation.

***Distichlis spicata –Frankenia salina* Coastal Herbaceous Alliance (S3)**
The *Distichlis spicata* Herbaceous Alliance is found commonly in alkaline or saline ecosystems with direct coastal or tidal influence, including tidal creek banks, tidal flats, tidal marsh edges, ecotones of wet to dry meadows with direct salt spray, or at or above the high tide line. Saltgrass (*Distichilis spicata*), alkali heath (*Frankenia salina*), and/or other graminoids dominate or co-dominate in the herbaceous layer. This alliance typically contains greater than 30-percent relative cover in the herbaceous layer, which has open to continuous cover. Shrubs, if present, are usually sparse. This community was observed on the northern shore of the Delta at the highest point of the marsh, within standing water in tidally influenced brackish areas, and adjacent to water that seasonally and tidally inundates this community. This community was observed near the proposed LSPGC Collinsville Substation site. This community is ranked S3 and is a sensitive natural community.

Disturbed
Disturbed areas are those areas that have been changed from their natural state by human influence. This cover type lacks vegetation and includes all unpaved roads, unmaintained paved roads, cleared areas, barren pasturelands, and bare ground with little vegetation or evidence of recent activity. Potential vegetation, if any, that may grow in this cover type includes Russian thistle (*Salsola tragus*), brome grasses (*Bromus* spp.), and wild oat (*Avena fatua*). Disturbed areas were observed throughout the *initial survey area* and *transposition site survey area* as barren lots; however, the majority of disturbed land cover was found south of the Delta in close proximity to the existing PG&E Pittsburg Substation.

***Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance (S4)**
The *Juncus arcticus* (var. *balticus*, *mexicanus*) Herbaceous Alliance varies widely in species composition based on the geographic location, but it typically includes greater than 30 percent relative cover in the shrub layer of arctic rush (*Juncus arcticus*) or Baltic rush (*Juncus balticus*). This community generally occurs in wet meadows with poorly drained soils between estuarine marshes and sloughs. This community was observed on the northern shore of the Delta adjacent to the shoreline and in upland areas of the marsh between sloughs.

***Lolium perenne* Herbaceous Semi-Natural Alliance**
The *Lolium perenne* Herbaceous semi-natural alliance contains Italian ryegrass (*Festuca perennis*) that is dominant or co-dominant with other non-natives in the herbaceous layer, including rip-gut brome (*Bromus diandrus*), sea barley (*Hordeum marinum*), and wild oat. The herbaceous layer is typically continuous and often forms monocultures, which contribute to a poorly developed shrub layer. Within the biological study area, this community is the most widespread of the terrestrial vegetation communities and it is found in upland areas that lack native species and have low species diversity. This community shows evidence of heavy grazing, landowner maintenance, and agriculture use. During the September 2023 survey, large tracts of this community were being actively converted into access roads as part of the Sacramento

Municipal Utility District (SMUD) Solano 4 Wind Project. This alliance is widespread across the biological study area.

Ornamental Vegetation
Ornamental vegetation includes all areas with maintained landscaping, especially those surrounding developed homes or buildings. All observations of ornamental vegetation were located south of the Delta near the PG&E Pittsburg Substation and surrounding developed areas. This cover type includes various grasses, shrubs, and trees—such as eucalyptus (*Eucalyptus* spp.) and pepper tree (*Schinus molle*)—that can be found in residential lawns or yards, surrounding public buildings or private businesses, and/or alongside or in the medians of paved roads.

***Polygonum lapathifolium – Xanthium strumarium* Herbaceous Alliance (S4)**
The *Polygonum lapathifolium – Xanthium strumarium* Herbaceous Alliance contains rough cocklebur (*Xanthium strumarium*) that is dominant or co-dominant with lanceleaf water plantain (*Alisma lanceolatum*), northern water plantain (*Alisma triviale*), and common sunflower (*Helianthus annuus*), as well as a variety of knotweeds (*Persicaria* spp.) and smartweeds (*Polygonum* spp.) in the herbaceous layer. Within the *biological study area*, this community is dominated primarily by rough cocklebur and other smartweeds. During the September 2023 survey, one isolated community was found situated west of Stratton Lane and east of Latin Lane within stands of *Lolium perenne* Herbaceous semi-natural alliance.

***Lepidium latifolium – Lactuca serriola* Herbaceous Semi-Natural Alliance**
The *Lepidium latifolium – Lactuca serriola* Herbaceous semi-natural alliance is dominated by non-native species in the shrub layer. This vegetation community can be found near disturbed or developed areas within the *initial survey area* south of the Delta adjacent to the PG&E Pittsburg Substation. Species observed within this cover type include stinkwort (*Dittrichia graviolens*) as 30-percent of the ground cover, accompanied by Russian thistle (*Salsola* spp.), coyote brush, and various others to create an intermittent to continuous herbaceous layer.

***Rosa californica* Shrubland Alliance (S3)**
The *Rosa californica* Shrubland Alliance is commonly found in creek bottoms, in stream terraces, and bordering sloughs and channels. California wild rose (*Rosa californica*) typically represents greater than 50 percent relative cover in the shrub canopy and may be co-dominant with Himalayan blackberry (*Rubus armeniacus*). The shrub layer is thick and continuous while the herbaceous layer is open. Emergent trees, including willows (*Salix* spp.), may be present in low quantities. This community is found within the initial survey area on the northern shore of the Delta adjacent to intertidal sloughs. Himalayan blackberry was commonly observed, and in some cases co-dominant, among thick patches of California wild rose. Isolated red willows (*Salix laevigata*) were observed scattered throughout this community. The community is ranked S3 and is a sensitive natural community.

***Salix exigua* Shrubland Alliance (S4)**
The *Salix exigua* Shrubland Alliance is widespread in California and contains significant variation when determining habitat and shrub composition. Often the shrub layer is intermittent to continuous dominated by sandbar willow (*Salix exigua*) and contains greater than 20 percent absolute cover in the shrub layer. In a high-quality habitat, sandbar willow may be co-dominant with other willow species and emergent riparian trees may be present at a low cover. Within the initial survey area north of the Delta, this community was observed between tidally influenced sloughs and estuarine marshes containing sandy soil. Heavy cattle grazing was observed to have a direct impact on this community, leading to a sparse shrub layer dominated by sandbar willows that are in the process of re-growing.

***Sarcocornia pacifica* (*Salicornia depressa*) Herbaceous Alliance (S3)**
The *Sarcocornia pacifica* (*Salicornia depressa*) Herbaceous Alliance is found almost exclusively in coastal salt marsh and alkaline flat habitats. It typically contains greater than 50-percent cover of pickleweed (*Sarcocornia pacifica*) in the herbaceous layer. Other salt-tolerant marsh plants such as alkali heath and saltgrass are frequently associated with this community. Within the *initial survey area* north of the Delta, this community was observed within dry salt flats adjacent to grazed and cultivated Italian ryegrass fields. Along the margins of these communities, pickleweed was co-dominant with annual grasses. The community is ranked S3 and is a sensitive natural community.

***Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance (S3S4)**
The *Schoenoplectus* (*acutus*, *californicus*) Herbaceous Alliance is found in a variety of wetland habitats, including brackish marshes, freshwater ponds, sloughs, swamps, and roadside ditches. The shrub layer is intermittent to continuous, forming thick stands that often result in a poorly developed herbaceous layer. Hardstem bulrush (*Schoenoplectus acutus*) or giant bulrush (*Schoenoplectus californicus*) typically contain greater than 50 percent relative cover in the herbaceous layer. Within the *initial survey area* north of the Delta, this community was observed adjacent to the coastline, within sloughs, and in tidally influenced areas that are semi-brackish. Species composition varied depending on the salinity of the water and proximity to the coastline, as hardstem bulrush is generally less tolerant of brackish conditions. This community was also observed within the transposition site survey area around transposition site D in the middle of several agricultural canals that run between fallow and active agriculture fields. This community is ranked S3S4 and is a sensitive natural community.

***Schoenoplectus acutus*/*Rosa californica* Association (S3S4)**
The *Schoenoplectus acutus*/*Rosa Californica* Association occurs on tidal sloughs that are seasonally or tidally inundated with brackish or semi-brackish water. This association contains greater than 50 percent relative cover of hardstem bulrush and giant bulrush with as low as 5 percent absolute cover of California wild rose. This habitat occurred primarily on man-made earthen levees bordering sloughs adjacent to the coastline on the north side of the Delta. California wild rose was observed in high quantities growing among stands of bulrush (*Scirpus* spp.), sometimes achieving 20 to 30 percent relative percent cover. This community is ranked S3S4 and is a sensitive natural community.

***Schoenoplectus americanus* Herbaceous Alliance (S3)**
The *Schoenoplectus americanus* Herbaceous Alliance is found in a variety of wetland habitats, including brackish marshes, freshwater ponds, sloughs, swamps, and roadside ditches. The herbaceous layer is intermittent to continuous, forming thick stands. Chairmaker's bulrush (*Schoenoplectus americanus*) typically makes up greater than 50 percent of relative cover. This community was observed within wetlands adjacent to Stratton Lane and immediately adjacent to dense stands of *Schoenoplectus acutus* on the north side of the Delta near the proposed LSPGC Collinsville Substation site. The community is ranked S3 and is a sensitive natural community.

***Typha* (*angustifolia, domingensis, latifolia*) Herbaceous Alliance (S5)**
The *Typha* (*angustifolia, domingensis, latifolia*) Herbaceous Alliance occurs in semi-permanently flooded freshwater or brackish marshes. This alliance contains 50 percent or greater of various cattails (*Typha* spp.) along with saltgrass and smartweed comprising the remainder of the herbaceous layer. Within the *initial survey area* north of the Delta, this community occurred within wetland habitats immediately adjacent to Stratton Lane.

Submerged Aquatic Vegetation

Submerged aquatic vegetation (SAV), was mapped within the Proposed Project area, using side-scan sonar across the 1,167 acre study area (WRA Environmental Consultants [WRA] 2024) (Appendix F.3). Mapping results located 126.9 acres of submerged aquatic vegetation, which is a critical component of *essential fish habitat* (EFH) and provides important wildlife nursery sites for aquatic species (WRA 2024), including special-status fish that are present in the Proposed Project area. SAV in the Proposed Project area was not identified by species, but the majority of SAV within this portion of the Delta is typically widgeon grass (*Ruppia maritima* or *Ruppia cirrhosa*) (Insignia Environmental 2025a) (Appendix F.2). SAV is included in the open water land cover type; both widgeon grass and sago pondweed are considered sensitive or rare on a state level, with ranks of S2 and S3, respectively (CDFW 2025e).

Table 4.4-2 Vegetation Communities within 100 Feet of Each Project Component‡

Vegetation Community Or Land Cover Type	LSPGC Collinsville Substation	LSPGC 230 kV Transmission Line Overhead Segment	LSPGC 230 kV Transmission Line Submarine Segment	LSPGC 230 kV Transmission Line Underground Segment	LSPGC Telecommunication Interconnection Lines	PG&E 500 kV Interconnection Lines	PG&E 12 kV Distribution Line	PG&E 500 kV Transposition Sites
Agriculture†	—	—	—	—	—	—	—	53.87
Allenrolfea occidentalis Shrubland Alliance†*	—	—	—	—	—	—	—	0.61
Avena spp. – Bromus spp. Herbaceous SNA†	—	—	—	—	—	—	—	251.13
Baccharis pilularis Shrubland Alliance	—	—	—	0.02	—	—	—	—
Brassica nigra – Centaurea (*solstitialis, melitensis*) Herbaceous SNA	0.90	0.27	—	—	—	13.19	1.17	4.91
Distichlis spicata - Frankenia salina Coastal Herbaceous Alliance*	1.49	2.57	0.18	—	—	0.42	7.29	—
Juncus arcticus (var. *balticus, mexicanus*) Herbaceous Alliance	—	0.05	0.14	—	—	—	—	—
Lepidium latifolium – Lactuca serriola Herbaceous SNA	—	—	—	6.76	—	—	—	—
Lolium perenne Herbaceous SNA	63.45	40.96	2.04	—	—	131.16	14.61	165.87
Ornamental Vegetation	—	—	—	—	—	—	—	10.78
Rosa californica Shrubland Alliance*	—	1.15	0.13	—	—	—	—	—
Salix exigua Shrubland Alliance	—	—	—	—	—	—	—	—
Schoenoplectus (*acutus, californicus*) Herbaceous Alliance*	—	3.93	0.34	—	—	—	0.66	1.99
Schoenoplectus californicus - Schoenoplectus acutus / Rosa californica Association*	—	0.46	0.49	—	—	—	—	—
Schoenoplectus americanus Herbaceous Alliance*	—	—	—	—	—	—	0.20	—
Typha (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	—	—	—	—	—	—	0.02	—
Bare Ground	0.30	0.11	—	0.07	—	—	0.24	—
Developed	—	—	0.13	9.46	19.40	0.09	0.15	16.30
Disturbed	—	—	0.76	9.43	5.91	—	—	19.15
Open Water	—	0.73	2.99	0.57	2.90	—	—	1.11
Rip-Rap	—	—	0.30	0.36	—	—	—	—
Road	1.21	0.84	—	—	—	21.72	1.65	—

‡100-foot buffer areas include the temporary and permanent impacts areas plus a 100-foot buffer around these areas. 100-foot buffer areas may overlap among project components. Vegetation communities/land cover types are recorded in acres.

†Only applies to the PG&E 500 kV transposition sites.

*CDFW-designated sensitive natural community (State Rarity Rank S1-S3).

Source: (Insignia Environmental 2024b; 2025d)

Special Status Species

Determinations on potential to occur for special status species were made based on the distances of documented occurrences from the biological study area, the species' known habitats and geographic and elevational ranges, and the habitats available within the biological study area. Following field surveys, potential to occur determinations were updated to incorporate data gathered during the surveys. Potential to occur determinations were made according to the following criteria:

- **Present.** The species was observed within the Proposed Project area during biological field surveys or other site visits.
- **High.** Suitable habitat for the species is present within the biological study area and recent (within the last 30 years) occurrences have been reported within 1 mile of the *biological study area*. Alternatively, marginal habitat is present, and recent occurrences have been recorded within 0.25 mile of the biological study area. For plants, recent occurrences have been recorded within 0.25 mile, but the species was not observed during floristic surveys or was surveyed outside of the species' known bloom period.
- **Moderate.** Suitable habitat for the species is present, and the biological study area is located within the species' known range, but no recent (within 30 years) occurrences have been recorded between 1 and 5 miles from the biological study area. Alternatively, marginal habitat is present, the biological study area is located within the species' known range, and multiple recent occurrences have been recorded between 1 and 5 miles from the biological study area. For plants, recent occurrences have been recorded within one mile, but the species was not observed during floristic surveys or was surveyed for outside of the species' known bloom period.
- **Low.** Poor or marginal habitat for the species exists, and at least one recent occurrence has been recorded between one and five miles from the biological study area. Alternatively, suitable habitat for the species is present within the biological study area, but either no recent occurrences have been recorded between one and five miles from the biological study area or the biological study area is located outside of the species' known range. Barriers to migration/dispersal may be present. For plants, recent occurrences have been recorded within 5 miles, but the species was not observed during floristic surveys or was surveyed for outside of the species' known bloom period.
- **None.** Either (1) no habitat exists for the species within the biological study area, (2) no occurrences have been recorded between one and five miles from the biological study area and the biological study area is outside of the species' known geographic or elevational range, or (3) the species has been confirmed to be extirpated from the area. Species with no potential to occur in the biological study area are not included in this biological resources section.

Special-Status Plants

Special-status plant species were identified by the state and federal databases as occurring or potentially occurring within or in the vicinity of the biological study area. Three species were determined during floristic surveys to be present in the initial survey area in work areas associated with the LSPGCs 230 kV submarine and underground segments. Special-status plant species that were determined to be present as well as those with potential to occur in the biological study area are documented in Table 4.4-3. Species determined to have no potential to occur are not included in Table 4.4-3. The special-status plant species documented within the initial survey area are shown on maps in Appendix F.1.

Special-Status Terrestrial Wildlife

Special-status terrestrial wildlife species were identified by the state and federal databases as occurring or potentially occurring within or in the vicinity of the biological study area. One species was determined to be present in the biological study area during field surveys. Special-status wildlife species that were determined to be present as well as those with potential to occur in the biological study area are documented in Table 4.4-4. Species determined to have no potential to occur are not included in Table 4.4-4.

Special-Status Fish and Marine Mammals

Special-status fish and marine mammal species were identified by the state and federal databases as occurring within or in the vicinity of the biological study area. Special-status fish and marine mammal species that were determined to be present or have potential to occur in the biological study area are documented in Table 4.4-5.

Table 4.4-3 Special-Status Plant Species with Potential to Occur in the Biological Study Area†

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
alkali milk-vetch (*Astragalus tener* var. *tener*)	1B.2	This species occurs in alkali playas, valley and foothill grasslands, and vernal pools at elevations between 5 and 195 feet.	March—June	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during floristic field surveys in May and July 2023. This species has been documented within 5 miles of the initial survey area based on CNDDB records. **Transposition sites: High.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented within 0.25 mile of the transposition site survey area.
alkali-sink goldfields (*Lasthenia chrysantha*)	1B.2	This species occurs in vernal pools at elevations between 0 and 656 feet.	February—April	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
Antioch Dunes buckwheat (*Eriogonum nudum* var. *psychicola*)	1B.1	This species occurs in interior dunes habitat at elevations between 0 and 65 feet.	July—October	Perennial Herb	**Low.** This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records and suitable habitat and conditions for this species are present within the initial survey area; however, this species was not observed during floristic field surveys in May and July 2023.
Baker's navarretia (*Navarretia leucocephala ssp. bakeri*)	1B.1	This species occurs in a variety of habitats including cismontane woodland, lower montane coniferous forest, meadows and	April—July	Annual Herb	**Transposition sites: High.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 0.25 and 1 mile of the transposition site survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
		seeps. It may also be seen in valley or foothill grasslands and vernal pools at elevations between 16 and 5,709 feet.			
bearded popcornflower (*Plagiobothrys hystriculus*)	1B.1	This species occurs in valley & foothill grassland and vernal pool at elevations between 0 to 900 feet.	April–May	Annual Herb	**Low.** This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records and suitable habitat and conditions for this species are present within the initial survey area; however, this species was not observed during fully floristic field surveys in May and July 2023. **Transposition sites: High.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented within 0.25 mile of the transposition site survey area.
big tarplant (*Blepharizonia plumosa*)	1B.1	This species occurs within valley and foothill grasslands at elevations between 98 and 1,657 feet.	July–October	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during floristic field surveys in May and July 2023. This species has been documented within 5 miles of the initial survey area based on CNDDB records. **Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	2B.2	This species occurs within marshes, swamps, and vernal pools at elevations between 33 and 7,792 feet.	April—August	Annual Herb	**Transposition Sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
Bolander's water-hemlock (*Cicuta maculata* var. *bolanderi*)	2B.1	This species occurs in marsh & swamp and salt marsh at elevations between 0 to 655 feet.	July—September	Perennial Herb	**High.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during floristic field surveys in May and July 2023. This species has been documented within 0.25 mile of the initial survey area based on CNDDB records.
brittlescale (*Atriplex depressa*)	1B.2	This species occurs in a variety of habitats including alkali playa, chenopod scrub, meadows and seep. It may also be observed in valley or foothill grasslands and vernal pools at elevations between 5 to 1,050 feet.	April—October	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented between 1 and 5 miles of the initial survey area based on CNDDB records. **Transposition Sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
broadleaf pondweed (*Stuckenia striata*)	2B.3	This species occurs in marshes, swamps, lakes, ponds, rivers, and drainage canals at elevations between -230 and 7,005 feet.	June—August	Perennial Rhizomatous Aquatic Herb	**Moderate.** This species has been documented within 1 mile of the initial survey area based on CNDDB records and potentially suitable habitat is present within the initial survey area. However, this species was not observed during fully floristic field surveys in May and July 2023.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
California alkali grass (*Puccinellia simplex*)	1B.2	This species occurs in a variety of habitats including chenopod scrub, meadows and seeps. It may also be observed in valley or foothill grasslands and vernal pools at elevations between 7 and 3,051 feet	March—May	Annual Herb	**Transposition Sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
caper-fruited tropidocarpum (*Tropidocarpum capparideum*)	1B.1	This species occurs in valley and foothill grasslands at elevations between 3 and1,493 feet.	Mar—April	Annual Herb	**Transposition Sites: High.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 0.25 and 1 mile of the transposition site survey area.
Carquinez goldenbush (*Isocoma arguta*)	1B.1	This species occurs in valley & foothill grassland at elevations between 5 to 65 feet.	August—December	Perennial Shrub	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during floristic field surveys in May and July 2023. This species has been documented within 5 miles of the initial survey area based on CNDDB records. **Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
colusa grass (*Neostapfia colusana*)	FT; SE; 1B.1	Colusa grass is found in vernal pool, and seasonal stock pond	May—August	Annual Grasslike Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
		habitat in the Sacramento and San Joaquin valleys. This species occurs in vernal pools at elevations between 15 and 655 feet.			documented between 1 and 5 miles of the transposition site survey area.
Contra Costa goldfields (*Lasthenia conjugens*)	FE; 1B.1	This species occurs in a variety of habitats such as alkali playa, cismontane woodland, and valley or foothill grasslands. It may also be found in vernal pools at elevations between 0 to 1,540 feet.	March–June	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during floristic field surveys in May and July 2023. This species has been documented within 5 miles of the initial survey area based on CNDDB records. **Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
Contra Costa wallflower (*Erysimum capitatum* var. *angustatum*)	FE; SE; 1B.1	This species occurs in inland dunes at elevations between 10 and 65 feet.	March—July	Perennial Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented within 5 miles of the initial survey area based on CNDDB records.
Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*)	1B.1	This species occurs within marshes and seeps, playas, and vernal pools at	February—June	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
		elevations between 5 and 4,005 feet.			
Crampton's tuctoria (*Tuctoria mucronata*)	1B.1	This species occurs in valley or foothill grasslands and vernal pools at elevations between 15 and 35 feet.	April—August	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has not been documented within 5 miles of the transposition site survey area.
Delta (Welsh) mudwort (*Limosella australis*)	2B.1	This species occurs in a variety of habitats such as brackish marsh, freshwater marsh, marsh or swamp. It may also be observed within riparian scrub at elevations between 0 to 10 feet.	May—August	Perennial Stoloniferous Herb	**Present.** Suitable habitat is present within the initial survey area. Multiple observations of this species were made during fully floristic field surveys. This species is present in the initial survey area along the northern coast of the Delta, including within the work area for the LSPGC 230 kV submarine segment.
Delta tule pea (*Lathyrus jepsoniil* var. *jepsonii*)	1B.2	This species occurs in marshes or swamps at elevations between 0 to 15 feet.	May—July	Perennial Herb	**Present.** Suitable habitat is present within the initial survey area. Multiple observations of this species were made during fully floristic field surveys. This species is present in the initial survey area along the northern and southern costs of the Delta, including within the work areas for the LSPGC 230 kV submarine and underground segments.
Diablo Helianthella (*Helianthella castanea*)	1B.2	This species occurs in broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, and valley and foothill	March—June	Perennial Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented within 5 miles of the initial survey area based on CNDDB records.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
		grassland habitats at elevations between 195 and 4,265 feet.			
diamond-petaled California poppy (*Eschscholzia rhombipetala*)	1B.1	This species occurs in valley or foothill grassland at elevations between 0 to 3,200 feet	March—April	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented within 5 miles of the initial survey area based on CNDDB records. **Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
dwarf downingia (*Downingia pusilla*)	2B.2	This species occurs in valley or foothill grassland and vernal pool at elevations between 5 to 1,460 feet.	March—May	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented within 5 miles of the initial survey area based on CNDDB records. **Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
fragrant fritillary (*Fritillaria liliacea*)	1B.2	This species occurs in a variety of habitats, such as cismontane woodland and coastal	February—April	Perennial Bulbiferous Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
		prairie or scrub. It may also be observed in valley & foothill grassland at elevations between 10 to 1,345 feet often found in ultramafic soils.			documented within 5 miles of the initial survey area based on CNDDB records. **Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
heartscale (*Atriplex cordulata* var. *cordulata*)	1B.2	This species occurs in chenopod scrub, meadow or seep, and valley or foothill grassland at elevations between 0 to 1,835 feet.	April—October	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records. **Transposition sites: High.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 0.25 and 1 mile of the transposition site survey area.
Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*)	1B.2	This species occurs in salt marsh edges and pastures/grasslands at elevations below 2,296 feet.	March—May	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
hispid salty bird's-beak (*Chloropyron molle ssp. hispidum*)	1B.1	This species occurs in wetlands, meadows and seeps, playas, and valley or foothill grasslands at elevations between 5 and 510 feet.	June—September	Annual Herb (Hemiparasitic)	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
Hoover's cryptantha (*Cryptantha hooveri*)	1A	This species occurs in interior dunes and valley and foothill grassland habitats at elevations between 30 and 490 feet.	April—May	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records.
Keck's checkerbloom (*Sidalcea keckii*)	FE; 1B.1	This species occurs in cismontane woodlands and valley or foothill grasslands at elevations between 245 to 2,135 feet, often found in ultramafic soils.	April—June	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records. **Transposition sites: High.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 0.25 and 1 mile of the transposition site survey area.
large flowered fiddleneck (*Amsinkia grandiflora*)	FE; SE; 1B.1	This species occurs on grassy slopes at elevations below 984 feet.	April—May	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has not been documented within 5 miles of the transposition site survey area.
legenere (*Legenere limosa*)	1B.1	This species occurs in vernal pools at elevations between 5 and 2,885 feet.	April—June	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
Mason's lilaeopsis (*Lilaeopsis masonii*)	1B.1	This species occurs in freshwater marsh, marsh or swamp, and riparian scrub at elevations between 0 to 35 feet.	April—November	Perennial Rhizomatous Herb	**Present.** Suitable habitat is present within the initial survey area. Multiple observations of this species were made during fully floristic field surveys. This species is present in the initial survey area along the northern coast of the Delta, including within the work area for the LSPGC 230 kV submarine segment.
Mt. Diablo buckwheat (*Eriogonum truncatum*)	1B.1	This species occurs in chaparral, coastal scrub, and valley and foothill grassland habitats at elevations between 10 and 1,150 feet.	April—September	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records.
pappose tarplant *(Centromadia parryi ssp. parryi)*	1B.2	This species occurs in a variety of habitats such as chaparral, coastal prairie, meadow and seep. It may also be observed within marsh, swamp, and valley or foothill grasslands at elevations between 0 to 1,380 feet.	May—November	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records. **Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
recurved larkspur (*Delphinium recurvatum*)	1B.2	This species occurs in chenopod scrub, cismontane woodland, and valley or foothill grasslands at elevations	March—June	Perennial Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
		between 10 and 2,590 feet.			
saline clover (*Trifolium hydrophilum*)	1B.2	This species occurs in marshes and swamps, valley or foothill grasslands, and vernal pools at elevations between 0 and 985 feet.	April—June	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
San Joaquin spearscale (*Extriplex joaquinana*)	1B.2	This species occurs in alkali playa, chenopod scrub, meadows and seeps. It may also be observed in valley or foothill grasslands at elevations between 5 to 2,740 feet.	April—October	Annual Herb	**Low.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records. **Transposition sites: High.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented within 0.25 mile of the transposition site survey area.
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FE; CE; 1B.1	This species occurs in vernal pools at elevations between 35 and 2,475 feet.	April—September	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
showy golden madia (*Madia radiata*)	1B.1	This species occurs in cismontane woodland and valley and foothill grassland habitats at	March—May	Annual Herb	**Low.** This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records and suitable habitat and conditions for this species are present within the initial survey

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
		elevations between 80 and 3,985 feet.			area; however, this species was not observed during fully floristic field surveys in May and July 2023.
soft salty bird's-beak (*Chloropyron molle* ssp. *molle*)	FE; 1B.2	This species occurs in marshes and swamps at elevations between 0 and 10 feet.	June—November	Annual Herb (Hemiparasitic)	**Moderate.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records.
Suisun Marsh aster (*Symphyotrichum lentum*)	1B.2	This species occurs in marshes and swamps at elevations between 0 to 10 feet.	(April)May—November	Perennial Rhizomatous Herb	**High.** Suitable habitat and conditions for this species are present within the initial survey area, but this species was not observed during fully floristic field surveys in May and July 2023. This species has been documented within 0.25 mile of the initial survey area based on CNDDB records. **Transposition sites: Low.** Suitable grasslands for this species are present within the transposition site survey area; however, the survey area is outside the species' known elevation range. Therefore, marginally suitable habitat is present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
Suisun thistle (*Circium hydrophilum* var. *hydrophilum*)	FE; 1B.1	This species occurs in marshes and swamps at elevations between 0 to 5 feet.	June—September	Perennial Herb	**Low**. Suitable habitat is present within the initial survey area but there are no CNDDB records within 5 miles of the initial survey area. This species was not observed during fully floristic field surveys in May and July 2023.
two-fork clover (*Trifolium amoenum*)	FE; 1B.1	This species occurs in coastal bluff scrub and	April—June	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the

Common Name (*Scientific Name*)	Listing Status[a]	Habitat Preferences, Distribution Information, And Additional Notes	Flowering Phenology	Life Form	Potential To Occur In The Biological Study Area
		valley or foothill grasslands at elevations between 15 and 1,360 feet.			transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.
vernal pool smallscale (*Atriplex persistens*)	1B.2	This species occurs in vernal pools at elevations below 377 feet.	June—October	Annual Herb	**Transposition sites: Moderate.** Suitable habitat and conditions for this species are present within the transposition site survey area. This species has been documented between 1 and 5 miles of the transposition site survey area.

† Species determined to have no potential to occur were removed from the table. Potential to occur in the *transposition site survey area* is only noted for species determined from the database records search to have potential to occur in the *transposition site survey area*.

[a] Explanation of listing status codes:

Federal

- FE: Federally listed as endangered

State

- SE: State listed as endangered

California Native Plant Society (CNPS) California Rare Plant Ranks (CRPRs)

- 1A: Presumed extinct in California and rare/extinct elsewhere
- 1B: Rare or endangered in California and elsewhere
- 2B: Rare, threatened, or endangered in California, but more common elsewhere
- 3: More information is needed, a review list
- 4: Limited distribution, a watch list

CRPR Threat Codes

- 0.1: Seriously threatened in California (over 80 percent of occurrences threatened, high degree and immediacy of threat)
- 0.2: Moderately threatened in California (20 to 80 percent of occurrences threatened, moderate degree and immediacy of threat)
- 0.3: Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Source: (CDFW 2025a; CDFW 2025b; CNPS 2023a; CNPS 2023b; CNPS 2025a; CNPS 2023b; Insignia Environmental 2023; 2024a; 2024b; 2025d; USFWS 2025a)

Table 4.4-4 Special-Status Terrestrial Wildlife Species with Potential to Occur in the Biological Study Area†

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
Amphibians			
California red-legged frog *(Rana draytonii)*	FT; SSC	This highly aquatic species typically inhabits quiet pools of streams, marshes and ponds, preferring habitat with extensive shoreline vegetation. Its diet is highly variable and may include various invertebrates, amphibians, and small mammals. In Northern California, breeding usually takes place between March and July.	**Low.** Suitable wetland habitat is not present within the survey area. This species has been recently documented between 1 and 5 miles from the initial survey area based on California Natural Diversity Database (CNDDB) records. This species was not observed during the field survey. **Transposition sites: High.** Suitable stream habitat is present within the transposition site survey area. This species has been recently documented between 0.25 and 1 mile of the transposition site survey area.
California tiger salamander - central California DPS (*Ambystoma californiense pop. 1*)	FT; ST; WL	This species occupies grassland, savanna, or open woodland habitats and spends much of the year in underground refuges, especially ground squirrel (*Ammospermopholis beechyi*) burrows. Vernal pools or other seasonal water sources are required for breeding and egg laying. Adults may travel hundreds of meters across upland habitat to reach breeding ponds following seasonal rains during November to February. Its diet is highly variable and may include invertebrates, amphibians, or small mammals.	**Low.** Annual grassland habitat is present within the initial survey area; however, no suitable refuge burrows were observed during field surveys. Further, no suitable vernal pools were observed within the initial survey area. These findings are consistent with previous habitat assessments for this species within the initial survey area. These protocol-level assessments concluded that the initial survey area lacks suitable aquatic habitat, contains multiple barriers to movement/dispersal, land use practices that inhibit dispersal, and a scarcity of suitable burrows refugia. This species has been recently documented between 1 and 5 miles from the initial survey area based on CNDDB records. This species was not observed during the initial field survey. **Transposition sites: High.** Suitable grassland with ground squirrel burrows and seasonally ponded wetland habitat are present within the transposition site survey area. This species has been recently documented between 0.25 and 1 mile of the transposition site survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
western spadefoot (*Spea hammondii*)	SSC; FPT	This species occurs predominantly in grasslands but may also occur in valley-foothill hardwood woodlands. The western spadefoot consumes worms, insects, and other invertebrates and requires shallow, temporary pools of water from heavy winter rains for reproduction.	**Transposition sites: Moderate.** Suitable grassland habitat is present within the transposition site survey area. This species has not been recently documented within 5 miles of the transposition site survey area; however, this species' known range overlaps with the transposition site survey area.
Birds			
Allen's hummingbird (*Selasphorus sasin*)	BCC	This species breeds in a narrow strip of coastal forest, scrub, and chaparral from sea level to around 1,000 feet elevation along the West Coast of the United States. Males generally occupy open areas while nesting occurs in areas with tree cover including eucalyptus, redwood, and Douglas-fir. Breeds February through mid-July. Species typically feeds on nectar as well as insects.	**Low (nesting). Low (foraging/migration).** Suitable nesting habitat likely does not occur in the initial survey area due to distance from coast. Foraging and migrating individuals may occur within the initial survey area.
American peregrine falcon (*Falco peregrinus anatum*)	Delisted (S)	This species can be found occupying several biomes throughout California year-round. Breeding takes place from April to June. A majority of nests are constructed on ledges on relatively tall cliffs in remote areas with minimal human disturbance and are often reused from year to year. Foraging occurs in a variety of habitat types, and its diet consists almost exclusively of other birds.	**None (nesting). High (foraging/migration).** Suitable nesting habitat does not occur in or near the initial survey area. Foraging and migrating individuals may occur in or near the initial survey area. This species has been recently documented within 1 and 5 miles of the initial survey area based on CNDDB records but was not observed during the field survey.
bald eagle (*Haliaeetus leucocephalus*)	SE, FP, BGEPA	Species occupies a wide variety of habitats but is often associated with habitat near large bodies of water (e.g., bays, lakes, rivers). Breeds January through August and typically nest in tall, mature coniferous or deciduous trees. Known to feed on a wide range of items such as fish, reptiles, mammals, birds, and invertebrates.	**Low (nesting). High (foraging/migration).** Suitable foraging habitat is present within the initial survey area over water and grasslands. Stands of eucalyptus trees throughout the initial survey area may serve as potential nesting habitat but is unlikely to support active nests. No CNDDB nesting occurrences within 5 miles of the initial survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
black tern (*Chlidonias niger surinamenisis*)	BCC	Species occupies a variety of aquatic habitats (rivers, lakes, marches, open ocean, etc.) typically near the ocean. Breeds mid-May through mid-August and typically nests in vegetation of large freshwater wetlands, sometimes in rice fields or on river islands. Feeds primarily on small fish and insects.	**Low (nesting). Moderate (foraging/migration).** Suitable aquatic foraging habitat is present within the initial survey area. Wetland habitat along the Sacramento-San Joaquin River Delta (Delta); has low potential to support nesting.
Bullock's oriole (*Icterus bullockii*)	BCC	Species occupies open woodland habitats as well as pine, pine-oak, and fir forests. Breeding occurs in riparian and open woodlands in mid-March through late July and nests are often built in trees such as sycamores, cottonwoods, willows, oaks, etc.). Nests are woven into a gourd shape within tree branches. Species primarily feeds on insects as well as fruit and nectar.	**Low (nesting). Moderate (foraging/migration).** Suitable foraging habitat is present within the initial survey area. However, there are limited trees within the initial survey area to support nesting.
burrowing owl (*Athene cunicularia* ssp. *hypugaea*)	SC; SSC	This species can be found in a variety of open habitat types, including grassland, savanna, desert scrub, agricultural, and urban areas. Breeding occurs from March through October, and nesting takes place within abandoned burrows dug by burrowing mammals. This species preys on large insects and small mammals.	**Moderate (nesting). High (foraging/migration).** Grassland habitat suitable for foraging is found in the initial survey area north of the Delta; however, burrows suitable for species occupation and breeding were not observed during the field surveys. Migrating individuals have been reported to occur within the initial survey area during winter months. CNDDB occurrences north of the Delta were recorded during both the breeding and non-breeding seasons. Nesting habitat is limited and marginal given the ongoing agricultural activity north of the Delta, but ground squirrels may recolonize and provide suitable burrow habitat if the fields are left fallow or grazed. This species was not observed during the field surveys. **Transposition sites: High (nesting) High (foraging).** Suitable grassland and agricultural habitat is present within the transposition site survey area. This species has been

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
			recently documented between 0.25 and 1 mile of the transposition site survey area.
California black rail (*Laterallus jamaicensis coturniculus*)	ST; FP	This species is found in tidal emergent wetlands dominated by pickleweed (*Salicornia* spp.) or in brackish marshes supporting bulrushes in association with pickleweed. Breeding occurs from March to June, and nests are concealed in dense vegetation (often pickleweed) near the upper limits of tidal flooding.	**Moderate (nesting). High (foraging).** Suitable habitat capable of supporting foraging individuals is present in the initial survey area adjacent to the Delta. Wetland habitats within the initial survey area lack the large stands of pickleweed and tidal flux preferred by the species for breeding sites. This species has been recently documented within 0.25 mile of the initial survey area based on CNDDB records, but the species was not observed during the field survey.
California condor (*Gymnogyps californianus*)	FE; SE; FP	This species uses extensive territories in open grasslands, oak savannah foothills, and beaches adjacent to coastal mountains for foraging, roosting, and nesting. Nests are built in caves and ledges in steep, rocky terrain. This species may also use cavities and broken tops of conifers for nesting locations. Juveniles remain dependent on their parents for 1 to 2 years while they learn to forage on their own. The species will consume carrion and carcasses.	**Transposition sites: None (nesting) Moderate (foraging).** Suitable open grassland habitat is present within the transposition site survey area; however, steep, rocky terrain is not. This species has not been recently documented within 5 miles of the transposition site survey area.
California gull (*Larus californicus*)	BCC	This species is found in mudflats, rocky shorelines, beaches, estuaries, and river deltas. Breeding occurs March through July on sparsely vegetated islands, levees in inland lakes and rivers, as well as salt ponds. Nest is typically a small scrape on the ground lined with materials such as vegetation, bones, and feathers. California gulls are omnivorous and will feed on a wide variety of items.	**High (nesting). High (foraging).** Foraging and nesting habitat is present within the initial survey area along the Delta shoreline.
California least tern (*Sternula antillarum browni*)	FE; SE; FP	This species is found throughout California and requires undisturbed stretches of beach and coastline. Adults forage in bays and estuaries for a	**None (nesting). Moderate (foraging/migration).** Suitable foraging habitat for this species is found adjacent to the initial survey area within the Delta and Suisun Bay in the

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
		variety of fish species. The California least tern nests in colonies on relatively open beaches where vegetation is limited by natural scouring from tidal action. However, to avoid humans, tern colonies have been known to move to inland mud flats and dredge fill sites. The breeding season typically begins in early to mid-May, and nests are constructed directly on the ground.	Carquinez Strait. However, no suitable breeding habitat is found within the initial survey area. This species has been documented within 1 mile from the initial survey area based on CNDDB records. This species was not observed during the field survey.
California Ridgway's rail (*Rallus obsoletus)*	FE; SE; FP	This species occurs almost exclusively in tidal and brackish marshes with unrestricted daily tidal flow, adequate invertebrate prey food supply, well-developed tidal channel networks, and suitable nesting and escape cover to provide habitat during extreme high tides.	**Low (nesting). Moderate (foraging).** Marginal foraging and nesting habitat is present in the initial survey area adjacent to the Delta. Wetland habitats within the initial survey area lack the large stands of pickleweed and cordgrass and tidal flux preferred by the species. This species has been recently documented within 1 and 5 miles of the initial survey area based on CNDDB records but was not observed during the field survey.
California thrasher (*Toxostoma redivivum*)	BCC	Species is typically found in chaparral habitat as well as open woodlands. Breeds January through July and typically nest about 7 feet above the ground in dense shrubbery. Primarily feeds on insects and arthropods as well as berries by foraging in leaf litter.	**Low (nesting). Low (foraging).** Chaparral and woodland habitats are generally absent within the initial survey area to support nesting or foraging.
Clark's grebe (*Aechmophorus clarkii*)	BCC	Typically found on ocean shores, bays, rivers, and estuaries. Breeds June through August and typically nests on large freshwater lakes and marshes with emergent vegetation. Nesting in tidal areas is unusual. Feeds mostly on fish as well as crustaceans, and aquatic insects/larvae.	**Low (nesting). High (foraging).** Nesting is unlikely due to lack of freshwater lakes/marshes within the initial survey area but may occur in tidal areas with emergent vegetation. Foraging habitat is present within the Delta.
golden eagle (*Aquila chrysaetos*)	FP; WL; BGEPA	Golden eagles inhabit a variety of habitats including forests, canyons, shrub lands, grasslands, and oak woodlands. Golden eagles generally feed on a	**Low (nesting). Moderate (foraging).** Suitable foraging habitat is present within the initial survey area, but nesting habitat is scarce. Stands of eucalyptus trees are present as

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
		variety of small mammals but may also feed on birds, reptiles, and carrion. This species breeds from late January through August and nests are typically constructed on platforms on steep cliffs or in large trees.	ornamental vegetation in developed areas near the Pittsburg Substation but are unlikely to be used by golden eagles for nesting as this species is sensitive to human presence and activity. However, existing transmission line structures in the area may be used by golden eagles for nesting. CNDDB records show known nest sites are present within 5 miles of the initial survey area. **Transposition sites: Low (nesting) Present (foraging).** A pair of golden eagles was observed on during field surveys within the transposition site Tower survey area associated with Transposition site D. The pair was seen perching in a PG&E transmission tower, adjacent to a small stick nest whose approximate location is shown in Attachment A: Biological Resources Map. No nest building, or incubation was observed during the survey. During a subsequent site visit by PG&E staff on February 27, 2025, the pair of eagles was not observed at this location and no evidence of nest-tending by any species was observed. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
grasshopper sparrow (*Ammodramus savannarum*)	SSC	This species is a summer resident in California's dry, dense grasslands, particularly in foothills and lowlands. It requires thick cover of grasses and forbs for nesting and foraging. This secretive species primarily feeds on insects and may breed up to 1,500 meters elevation.	**Transposition sites: Moderate (nesting) High (foraging).** Marginally suitable dense grassland habitat is present within the transposition site survey area and could provide nesting habitat. This species has been recently documented between 0.25 and 1 mile of the transposition site survey area.
Lawrence's goldfinch (*Spinus lawrencei*)	BCC	Species occupies a wide range of habitats including desert arroyos, river floodplains, weedy fields, roadsides, cultivated fields, gardens, and parks. Breeds mid-March to mid-September and will nest in open oak woodlands, chaparral, riparian habitats, and coastal scrub. Nest typically built in a	**Low (nesting). High (foraging).** Nesting habitat is generally absent in the initial survey area and nesting trees are lacking. Foraging habitat is present as the species utilizes a wide variety of habitats.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
		sycamore or oak tree. Primarily feed on plant seeds but will rarely eat insects.	
long-eared owl (*Asio otus*)	BCC	This species typically roosts in dense vegetation and forages in open grasslands or shrublands, as well as open woodlands. Breeds March to mid-July and generally use old stick nests of other avian species, occasionally using cavities or squirrel dreys. Their diet primarily consists of small mammals.	**Low (nesting). Low (foraging).** Nesting habitat is generally absent in the initial survey area. Open grassland habitat is present and may provide areas for foraging, but roosting habitat is generally lacking.
marbled godwit (*Limosa fedoa*)	BCC	Species breeds outside of California in shortgrass prairies near wetlands. Forages along coastal mudflats, estuaries, and sandy beaches and primarily feed on aquatic invertebrates, earthworms, insects, aquatic plant tubers, leeches, and small fish.	**None (nesting). High (foraging).** Species does not nest in California, but foraging habitat is present along the Delta shoreline in the form of beaches and estuaries.
mountain plover (*Charadrius montanus*)	SSC	This species prefers open grasslands and plowed fields with low vegetation for feeding and roosting. It is a winter resident in California's Central Valley and foothill valleys, relying on short grasslands. The species does not breed in California. The species is declining, with specific habitat needs for foraging and nesting.	**Transposition sites: None (nesting) High (foraging).** Species does not nest in California. Suitable grassland and plowed field habitat are present within the transposition site survey area. This species has been recently documented between 0.25 and 1 mile of the transposition site survey area.
northern harrier (*Circus hudsonius*)	SSC; BCC	This species is found in a variety of open grassland, wetland, and agricultural habitats. Open wetland habitats used for breeding include marshy meadows, wet and lightly grazed pastures, freshwater and brackish marshes. Breeding habitat also includes dry upland habitats, such as grassland, cropland, drained marshland, and shrub-steppe in cold deserts. Wintering habitat includes open areas dominated by herbaceous vegetation,	**Present (nesting). Present (foraging).** Suitable foraging and nesting habitat are present in the initial survey area. A mating pair with an active nest with was observed within the initial survey area approximately 300 feet east of the LSPGC 230 kV overhead segment in wetland habitat; the male and female were observed hunting and feeding fledglings in the nest. There are also CNDDB records of this species within 0.25 mile of the initial survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
		such as grassland, pastures, cropland, coastal sand dunes, brackish and freshwater marshes, and estuaries.	**Transposition sites: High (nesting) Present (foraging).** Suitable open grassland and agricultural habitat is present within the transposition site survey area. This species was observed during field surveys and has been recently documented between 1 and 5 miles of the transposition site survey area.
oak titmouse (*Baeolophus inornatus*)	BCC	This species is found in warm, open, dry oak or oak-pine woodlands and may utilize scrub oaks or other brush if woodlands are nearby. Breeds from mid-March to mid-July and nest is typically built in tree cavities but known to use stumps, fenceposts, pipes, eaves, and nest boxes. Feeds on seeds and other plant materials as well as insects and other invertebrates.	**Low (nesting). Low (foraging).** Suitable foraging and nesting habitat for this species is largely absent within the initial survey area due to lack of woodlands. Less commonly used nesting habitat (i.e. fence posts, stumps, etc.) is present in the initial survey area. Species is relatively common locally in woodland habitat and may be present.
olive-sided flycatcher (*Contopus cooperi*)	BCC	Utilizes a wide variety of habitats for nesting such as coniferous forests, meadows, rivers and streams, and typically prefers forest openings or edges and often perch on dead or dying trees. Foraging/migration habitat includes almost any habitat with semi-open forested areas. Breeds from mid-May to August and nest is built in tree branch, typically coniferous, but also nest in aspens, willows, oaks, etc. This species primarily feeds on flying insects.	**Low (nesting). Moderate (foraging).** Suitable nesting habitat for this species is largely absent within the initial survey area due to lack of forested areas. May forage/migrate in open grasslands present within the initial survey area.
prairie falcon (*Falco mexicanus*)	WL	This species is an uncommon permanent resident found in California's grasslands, savannahs, rangelands, and desert scrub. It requires open areas for foraging and sheltered cliff ledges for nesting. This species primarily feeds on small mammals and exhibits diurnal activity patterns.	**Transposition sites: None (nesting) High (foraging).** Suitable grassland habitat is present within the transposition site survey area; however, no suitable nesting habitat is present. This species has been recently documented between 0.25 and 1 mile of the transposition site survey area.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	SSC; BCC	This species occurs in freshwater and saltwater marshes. It requires thick, continuous cover down to the water surface for foraging, and tall grasses, tule patches, and willows for nesting. (CDFW 2025a)	**High (nesting). High (foraging).** Suitable habitat for this species is present within the portion of the initial survey area located on the northern shore of the Delta. This species has been documented within 0.25 mile of the initial survey area based on CNDDB records, but it was not observed during the field survey. **Transposition sites: Low (nesting) Low (foraging).** Suitable marsh habitat is not present within sites A, B, and C, but marginal habitat is present within site D. This species has been recently documented between 1 and 5 miles of sites Band C.
short-billed dowitcher (*Limnodromus griseus*)	BCC	Species winters in California and is most common in saltwater and brackish environments, particularly estuaries and lagoons. Breeding occurs far north in Canada and Alaska. To feed the species probes muddy substrates for buried invertebrates, mollusks, crustaceans.	**None (nesting). High (foraging).** Species does not nest in California. Brackish lagoon/estuary foraging habitat is present in the initial survey area within the Delta.
short-eared owl (*Asio flammeus*)	SSC; BCC	This species occurs in agricultural fields, grazed and ungrazed grasslands, and freshwater and saltwater marshes. This species requires open country that supports concentrations of microtine rodents and herbaceous cover sufficient to conceal its nest from predators. Its nests are built on the ground. This species' diet consists of small mammals and is particularly affected by the 3- to 4-year cycle of the California vole (*Microtus californicus*). Its breeding season occurs from April through July.	**Low (nesting). Low (foraging).** Suitable foraging and breeding habitat is present in the initial terrestrial survey area along the northern shore of the Delta. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records. This species was not observed during the field survey. **Transposition sites: Moderate (nesting). Moderate (foraging).** Suitable grassland habitat is present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
song sparrow ("Modesto" population)	SSC	This species inhabits freshwater marshes, riparian thickets, sparsely vegetated irrigation canals, and	**Moderate (nesting). Moderate (foraging).** Suitable breeding and foraging habitat for this species is within the portion of

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
(*Melospiza melodia* pop. 1)		valley oak restoration sites. It seeks cover and nests in willow and nettle thickets, growths of tules and cattails, and riparian oak forests with a sufficient understory of blackberry.	the initial survey area located on the northern shore of the Delta. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records; however, all records are over 30 years old. This species was not observed during the field survey. **Transposition sites: Moderate (nesting) Moderate (foraging).** Suitable riparian and irrigation canal habitat is present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
Suisun song sparrow (*Melospiza melodia maxillaris*)	SSC	This species occurs throughout California, primarily in saltwater and brackish marshes. The species requires dense vegetation as protection from predators and high tide, for perching, and for nesting habitat. Breeding season is from early March through July.	**High (nesting). High (foraging).** Suitable breeding and foraging habitat for this species can be found within the portion of the initial survey area located on the northern shore of the Delta. This species has been documented based on CNDDB records within 0.25 mile of the initial survey area south of Suisun Bay, in the vicinity of Pacific Gas and Electric Company's existing Pittsburg Substation survey area and within 5 miles of the initial survey area along the northern shore of the Delta, but it was not observed during the field survey. **Transposition sites: Low (nesting). Low (foraging).** Suitable marsh habitat is not present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
Swainson's hawk (*Buteo swainsoni*)	ST	This species occurs in open grasslands, prairies, and farmlands that have nearby trees for nesting. It nests in bushes and in several tree species, including oaks (*Quercus* spp.), willow, and eucalyptus, and usually nests in trees in riparian areas near open fields. This species primarily hunts	**High (nesting). Present (foraging/migration).** An adult male was observed flying overhead during field surveys within the initial terrestrial survey area north of the Delta. Suitable foraging and breeding habitat is present, and multiple occurrences of the species nesting have been documented

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
		small rodents, rabbits, birds, and reptiles during the breeding season. It largely lives off insects, such as grasshoppers and beetles, during the non-breeding season. It reproduces from March through April, incubates for 34 to 35 days, and fledges 6 weeks later.	between 1 and 5 miles from the initial survey area based on CNDDB records. **Transposition sites: High (nesting) High (foraging).** Suitable grassland and farmland habitat are present within the transposition site survey area. This species has been recently documented between 0.25 and 1 mile of the transposition site survey area.
tricolored blackbird (*Agelaius tricolor*)	ST; SSC; BCC	This highly colonial species requires open water, protected nesting substrate, and foraging areas adjacent to the colony with insect prey. Breeding occurs near fresh water, often in emergent wetlands with tall, dense cattails or tules, but also in thickets of willow; blackberry; wild rose; or tall, dense forbs. Seeds and cultivated grains, such as rice and oats, compose most of its fall and winter diet. Tricolored blackbird forages on the ground in croplands, grassy fields, flooded land, and along edges of ponds. The breeding season usually occurs from mid-April to late July.	**Low (nesting). Moderate (foraging).** Some marginal willow thicket and wild rose habitat is present within the initial survey area; however, fresh waterbodies suitable for nesting are not present. Suitable foraging habitat is present in the northern portion of the initial survey area. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records; however, all records are over 30 years old. This species was not observed during the field survey. **Transposition sites: Moderate (nesting) Moderate (foraging).** Suitable wetland habitat and grassy fields are present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
western grebe (*Aechmophorus occidentalis*)	BCC	Species breeds from June through August and nests on large freshwater lakes and marshes with reeds and rushes. Nesting in tidal areas is unusual. After breeding, most migrate to saltwater or brackish habitats, including ocean shores, sheltered bays, rivers, and estuaries. Feeds mostly on fish as well as crustaceans, and aquatic insects/larvae.	**Low (nesting). High (foraging).** Nesting is unlikely due to lack of freshwater lakes/marshes in the initial survey area but may rarely occur in tidal areas with emergent vegetation. Foraging habitat is present within the Delta.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
western gull (*Larus occidentalis*)	BCC	This species is often found along coastlines and forage out at sea and along tidal rocky/sandy shores but also form flocks in garbage dumps, docks, parking lots, ball fields, and beaches. Breeds from mid-April through August and nests only in places free from disturbance and isolated from predators such as islands, headlands, and abandoned seaside structures like piers and old buildings. Nest is typically a small scrape on the ground nest to a windbreak. California gulls are omnivorous and opportunistic and will feed on a wide variety of items, primarily fish and marine invertebrates.	**High (nesting). High (foraging).** Foraging and nesting habitat is present within the initial survey area along the Delta, adjacent shoreline, and Montezuma wetlands.
western screech-owl (*Megascops kennicottii cardonensis*)	BCC	Reside mainly in forested habitats, particularly in bands of deciduous trees along canyons and drainages. Common trees within habitat include cottonwood, aspen, alder, water birch, oak, and bigleaf maple but species may be found in suburbs, parks, deserts, and coastal areas. Breeds from March through June and nest is usually built in a tree cavity. Feeds on small mammals, as well as birds, fish, amphibians, and invertebrates.	**Low (nesting). Moderate (foraging).** Nesting habitat is generally not present within the initial survey area as forested habitat is lacking. Species can occupy a wide range of habitats and may forage throughout the initial survey area.
western snowy plover (*Charadrius nivosus nivosus*)	FT; SSC	This species requires barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dune habitat, levees and flats at salt-evaporation ponds, lakes, reservoirs, or ponds. Nests are a natural or scraped depression on dry ground usually lined with materials such as pebbles, shell fragments, fish bones, mud chips, or vegetation. Breeding season is March-September.(CA Audubon 2023)	**None (nesting). Low (foraging).** Low-quality foraging habitat for this species is present within the initial survey area. Nesting habitat is not present because shorelines within the initial survey area are vegetated and not sandy. CNDDB occurrences of nesting within 0.25-1 mile of the initial survey area in Montezuma wetlands west of Collinsville.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
white-tailed kite (*Elanus leucurus*)	FP	This species nests in riparian or oak woodland adjacent to undisturbed, open fields and grasslands, meadows, farmlands, and emergent wetlands, where it hunts rodents. Breeding generally occurs from February through October. White-tailed kite lays three to five eggs, which it incubates for 30 to 32 days, after which fledging occurs at 5 to 6 weeks of age.	**Low (nesting). Moderate (foraging).** Suitable foraging habitat for the species is present in the initial survey area; however, oak woodland suitable for nesting is not present. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records, but it was not observed during the field survey.
willet (*Tringa semipalmata*)	BCC	Willets inhabit open beaches, marshes, mudflats, and rocky coastal zones. Breeds far inland near marshes and other wetlands. Feeds on small crabs, worms, clams, and other invertebrates from saltwater marshes and open coastline.	**None (nesting). High (foraging).** Species does not nest in the Bay Area, breeding occurs far inland. Foraging habitat is present.
wrentit (*Chamaea fasciata*)	BCC	In coastal California, this species is a year-round resident in coastal scrub and chaparral habitat. Breeds Mar 15 to Aug 10 and nest is typically built in plants such as California sage, coyote brush, blackberry, poison oak, and coffeeberry. Species feeds primarily on arthropods as well as fruit and seeds.	**Low (nesting). Moderate (foraging).** Nesting habitat is generally not present due to lack of scrub and chapparal habitat. However, vegetation such as coyote brush is present on site and has low potential to support nesting. Foraging habitat is present within the initial survey area.
yellow-billed magpie (*Pica nuttalli)*	BCC	This species is a permanent resident in open oak woodlands and grassy oak savannas of central California. May forage and nest in a wide variety of habitats such as agricultural areas with tall trees for nesting, riparian areas, orchards, and lower foothills. Typically nests high in tall trees. Feed on a variety of items including insects and other invertebrates, plant matter, avian nestlings/eggs, small mammals/reptiles.	**Low (nesting). Moderate (foraging).** Suitable nesting trees are generally limited within the initial survey area. Foraging habitat is present and species is wide ranging in California and able to occupy a variety of habitats.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
yellow rail (*Coturnicops noveboracensis*)	SSC	This species breeds in densely vegetated, shallow freshwater marshes and wet meadows. Breeding occurs from May through September. Wintering birds frequent mature salt marshes well above the water line.	**Low (nesting). Moderate (foraging/wintering).** Marginal breeding habitat and suitable wintering habitat are present within the survey area. This species has been documented between 1 and 5 miles from the survey area based on CNDDB records, but it was not observed during the field survey.
Invertebrates			
conservancy fairy shrimp (*Branchinecta conservatio*)	FE	This species occurs within vernal pool habitats in California's Central Valley. It mostly lives in relatively large, turbid freshwater vernal pools called playa pools. This species can be found at elevations ranging from 16 to 5,577 feet in grassland, rural, and wetland habitats. This species opportunistically filter-feeds on various planktonic food sources including algae and protozoa.	**Low.** No suitable vernal pool habitat was observed during the field survey. It is possible that suitable vernal pool habitat for this species may develop during the rainy season and outside of this report's initial survey window. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records, but it was not observed during the field survey. **Transposition sites: Moderate.** Suitable seasonally ponded wetland habitat is present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
Crotch's bumble bee (*Bombus crotchii*)	SC	Species historic range is widespread throughout California, generally inhabiting open grassland and scrub habitats foraging for pollen and nectar. Nesting occurs underground and the colony active period is April through August.	**Moderate.** CNDDB records only show 1 occurrence from 1926, but species has been recently listed as a state candidate and CNDDB data may be lacking. Floristic resources are likely present throughout the initial survey area and is within range of species. Surveys for Crotch's bumble bee habitat within the PG&E project component areas determined that both nesting and foraging habitat is present within the initial survey area (Appendix F.4). **Transposition sites: Moderate.** Crotch's bumblebee was not identified by database searches as potentially occurring within the transposition site survey area (i.e., within 5 miles of the area), but it was found to have occurrences within 10 miles. Additionally, Crotch's bumblebee habitat surveys

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
			within the transposition site survey area determined that both nesting and foraging habitat is present within all of the transposition sites (Appendix F.4). Although no individuals were observed during the habitat surveys, the presence of suitable habitat combined with observations within 10 miles and a lack of protocol-level surveys that would rule out its presence, the species is determined to have a moderate potential to occur.
Lange's metalmark butterfly (*Apodemia mormo langei*)	FE	This species is associated with the Antioch Dunes, a riverbank dune system along the San Joaquin River. Currently, this species can only be found in the Antioch Dunes National Wildlife Refuge, the last remnants of the Antioch Dunes. All life stages are closely associated with naked-stemmed buckwheat (*Eriogonum nudum* var. *psychicola*), which is the primary nectar source for adults, is used to lay eggs, and is a larval food plant. The leaves of the larval host plant provide both food and shelter throughout the larval instar phases.	**Low.** Suitable habitat for this species is not present within the initial survey area. Further, while there are documented occurrences within 0.25 mile of the initial survey area based on CNDDB records, this species or its obligate host plant were not observed during field surveys. This species may occur incidentally within the initial survey area given the proximity of suitable habitat, but the lack of suitable foraging and breeding habitat within the initial survey area makes this unlikely. **Transposition sites: Low.** Suitable riverbank dune habitat is not present within the survey area. This species has been recently documented within 0.25 mile of the survey area. This species may occur incidentally within the initial survey area given the proximity of suitable habitat, but the lack of suitable foraging and breeding habitat within the initial survey area makes this unlikely.
longhorn fairy shrimp (*Branchinecta longiantenna*)	FE	Longhorn fairy shrimp require temporary freshwater pools for breeding, with a life cycle that includes a dormant egg stage, hatching in response to seasonal rainfall. They thrive in vernal pools.	**Transposition sites: Moderate.** Transposition sites A, B, and C are not within the known range of this species and there have been no recent occurrences documented within 5 miles. Additionally, there is no suitable habitat present within site C. Site D did not have suitable seasonally ponded wetland habitat during surveys, but suitable habitat could be present at other times. Additionally, this species' known range overlaps with the transposition site survey area and

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
			this species has been recently documented between 0.25 and 1 mile of the transposition site survey area.
monarch butterfly (*Danaus plexippus*)	PT	Monarchs are known to migrate long distances but may also occupy suitable habitat year-round. They are known to overwinter along the California coast roosting in tree stands. Adult monarchs occupy a variety of habitats such as grasslands, wetlands, coastal, urban, and residential areas. They feed on the nectar of flowers during breeding and migration, but they lay eggs on milkweed plants which are required for reproduction.	**Moderate.** The initial survey area contains suitable foraging habitat with floristic resources. Potential for reproduction in areas where milkweed is present. No recorded CNDDB occurrences within 5 miles. **Transposition sites: Low.** Suitable habitat with milkweed is not present within the transposition site survey area; however, other species of flowering plants are present. Therefore, marginally suitable habitat is present within the transposition site survey area. This species has not been recently documented within 5 miles of the transposition site survey area.
vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	This species occurs within vernal pool habitats throughout California. Female vernal pool fairy shrimp carry fertilized eggs in a sac on the underside of their body. The eggs are either dropped to the pool bottom or remain in the brood sac until the mother dies and sinks to the bottom of the pool. This species opportunistically filter-feeds on various planktonic food sources, including algae and protozoa.	**Moderate.** No suitable vernal pool habitat was observed during the field survey. It is possible that suitable vernal pool habitat for this species may develop during the rainy season and outside of this report's initial survey window. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records, but it was not observed during the field survey. **Transposition sites: High.** Suitable seasonally ponded wetland habitat is present within the transposition site survey area in sites A and B and this species has been recently documented between 0.25 and 1 mile of the transposition site survey area for sites A and B. Sites C and D had no seasonally ponded wetland habitat and no recent occurrences documented within 5 miles of the survey area.
vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	This species occurs within vernal pool habitats with a patchy distribution within California's Central Valley. Female vernal pool tadpole shrimp produce up to six clutches of eggs containing 32 to 61 eggs	**Moderate.** No suitable vernal pool habitat was observed during the field survey. It is possible that suitable vernal pool habitat for this species may develop during the rainy season and outside of this report's initial survey window. This

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
		per clutch during each wet season. They carry fertilized eggs in a sac on the underside of their body. The eggs are either dropped to the pool bottom or remain in the brood sac until the mother dies and sinks to the bottom of the pool. This species opportunistically filter-feeds on other fairy shrimp (*Branchinecta* spp.), invertebrates, and waste from other vernal pool species.	species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records, but it was not observed during the field survey. **Transposition sites: Moderate.** Suitable seasonally ponded wetland habitat is present within the transposition site survey area for sites A and B. This species has been recently documented between 1 and 5 miles of the transposition site survey area for sites A and B. Sites C and D had no seasonally ponded wetland habitat and no recent occurrences documented within 5 miles of the survey area.
western bumble bee (*Bombus occidentalis*)	SC	This species can be found throughout the western United States and Canada and are not limited to any particular host plant.	**Transposition sites: Moderate.** Suitable habitat is present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
Mammals			
American badger (*Taxidea taxus*)	SSC	This species is an uncommon, permanent resident in California, thriving in drier, open habitats with friable soils. It primarily feeds on fossorial rodents and digs burrows for cover and reproduction. This species plays a crucial role in controlling small mammal populations.	**Transposition sites: Low.** Marginal grassland habitats lacking suitably sized rodent burrows are present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
salt marsh harvest mouse (*Reithrodontomys raviventris*)	FE, SE, FP	This species inhabits salt marshes in California and is adapted to live in marsh vegetation, including pickleweed and cordgrass, which provide cover, food sources, and breeding habitats. Breeding typically occurs between March and October. Diet consists of marsh vegetation, including seeds, stems, and leaves.	**High.** Suitable salt marsh habitat for this species is present within the initial survey area in salt marshes north of the Delta. This species has been documented based on CNDDB records within 0.25 mile of the initial survey area on both the north shore of the Delta and south shore of the Suisun Bay but was not observed during field surveys.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE; ST	This species inhabits a variety of open habitats, including grasslands, chenopod scrublands, and	**Low.** Grassland habitat suitable for foraging is present within the initial survey area; however, this species and suitable

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
		semi-arid regions. Breeding occurs from January to March, with a gestation period of 49 to 55 days. The female constructs a den in the ground, often utilizing existing burrows dug by other animals. Its diet primarily consists of small mammals, such as rodents, rabbits, and ground squirrels.	breeding burrows/dens were not observed during the survey. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records, but these records are more than 30 years old. **Transposition sites: Moderate.** Suitable grassland habitat is present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
western red bat (*Lasirurs blossevillii*)	SSC, WBWG-H	This species occurs in a variety of habits, including forests, woodlands, and riparian areas. It roosts and forages among trees and vegetation and exhibits a preference for mixed coniferous and deciduous forests. Breeding occurs in the spring and early summer. This species typically seeks out tree foliage, such as leaves or branches, to create roosting sites. The diet consists mainly of insects, such as moths, beetles, and flies.	**Moderate (roosting). Moderate (foraging).** Marginally suitable roosting habitat is present in the initial survey area within the limited stands of trees, and suitable foraging habitat is present. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records, but it was not observed during field surveys. **Transposition sites: Low (roosting) Low (foraging).** Marginally suitable roosting habitat is present within the transposition site survey area within the limited stands of trees, and suitable foraging habitat is present. This species has not been recently documented between 1 and 5 miles from the transposition site survey area.
Reptiles			
Alameda whipsnake (*Masticophis lateralis euryxanthus*)	FT; ST	This species inhabits grasslands, chaparral, and oak woodlands within Alameda and Contra Costa counties. It is primarily diurnal, being active during the day and seeking shelter in vegetation or underground burrows at night. Breeding typically occurs in the spring and summer months. The diet consists of small vertebrates, including lizards, rodents, and birds.	**Transposition sites: Moderate.** Suitable grassland habitat is present within the transposition site survey area for all four transposition sites, but only site D is within this species' geographic range. This species has been recently documented between 1 and 5 miles of the transposition site survey area for site D.

Common Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
coast horned lizard (*Phrynosoma blainvillii*)	SSC	This species thrives in open, sandy habitats with scattered shrubs, including valley-foothill hardwood, conifer, and grasslands across California. It forages primarily on the ground, consumes ants, and relies on camouflage for protection. This species is diurnal and hibernates in loose soil during winter.	**Transposition sites: Low.** Marginally suitable sandy habitats with scattered shrubs are present within the survey area for transposition site D. This species has been recently documented between 1 and 5 miles of the transposition site survey area for site D. Suitable habitat does not occur within transposition sites A, B, or C, and no occurrences have been documented within 5 miles of those sites.
Northern California legless lizard (*Anniella pulchra*)	SSC	Sandy or loose loamy soils under sparse vegetation. Forages at the base of shrubs or other vegetation either on the surface or just below it in leaf litter or sandy soil. Soil moisture is essential. Prefers soils with a high moisture content. Found primarily in areas with sandy or loose organic soils or where there is plenty of leaf litter. Breeding typically occurs in the spring or early summer. Females lay small clutches of eggs in underground burrows or hidden areas. The diet primarily consists of small invertebrates, such as insects, spiders, and other arthropods.	**Low.** Unlikely to occur due to lack of shrubs or leaf litter in the area. This species has been documented between 1 and 5 miles from the initial survey area based on CNDDB records, but it was not observed during field surveys. **Transposition sites: Moderate.** Suitable grassland habitat is present within the transposition site survey area for all four transposition sites, but only site D is within this species' geographic range. This species has been recently documented between 1 and 5 miles of the transposition site survey area for site D.
northwestern pond turtle (*Actinemys marmorata*)	FPT; SSC	This freshwater turtle species primarily inhabits ponds, lakes, and slow-moving streams with suitable basking sites. It spends a significant amount of time basking on logs or rocks. Breeding typically occurs in the spring and early summer. Females dig nests in sandy or gravelly areas near water, where they lay their eggs. The hatchlings emerge several months later and make their way to the water. The diet is omnivorous and consists of various aquatic plants, insects, small fish, and amphibians.	**High.** Suitable wetland habitat is present within the initial survey area; however, suitable nesting habitat is not present. This species has been documented within 0.25 mile of the initial survey area based on CNDDB records, but it was not observed during field surveys. **Transposition sites: Low.** Marginal slow-moving aquatic habitat is present within the transposition site survey area for transposition site D; however, these areas lack suitable basking sites. This species has been recently documented between 1 and 5 miles of the transposition site survey area. There is no habitat for this species within transposition sites A, B, or C.

† Species determined to have no potential to occur were removed from the table. Potential to occur in the *transposition site survey area* is only noted for species determined from the database records search to have potential to occur in the *transposition site survey area*.

[a] Explanation of listing status codes:

Federal

- FE: Federally listed as endangered
- FT: Federally listed as threatened
- PT: Proposed to be federally listed as threatened
- BCC: United States (U.S.) Fish and Wildlife Service (USFWS) Bird of Conservation Concern
- BGEPA: Bald and Golden Eagle Protection Act

State

- Delisted (S): Delisted from the State
- SE: State-listed as endangered
- ST: State-listed as threatened
- SC: State candidate for listing as threatened or endangered
- SSC: Species of Special Concern
- FP: Fully protected species
- WL: Watch List species
- WBWG-H: Western Bat Working Group high designation

Source: (AECOM 2018; BioMaAs 2025; CDFW 2025b; 2025d; 2025a; California Department of Pesticide Regulation 2023; Cornell Lab of Ornithology (CLO) 2025t; 2024; 2025r; 2025q; 2025p; 2025o; 2025n; 2025m; 2025l; 2025k; 2025j; 2025i; 2025h; 2025g; 2025f; 2025e; 2025d; 2025c; 2025b; 2025a; 2025s; Hatfield et al. 2015; Insignia Environmental 2024b; 2025d; Morey et al., n.d.; National Audubon Society 2025; NatureServe 2025; Oates 2024b; USFWS 2025c; 2025e; 2023; 2025d; Xerces Society for Invertebrate Conservation 2025b; 2025a; Washington Department of Fish and Wildlife 2025)

Table 4.4-5 Special-Status Fish and Marine Mammal Species with Potential to Occur in the Biological Study Area

Species Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
Fish			
Chinook salmon – Central Valley fall/late fall-run Evolutionarily Significant Unit (ESU) (*Oncorhynchus tshawytscha*)	SSC	This population spawns in the Sacramento and San Joaquin rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**Present seasonally.** This species spawns within the mainstem and tributaries of the Sacramento and San Joaquin rivers. Adults and juveniles must pass through the aquatic study area *en route* to and from the Pacific Ocean. This species would be considered seasonally present during migratory periods, which occur from February through June (adult upstream migration to spawning grounds) and December through March (juvenile downstream migration).
Chinook salmon – Central Valley spring-run ESU (*Oncorhynchus tshawytscha*)	FT, ST	This species run occurs in the Feather River and the Sacramento River and its tributaries, including Butte, Mill, Deer, Antelope, and Beegum creeks. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year or remain in freshwater and migrate as yearlings.	**Present seasonally.** This species spawns within tributaries of the Sacramento and San Joaquin rivers and must pass through the aquatic study area in route to the Pacific Ocean. This species would be considered seasonally present during migratory periods, which occur from March through September (adult upstream migration to spawning grounds) and October through March (juvenile downstream migration).
Chinook salmon – Sacramento River winter-run ESU (*Oncorhynchus tshawytscha*)	FE, SE	This species run occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River near the city of Redding, but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees Celsius for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	**Present seasonally.** This species spawns within the mainstem of the Sacramento River. Adults and juveniles must pass through the aquatic study area in route to and from the Pacific Ocean. This species would be considered seasonally present during migratory periods, which occur from December through early August (adult upstream migration to spawning grounds) and September through June (juveniles enter the Delta).

Species Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
Delta smelt (*Hypomesus transpacificus*)	FT; SE	Delta smelt are an euryhaline species (i.e., a species adapted to living in fresh and brackish water) that occupies estuarine areas with salinities below 2 parts per thousand. This species is found only from the San Pablo Bay upstream through the Sacramento-San Joaquin River Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties. Delta smelt spawn in shallow, fresh, or slightly brackish water upstream from the brackish water habitat associated with the mixing zone.	**Present year-round**. This species has been documented to occur within Suisun Bay less than 1 mile from the aquatic study area. The aquatic study area is also within the core sections of this species' home range, which are restricted to the Sacramento-San Joaquin River Delta; as such, the species is considered present year-round. This species has been recorded within 1 and 5 miles from the aquatic study area based on CNDDB records. **Transposition sites: Low.** Marginal aquatic habitat is present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
Eulachon (*Thaleichthys pacificus*)	FT; SSC	Eulachon require clean, cold freshwater rivers for spawning and coastal marine environments for growth; they migrate upstream to spawn in late winter to early spring, exhibiting a semelparous life cycle.	**Transposition sites: Low.** Suitable aquatic habitat is not present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
Green sturgeon - southern DPS (*Acipenser medirostris pop. 1*)	FT; SSC	This species is found in a variety of estuarine and freshwater habitats within the San Francisco Bay, San Pablo Bay, and Sacramento-San Joaquin River Delta. Spawning occurs in the Sacramento, Feather, and Yuba rivers in cool (11 to 15 degrees Celsius) sections of mainstem rivers in deep pools (i.e., 8 to 9 meters) with substrate containing small- to medium-sized sand, gravel, cobble, or boulders.	**Present year-round.** The aquatic study area is at the terminus of the Sacramento River, where green sturgeon are known to spawn. This species is also known to rear within the greater San Francisco Bay region year-round. As such, the species would be considered present year-round. This species has been recorded within 0.25 mile from the aquatic study area based on CNDDB records. **Transposition sites: None.** Although this species has been recently documented between 1 and 5 miles of the transposition site survey area, suitable aquatic habitat is not present within the transposition site survey area.

Species Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
Longfin smelt – San Francisco Bay-Delta DPS (*Spirinchus thaleichthys* pop. 2)	FE; ST	The known range of this species extends from the San Francisco Bay Estuary and Sacramento-San Joaquin Delta (Bay-Delta) in California northward to the Cook Inlet in Alaska. In the Bay-Delta, longfin smelt spawn primarily in freshwater in the lower reaches of the Sacramento and San Joaquin rivers. Juvenile and adult longfin smelt have been found throughout the year in salinities ranging from pure freshwater to pure seawater. Once past the juvenile stage, they are typically collected in waters with salinities ranging from 14 to 28 parts per thousand. The life cycle of most longfin smelt generally requires estuarine conditions. Longfin smelt occur in the Bay-Delta typically from January to April.	**Present year-round.** This species has been documented to occur within the vicinity of the aquatic study area, which is also located within the species' core habitat range. This species would be considered present year-round. This species has been recorded within 0.25 mile from the aquatic study area based on CNDDB records. **Transposition sites: Low.** Marginal aquatic habitat is present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
Pacific lamprey (*Entosphenus tridentatus*)	SSC	This species spawns between March and July in gravel-bottomed streams in riffle habitat. Their larvae drift downstream to areas of low velocity and fine substrates and are relatively immobile in the stream substrates.	**Present seasonally.** This species is known to spawn and rear within tributaries of the Sacramento and San Joaquin rivers. As such, adults and juveniles must migrate through the aquatic study area when moving to and from spawning streams and would be considered seasonally present during migratory periods from early spring to summer months.
River lamprey (*Lampetra ayresi*)	SSC	Lower Sacramento River, San Joaquin River and Russian River. May occur in coastal streams north of San Francisco Bay. Adults need clean, gravelly riffles. Ammocoetes need sandy backwaters or stream edges, good water quality, and temperatures less than 25 degrees Celsius.	**Present seasonally.** This species is known to spawn and rear within tributaries of the Sacramento and San Joaquin rivers. As such, adults and juveniles must migrate through the aquatic study area when moving to and from spawning streams and would be considered seasonally present during migratory periods, which occur in the spring.

Species Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
Sacramento splittail (*Pogonichthys macrolepidotus*)	SSC	The Sacramento splittail requires shallow, slow-moving waters with abundant vegetation for spawning and rearing, primarily inhabiting the Sacramento-San Joaquin Delta. They migrate for spawning in floodplain habitats.	**Present year-round.** This species has a high potential to occur within the sloughs and marshes of Winter Island, which is adjacent to the aquatic study area. As a result, the species could be found within the aquatic study area year-round. **Transposition sites: None.** Suitable aquatic habitat is not present within the transposition site survey area. This species has been recently documented between 1 and 5 miles of the transposition site survey area.
Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus*)	FT	Includes all naturally spawned populations (and their progeny) in the Sacramento and San Joaquin rivers and their tributaries, excluding San Francisco and San Pablo bays and their tributaries. Preferred spawning habitat is in cool to cold perennial streams with high dissolved oxygen levels and fast-flowing water. Abundant riffle areas for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.	**Present seasonally.** This species is known to spawn and rear within tributaries of the Sacramento and San Joaquin rivers. As such, adults and juveniles must migrate through the aquatic study area when moving to and from spawning streams and would be considered seasonally present during migratory periods, which occur from late September through late October (peak of the adult spawning migration) and late December through the beginning of May (downstream juvenile migration). This species has been recorded within 0.25 mile of the aquatic study area based on CNDDB records.
Western brook lamprey (*Lampetra richardsoni*)	SSC	This species is found in large coastal rivers and their tributaries. Ammocoetes are typically found in slackwater areas or pools where they burrow into soft substrate. Larval stage lasts 2 to 4 years in California. Spawning takes place in riffles in the early spring.	**Present seasonally.** This species is known to spawn and rear within tributaries of the Sacramento and San Joaquin rivers. As such, adults and juveniles must migrate through the aquatic study area when moving to and from spawning streams and would be considered seasonally present

Species Name (*Scientific Name*)	Listing Status[a]	Habitat And Life History	Potential To Occur In The Biological Study Area
White sturgeon (*Acipenser transmontanus*)	SSC	This species is found in most estuaries along the Pacific coast. Adults in the San Francisco Bay estuary system spawn in the Sacramento River and are not known to enter freshwater or non-tidal reaches of estuary streams. Spawning takes place from May through June.	**Present year-round.** This species is known to spawn and rear within tributaries as well as the mainstems of the Sacramento and San Joaquin rivers. Adults and juveniles also rear within these rivers year-round. As such, they are considered present year-round.
Mammals			
Pacific harbor seal (*Phoca vitulina richardsi*)	MMPA	This species is found in coastal and estuarine waters from Alaska to Baja California, Mexico. This species forages year-round within the San Francisco Bay estuary and prefers sandy beaches or rocky substrates to haul out.	**Present year-round.** This species is known to occur year-round within the vicinity of the aquatic study area. While no haul-outs are known within the vicinity of the aquatic study area, individual seals are commonly observed moving inland while foraging; As such, they are considered present year-round.
California sea lion (*Zalophus californianus*)	MMPA	This species is found from Vancouver Island, British Columbia to Baja California, Mexico and can be found in offshore or estuarine environments. In the San Francisco Bay estuary, this species can be found foraging year-round; they routinely venture into the freshwater habitats of the San Joaquin and Sacramento rivers in search of food. They prefer sandy beaches to haul out, but will frequently use man-made structures such as jetties, buoys, and marina docks.	**Present year-round.** This species is known to occur year-round within the vicinity of the aquatic study area. While no haul-outs are known within the vicinity of the aquatic study area, individual sea lions are commonly observed moving through these areas of the Sacramento and San Joaquin rivers while foraging; As such, they are considered present year-round.

[a] Explanation of listing status codes:

Federal

- FE: Federally listed as endangered
- FT: Federally listed as threatened
- PE: Proposed to be federally listed as endangered
- PT: Proposed to be federally listed as threatened
- BCC: U.S. Fish and Wildlife (USFWS) Bird of Conservation Concern
- MMPA: Marine Mammal Protection Act

State

- SE: State-listed as endangered
- ST: State-listed as threatened
- SSC: Species of Special Concern
- WL: Watch List species

Source: (USFWS 2025d; CDFW 2025b; 2025c; Gustafson et al. 2010; National Marine Fisheries Service (NMFS) 2012; National Oceanic and Atmospheric Administration (NOAA), n.d.; WRA 2024)

Sensitive Vegetation Communities/Riparian Areas

The natural community ranks present within the biological study area include S3, S4, S5, and SNA. Natural communities with ranks S1, S2, or S3 are considered sensitive natural communities. Seven communities in the biological study area have the rank S3 and are thus considered sensitive natural communities; these are denoted with a single asterisk in Table 4.4-1 and noted in the summary of vegetation communities that are raked S3. Sensitive natural communities are shown in Appendix F.1.

Wetlands

The results of biological surveys completed in May 2023, June 2023, July 2023, September 2023, December 2023, and February 2025 identify 14 linear drainages within the biological study area that are potentially under the jurisdiction of the Regional Water Quality Control Board (RWQCB) and CDFW (Insignia Environmental 2025a) (Appendix F.2). Of these drainages, four may be potentially under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Within the biological study area, 26 potentially jurisdictional wetland features were observed. These features are shown on maps in Appendix F.1.

Wildlife Corridors

The Proposed Project area is within the Pacific Flyway, a north-south migration corridor that runs adjacent to the Pacific coast of North and South America.

The portion of the Proposed Project area within the Sacramento-San Joaquin River Delta is within a migratory corridor for numerous anadromous species, including three *evolutionarily significant units* (ESUs) of Chinook salmon, one steelhead species, and three species of lamprey (Table 4.4-5). ESUs are populations of a species that have unique characteristics, such as genetic composition, life history, or geographic location, that distinguish them from other populations. The conservation objectives or management practices implemented by managing agencies, like USFWS or CDFW, may differ according to the needs of individual ESUs. Adult fish returning from the Pacific Ocean would pass through the aquatic study area at certain times of the year (see Table 4.4-5) to reach natal streams. Juveniles would also pass through the aquatic study area at other times of the year *en route* to the Pacific Ocean (Table 4.4-5). As such, these species are only present at certain times of the year. LSPGC proposes to restrict in-water work to between July 1 and November 30 to avoid the periods when these species are present in greater numbers in the Proposed Project area (WRA 2024; Insignia Environmental 2025b) (Appendix F.3 and F.5).

No other documented wildlife corridors are present within the Proposed Project area.

Critical Habitat

No critical habitat is found within the biological study area. However, the estuarine, open water habitat within the proposed submarine segment site and surrounding Sacramento River is designated as critical habitat for delta smelt (*Hypomesus transpacificus*) and proposed as critical habitat for longfin smelt (*Spirinchus thaleichthys*).

Habitat Conservation Plan

Solano County Water Agency Solano Multispecies Habitat Conservation Plan
The Solano County Water Agency Multispecies Habitat Conservation Plan (Solano Multispecies HCP) provides a framework for accommodating development, flood control operations, and other infrastructure projects while complying with federal and state endangered species regulations. A total of 37 species are covered under the Solano Multispecies HCP (Solano County Water Agency 2012).

East Contra Costa County Habitat and Natural Community Conservation Plan
The East Contra Costa County (ECCC) Habitat and Natural Community Conservation Plan (HNCCP) protects natural resources while supporting and improving environmental permitting processes (ECCC 2007). The Pittsburg Substation is located within the ECCC HNCCP area. The ECCC HNCCP requires that agencies involved with approving permits for endangered species within the county request from the U.S. Fish and Wildlife Service (USFWS) and CDFW to have authorized 30-year take permits for species covered under the federal Endangered Species Act (ESA) and the Natural Community Conservation Planning Act (NCCPA). There are no conservation areas that are defined within the Proposed Project areas and LSPGC and PG&E are not parties to the NCCP.

PG&E Bay Area Operations and Maintenance Habitat Conservation Plan
The PG&E Bay Area Operations and Maintenance Habitat Conservation Plan (Bay Area HCP) provides guidance to avoid and mitigate impacts on threatened and endangered species that may occur as a result of PG&E's routine operation and maintenance activities, minor new construction, and community pipeline safety initiative activities within the nine counties of the Bay Area. The Bay Area HCP also illustrates the requirements for incidental take authorization pursuant to the ESA for PG&E's actions within the Bay Area HCP plan area (ICF 2017). Although the Proposed Project area is located within the boundaries of the Bay Area HCP, construction of the 500 kV interconnection lines, 12 kV distribution line, and IT yard within the Collinsville Substation is not a covered activity because the Bay Area HCP only covers routine operation and maintenance activities, minor new construction, and community pipeline safety initiative activities. Minor new construction activities include installing new or replacement structures to upgrade facilities or to extend service to new customers. The scope of the Proposed Project does not fit the definition of any of these categories. PG&E intends to conduct the transposition structure installation activities as a covered activity under the Bay Area HCP and has indicated to the CPUC that the activity would comply with the HCP.

4.4.3 Regulatory Setting

Federal, state, and local regulations were reviewed for applicability to the Proposed Project and alternatives.

Federal

Endangered Species Act

The federal ESA (16 U.S.C. §§ 1531 et seq.) provides protection for plants and animals listed as threatened or endangered by USFWS and the National Marine Fisheries Service (NMFS). Section 9 of the ESA (50 CFR § 17.3) prohibits the take, possession, sale, or transport of any federal ESA-listed species. *Take* is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct" (16 U.S.C. § 1532(19)). Code of Federal Regulation title 50 part 17.3 further defines the term harm in the definition of take to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. (50 C.F.R. § 17.3(c)(3)). For endangered species of plants, the federal ESA prohibits removing, cutting, digging up, damaging, or destroying any listed plant on areas under federal jurisdiction as well as on non-federal land in knowing violation of state law (16 U.S.C. § 1538(a)(2)(B)).

The federal ESA requires the federal government to designate critical habitat for any species listed under the federal ESA but also allows areas to be excluded from critical habitat (16 U.S.C. § 1533(b)(2)). Critical habitat is a specific area occupied by the species that is "essential for the conservation" of a threatened or endangered species and that "may require special management considerations or protection" (16 U.S.C. § 1532(5)(A)(i)). Critical habitat may also include specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. (16 U.S.C. § 1532(5)(B)).

Section 7 of the federal ESA requires federal agencies to consult with USFWS and/or NMFS for any federal activity that may affect any federally listed species or its critical habitat (16 U.S.C. § 1536.) Section 10 of the ESA provides for issuance of incidental take permits for private actions that have no federal involvement through the development of a Habitat Conservation Plan (HCP) (16 U.S.C. § 1539). Effects to federally listed species with no lead federal agency require preparation of an HCP, management agreement, and an analysis prepared in compliance with NEPA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703 et seq.) prohibits the take of protected migratory bird species without prior authorization by the USFWS. *Take* is defined broadly under the MBTA to include actions to pursue, hunt, capture, kill, collect, possess, sell, barter, and/or transport migratory birds, or to attempt such activities. (16 U.S.C. § 703(a).) Take refers to both live and deceased birds and their parts, including feathers, nests, and eggs. The list of migratory bird species protected by the law is published by USFWS and was most recently updated in 2020. (50 CFR § 10.13) (USFWS 2020e) All federal project actions must comply with this act; therefore, they cannot result in unauthorized take of migratory birds.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. § 668), enacted in 1940, provides for the protection of the bald eagles and the golden eagles by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds (U.S.

House of Representatives 1940). The 1972 amendments increased penalties for violating provisions of the Eagle Act or regulations issued pursuant thereto and strengthened other enforcement measures. Under the Eagle Act, the destruction of a nest or take of any eagle or egg is prohibited. This prohibition includes the possession, sale, purchase, barter, offer to sell, purchase, or barter, transport, export, or import of any bald or golden eagle, alive or dead, including any part, nest, or egg unless allowed by permit. (16 U.S.C. §§ 668–668d). Disturb means to agitate or bother a bald or golden eagle to a degree that causes or is likely to cause (1) injury to an eagle; (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (50 C.F.R. § 22).

Clean Water Act

The Clean Water Act of 1972 (CWA) (33 U.S.C. §§ 1251 et seq.) establishes the basic structure for regulating discharges of pollutants into the waters of the United States (WOTUS) and regulating water quality standards for surface waters. Under the CWA, the Environmental Protection Agency (EPA) has implemented pollution control programs, such as setting wastewater standards for industry, and has developed national water quality criteria recommendations for pollutants in surface waters. The CWA made it unlawful to discharge any pollutant from a point source into navigable waters unless a permit is obtained. EPA's National Pollutant Discharge Elimination System (NPDES) permit program controls discharges.

Waters of the United States

On August 29, 2023, the EPA and Department of the Army issued a final rule to amend the final "Revised Definition of 'Waters of the United States'" rule, published in the Federal Register on January 18, 2023. This final rule conforms the definition of "waters of the United States" to the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency*. Parts of the January 2023 final rule are invalid under the Supreme Court's interpretation of the Clean Water Act in the Sackett decision. Therefore, the agencies have amended key aspects of the regulatory text to conform to the Court's decision.

WOTUS are defined as (40 C.F.R., § 120.2(a)):

1. Waters which are:
   a. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
   b. The territorial seas; or
   c. Interstate waters;
2. Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;
3. Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;
4. Wetlands adjacent to the following waters:

a. Waters identified in paragraph (a)(1) of this section; or
b. Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

5. Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

WOTUS do not include prior converted cropland (40 C.F.R., § 120.2(b)(2)). Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.

Section 401 – Water Quality Certification
Under Section 401 of the CWA, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into WOTUS unless either a Section 401 water quality certification is issued or the certification requirement is waived. States and authorized tribes where the discharge would originate are generally responsible for issuing water quality certifications. In cases where a state or tribe does not have authority, the EPA is responsible for issuing certification.

Section 404 – Permitting for Dredge and Fill Activities in Wetlands and Waters of the U.S.
Section 404 of the CWA authorizes USACE to regulate the discharge of dredged or fill material to wetlands and other WOTUS. The USACE issues individual site-specific or general (Nationwide) permits for such discharges. Nationwide permits are a type of general permit issued to cover activities that the USACE has determined to have minimal adverse effects, such as routine maintenance (e.g., Nationwide Permit 3) or utility line activities (e.g., Nationwide Permit 12). Each NWP specifies particular conditions that must implemented by the permittee.

State

California Endangered Species Act
The CESA (Cal. Fish & G. Code §§ 2050 et seq.) establishes the policy of the State to conserve, protect, restore, and enhance rare, threatened, or endangered species and their habitats. Section 2052 require that "mitigation measures or alternatives to address a particular impact on a candidate species, threatened species, or endangered species… shall be roughly proportional in extent to any impact on those species that is caused." Section 2080 prohibits the take of a species listed by CDFW as threatened or endangered under the CESA. The State definition of take is "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (Cal. Fish & G. Code § 86). Pursuant to section 2081 of the code, CDFW "authorize, by permit, the take of endangered species, threatened species, and candidate species" when that take is "incidental to an otherwise lawful activity" and the "impacts of the authorized take shall be minimized and fully mitigated".

California Environmental Quality Act Guidelines, Section 15380

Although threatened and endangered species are protected by specific federal and State statutes, CEQA Guidelines §15380(b) provides that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. Pursuant to its rarity status, any impacts to rare species could be considered a significant effect on the environment. (CEQA Guidelines § 15382). This section was included in the CEQA Guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities.

California Native Plant Protection Act

California's Native Plant Protection Act (California Fish & Game Code, §§ 1900–1913) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the act prohibit the taking of listed plants from the wild and require notification to CDFW at least 10 days in advance of any change in land use in order to allow CDFW to salvage listed plant species that otherwise would be destroyed.

Project proponents are required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants. Removal of rare plants by publicly or privately owned public utilities may occur in compliance with certain provisions of the NPPA (California Fish & Game Code § 1913; 14 C.C.R. § 786.9(d)).

State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State

In 2019, the State Water Resources Control Board (SWRCB) adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures). The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a wetland feature is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. On April 6, 2021, the State Water Resources Control Board adopted a resolution to confirm that the "State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State" is in effect as state policy for water quality control.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967 (Cal. Wat. Code §§ 13000 et seq.) requires the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs) to adopt water quality criteria to protect waters of the State. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation

procedures. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA. The Proposed Project site is under the jurisdiction of the San Francisco Bay RWQCB and Central Valley RWQCB and associated basin plans. The State Water Resources Control Board will be the lead agency since the Proposed Project submarine segment occurs in two regions.

California Fish and Game Code §§ 1600–1617, Lake and Streambed Alteration Agreement

If a project includes alteration of the bed, banks, or channel of a stream or of the adjacent riparian vegetation, then a Lake and Streambed Alteration Agreement (LSAA) may be required from CDFW. California Fish and Game Code sections 1600 through 1616 regulate activities that could alter the flow, bed, banks, channel, or associated riparian areas of a river, stream, or lake, which are considered "waters of the State." Altered or artificial watercourses valuable to fish and wildlife are also subject to CDFW jurisdiction, as are dry washes that carry water during storm events. The law requires any person, state, or local governmental agency or public utility to notify CDFW before beginning an activity that may do one or more of the following:

- Divert or obstruct the natural flow of any river, stream, or lake
- Change the bed, channel, or bank of any river, stream, or lake
- Use material from any river, stream, or lake
- Deposit or dispose of material into any river, stream, or lake

Additional California Fish and Game Code for Species Protection

The California Fish and Game Code requires State agencies to comply with regulations that promote the protection and conservation of threatened and endangered species. Regulations in place relevant to the Proposed Project are described below.

Migratory Birds and Raptors

It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, take or possess any birds of prey, and take or possess any migratory non-game bird as designated under the MBTA pursuant to sections 3503, 3503.5, and 3513 of California Fish and Game Code, respectively.

Fully Protected Species

California Fish and Game Code sections 3511, 4700, 5050 and 5515 designate 37 species of wildlife as fully protected in California. The classification of fully protected provides additional protection to those animals that are rare or face possible extinction. Most fully protected species have also been listed as threatened or endangered species under CESA. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collection necessary for scientific research or relocation of the species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan (NCCP).

Fur-bearing Mammals

The following are fur-bearing mammals: pine marten, fisher, mink, river otter, gray fox, red fox, kit fox, raccoon, beaver, badger, and muskrat. Under sections 4000 and 4001 of the California Fish and Game Code, notwithstanding any other provision of this code or regulations adopted pursuant to this code, it is unlawful for any person to trap any fur-bearing mammal for purposes of recreation or commerce in fur. The raw fur of a fur-bearing mammal otherwise lawfully taken pursuant to this code or regulations adopted pursuant to this code may not be sold.

Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the Proposed Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the counties' and cities' regulations are not applicable as the counties and cities do not have jurisdiction over the Proposed Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

Solano County General Plan

The Resources chapter of the Solano County General plan provides guidance to conserve, preserve, and enhance the natural resources found within Solano County (Solano County 2008). Goals and policies relevant to biological resource analysis are as follows:

> *RS.P-1:* Protect and enhance the county's natural habitats and diverse plant and animal communities, particularly occurrences of special-status species, wetlands, sensitive natural communities, and habitat connections. Actions to enhance or restore habitat areas should not cause adverse impacts to airports, including Travis Air Force Base.
>
> *RS.P-5***:** Protect and enhance wildlife movement corridors to ensure the health and long-term survival of local animal and plant populations. Preserve contiguous habitat areas to increase habitat value and to lower land management costs.
>
> *RS.P-7***:** Preserve and enhance the diversity of habitats in marshes, delta to maintain these unique wildlife resources.
>
> *RS.P-8:* Protect marsh waterways, managed wetlands, tidal marshes, seasonal marshes, and lowland and grasslands because they are critical habitats for marsh-related wildlife and are essential to the integrity of the marshes.
>
> *RS.P-21***:** Preserve and protect the natural resources of the Delta including soils and riparian habitat. Lands managed primarily for wildlife habitat should be managed to provide inter-related habitats.

Sacramento County General Plan

The Sacramento County General Plan Conservation Element Vegetation and Wildlife section discusses preservation and management of biotic resources (County of Sacramento 2017). The plan provides a framework of goals and policies relevant to biological resource analysis. The existing Vaca Dixon-Tesla 500 kV line between transposition sites C and D is located within Sacramento County, but no Proposed Project components are located within the county. Because there will be no temporary or permanent impacts from the Proposed Project within Sacramento County, the goals and policies of the Sacramento County General Plan do not apply to the Proposed Project.

Contra Costa County General Plan

The Contra Costa County 2045 General Plan Conservation, Open Space, and Working Lands Element provides a framework for the conservation, preservation, and enhancement of biological resources within Contra Costa County (PlaceWorks 2024). Goals and policies relevant to biological resources from the Ecological Resources and Natural Systems section of the Conservation, Open Space, and Working Lands element are as follows:

> *COS-P4.4***:** Protect wildlife migration corridors, including natural and channelized creeks providing habitat in urban settings, and support projects that enhance these areas.
>
> *COS-P4.7***:** Require projects near sensitive habitat areas to minimize lighting in general and mitigate light pollution by incorporating best practices for wildlife-friendly lighting.
>
> *COS-P4.9*: Require avoidance and protection of sensitive ecological resources not approved for disturbance or removal during project entitlement, and require restitution in exceedance of standard mitigation ratios for deliberate or inadvertent damage to these resources.
>
> *Goal COS-5:* Protected and restored natural watercourses, riparian corridors, and wetland areas that improve habitat, water quality, wildlife diversity, stormwater flows, and scenic values.
>
> *COS-P5.2:* Require public infrastructure and private development projects to preserve, and whenever possible restore and enhance, natural watercourses, floodplains, and riparian habitat.
>
> *Goal COS-6*: Preserve and enhance native upland habitat, including woodlands, grasslands, and rangelands.

City of Pittsburg General Plan

The City of Pittsburg 2040 General Plan governs development within the City of Pittsburg and identifies the community's vision for the future (City of Pittsburg 2024). Goals and policies relevant to biological resources located in the Resource Conservation & Open Space section are as follows:

Goal-10-2: Conserve biological and ecological resources, particularly the health of Suisun Bay and Marsh (Bay) and the Sacramento-San Joaquin Delta (Delta), special status species, including species that are State or Federally listed as endangered, threatened, or rare, habitats that support special status species, and sensitive habitats.

Policy 10-P-2.15: Protect and restore threatened natural resources, such as wildlife, estuaries, tidal zones, marine life, wetlands, and waterfowl habitat.

The Delta Plan

The Delta Stewardship Council's Delta Plan is a comprehensive long term guide to management of the Delta's water and environmental resources (Delta Stewardship Council 2025a). While the Proposed Project would not require a consistency analysis under the Delta Plan,the following land use policies from the Delta Plan are considered for informational purposes only in this analysis(Delta Stewardship Council 2025b):

Policy ER P3, Protect Opportunities to Restore Habitat:

(a) Within the priority habitat restoration areas depicted in Appendix 5, significant adverse impacts to the opportunity to restore habitat as described in section 5006 of this Chapter, must be avoided or mitigated.

(b) Impacts referenced in subsection (a) will be deemed to be avoided or mitigated if the project is designed and implemented so that it will not preclude or otherwise interfere with the ability to restore habitat as described in section 5006 of this Chapter.

(c) If the impacts referenced in subsection (a) are mitigated (rather than avoided), they must be mitigated to the extent that the project has no significant impact on the opportunity to restore habitat as described in section 5006 of this Chapter.

(d) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers proposed actions in the priority habitat restoration areas depicted in Appendix 5. It does not cover proposed actions outside those areas.

Policy ER P5, Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species:

(a) The potential for new introductions of or improved habitat conditions for nonnative invasive species, striped bass, or bass must be fully considered and avoided or mitigated in a way that appropriately protects the ecosystem.

(b) For purposes of Water Code section 85057.5(a)(3) and section 5001(o)(1)(e) of this Chapter, this policy covers a proposed action that has the reasonable probability of introducing or improving habitat conditions for nonnative invasive species.

4.4.4 Approach to Impact Analysis

The analysis of impacts on biological resources applies the impact criteria defined in the following subsection. Applicant proposed measures (APMs) and construction measures (CMs)

identified by LSPGC and PG&E, respectively, have been considered when making the impact determinations. Impacts are evaluated for the Proposed Project, including LSGPC and PG&E Project components analyzed separately as well as analyses of cumulative impacts and of project alternatives. Mitigation measures are defined to reduce or avoid significant impacts, where feasible. The complete text of all mitigation measures appears in Section 4.4.8.

Impact Definitions

Impact categories are defined in this section as follows:

- **Direct.** Direct impacts are caused by the Proposed Project or alternatives and occur at the same time and place as the Proposed Project or alternatives. Any alteration, disturbance, or destruction of environmental resources that would result from project-related activities is considered a direct impact.
- **Indirect.** Indirect impacts may occur later in time or at a place that is farther removed in distance from the Proposed Project or alternatives. Indirect impacts are those impacts that are still reasonably foreseeable and attributable to project-related activities.
- **Permanent.** All impacts that result in the irreversible removal of environmental resources or cause impacts that endure beyond 3 years are considered permanent.
- **Temporary.** Any impacts considered to have reversible effects on environmental resources, where the impact is 3 years or less in duration, are considered temporary.

Approach to Calculation of Underwater Noise Levels and Regulatory Thresholds

Underwater Sound Levels

Sheet pile installation scenarios for construction of the duct bank for the 230 kV underground segment in the City of Pittsburg were modeled to determine the distance that sound could attenuate and cause potential hydroacoustic effects on special-status marine species. While no in-water sheet pile driving is anticipated, temporary sheet piles may be installed on land, using a vibratory hammer. Sheet pile driving on land can result in sound propagation caused by the vibration of the ground that can create noise disturbance in adjacent waters (Caltrans 2020). Using the NMFS pile driving calculator (NMFS 2024), effects of pile driving with a vibratory hammer were modeled for different pile sizes (WRA Environmental Consultants 2025), as larger piles would create greater disturbance. Modeling assumed that a vibratory hammer would be the only method used for pile driving and did not use attenuation. Vibratory hammer pile driving effects were modeled for fish and marine mammals at the appropriate thresholds determined by NMFS (2024; 2018) and at a distance of 10 meters.

Underwater sound for a hydroplow is similar to that of a vibratory hammer driving a small steel pile, and therefore, the NMFS Pile Driving Calculator (NMFS 2024) was used as a proxy. Modeling assumed a duration of 24 hours of hydroplow use at both expected (160 dB) and extreme high (180 dB) noise levels, with the extreme high noise level attenuating to a background noise level of 150 dB within 100 meters of the hydroplow, and no cumulative effects (WRA Environmental Consultants 2025).

Regulatory Thresholds and Evaluation of Impacts

Fish Species

Thresholds for noise impacts on fish have been developed by NMFS (2024) and consider two main impacts, the onset of physical injury, and adverse behavioral effects. Impacts are based upon the size of the fishes under consideration and are shown in Table 4.4-6. Noise impacts above 150 dB were considered to have potentially adverse effects on fish behavior, regardless of size. Behavioral modification is based on the root mean square (RMS) and is considered standard for all species. In busy ports and bays, underwater noise is frequently measured at or above 150 dB under baseline conditions, therefore the baseline noise conditions are frequently at or above the standard thresholds for behavioral effects (Caltrans 2020). Impacts to behavior were evaluated as significant if the noise levels generated from a vibratory hammer, pile driving or hydroplow construction activities exceed 150 dB, and physical impacts would be considered significant if they exceed 183 dB in areas that could overlap the habitat of small fish (less than 2 grams in weight) and would be significant for fish larger than 2 grams in weight if noise exceeds 187 dB.

Table 4.4-6 Thresholds for Hydroacoustic Impacts on Fish

Effect	Metric	Fish Mass (Grams)	Threshold
Onset of physical injury	Peak pressure	N/A	206 dB (re: 1 µPa)
	Accumulated sound exposure level (SEL)	≥ 2g	187 dB (re: 1 μPa^2 per second)
		< 2g	183 dB (re: 1 μPa^2 per second)
Adverse behavioral effects	Root mean square (RMS)	N/A	150 dB (re: 1 µPa)

Source: (National Marine Fisheries Service (NMFS) 2024)

Marine Mammals

Thresholds for noise injury to marine mammals differ from those established for fish and relate primarily to hearing damage or loss (NMFS 2018). The NMFS threshold for Post-Traumatic Stress (PTS) onset of pinnipeds (i.e., harbor seal and California sea lion) is 185 to 203 dB for cumulative impulsive sounds, such as impact hammers, and 201 to 219 dB for non-impulsive sounds, such as vibratory hammers (NMFS 2018), as shown in Table 4.4-7. Noise impacts were evaluated as significant if the noise levels generated from a vibratory hammer or hydroplow construction activities exceed 201 dB for non-impulsive activities.

Table 4.4-7 Thresholds for Hydroacoustic Impacts on Marine Mammals

Effect	Impulsive	Non-Impulsive
Phocid pinniped (California sea lion)	Peak = 218 Cumulative = 185 dB	Cumulative = 201 dB

Effect	Impulsive	Non-Impulsive
Otoriid pinniped (harbor seal)	Peak = 232 dB Cumulative = 203 dB	Cumulative = 219 dB

Source: (NMFS 2018)

Impact Criteria and Thresholds of Significance

The following impact criteria have been derived from Appendix G of the CEQA Guidelines to evaluate impacts on biological resources. Appendix G of the CEQA Guidelines asks whether a project would:

- Impact BIO-1A: Have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Impact BIO-1B: Have a substantial adverse effect, either directly or through habitat modifications, on any amphibian species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Impact BIO-1C: Have a substantial adverse effect, either directly or through habitat modifications, on any reptile species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Impact BIO-1D: Have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Impact BIO-1E: Have a substantial adverse effect, either directly or through habitat modifications, on any invertebrate species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Impact BIO-1F: Have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Impact BIO-1G: Have a substantial adverse effect, either directly or through habitat modifications, on any aquatic mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Impact BIO-1H: Have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

- Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- 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 corridors, or impede the use of native wildlife nursery sites.
- Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Applicant Proposed Measures and Construction Measures

LSPGC APMs and PG&E CMs identified in Section 2: Project Description that are relevant to the biological resources impact analysis are provided in Table 4.4-8.

Table 4.4-8 APMs and CMs Relevant to Biological Resources

Proposed LSPGC APMs and PG&E CMs
APM BIO-1: Avoid Environmentally Sensitive Areas. Biological field surveys (i.e., surveys to identify vegetation communities and land cover, aquatic features, and potential terrestrial habitat for special-status plant and wildlife species, as well as fully floristic botanical surveys) would be performed for any portion of the Proposed Project area not yet surveyed (e.g., areas that did not have landowner access, new or modified staging areas, pull sites, or other work areas). Sensitive biological resources or areas discovered during surveys would be subject to a buffer from construction activities in accordance with the applicable Proposed Project APMs. The findings of all biological field surveys on portions of the Proposed Project area not yet surveyed would be provided to the CPUC prior to construction commencing within those areas.
APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training. All workers on the Proposed Project site would be required to attend a WEAP training. Training would inform all construction personnel of the resource protection and avoidance measures, as well as procedures to be followed upon the discovery of environmental resources. Additionally, the WEAP would train all construction personnel on hazardous materials management, hazardous wastes and stained or odiferous soils identification, and applicable regulations. The WEAP training would include, at a minimum, the following topics so crews would understand their obligations: • Environmentally sensitive area boundaries, • Housekeeping (i.e., trash and equipment cleaning), • Safety, • Work stoppage, • Communication protocol, and • Consequences of non-compliance.
APM BIO-4: Delineation of Sensitive Resources. All sensitive biological areas (e.g., aquatic resources and special-status plants) within Proposed Project work areas would be clearly marked prior to construction to

Proposed LSPGC APMs and PG&E CMs
restrict construction activities and equipment from entering these areas. Signage would be placed along regular intervals of this delineation prohibiting entry by Proposed Project personnel and identifying the delineated area as a sensitive resource. A buffer of at least 5 feet from all construction activities would be established around these areas. These buffers would be inspected regularly to ensure that they remain in place.
APM BIO-5: Pre-Construction Plant Surveys (*Superseded by MM BIO-1*). Prior to initial vegetation clearing and ground-disturbing activities, a qualified biologist would conduct pre-construction surveys during the appropriate blooming period for Welsh mudwort, Delta tule pea, Mason's lilaeopsis, Bolander's water hemlock, and Suisun marsh aster. Surveys would occur within Proposed Project work areas with suitable habitat for these plants. In the event of the discovery of a previously unknown special-status plant, the area would be marked as a sensitive area and would be avoided to the maximum extent practicable. If avoidance of species listed under the FESA or CESA is not possible, the USFWS and/or CDFW would be consulted, as appropriate.
APM BIO-6: Qualified Biologist Monitoring (*Superseded by MM BIO-7*). Any construction activities within suitable special-status species habitat that may impact sensitive biological resources would be monitored by a qualified biologist. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.
APM BIO-7: Vehicle Cleaning. All construction equipment and vehicles that would travel outside of approved access roads/designated parking areas (e.g., staging yards) would be cleaned prior to their initial arrival on the Proposed Project site to avoid spread of noxious weeds and non-native invasive plant species.
APM BIO-8: Vehicle Travel. Vehicles would adhere to a speed limit of 15 mph on unpaved access roads without a posted speed limit, Proposed Project-specific construction routes, and within temporary work areas. In addition, construction employees would be required to stay on established and clearly marked and existing roads and within the limits of disturbance (except when not feasible due to physical or safety constraints) and would be advised that care should be exercised when commuting to and from the Proposed Project area to reduce accidents and animal road mortality.
APM BIO-9: Trapped Animal Prevention. All excavated holes/trenches that are not filled at the end of a workday would be covered, or a wildlife escape ramp would be installed to prevent the inadvertent entrapment of wildlife species.
APM BIO-10: Delineation of Work Areas. All work areas within the Proposed Project area would be clearly delineated prior to construction commencing with fencing, staking, or flags. Construction activities would be restricted to delineated work areas and all delineation would be maintained in working order until completion of construction.
APM BIO-11: Pre-Construction Wildlife Surveys. Prior to initial vegetation clearance and ground-disturbing activities within suitable habitat for special-status wildlife, a biologist would conduct pre-construction surveys within Proposed Project work areas for special-status wildlife. Within wetland habitats or other areas suitable for northwestern pond turtle occupation, a qualified biologist would examine potential basking sites for adult turtles, as well as potential nest sites in sandy or sparsely vegetated substrates; turtle nests would be flagged for avoidance. In pickleweed habitats or other areas suitable for salt marsh harvest mouse occupation, a qualified biologist would carefully inspect vegetation prior to vegetation clearance and ground disturbing activities to ensure no salt marsh harvest mouse individuals or nests are present and to encourage mice residing within or adjacent to the Proposed Project work areas to move into adjacent habitats prior to impacts commencing each day. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.

Proposed LSPGC APMs and PG&E CMs
APM BIO-12: Project Lighting. The use of outdoor lighting during construction would be minimized whenever practicable. Photocell-controlled lighting (i.e., motion detection) would be provided at a level sufficient to provide safe entry and exit to the proposed LSPGC Collinsville Substation and control enclosures. All lighting would be selectively placed, shielded, and directed downward and away from sensitive habitat and resources to the maximum extent practicable.
APM BIO-13: Nesting Bird Avoidance (*Superseded by MM BIO-7*). If feasible, construction and vegetation trimming/removal would be avoided during the migratory bird nesting or breeding season (i.e., February 15 to August 31). When it is not feasible to avoid construction during the nesting or breeding season, a survey would be performed in the area where the work is to occur to determine the presence or absence of nesting birds. If an active nest (i.e., containing eggs or young) is identified, a suitable construction buffer (which would differ based on species and location of nest) would be implemented to ensure that the nesting or breeding activities are not substantially adversely affected. If the nesting or breeding activities are being conducted by a federal or state-listed species, LSPGC and/or PG&E would consult with the USFWS and CDFW as necessary. Monitoring of the nest would continue until the birds fledge or construction is no longer occurring on the site.
APM BIO-14: Burrowing Owl (*Superseded by MM BIO-8*). Prior to the initiation of construction activities occurring in suitable grassland habitat, a qualified biologist would conduct up to four protocol-level surveys for burrowing owl in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). A take avoidance survey for active burrows would also be conducted no more than 30 days prior and no less than 14 days prior to the start of construction in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). If burrowing owls are present at the site, a qualified biologist would establish an exclusion zone in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012). If a qualified biologist experienced with burrowing owls determines the relocation of owls is necessary, a passive relocation effort may be conducted in coordination with the CDFW as appropriate and in accordance with the Staff Report on Burrowing Owl Mitigation (CDFW 2012).
APM BIO-15: Wetland Birds. To the greatest extent feasible, work within wetland habitats suitable for California black rail or Ridgway's rail occupation would be limited to a work window of September 1 through January 15, which is outside of the breeding season for these species.
APM BIO-16: Vegetation and Tree Trimming/Removal. Vegetation and tree trimming/removal would be limited to the minimum area necessary to allow construction to proceed and to provide adequate vegetation removal to meet initial electrical clearance and wildfire prevention requirements. Where feasible, shrubs and other woody vegetation would be cut at the base to preserve the existing root system and facilitate resprouting following the conclusion of Proposed Project construction.
APM BIO-17: Raptor Nests (*Superseded by MM BIO-7*). If a raptor nest or breeding burrow is observed during pre-construction surveys, a qualified biologist would determine if it is active. If the nest is determined to be active, the biological monitor would monitor the nest to ensure that nesting or breeding activities are not substantially adversely affected. If the biological monitor determines that activities associated with the Proposed Project are disturbing or disrupting nesting or breeding activities, the biological monitor would make recommendations to reduce noise or disturbance in the vicinity of the nest, such as temporarily suspending work in the area. If the nest is determined to be inactive, the nest would be removed under direct supervision of the qualified biologist.
APM BIO-18: In-Water Work Window. To minimize potential impacts to fish during in-water work (i.e., disturbance to the Delta substrate or placement of construction materials below the waterline) both from general disturbance or from the potential introduction of deleterious materials that may disrupt both migratory events and cause impacts to species during key times of year when more sensitive life stages (i.e., eggs and fry) are present, a work window of July 1 to November 30 would be enacted.
APM BIO-19: Intake Screening. To minimize the potential for fish to be entrained by the Proposed Project, any pumps or water intakes used by the Proposed Project would be screened in accordance with the following CDFW

Proposed LSPGC APMs and PG&E CMs

and NMFS screening requirements for water diversions within the Delta (CDFG 2000, NMFS 1997). If any variation from these criteria is necessary, the Proponent would consult with the agency responsible for the species for recommendations to protect fish.

APM BIO-20: Invasive Species Management for In-Water Work. To help reduce the potential effects of invasive species from construction of the Proposed Project the following measures would be implemented:

- Aquatic vessels brought to the study area from ports outside of San Francisco Bay and/or the Delta for aquatic construction would follow all maritime regulations relating to the exchange of ballast water to prevent the spread of invasive species from outside ports.
- Any in-water fill materials (e.g., piles) would be new and not salvaged from areas outside of San Francisco Bay.
- Any pumps or in-water equipment that may be needed during construction would be cleaned and dried for at least 72 hours prior to first being used on the Proposed Project. Continual presence on site would not require drying between uses.

APM BIO-21: Aquatic Sediment Screening and Testing. Prior to installation of cables, screening of the cable alignment based on available background resources (e.g., EnviroStor) would be conducted to determine if there have been any known spills or other hazardous materials releases that potentially intersect with the alignment. If any known spills or other hazardous materials releases are discovered, an aquatic sediment screening and testing program would be developed to evaluate the risk of exposing hazardous sediments to the marine environment. The program would entail the following:

- Representative aquatic sediment samples would be collected at a minimum of three locations placed evenly along the alignment. The depth of the samples would be consistent with the depth of trenching at each sample location.
- Sediment samples would be tested according to methods prescribed in the Guidelines for Implementation of the Inland Testing Manual in San Francisco Bay or updated similar manual approved by the San Francisco Bay Dredge Material Management Office (DMMO) (DMMO 2001). The results of this test would be compared to concentrations allowed for in-bay disposal by the San Francisco Bay DMMO to determine if sediments are clean or require special handling.
- Aquatic sediments that exceed San Francisco Bay DMMO testing standards would:
- Be avoided by the cable installation route, or
  - Be removed through dredging and disposed of at an appropriate facility approved by the RWQCB, or
  - Be controlled via use of a silt curtain or other appropriate BMP approved by the RWQCB.
- Cable installation and hydroplow use would be limited to the specified areas and the minimum length necessary.

APM BIO-22: Aquatic Spill Prevention and Control. A spill prevention and control plan would be developed and implemented for the Proposed Project throughout all phases of construction. This plan would, at a minimum, include the following parameters to reduce potential effects from spills:

- Procedures to ensure any equipment used in water (e.g., hydroplow or excavators) are cleaned of excess lubricants and fuels.
- Identification of any hazardous materials used by the Proposed Project.
- Storage locations and procedures for such materials.
- Spill prevention practices, as well as BMPs, employed for various activities.
- Requirements to inspect equipment regularly such that it is maintained to be free of leaks.
- Spill kit location, cleanup, and notification procedures.

APM BIO-23: Overwater Concrete Casting. The following measure would be implemented during the casting of overwater concrete:

Proposed LSPGC APMs and PG&E CMs

- All overwater concrete would be poured into water-tight forms, and isolated from waters of the Delta until concrete has fully cured (typically 30 days).
- Commercial sealants may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water would be excluded from the site until the sealant is dry.
- Any water used to keep concrete moist during the curing process would not be allowed to run off of the structure. Concrete forms would also be sufficiently designed to catch and hold any such cure water.

At all times when concrete is being poured or when working with wet concrete, a monitor would be present to inspect the containment structures and ensure that no concrete or cure water escapes the containment structure.

APM FIRE-1: Construction Fire Prevention Plan. A Proposed Project-specific CFPP would be prepared and submitted to the CPUC for review prior to initiation of construction. The CFPP would be fully implemented throughout the construction period and would include, at a minimum, the following:

- The purpose and applicability of the CFPP.
- Responsibilities and duties.
- Preparedness training and drills.
- Procedures for fire reporting, response, and prevention that include the following:
  - Identification of daily site-specific risk conditions,
  - The tools and equipment needed on vehicles and to be on hand at sites,
  - Reiteration of fire prevention and safety considerations during tailboard meetings, and
  - Daily monitoring of the red flag warning system with appropriate restrictions on types and levels of permissible activity.
- Coordination procedures with federal and local fire officials.
- Crew training, including fire safety practices and restrictions.
- Method(s) for verifying that all CFPP protocols and requirements are being followed.

A Proposed Project Fire Marshal or similar qualified position would be established to enforce all provisions of the CFPP, as well as perform other duties related to fire detection, prevention, and suppression for the Proposed Project. Construction activities would be monitored to ensure implementation and effectiveness of the CFPP.

APM AES-1: Staging Area Maintenance and Restoration. All Proposed Project sites would be maintained in a clean and orderly state. Temporary nighttime lighting would be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of Proposed Project construction, staging and temporary work areas would be returned to pre-Proposed Project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.

CM AIR-2: Fugitive Dust Control ***(Superseded by MM AQ-1).*** The following actions would be taken, as applicable and feasible, to control fugitive dust during construction. BAAQMD notifications would be made in accordance with any requirements in effect at the time of construction:

- Applying water to disturbed areas and to storage stockpiles.
- Applying water in sufficient quantities to prevent dust plumes during activities such as clearing and grubbing, backfilling, trenching and other earth moving activities.
- Limit vehicle speed to 15 mph.
- Load haul trucks with a freeboard (space between top of truck and load) of six inches or greater.
- Cover the top of the haul truck load.
- Clean-up track-out at least daily.

Proposed LSPGC APMs and PG&E CMs
CM BIO-1: Vernal Pool and Waters Avoidance. Prohibit vehicular and equipment refueling 250 feet from the edge of vernal pools, and 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas. Maintain a buffer of 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew would implement other measures as prescribed by the land planner, biologist, or HCP administrator to minimize impacts by flagging access, requiring foot access, restricting work until dry season, or requiring a biological monitor during the activity.
CM BIO-2: Revegetation. If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew would revegetate the area with a commercial "weed free" seed mix.
CM BIO-3: Worker's Environmental Awareness Training. All workers on the Proposed Project site would be required to attend a Workers Environmental Awareness Program (WEAP) training. Training would 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 would include, at a minimum, the following topics so crews would understand their obligations: • Environmentally sensitive area boundaries, • Housekeeping (i.e., trash and equipment cleaning), • Safety, • Work stoppage, • Communication protocol, and • Consequences of non-compliance.
CM BIO-4: Delineation and Avoidance of Sensitive Habitat Features. A Designated Biologist would clearly identify sensitive resources that crews must avoid for the duration of the activities with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize or avoid disturbance.
CM BIO-5: Special-Status Plant Species. Occurrences of special-status plant species would be avoided to the extent practicable and would include performance of Proposed Project activities in special-status plant habitat after senescence. PG&E has created "Map Book zones" for the 13 state or federally listed plants that are covered in the O&M HCP. A Map Book zone is defined as an area of occupied or potentially occupied the HCP-covered plant species habitat as determined by PG&E botanical surveys. When rare and endangered plant species subject to the NPPA cannot be avoided, PG&E would follow the requirements of California Fish and Game Code Sections 1913(b) and 1913(c) concerning notification to CDFW at least 10 days in advance and provide an opportunity to salvage such species. If a special-status plant is found or known to occur, the plant would be avoided if feasible (i.e., O&M objectives could still be met). If feasible to avoid, avoidance would include establishing a buffer around the plants and demarcation of the buffer by a qualified biologist or botanist using flagging. Consideration of site-specific environmental factors such as terrain, site hydrology, light, and potential introduction of invasive plants may inform the avoidance approach.
CM BIO-6: Biological Monitor. For Covered Activities in Covered Species modeled habitat that require work over a period of two weeks or greater, a General Biological Monitor would conduct compliance inspections, at a minimum, once every week after clearing, grubbing, and grading are completed and during periods of inactivity.
CM BIO-7: Clean Equipment and Materials. PG&E would implement the following for activities that involve ground disturbance:

Proposed LSPGC APMs and PG&E CMs
• Mud and/or accumulated soils would be removed from equipment and vehicles to the maximum extent practicable. • Vehicles and equipment would be cleaned or washed before entering a new work site. • A log would be kept for each work site and would be completed to document each cleaning or washing of vehicles or equipment before entering each new work site. • Vehicles would be staged and stored on paved or cleared areas to the extent practicable. • Certified weed-free mulch, straw, hay bales, or equivalent materials would be used where necessary.
CM BIO-8: Vehicle Travel. PG&E would: • Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt). • Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation. • Locate off-road access routes and work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops). • Limit vehicle speeds on unpaved roads to 15 miles per hour.
CM BIO-9: Trapped Animal Prevention. Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews would search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife are not trapped. If any wildlife are found, a biologist would be notified and would relocate the species to adjacent habitat or the species would be allowed to naturally disperse, as determined by a biologist. Minimize potential for covered species to seek refuge or shelter in pipes and culverts. Inspect pipes and culverts, of diameter wide enough to be entered by a covered species that could inhabit the area where pipes are stored, for wildlife species prior to moving pipes and culverts. Immediately contact a biologist if a covered species is suspected or discovered.
CM BIO-10: Minimize Footprint. Minimize the activity footprint and minimize the amount of time spent at a work location to reduce the potential for take of species.
CM BIO-11: Construction Hours and Lighting. Construction activities would cease 30 minutes before sunset and would not begin prior to 30 minutes after sunrise, where feasible. Night work would be limited in extent, duration, and brightness, to the extent feasible. If temporary construction lighting is required, PG&E would use shielded construction light fixtures, or otherwise screen or direct lighting away from nearby residences except in the cases of emergency.
CM BIO-12: Nesting Birds (*Superseded by MM BIO-7*). If work is anticipated to occur within the nesting bird season (February–August 31) nesting birds, including raptors and other species protected under the Migratory Bird Treaty Act, may be impacted. If active nests are discovered, exclusionary measures and/or designated avoidance buffers may be required and implemented according to the guidance in the PG&E Nesting Bird Management Plan. The Proposed Project biologist determines if the construction action would impact the nest, and if so, identifies whether alternative actions or monitoring can be implemented to avoid impacts. If active nests are observed during construction, crews must immediately alert the PG&E project biologist. Nests with eggs and/or chicks would be avoided: contact a biologist, land planner or the Avian Protection Program manager for further guidance.
CM BIO-13: Felling Trees. Directionally fell trees away from an exclusion zone, if an exclusion zone has been defined. If this is not possible, remove the tree in sections. Avoid damage to adjacent trees to the extent possible.

Proposed LSPGC APMs and PG&E CMs
Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs over 6 inches in diameter.
CM BIO-14: Conservation Landowner Notification. Notify conservation landowner at least 2 business days prior to conducting covered activities on protected lands (state and federally owned wildlife areas, ecological reserves, or conservation areas); more notice would be provided if possible or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E would notify the conservation landowner within 48 hours after initiating emergency work. While this notification is intended only to inform conservation landowner, PG&E would attempt to work with the conservation landowner to address landowner concerns.
CM BIO-15: Prohibitions. Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.
CM BIO-16: Erosion and Sediment Control BMPs. Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's *Stormwater Field Manual for Construction Best Management Practices*) to prevent construction site runoff into waterways.
CM BIO-17: Soil Stockpiling. Stockpile soil within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.
CM FIRE-1: Fire Risk Management. PG&E would follow relevant California Public Resource Code provisions and the then-current company-specific standard for preventing and mitigating fires while performing PG&E work. PG&E would utilize a project-specific safety plan to outline and ensure compliance with safe work practices, training, and fire response. Examples of the measures in the wildfire prevention and mitigation standard include, but are not limited to, the following practices: • When working on unpaved roads where the ignitions may be probable due to dry vegetation, park vehicles in an area cleared of vegetation (e.g., paved, gravel or cleared to bare mineral soil) or otherwise where suitable to avoid fire ignitions. • During dry months, all motorized equipment driving on unpaved or gravel/dirt right-of-way or roads must have installed State-approved spark arrestor. • When traveling to the jobsite, or when operating on unimproved roadways, passenger vehicles are to carry one dry chemical fire extinguisher (rated ABC) and one round point shovel. • Trucks (1/2 ton or larger) and all-terrain vehicles (ATVs) are to carry one dry chemical fire extinguisher (rated ABC), one round point shovel and one, 5-gallon backpack pump-type fire extinguisher. • Heavy machinery or equipment (e.g., tractors, tub grinders, whole tree chippers, excavators, bulldozers) must have one dry chemical fire extinguisher (rated ABC), one round point shovel and one 5-gallon backpack pump-type fire extinguisher in the operating area but these are not required to be affixed to heavy machinery or equipment. • In addition, during "red flag warning" advisory conditions (as determined by the National Weather Service) or other very high fire risk conditions, certain work activities will be curtailed or temporarily stopped unless work is deemed an emergency. • All flammable chemicals must be clearly labeled and stored in approved containers away from ignition sources.
CM HAZ-1: Hazardous-Substance Control and Emergency Response. PG&E would implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of Proposed Project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and

Proposed LSPGC APMs and PG&E CMs

spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on-site, as applicable.

Proposed Project construction would involve soil surface blading/leveling, excavation of up to several feet, and augering to a maximum depth of 35 feet in some areas. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil would be tested, and if contaminated above hazardous waste levels, would be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil would require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.

All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources.
- Emergency response and reporting procedures to address hazardous material spills.

Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work would be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.

PG&E HCP Avoidance and Minimization Measures

This EIR incorporates by reference the avoidance and minimization measures (AMMs) in Chapter 5.5.1.2 of PG&Es Bay Area HCP (ICF 2017). These AMMs include specific plant and wildlife species impact avoidance and minimization measures as well as general measures such as personnel training. The complete list of measures may be found in Table 5-1 of the Bay Area HCP. The measures would apply to all PG&E operation and maintenance activities and the transposition structure installation activities conducted under the HCP.

Vegetation/Habitat Impacts

Table 4.4-9 provides a summary of the temporary and permanent impacts to vegetation communities and land cover types within the Proposed Project. These impact acreages will be used to analyze impacts to wildlife habitat in the following sections.

Table 4.4-9 Impacts‡ to Vegetation Communities and Land Cover Types within the Proposed Project Site

Vegetation Community Or Land Cover Type	LSPGC Collinsville Substation**	LSPGC 230 kV Transmission Line Overhead Segment	LSPGC 230 kV Transmission Line Submarine Segment	LSPGC 230 kV Transmission Line Underground Segment**	LSPGC Telecommunication Interconnection Lines	PG&E 500 kV Interconnection Lines	PG&E 12 kV Distribution Line	PG&E 500 kV Transposition Sites	Vegetation Community Or Land Cover Type Impact Total
Agriculture†	—	—	—	—	—	—	—	1.03 (T) — (P)	**1.03 (T)** **— (P)**
Allenrolfea occidentalis Shrubland Alliance†*	—	—	—	—	—	—	—	0.01 (T) — (P)	**0.01 (T)** **— (P)**
Avena spp. – *Bromus spp.* Herbaceous SNA†	—	—	—	—	—	—	—	12.84 (T) 0.08 (P)	**12.84 (T)** **0.08 (P)**
Brassica nigra – *Centaurea* (*solstitialis, melitensis*) Herbaceous SNA	—	—	—	—	—	3.63 (T) 0.04 (P)	0.02 (T) <0.01 (P)	<0.01 (T) — (P)	**3.65 (T)** **0.04 (P)**
Distichlis spicata - *Frankenia salina* Coastal Herbaceous Alliance*,[a]	<0.01 (T) — (P)	0.48 (T) <0.01 (P)	0.15 (T) — (P)	—	—	0.18 (T) — (P)	0.17 (T) 0.06 (P)	—	**2.75 (T)** **0.06 (P)**
Juncus arcticus (var. *balticus, mexicanus*) Herbaceous Alliance	—	—	0.07 (T) — (P)	—	—	—	—	—	**0.07 (T)** **-- (P)**
Lepidium latifolium – *Lactuca serriola* Herbaceous SNA[a]	—	—	—	4.73 (T) 0.01 (P)	—	—	—	—	**4.66 (T)** **0.01 (P)**
Lolium perenne Herbaceous SNA[a]	15.26 (T) 12.67 (P)	8.37 (T) 0.05 (P)	0.48 (T) — (P)	—	—	38.58 (T) 0.43 (P)	0.20 (T) 0.06 (P)	9.88 (T) 0.04 (P)	**64.43 (T)** **13.25 (P)**
Ornamental Vegetation	—	—	—	—	0.01 (T) <0.01 (P)	—	—	0.07 (T) — (P)	**0.08 (T)** **<0.01 (P)**
Rosa californica Shrubland Alliance*	—	—	<0.01 (T) — (P)	—	—	—	—	—	**<0.01 (T)** **— (P)**
Schoenoplectus (*acutus, californicus*) Herbaceous Alliance*	—	—	0.14 (T) — (P)	—	—	—	—	—	**0.14 (T)** **— (P)**
Schoenoplectus californicus - *Schoenoplectus acutus/Rosa californica* Association*,[a]	—	0.15 (T) — (P)	0.45 (T) — (P)	—	—	—	—	—	**0.45 (T)** **— (P)**
Typha (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	— (T) 0.01 (P)	—	—	—	—	—	0.02 (T) 0.01 (P)	—	**0.02 (T)** **0.02 (P)**
Bare Ground	—	—	—	—	—	—	<0.01 (T) — (P)	—	**<0.01 (T)** **— (P)**
Developed[a]	—	—	—	1.57 (T) <0.01 (P)	0.02 (T) <0.01 (P)	—	0.01 (T) 0.01 (P)	0.03 (T) — (P)	**0.61 (T)** **0.01 (P)**

Vegetation Community Or Land Cover Type	LSPGC Collinsville Substation**	LSPGC 230 kV Transmission Line Overhead Segment	LSPGC 230 kV Transmission Line Submarine Segment	LSPGC 230 kV Transmission Line Underground Segment**	LSPGC Telecommunication Interconnection Lines	PG&E 500 kV Interconnection Lines	PG&E 12 kV Distribution Line	PG&E 500 kV Transposition Sites	Vegetation Community Or Land Cover Type Impact Total
Disturbed[a]	—	—	0.01 (T) — (P)	2.04 (T) 0.05 (P)	<0.01 (T) <0.01 (P)	—	—	0.88 (T) — (P)	**0.88 (T)** **0.05 (P)**
Open Water	—	—	17.04 (T) — (P)	—	—	—	—	<0.01 (T) — (P)	**17.04 (T)** **— (P)**
Rip-Rap[a]	—	—	0.12 (T) — (P)	0.02 (T) — (P)	—	—	—	—	**0.14 (T)** **— (P)**
Road[a]	0.35 (T) — (P)	0.15 (T) — (P)	—	—	—	10.57 (T) — (P)	0.17 (T) 0.01 (P)	—	**10.78 (T)** **0.01 (P)**
Totals	**15.61(T)** **12.68 (P)**	**9.10 (T)** **0.06 (P)**	**18.48 (T)** **— (P)**	**8.36 (T)** **0.06 (P)**	**0.03 (T)** **<0.01 (P)**	**52.96 (T)** **0.47 (P)**	**0.59 (T)** **0.14 (P)**	**24.74 (T)** **0.11 (P)**	**N/A**

‡Impacts are reported as areas with acres as the unit. Impact Codes: T = Temporary; P = Permanent

†Only applies to the PG&E 500 kV transposition sites.

*CDFW-designated sensitive natural community (State Rarity Rank S1-S3).

**Staging areas associated with the Proposed LSPGC Collinsville Substation and 230 kV transmission line underground segment would also be used to support other Proposed Project activities: staging areas associated with the LSPGC Collinsville Substation would be used to support construction of the LSPGC 230 kV transmission line overhead segment and the PG&E 500 kV interconnection lines and 12 kV distribution line; staging areas associated with the LSPGC 230 kV transmission line underground segment would be used to support construction of the LSPGC telecommunication interconnection lines.

[a] Proposed Project components have overlapping impact areas within this vegetation community/land cover type; therefore, the total impact area for this vegetation community/land cover type is not equal to the sum of the component impact areas. Overlap is primarily between temporary work areas for the Collinsville Substation and electrical line pulling sites but also occurs in smaller areas in other parts of the Proposed Project where temporary access roads overlap temporary work areas. Amount of overlap per vegetation community includes the following: Developed = 0.02 acre; *Distichlis spicata - Frankenia salina* Coastal Herbaceous Alliance = 0.27 acre; Disturbed = 0.01 acre; *Lepidium latifolium – Lactuca serriola* Herbaceous Alliance = 0.07 acre; *Lolium perenne* Herbaceous Semi-Natural Alliance = 8.34 acres; Rip Rap <0.01 acre; Road = 0.46 acre; *Schoenoplectus californicus - Schoenoplectus acutus/Rosa Californica* Association = 0.15 acre.

4.4.5 Impact Analysis – Proposed Project

Table 4.4-10 presents a summary of the CEQA impact criteria and impacts on biological resources that would occur during construction, operation, and maintenance of the Proposed Project.

Table 4.4-10 Summary of Impacts on Biological Resources for the Proposed Project

Impact criteria: Would the project …	APMs/CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
Impact BIO-1A: Have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-1 APM BIO-5* APM FIRE-1 CM BIO-16 CM AIR-2* CM HAZ-1 CM FIRE-1	S	MM BIO-1 MM BIO-2 MM BIO-3	LTS
Impact BIO-1B: Have a substantial adverse effect, either directly or through habitat modifications, on any amphibian species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-3 APM BIO-9 APM BIO-11 APM FIRE-1 CM BIO-1 CM BIO-3 CM BIO-9 CM FIRE-1	S	MM BIO-4 MM BIO-5	LTS
Impact BIO-1C: Have a substantial adverse effect, either directly or through habitat modifications, on any reptile species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-1 APM BIO-3 APM BIO-4 APM BIO-9 APM BIO-11 APM FIRE-1 CM BIO-1 CM BIO-3 CM BIO-4 CM BIO-9 CM FIRE-1	S	MM BIO-3 MM BIO-5 MM BIO-6	LTS
Impact BIO-1D: Have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special-status species in local or regional	APM BIO-11 APM BIO-12 APM BIO-14 APM BIO-15	S	MM BIO-3 MM BIO-7 MM BIO-8 MM BIO-9	SU

Impact criteria: Would the project …	APMs/CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM FIRE-1 CM BIO-12* CM FIRE-1		MM BIO-10 MM BIO-11	
Impact BIO-1E: Have a substantial adverse effect, either directly or through habitat modifications, on any invertebrate species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-8 APM FIRE-1 CM BIO-1 CM BIO-8 CM FIRE-1	S	MM BIO-3 MM BIO-4 MM BIO-12 MM BIO-13	LTS
Impact BIO-1F: Have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-11 APM AES-1 APM FIRE-1 CM BIO-11 CM FIRE-1	S	MM BIO-3 MM BIO-5 MM BIO-14 MM BIO-15 MM BIO-16	LTS
Impact BIO-1G: Have a substantial adverse effect, either directly or through habitat modifications, on any marine mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-3 APM BIO-18 APM BIO-19 APM BIO-20 APM BIO-21 APM BIO-22	S	MM BIO-17	LTS
Impact BIO-1H: Have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM BIO-3 APM BIO-18 APM BIO-19 APM BIO-20 APM BIO-21 APM BIO-22 APM BIO-23	S	MM BIO-17 MM BIO-18	LTS
Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California	APM BIO-1 APM BIO-3 APM BIO-4 APM BIO-5*	S	MM BIO-2 MM BIO-3 MM BIO-19	LTS

Impact criteria: Would the project …	APMs/CMs Applied	Significance Before Mitigation	Mitigation Measures Required	Significance After Mitigation
Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	APM FIRE-1 CM BIO-2 CM BIO-3 CM BIO-4 CM BIO-5 CM FIRE-1			
Impact BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	APM FIRE-1 CM FIRE-1	S	MM BIO-3 MM HYD-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 corridors, or impede the use of native wildlife nursery sites?	None	S	MM BIO-5 MM BIO-7 MM BIO-11 MM BIO-12 MM BIO-13 MM BIO-15 MM BIO-18	LTS
Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	CM BIO-11	S	MM BIO-1 MM BIO-2 MM BIO-3 MM BIO-17 MM BIO-18 MM BIO-19 MM HYD-1	LTS
Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	None	S	MM BIO-3	LTS

Notes:

NA = not applicable

LTS = less than significant

S = significant

SU = significant and unavoidable

* APM/CM is superseded by MM

Impact BIO-1A: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Direct Impacts

Construction

LSPGC Collinsville Substation, 230 kV Overhead Segment, and Telecommunication Lines

No special-status plant species are known to occur within the area of the Collinsville Substation site or the proposed 230 kV overhead segment alignment, or telecommunication lines alignment. Focused floristic surveys were conducted during the appropriate blooming season for special-status plants that could occur in the area in 2023 and 2024, and no special-status plants were observed in any of the work areas or permanent disturbance areas for these project components. Floristic surveys for special-status species are valid for a period of five years. Therefore, if construction occurs prior to 2029 as currently anticipated, construction of the Collinsville Substation, 230 kV overhead segment, 230 kV underground segment, and telecommunication lines would have no impact on special-status plants. However, if construction of these project components occurs in 2029 or later, since the floristic surveys would no longer be valid, there is a potential for special-status plants to occur in the area and construction activities could impact individual special-status plants that have the potential to occur in the area, as listed in Table 4.4-3. LSGPC has proposed APM BIO-5, which requires pre-construction surveys for Welsh mudwort, Delta tule pea, Mason's lilaeopsis, Bolander's water hemlock, and Suisun marsh aster. The APM addresses some of the species with potential to occur in the area but does not address all potentially occurring special-status species and does not define mitigation if impacts on the species cannot be avoided. In addition, APM AES-1 requires staging and temporary work areas be returned to pre-project conditions but does not define specific requirements for restoration of special status plant populations. Therefore, if construction occurs in 2029, or later, the impact on special status plants from grading, vegetation removal, or crushing during construction would be significant even after application of the APMs. To reduce this significant impact, if surveys have not been completed within the prior 5-year period, MM BIO-1 requires LSPGC to implement pre-construction surveys in suitable habitat for all special-status plants that could occur in the Proposed Project area and requires transplanting or compensatory mitigation for any unavoidable impacts on special-status plants. MM BIO-2 also requires the implementation of a Revegetation, Restoration, and Monitoring Plan that addresses procedures for restoring special status plant populations in areas of temporary impacts (refer to Section 4.4.14 for the complete text of these MMs). The impact on special-status plants from construction of the LSPGC Collinsville Substation, 230 kV overhead segment, and telecommunications lines would be less than significant with implementation of these mitigation measures.

LSPGC 230 kV Submarine Segment and 230 kV Underground Segment

Special-status plants occurring within the LSPGC 230 kV submarine segment and underground segment, including temporary work areas and permanent structure areas, are documented in Table 4.4-11.

Table 4.4-11 Impacts‡ to Special-Status Plants within the Proposed Project Site

Species	LSPGC 230 kV Transmission Line Submarine Segment	LSPGC 230 kV Transmission Line Underground Segment
Delta tule pea (rank 1B.2)	57 (T)	1 (T)
Mason's lilaeopsis (rank 1B.1)	32 (T)	—
Welsh mudwort (rank 2B.1)	1,209 (T)	—

‡Impacts are reported as counts of individual plants. Impact codes: T = Temporary; P = Permanent

Construction of the submarine and underground segments would include trenching of the cables, installation of the riser structures and work in areas containing Delta tule pea, Mason's lilaeopsis, and Welsh mudwort, which have CRPR ranks of 1B and 2B. Occurrences of these special-status plants within the Proposed Project site are located within work areas; none are located within the footprint of permanent infrastructure. Temporary impacts would include trampling or crushing of special-status plants within a work area or trenching through a community of special status plants during cable installation. APM AES-1 requires staging and temporary work areas to be returned to pre-project conditions, including regrading and revegetation, but does not specify requirements for special status plant revegetation. Therefore, temporary impacts on special-status plants occurring within the submarine and underground segment work areas would be significant. To reduce this impact, MM BIO-1 requires transplanting of special-status plant populations or compensatory mitigation for any unavoidable impacts on special-status plants. MM BIO-2 also requires restoration and revegetation of temporary impact areas within all project components and the implementation of a Revegetation, Restoration, and Monitoring Plan that addresses procedures for restoring special status plant populations in areas of temporary impact (refer to Section 4.4.14 for the complete text of these MMs). The impact on special-status plants from construction of the LSPGC 230 kV submarine segment would be less than significant with implementation of these mitigation measures.

PG&E 500 kV Interconnection Lines and 12 kV Distribution Line

No special-status plant species are known to occur within the proposed PG&E 500 kV interconnection lines and 12 kV distribution line alignments. Focused floristic surveys were conducted during the appropriate blooming season for special-status plants that could occur in the area in 2023 and 2024, and no special-status plants were known to occur in the area. Floristic surveys for special-status species are valid for a period of five years. Therefore, if construction occurs prior to 2029, no impact on special-status plant species from construction of the 500 kV interconnection lines or 12 kV distribution line would occur. However, if construction occurs in 2029 or later, since the floristic surveys would no longer be valid, there is a potential for special-

status plants to occur in the area and the construction could impact individual special-status plants that have the potential to occur in the area, as listed in Table 4.4-3. Therefore, if construction occurs in 2029, or later, the impact on special status plants from grading, vegetation removal, or crushing during construction would be significant. To reduce this impact, if more than 5 years have passed since the most recent survey, MM BIO-1 requires PG&E to implement pre-construction surveys in suitable habitat for all special-status plants that could occur in the Proposed Project area and requires transplanting or compensatory mitigation for any unavoidable impacts on special-status plants. MM BIO-2 specifies requirements for restoration of temporary impacts to address any special status plants affected during construction (refer to Section 4.4.14 for the complete text of these MMs). The impact on special-status plants from construction of the 500 kV interconnection lines and 12 kV distribution line would be less than significant with implementation of these mitigation measures.

PG&E 500 kV Transposition Sites

Special-status plants that may occur within the PG&E 500 kV transposition sites and associated work areas are identified in Table 4.4-3. PG&E has not completed focused floristic surveys for special-status plants in the transposition sites. Any of the special status plants listed as potentially occurring within the transposition sites including any adjacent work areas and access roads could be temporarily or permanently impacted by access and construction activities within the transposition sites, which would be a significant impact. To reduce this impact, MM BIO-1 requires PG&E to implement pre-construction surveys in suitable habitat for all special-status plants that could occur in the Proposed Project area, including the transposition sites, and requires transplanting or compensatory mitigation for any unavoidable impacts on special-status plants. MM BIO-2 specifies requirements for restoration of temporary impacts to address any special status plants affected during construction (refer to Section 4.4.14 for the complete text of these MMs). The impact on special-status plants from construction of the transposition structures would be less than significant with implementation of these mitigation measures.

Operation and Maintenance

LSPGC Project Components

Operation and maintenance activities would primarily be conducted from within the developed substation footprint (permanent disturbance area) and at work areas. Areas that are permanently developed during Proposed Project construction would not support populations of special-status plants and there would be no impact on special-status plants during operation and maintenance. LSPGC has proposed that the access road to the submarine segment riser structure would be a temporary access road during construction only. For routine maintenance and inspections of the riser structures, access would be provided on foot or by drone and would not impact special-status plant populations. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain special-status plants. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations

including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status plants during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status plants, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement activities would require separate authorization. If trenching is required on the shoreline in areas containing special-status plants, the impact on special-status plants would be equivalent to construction and would be significant. MM BIO-1 defines requirements for pre-construction surveys in suitable habitat for special-status plants and requires transplanting or compensatory mitigation for any unavoidable impacts on special-status plants. The impact on special-status plants during cable replacement maintenance activities would be less than significant with mitigation.

PG&E Project Components

PG&E operation and maintenance activities would be conducted within the developed telecommunications yard and permanent access roads. PG&E operation and maintenance activities would generally be conducted by helicopter and in areas that do not contain vegetation and would thus have no potential to remove a special-status plant. Vegetation management would include application of herbicides, as needed. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status plants during PG&E routine operation and maintenance activities would be less than significant.

Indirect Impacts

Construction

LSPGC Project Components

Construction of LSPGC project components could indirectly impact special-status plants through increased erosion and sedimentation, fugitive dust, release of toxic substances (e.g., oil), and introduction and/or spread of invasive, non-native plant species (weeds), resulting in a significant impact. Increased erosion can adversely affect plant growth and success by removing valuable topsoil and exposing roots. Sedimentation can bury small special-status plants or seedlings. Construction activities such as grading and driving of heavy equipment on unpaved roadways can result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can adversely affect plants' photosynthetic capabilities, resulting in a significant impact. LSPGC would also be required to comply with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and a SWPPP, including sediment and erosion control BMPs. LSPGC would also need to prepare and implement a Hazardous Materials Management Plan, Hazardous Material Business Plan, and Spill Control and Countermeasures Plan for storage and handling of hazardous materials.

Potential impacts from increased erosion (and subsequent sedimentation), fugitive dust, and release of toxic substances would, therefore, be less than significant.

Invasive, non-native plants pose a threat to special-status plant populations and the communities in which they live. Invasive, non-native plants can spread when seeds (or, rarely, vegetative propagules) are brought in on the soles of shoes or on the tires and undercarriages of vehicles or equipment. They can also be brought in if soil containing the seeds is imported. Furthermore, ground disturbance from construction activities generally favors the establishment of non-native species because they are more adapted to disturbance than native species. Once established, these non-native species are often able to out-compete the natives and sometimes displace them, especially if there is further disturbance, for example, from fire. The impact to special-status plants resulting from non-native plant species introductions or spread would be significant. To reduce this impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area (refer to Section 4.4.14 for the complete text of this MM). Due to methods to minimize potential introduction of invasive plants and control of invasive plant populations, impacts on special-status plants from introduction of invasive plants would be less than significant with implementation of this mitigation measure.

As discussed in Section 4.20: Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn could lead to direct mortality of special-status plants or alteration of their habitat. Wildfires caused by construction are rare but may occur, and the associated land disturbance would result in a significant impact on special-status plants. Implementation of APM FIRE-1, which requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, would reduce the risk of igniting a wildfire during construction of LSPGC project components. Therefore, impacts to special-status plants from increased wildfire risk would be less than significant.

PG&E Project Components

Indirect impacts on special-status plants caused by construction of the PG&E project components would be the same as those described for the LSPGC components above. PG&E would implement CM AIR-2 to control fugitive dust and CM BIO-16 to reduce the potential for significant erosion and sedimentation. Furthermore, PG&E would implement CM HAZ-1 and would comply with regulatory requirements for preparation and implementation of a SWPPP, HMMP, and HMBP that address the handling of hazardous materials and erosion and sedimentation. PG&E would also implement CM FIRE-1, which requires fire risk management procedures that would reduce the risk of increased wildfires and the associated impacts to special-status plants to less than significant. As with LSPGC project components, introduction of invasive weeds during construction of PG&E project components would be a significant impact. To reduce this impact, MM BIO-3 would be implemented to identify and control invasive, non-native plant species within the Proposed Project area (refer to Section 4.4.14 for

the complete text of this MM). Therefore, indirect impacts on special-status plant populations would be less than significant with implementation of this mitigation measure.

Impact BIO-1B: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any amphibian species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Direct Impacts

Construction

LSPGC Project Components

California red-legged frog and California tiger salamander have a low potential to occur in the LSPGC work areas North of the Delta and no potential to occur within the 230 kV underground segment or telecommunication lines or Pittsburg Substation and staging area, which are located in developed areas. Suitable breeding habitat (freshwater habitats) does not occur within the work areas for LSPGC project components because the wetland features within these areas are too saline (Oates 2024b). The nearest documented occurrence of California tiger salamander is approximately 5 miles from the LSPGC project component area north of the Delta and approximately 4 miles from the LSPGC project component area south of the Delta (CDFW 2025b). The nearest documented occurrence of California red-legged frog is approximately 4 miles from the LSPGC project component area south of the Delta (CDFW 2025b). California tiger salamander is estimated to be able to disperse up to 1.5 miles each breeding season (USFWS 2017) and California red-legged frog is known to travel more than 2 miles during the wet season (USFWS 2002). These species can travel across upland habitats and can occupy burrows for aestivation. A habitat assessment in 2024 showed that there was a lack of suitable upland habitat within the area of the LSPGC project components, primarily due to current farming practices and a lack of fossorial mammal activity. When the land is left fallow or grazed, small mammals may recolonize the area, allowing their burrows to serve as temporary refuges for salamanders and improving habitat accessibility for movement and dispersal. However, ground squirrel activity, which is critical for creating these burrows, was limited throughout the site assessment area, reducing the availability of suitable refugia for the California tiger salamander and California red-legged frog (Oates 2024b). While the work area currently lacks burrows, if burrows were to form in the area prior to construction and a California tiger salamander or California red-legged frog were to occupy the burrow, grading and vegetation removal could harm or kill a California red-legged frog or California tiger salamander. APM BIO-3 requires all workers to be trained in the identification of special-status amphibian species and the actions to take if any are encountered. APM BIO-11 requires preconstruction wildlife surveys. APM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be covered or wildlife escape ramps installed to prevent entrapment of wildlife. While the APMs would reduce the potential for encounters and harm to special-status amphibians, the APMs do not define specific requirements for the pre-construction surveys or requirements in the event of discovery of a California tiger salamander or California red-legged frog sufficient to avoid "take" of either species. Therefore, the impact on special-status

amphibians from construction would remain significant. To reduce the impact, MM BIO-4 defines specific requirements for pre-construction surveys and avoidance of any special status amphibians without obtaining an incidental take permit (refer to Section 4.4.14 for the complete text of this MM). With implementation of MM BIO-4, the impact on special-status amphibians from construction of LSPGC Collinsville Substation, 230 kV overhead segment, and 230 kV submarine segment would be less than significant.

PG&E 500 kV Interconnection Lines and 12 kV Distribution Line

The PG&E 500 kV interconnection lines and 12 kV distribution line have a similar potential to encounter California tiger salamander and California red-legged frog as the LSPGC project components north of the Delta. CM BIO-3 requires all workers to be trained in the identification of special-status amphibian species and the actions to take if any are encountered. CM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be fitted with wildlife escape ramps to prevent entrapment of wildlife; workers would search open trenches or holes every morning prior to construction activities to ensure wildlife are not trapped; if any are found, a biologist would be notified and appropriate relocation methods would be used to relocate the species. While the CMs would reduce the potential for encounters and harm to special-status amphibians, the CMs do not define specific requirements for the pre-construction surveys or requirements in the event of discovery of a California tiger salamander or California red-legged frog sufficient to avoid "take" of either species. Therefore, impacts on special-status amphibian species from construction would remain significant. To reduce the impact, MM BIO-4 defines specific requirements for amphibian pre-construction surveys and avoidance of any special status amphibian without obtaining an incidental take permit (refer to Section 4.4.14 for the complete text of these MMs). With implementation of these mitigation measures, the impact on special-status amphibians from construction of the PG&E 500 kV interconnection lines and 12 kV distribution line would be less than significant.

PG&E Transposition Sites

Potentially suitable breeding habitat for California tiger salamander and western spadefoot occurs within the work areas for Transposition Site A. Suitable breeding habitat for California red-legged frog occurs within 0.25 mile of the transposition sites. Suitable upland dispersal habitat for special-status amphibians including burrows is present within the transposition site areas. Access to the transposition structures and construction of the PG&E transposition structures has the potential to harm or kill special-status amphibians due to ground disturbance in areas that could contain special-status amphibians.

PG&E has proposed CM BIO-1, which requires avoidance of vernal pools and waters specifically; however, the avoidance buffer of 250 feet proposed in the measure is not feasible for the project as pools occur within and adjacent access roads and work areas. CM BIO-3 requires all workers to be trained in the identification of special-status amphibian species and the actions to take if any are encountered. CM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be fitted with wildlife escape ramps to prevent entrapment of wildlife; workers would search open trenches or holes every morning prior to construction activities to ensure wildlife are not trapped; if any are found, a biologist would be notified and

appropriate relocation methods would be used to relocate the species. While these CMs would reduce impacts on special-status amphibians, they would not avoid the potential for the project to capture, harm, or kill a special-status amphibian, which would be a significant impact. To reduce the impact, MM BIO-4 defines procedures for pre-construction surveys for special-status amphibians and project design modifications to avoid special-status amphibian habitat to the extent feasible. (refer to Section 4.4.14 for the complete text of the MM). With the implementation of the mitigation measure, the impact on special-status amphibians from construction of the PG&E transposition structures would be less than significant.

Operation and Maintenance

LSPGC Project Components

Routine operation and maintenance activities would primarily be conducted within previously disturbed areas. After development, the substation site and pole work areas would not provide suitable upland habitat for special-status amphibians. The terrestrial area of the 230 kV overhead segment and submarine cables within which LSPGC's temporary access road to the submarine segment transmission structure contain grasslands that could provide suitable habitat for special-status amphibian aestivation. For routine maintenance and inspections of the riser structures, access would be provided on foot or by drone and would not impact special-status amphibians. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain special-status amphibian habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status amphibians during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status amphibians, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement activities would require separate authorization. If the trenching is required on the shoreline in areas containing special-status amphibian habitat, the impact on special-status amphibians would be equivalent to construction and would be significant. MM BIO-5 defines requirements for pre-construction surveys in suitable habitat for special-status amphibians and requires biological monitoring for work in areas containing special-status amphibians. The impact on special-status amphibians during cable replacement maintenance activities would be less than significant with mitigation.

PG&E Project Components

PG&E operation and maintenance activities would be conducted within the developed telecommunications yard and permanent access roads. PG&E operation and maintenance activities would generally be conducted by helicopter and in areas that do not contain vegetation and would thus have no potential to impact special-status amphibian habitat.

Vegetation management would include application of herbicides, as needed. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status amphibian habitat during PG&E routine operation and maintenance activities would be less than significant.

Operation and maintenance activities for the PG&E project components would be integrated into PG&E's existing operation and maintenance program for the existing transmission lines in the area. California tiger salamander and California red-legged frog are covered by PG&E's Bay Area HCP (ICF 2017). Although western spadefoot is not covered by the Bay Area HCP, the HCP includes implementation of numerous AMMs that would reduce impacts on special-status amphibians, including AMM FP-10, which requires workers to minimize the activity footprint and amount of time spent at work stations to reduce the potential for take of species, and AMM Hot Zone-6, which limits activities to foot access only when working off of established roadways unless a biological monitor delineates off-road access routes that avoid sensitive biological resources; both measures would reduce the potential for wildlife mortality from vehicle strikes as well as impacts to amphibian habitat (ICF 2017). Since all special-status amphibians that could occur within the PG&E operation and maintenance area would be protected by measures within PG&E's Bay Area HCP, and the HCP addresses operation and maintenance impacts on special-status amphibians that could occur in the PG&E project component area, the impact on special-status amphibians from operation and maintenance of the PG&E project components would be less than significant.

Indirect Impacts

Indirect impacts on special-status amphibians could occur if the Proposed Project were to cause changes in deposition patterns within breeding pools or result in discharge of hazardous materials to a breeding pool.

Construction, Operation, and Maintenance

LSPGC Project Components

No suitable breeding habitat for special-status amphibians occurs in proximity to LSPGC project components but could occur outside of the area surveyed for biological resources. Therefore, construction, operation, and maintenance of LSPGC project components could indirectly affect erosion or sedimentation or the quality of breeding habitat. The project would be constructed in compliance with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and HMMP. Due to implementation of sediment and erosion control BMPs and hazardous materials management in compliance with State and federal requirements, the indirect impact from the LSPGC project components on special-status amphibians would be less than significant.

As discussed in Section 4.20, Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn could lead to

direct mortality of special-status amphibians or alteration of their habitat. Wildfires caused by construction are rare but may occur and the associated land disturbance would result in a significant impact on special-status amphibians. Implementation of APM FIRE-1, which requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, would reduce the risk of igniting a wildfire during construction. Therefore, impacts to special-status amphibians from increased wildfire risk would be less than significant.

PG&E 500 kV Interconnection Lines and 12 kV Distribution Line

No suitable breeding habitat for special-status amphibians occurs in proximity to the 500 kV interconnection lines or 12 kV distribution line but could occur outside of the area surveyed for biological resources. Therefore, construction, operation, and maintenance of the 500 kV interconnection lines or 12 kV distribution line could indirectly affect erosion or sedimentation or the quality of breeding habitat. The Proposed Project would be constructed in compliance with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and HMMP. In addition, no refueling would occur within 250 feet of a vernal pool in compliance with CM BIO-1. CM FIRE-1 includes fire prevention and fire suppression requirements to reduce the risk of increased wildfire in the Proposed Project site. Due to implementation of sediment and erosion control BMPs, hazardous materials management, and fire suppression requirements in compliance with state and federal requirements, the indirect impact from the PG&E 500 kV interconnection lines and 12 kV distribution line on special-status amphibians would be less than significant.

PG&E Transposition Sites

Construction of the transposition structures could indirectly impact the quality of suitable breeding pools in proximity to the transposition sites if the construction caused sedimentation or release of hazardous materials into a breeding pool. The project would be constructed in compliance with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and HMMP. In addition, no refueling would occur within 250 feet of a vernal pool in compliance with CM BIO-1. CM FIRE-1 includes fire prevention and suppression requirements to reduce the risk of increased wildfire in the Proposed Project site. Due to implementation of sediment and erosion control BMPs, hazardous materials management, and fire suppression requirements in compliance with State and federal requirements, the indirect impact from the transposition sites on special-status amphibians would be less than significant.

Impact BIO-1C: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any reptile species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Direct Impacts

Construction

LSPGC Project Components

The LSPGC 230 kV underground segment, telecommunication lines, and staging area at the Pittsburg Substation are located in developed areas that do not contain habitat for any special-status reptiles. Construction in these areas would have no impact on special-status reptiles.

Northern California legless lizards require sandy to loamy soils (for burrowing) and are usually found in places with leaf litter at the base of shrubs. Northern California legless lizard has a low potential to occur within the LSPGC Collinsville Substation and 230 kV overhead and submarine segment work areas because of a lack of shrubs and leaf litter. Northwestern pond turtle could occupy wetlands and adjacent upland habitats in proximity to the 230 kV overhead and submarine segments.

Construction would result in direct impacts to special-status reptile species if the species were injured or killed during construction activities, including vegetation removal, grading, and excavation in areas that could be entered by a Northern California legless lizard or northwestern pond turtle during basking. LSGPC has proposed APM BIO-1 and APM BIO-4, which require delineation and avoidance of environmentally sensitive resources, including aquatic resources, during construction with a minimum 5-foot avoidance buffer. APM BIO-3 requires all workers to be trained in the identification of special-status species and the actions to take if any are encountered. APM BIO-11 requires preconstruction surveys for northwestern pond turtle and flagging of an active nest for avoidance. APM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be covered or wildlife escape ramps installed to prevent entrapment of wildlife. While these measures would reduce impacts on special-status reptiles, they do not define specific procedures if a special-status reptile nest occurred within or adjacent a Proposed Project work area, and impacts to special-status reptiles remain significant. To reduce the impact, MM BIO-5 defines specific requirements for pre-construction surveys and biological monitoring, which would avoid impacts on California legless lizard and northwestern pond turtle(refer to Section 4.4.14 for the complete text of the MMs). Therefore, the impacts on special-status reptiles would be less than significant with implementation of these mitigation measures.

PG&E 12 kV Distribution Line and 500 kV Interconnection Lines

Northern California legless lizard and northwestern pond turtle have the potential to occur in work areas for the proposed 12 kV distribution line, and Northern California legless lizard has the potential to occur within the proposed 500 kV interconnection lines alignment. There is no wetland habitat in or adjacent the proposed 500 kV interconnection lines alignment, so there is

no potential for northwestern pond turtle to occur in this area. The impacts would be the same as those described for the LSPGC project components above. PG&E has proposed CM BIO-4, which requires delineation and avoidance of sensitive habitat features during construction. CM BIO-1 requires avoidance of vernal pools and waters specifically; vehicles and equipment would be prohibited from refueling within 250 feet of vernal pools and 100 feet of other wetlands, streams, or waterways; additionally, a buffer would be maintained 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or riparian areas. Therefore, no aquatic habitat that may be used by northwestern pond turtle would be impacted during construction. CM BIO-3 requires all workers to be trained in the identification of special-status reptile species and the actions to take if any are encountered. CM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be fitted with wildlife escape ramps to prevent entrapment of wildlife; workers would search open trenches or holes every morning prior to construction activities to ensure wildlife are not trapped; if any are found, a biologist would be notified and appropriate relocation methods would be used to relocate the species. While the CMs would reduce the potential for impacts on special-status reptiles, the impact would remain significant as the CMs do not define specific procedures for surveys and construction monitoring. To reduce the impact, MM BIO-5 requires pre-construction surveys for wildlife species and that appropriate avoidance measures are taken, including biological monitoring and/or establishment of avoidance buffers, when special-status species are present (refer to Section 4.4.14 for the complete text of this MM). Therefore, the impact on special-status reptiles from construction of the PG&E 12 kV distribution line would be less than significant with implementation of the mitigation measure.

PG&E 500 kV Transposition Sites

Northern California legless lizard, northwestern pond turtle, and Alameda whipsnake, and coast horned lizard have potential to occur in the work areas for transposition site D. Transposition sites A, B, and C either do not have suitable habitat for these species or are not located within the geographic ranges of these species. Construction activities have the potential to impact these species if one were to occur in the work area. PG&E has proposed CM BIO-4, which requires delineation and avoidance of sensitive habitat features during construction. CM BIO-1 requires avoidance of vernal pools and waters specifically; vehicles and equipment would be prohibited from refueling within 250 feet of vernal pools and 100 feet of other wetlands, streams, or waterways; additionally, a buffer would be maintained 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or riparian areas. Therefore, no aquatic habitat that may be used by northwestern pond turtle would be impacted during construction. CM BIO-3 requires all workers to be trained in the identification of special-status reptile species and the actions to take if any are encountered. CM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be fitted with wildlife escape ramps to prevent entrapment of wildlife. While the CMs would reduce the potential for impacts on special-status reptiles, the impact would remain significant as the CMs do not define specific procedures for surveys and construction monitoring and do not require avoidance of Alameda whipsnake. To reduce the impact, MM BIO-5 requires pre-construction surveys for wildlife species and that appropriate avoidance measures are taken, including biological monitoring

and/or establishment of avoidance buffers, when special-status species are present. Additionally, MM BIO-6 requires avoidance of Alameda whipsnake if one were to occur in the work area (refer to Section 4.4.14 for the complete text of these MMs). Therefore, the impact on special-status reptiles would be less than significant with implementation of these mitigation measures.

Operation and Maintenance

LSPGC Project Components

The majority of operation and maintenance activities would be conducted within the developed substation and developed areas at the 230 kV transmission poles, which would not provide habitat for special-status reptiles. Operation and maintenance activities in developed areas would have no impact on special-status reptiles. Suitable upland habitat for northwestern pond turtle and marginally suitable habitat for Northern California legless lizard exists within the impact area for the temporary access road to the submarine segment riser structures. Suitable wetland habitat for northwestern pond turtle is located directly adjacent this impact area. For routine maintenance and inspections of the riser structures, access would be provided on foot or by drone and would not impact northwestern pond turtle or Northern California legless lizard. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain special-status reptile habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status reptiles during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status reptiles, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement would require separate authorization. If the trenching is required in areas containing special-status reptile habitat, the impact on special-status reptiles would be equivalent to construction and would be significant. MM BIO-5 defines requirements for pre-construction surveys in suitable habitat for special-status reptiles and requires biological monitoring for work in areas containing special-status reptiles. The impact on special-status reptiles during cable replacement maintenance activities would be less than significant with mitigation.

PG&E Project Components

PG&E operation and maintenance activities would be conducted within the developed telecommunications yard and permanent access roads. PG&E operation and maintenance activities would generally be conducted by helicopter and in areas that do not contain vegetation and would thus have no potential to impact special-status reptile habitat. Vegetation management would include application of herbicides, as needed. Use of herbicides to control

invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status reptile habitat during PG&E routine operation and maintenance activities would be less than significant.

Impacts on Northern California legless lizard, northwestern pond turtle, Alameda whipsnake, and coast horned lizard during operation and maintenance of the PG&E project components would be similar to the impacts from operation and maintenance of the LSPGC project components within the developed substation and developed areas at the 230 kV transmission poles, which would not provide habitat for special-status reptiles. Operation and maintenance activities in developed areas would have no impact on special-status reptiles. Additionally, Alameda whipsnake is covered by PG&E's Bay Area HCP (ICF 2017), which ensures any impact on Alameda whipsnake from operation and maintenance of the PG&E project components would be less than significant.

Indirect Impacts

Construction

LSPGC Project Components

Construction disturbance would indirectly impact special-status reptiles through fugitive dust and invasive, non-native plant species introduction and/or spread, resulting in a significant impact. Construction activities such as grading and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation adversely affecting plants (see Impact Bio-1A) thereby adversely affecting special-status reptiles dependent on the plants (or the prey they consume that are dependent on the plants). The project would be constructed in compliance with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and HMMP. Due to implementation of sediment and erosion control BMPs and hazardous materials management in compliance with State and federal requirements, the indirect impact from the LSPGC project components on special-status reptiles would be less than significant.

Special-status reptiles would also be adversely affected through habitat degradation from invasive, non-native plant species, which can out-compete the native species and, for example, change the species composition or habitat structure that a reptile species prefers or is dependent upon. This impact would be significant. To reduce the impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area (refer to Section 4.4.14 for the complete text of this MM). Therefore, indirect impacts on special-status reptiles would be less than significant with implementation of this mitigation measure.

As discussed in Section 4.20, Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn could lead to direct mortality of special-status reptiles or alteration of their habitat. Wildfires caused by

construction are rare but may occur and the associated land disturbance would result in a significant impact on special-status reptiles. Implementation of APM FIRE-1, which requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, would reduce the risk of igniting a wildfire during construction. Therefore, impacts to special-status reptiles from increased wildfire risk would be less than significant.

PG&E Project Components

Indirect impacts on special-status reptiles caused by operation and maintenance of the PG&E project components would be the same as those described for the LSPGC project components above. CM FIRE-1 includes fire prevention and fire suppression requirements to reduce the risk of increased wildfire in the Proposed Project site that would impact special-status reptiles and their habitat. The impacts on special-status amphibians from the potential introduction or spread of invasive species would be significant. To reduce the impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area (refer to Section 4.4.14 for the complete text of this MM). Therefore, the impact on special-status reptiles would be less than significant with implementation of this mitigation measure.

Impact BIO-1D: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Significant and unavoidable*)

Direct Impacts

Construction

LSPGC Project Components

Thirty-five special-status birds were determined to have potential to occur within proximity to the LSPGC project component sites (Table 4.4-4). Most of the special-status bird species with potential to occur in the LSPGC project component area are protected under the MBTA or BGEPA, and many also have additional state and/or federal protection status (see Table 4.4-4). This impact analysis generally addresses special-status avian species as a whole since the impacts from construction noise or vegetation removal would be similar across most species. However, California black rail, Ridgway's rail, burrowing owl, golden eagle, Swainson's hawk, and western snowy plover are discussed in greater detail below due to impacts specific to these species.

Special-status birds can be found in a wide variety of natural and developed environments, and their habitat and nesting characteristics vary greatly by species. Special-status birds and their nests could be found at any location in the Proposed Project area; however, the potential for nesting activity is greater in grasslands, shrublands, riparian areas, and coastal areas. The Proposed Project would involve vegetation removal and ground-disturbing activities in work areas and access routes located in these habitats where there is a high potential for encountering nesting birds during the nesting season (generally, February 1–September 30). Vegetation

removal or vegetation trimming could destroy nests of special-status birds that nest in shrubs or grasslands. Grading and other earth disturbing activities could destroy nests of special-status birds that nest on the ground. Destruction of an active special-status bird nest is considered a significant impact. Construction activities would also produce noise and vibration from the use of heavy construction equipment (e.g., trucks, drill rigs, excavators) and helicopters. Construction noise and vibration could disturb nesting behavior, depending on the type of construction activity, site-specific conditions, and species sensitivity to noise and vibration. Noise and vibration from construction equipment and helicopters could disturb nesting birds and result in the failure or abandonment of an active special-status or migratory bird nest. Causing nest failure or abandonment could result in the mortality of egg embryos.

LSPGC proposes implementation of APM BIO-11, which requires pre-construction wildlife surveys prior to vegetation clearance and ground-disturbing activities, and APM BIO-12, which requires avoidance of construction and vegetation trimming/removal during the migratory bird nesting or breeding season (February 15 to August 31) to the extent feasible. While the APMs would reduce the impact on special-status birds, the project could still cause nest abandonment, which would be a significant impact as avoidance of the nesting season may not be feasible and specific buffer distances to avoid nest abandonment are not specified in the APMs. To reduce this impact, MM BIO-7 would supersede APM BIO-12. MM BIO-7 requires pre-construction surveys for nesting birds during the nesting season, buffers that shall be established around any active nest that is found with 300 feet being the general standard and 500 feet being the standard for raptors, and requirements for nest monitoring and reporting to ensure that the measure is appropriately implemented and construction disturbances do not cause nest failure or abandonment (refer to Section 4.4.14 for the complete text of this MM). Because MM BIO-7 specifies protocols to avoid disturbance of an active nest, impacts on general special-status birds would be less than significant with mitigation.

Construction of the Proposed Project would require ground disturbance and vegetation removal, which would result in direct permanent and temporary loss of suitable foraging and nesting habitat for special-status birds. Temporary and permanent impacts on suitable foraging and nesting habitat would not substantially impact special-status birds because the impacts would be limited and dispersed along the Proposed Project alignment. The largest concentrated area of habitat removal would be at the Collinsville Substation where approximately 12 acres of agricultural areas would be converted to a substation. Unaffected suitable foraging and nesting habitat surrounds the Proposed Project area, and birds would be able to use the suitable surrounding habitat. Therefore, the impact on special-status birds from habitat loss associated with LSPGC project components would be less than significant.

California black rail and California Ridgway's rail: California black rail and Ridgway's rail have the potential to nest in and adjacent to the riser structure for the submarine segment and within the onshore portion of the submarine segment north of the Delta. If there were an active nest within the construction area or in proximity to the construction area at the time of construction, the construction could remove the nest or noise could disturb the nest and result in nest abandonment. APM BIO-15 requires activities within wetland habitat suitable for

California black rail and California's Ridgway's rail occur outside of the nesting season to the extent feasible, but does not specify what would happen if it is infeasible to avoid the nesting season and does not include restrictions on construction activities in proximity to an active nest, which could cause nest abandonment and the impact on California black rail and California Ridgway's rail would be significant. To reduce the impact, MM BIO-7 defines procedures for pre-construction nesting bird surveys during the nesting season, nest monitoring, and a 1,000-foot no-disturbance buffer for California black rail and California Ridgway's rail to avoid nest abandonment (refer to Section 4.4.14 for the complete text of this MM). The impact on California black rail and California Ridgway's rail would be less than significant with implementation of this mitigation measure.

Burrowing owl: The habitat within the LSPGC project component area has low suitability for burrowing owl due to the absence of suitable burrows; however, it is possible that burrows could establish prior to construction and burrowing owl could occupy habitat within or near the Proposed Project area (Oates 2024a). Proposed Project ground-disturbing activities such as grading and vegetation removal could result in the destruction of burrowing owl burrows, disruption of breeding behavior, and injury to or mortality of owls, including the loss of eggs or chicks. APM BIO-14 requires protocol-level surveys for burrowing owl, pre-construction surveys for burrowing owl, and exclusion zones where feasible. APM BIO-14 does not specify approaches to follow if implementation of the exclusion zone is not feasible; therefore, construction of the Proposed Project could result in disturbance of a burrowing owl nest or "take," which would be a significant impact. MM BIO-8 supersedes APM BIO-14 and includes additional details on burrowing owl nest monitoring and exclusion requirements and specifies procedures to be followed in the event of nest relocation including construction of replacement burrows. No burrowing owl may be relocated outside of a work area without first obtaining a CDFW incidental take permit in compliance with Fish and Game Code Section 2081. MM BIO-8 would avoid potential for mortality or injury of a burrowing owl or eggs (refer to Section 4.4.14 for the complete text of this MM). Therefore, the impact on burrowing owls from ground-disturbing activities would be less than significant with implementation of this mitigation measure.

Golden eagle: Golden eagles could potentially nest within existing transmission structures north of the Collinsville Substation. There are no transmission structures or other suitable nesting habitat within 1 mile of the LSPGC project components. Due to the absence of suitable habitat in proximity to LSPGC project components, the impacts on golden eagle from LSPGC project component construction would be less than significant.

Swainson's hawk: During field surveys, Swainson's hawks were observed north of the Delta flying overhead, foraging, and nesting. Suitable nesting habitat (bushes and trees) is present in proximity to the LSPGC project component sites as well as suitable foraging/migration habitat (i.e., grasslands, prairies, and farmlands) within the project component work areas. Swainson's hawks are particularly sensitive to changes in disturbance levels (e.g., new activity in a formerly undisturbed location) and are prone to abandonment of nest sites. Construction activities could impact nesting behavior of Swainson's hawk for up to 0.5 mile and could cause nest

abandonment, which would be a significant impact absent mitigation. MM BIO-9 requires that Swainson's hawk nest surveys be performed by a qualified biologist prior to construction and prohibits any new disturbances, habitat conversions, or other Project-related activities that may cause nest abandonment or forced fledging within 0.5 mile of an active nest between March 1 and September 15, which is the Swainson's hawk breeding season in the Project area (refer to Section 4.4.14 for the complete text of this MM). Because MM BIO-9 specifies requirements for pre-construction surveys and avoidance of Swainson's hawk nests, impacts to Swainson's hawks from construction activities and associated disturbances would be less than significant with mitigation.

Construction would also result in direct permanent and temporary loss of suitable foraging habitat for Swainson's hawks. Temporary impacts on foraging habitat would not substantially impact this species because the impacts would be limited and dispersed along the Proposed Project alignment and the unaffected foraging habitat surrounding the Proposed Project site would remain available to Swainson's hawks. No trees are proposed for removal during construction of the Proposed Project and so there would be no significant impacts on nesting habitat.

Western snowy plover: Suitable nesting habitat for western snowy plover is not present within the biological study area, but low-quality foraging habitat is available along the Delta shorelines. The riser structures for the submarine segment and onshore work area for the submarine segment north of the Delta are located in and near foraging habitat for western snowy plover. Construction of the submarine segment riser structures would require ground disturbance and vegetation removal, which would result in direct permanent and temporary loss of foraging habitat. Temporary and permanent impacts on suitable habitat would not substantially impact western snowy plover because of the low quality of the habitat in the Proposed Project area and because the impacts would be limited in area, leaving unaffected foraging habitat surrounding the impact areas that birds would be able to use. Therefore, the impact on western snowy plover from habitat loss associated with LSPGC project components would be less than significant.

PG&E 500 kV Interconnection Lines and 12 kV Distribution Line

Direct impacts on special-status birds caused by construction of the PG&E 500 kV interconnection lines and 12 kV distribution lines would be the same as those described for the LSPGC components above with the exception of California black rail, California Ridgway's rail, western snowy plover, and golden eagle. California black rail, California Ridgway's rail, and western snowy plover do not have any suitable habitat within or near the proposed 500 kV interconnection lines or 12 kV distribution lines and PG&E would thus have no impact on California black rail, California Ridgway's rail, and western snowy plover. Golden eagles have the potential to nest within existing transmission structures located within 1 mile of the PG&E 500 kV interconnection lines. PG&E proposes to implement CM BIO-12 for nesting birds, which states that PG&E may follow guidance for nest exclusion zones and is not prescriptive in defining how PG&E would ensure nest abandonment is avoided. Construction of PG&E project components could thus cause nest abandonment or removal, which would be a significant

impact. To reduce the impact, MM BIO-7 requires pre-construction surveys for nesting birds and specifies requirements for exclusion zones, buffer reductions, monitoring and reporting. Additionally, MM BIO-8 defines additional specific requirements for burrowing owl avoidance or passive relocation in the event of an incidental take permit, and MM BIO-9 defines requirements for Swainson's hawk nest avoidance (refer to Section 4.4.14 for the complete text of these MMs). With implementation of MM BIO-7, MM BIO-8, and MM BIO-9, impacts on special-status birds other than golden eagle from construction of PG&E's 500 kV interconnection lines and 12 kV distribution line would be less than significant.

Golden eagles: Golden eagles are particularly sensitive to noise and other anthropogenic disturbances and are prone to abandonment of nest sites, especially in newly established territories. Typical construction activities (e.g., most ground-based equipment) could impact nesting behavior of golden eagles for up to approximately 0.5 mile. High-disturbance construction activities such as helicopter operations could impact nesting behavior of golden eagle for up to 1 mile from the location of the activity. Disturbance of a golden eagle nest by helicopter activities would be a significant impact. To reduce the impact, MM BIO-10 requires golden eagle nest surveys when construction activities are scheduled to occur in or near golden eagle nesting habitat from January 1 to August 31 to determine if any eagle nests are active within a 1-mile radius and establishment of an appropriate no disturbance buffer around any active nest (refer to Section 4.4.14 for the complete text of this MM). Because MM BIO-10 includes procedures to avoid disturbance of a golden eagle nest, including avoidance buffers, the impact on golden eagles from PG&E 500 kV interconnection lines and distribution line construction activities would be less than significant.

PG&E 500 kV Transposition Sites

Twelve special-status birds were present during surveys or have potential to occur within the work areas and adjacent the transposition sites. These species include burrowing owl, California condor, Golden eagle, grasshopper sparrow, mountain plover, northern harrier, prairie falcon, short-eared owl, song sparrow, Suisun song sparrow, Swainson's hawk, and tricolored blackbird. California condor was only listed as potentially occurring while foraging within Transposition Site D because there is suitable grassland habitat for foraging and the site overlaps the known range of California condor; however, there is no suitable habitat for nesting and no recent CNDDB records of occurrence within 5 miles of the site. Additionally, the site is not located within or near critical habitat for California condor. Work at the transposition sites would install new structures near adjacent structures and the impact on suitable foraging habitat would be negligible. Therefore, impacts on California condor would be less than significant.

The impacts on special-status birds for the 500 kV transposition sites would be the same as for the PG&E 500 kV interconnection lines and 12 kV distribution line that are described above. PG&E proposes to implement CM BIO-12 for nesting birds, which states that PG&E may follow guidance for nest exclusion zones and is not prescriptive in defining how PG&E would ensure nest abandonment is avoided. Construction of PG&E project components could thus cause nest abandonment or removal, which would be a significant impact. To reduce the impact, MM BIO-

7 requires pre-construction surveys for nesting birds and specifies requirements for exclusion zones, buffer reductions, monitoring and reporting. Additionally, MM BIO-8 defines additional specific requirements for burrowing owl avoidance or passive relocation in the event of an incidental take permit, and MM BIO-9 defines requirements for Swainson's hawk nest avoidance. With implementation of MM BIO-7, MM BIO-8, and MM BIO-9, impacts on special-status birds other than golden eagle from construction at the PG&E 500 kV transposition sites would be less than significant. MM BIO-10 requires golden eagle nest surveys when construction activities are scheduled to occur in or near golden eagle nesting habitat from January 1 to August 31 to determine if any eagle nests are active within a 1-mile radius and establishment of an appropriate no disturbance buffer around any active nest. Refer to Section 4.4.14 for the complete text of these MMs. Because MM BIO-10 includes procedures to avoid disturbance of a golden eagle nest, including avoidance buffers, the impact on golden eagles from PG&E 500 kV transposition site construction activities would be less than significant

Operation and Maintenance

LSPGC Project Components

The majority of operation and maintenance activities would be conducted within the developed substation and developed areas at the 230 kV transmission poles, which would not provide habitat for special-status birds. Operation and maintenance activities in developed areas would have no impact on special-status birds. Special-status birds could be impacted during operation and maintenance from vehicle travel and vegetation removal or trimming during inspection and maintenance activities. Special-status birds could also be affected by herbicide use in the event of herbicide drift.

For routine maintenance and inspections of the riser structures, access would be provided on foot or by drone and would not impact special-status bird populations. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain special-status bird habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status birds during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status birds, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement would require separate authorization. If the trenching is required in areas containing special-status bird habitat, the impact on special-status birds would be equivalent to construction and would be significant. MM BIO-7 requires pre-activity surveys to identify the presence of nesting birds if vegetation maintenance or ground disturbance is to occur within the migratory bird breeding/nesting season (February 1 through September 30).

The impact on special-status birds during cable replacement maintenance activities would be less than significant with mitigation.

Additionally, the new substation, transmission, and distribution structures and poles, as well as the electric lines installed on those structures and poles, may result in a risk of collisions for birds, interfering with the movement of individuals or flocks. This would be a significant impact. To avoid impacts on special-status birds from new electric lines, MM BIO-11 would require all LSPGC transmission lines to be designed to follow the intent of the current Avian Power Line Interaction Committee (APLIC) guidelines thus reducing potential impacts on special-status birds from operation and maintenance of the LSPGC project components to less than significant.

PG&E Project Components

PG&E operation and maintenance activities would be conducted within the developed telecommunications yard and permanent access roads. PG&E operation and maintenance activities would generally be conducted by helicopter and in areas that do not contain vegetation and would thus have no potential to impact special-status bird habitat. Vegetation management would include application of herbicides, as needed. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status bird habitat during PG&E routine operation and maintenance activities would be less than significant.

Special-status birds could be impacted during operation and maintenance of the PG&E project components from vehicle travel and vegetation removal or trimming during operation and maintenance activities. Operation and maintenance activities for the PG&E project components would be integrated into PG&E's existing operation and maintenance program for the existing transmission lines in the area. Ridgway's rail is covered by PG&E's Bay Area Operations and Maintenance HCP (ICF 2017), which ensures impact on Ridgway's rail would be less than significant due to implementation of HCP measures for protection and habitat compensation for Ridgway's rail.

Impacts on other special-status bird species would be reduced by PG&E's adherence to measures within their Bay Area HCP. The Bay Area HCP requires workers to limit speed limits to a maximum of 15 miles per hour, which will reduce potential for vehicle strikes. Bay Area HCP measure AMM FP-10 requires workers to minimize the activity footprint and amount of time spent at work stations to reduce the potential for take of species and AMM Hot Zone-6 limits activities to foot access only when working off of established roadways unless a biological monitor delineates off-road access routes that avoid sensitive biological resources; both measures would reduce the potential for wildlife mortality from vehicle strikes as well as impacts to amphibian habitat (ICF 2017). Due to adherence to the measures in the HCP, the impact during operation and maintenance would be less than significant.

Additionally, the new distribution structures and poles, as well as the electric lines installed on those structures and poles, may result in a risk of collisions for birds, interfering with the movement of individuals or flocks. This would be a significant impact. To avoid impacts on special-status birds from new electric lines, MM BIO-11 would require all PG&E transmission lines to be designed to follow the current APLIC guidelines. With the implementation of the APLIC guidelines, the direct impact on special-status birds from operation and maintenance of the PG&E project components would be less than significant.

Indirect Impacts

Construction

LSPGC Project Components

Construction disturbance would indirectly impact special-status birds through generation of fugitive dust, introduction or spread of invasive, non-native plant species, and sedimentation or erosion. Construction activities such as grading and driving of heavy equipment on unpaved roadways in dry conditions would result in increased levels of blowing dust that may settle on surrounding vegetation adversely affecting plants (see Impact Bio-1A), thereby adversely affecting special-status birds dependent on the plants (or the prey they consume that are dependent on the plants) and erosion or sedimentation could similarly impact habitat for special-status birds. LSPGC is required to obtain coverage under the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and prepare and implement a project-specific SWPPP including fugitive dust, erosion and sediment control, and hazardous material management measures. The indirect impact on special-status bird habitat from dust, erosion and sedimentation, and hazardous materials would be less than significant.

Project introduction and proliferation of non-native invasive plant species that can out-compete native species and, for example, change the vegetation species composition and habitat structure that a bird species prefers or is dependent upon would be a significant impact. To reduce the impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area refer to Section 4.4.14 for the complete text of this MM). Therefore, indirect impacts on special-status birds would be less than significant with implementation of the mitigation measure.

As discussed in Section 4.20, Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn could lead to direct mortality of special-status birds or alteration of their habitat. Wildfires caused by construction are rare but may occur and the associated land disturbance would result in a significant impact on special-status birds. Implementation of APM FIRE-1 requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, which would reduce the risk of igniting a wildfire during construction. Therefore, impacts to special-status birds from increased wildfire risk would be less than significant.

PG&E Project Components

PG&E's proposed 500 kV lattice steel towers (LSTs) would be located within the SMUD Solano wind farm. LSTs have cross bars and framing that raptors and birds have been observed using for perching and nesting (Steenhof et al. 1993). Introduction of structures, like LSTs, that support raptor and avian perching and nesting in proximity to the existing wind turbines could result in increased avian collisions with the surrounding wind turbines, including potential special-status avian species mortality. The wind farm itself is already a significant source of avian mortality. Annual avian monitoring reports from the wind farm from the 5-year period between 2020 and 2024 reported a total of 208 avian mortalities and 1 injured bird, with an average annual mortality rate of 42 birds (SMUD 2021; 2022; 2023; 2024; 2025). Notably, there were 44 red-tailed hawk mortalities (with an average of 9 per year), 18 American kestrel mortalities (average of 5 per year), and 11 golden eagle mortalities (average of 4 per year). Other sensitive bird mortalities included Swainson's hawk (5 mortalities), and northern harrier (5 mortalities) (SMUD 2021; 2022; 2023; 2024; 2025). Increased avian perching and nesting within the wind farm due to the perching and nesting opportunities afforded by the LSTs would increase the risk of avian injury and mortality from the wind farm, which would be a significant impact. It is for this reason that the USFWS *Land-Based Wind Energy Guidelines* (USFWS 2012) has a mitigation measure stating that "tubular towers or best available technology to reduce ability of birds to perch and to reduce risk of collision [will be used when practical]." Because the impact on special-status birds is due to the nature/design of the proposed transmission structures within the wind farm, no mitigation is feasible to avoid special-status avian perching or nesting on the proposed LSTs. Therefore, the impact from potential increased special-status avian interactions with the wind turbines from the use of LSTs within the windfarm would remain significant and unavoidable.

Other indirect impacts on special-status birds caused by construction of the PG&E project components would be the same as those described for the LSPGC project components above. CM FIRE-1 includes fire prevention and fire suppression requirements to reduce the risk of increased wildfire in the Proposed Project Site. Impacts from non-native invasive plant species proliferation in special-status bird habitat would be significant. To reduce the impact from introduction and proliferation of invasive species, MM BIO-3 would be required to control invasive, non-native plant species (refer to Section 4.4.14 for the complete text of this MM). Therefore, impacts to special-status birds would be less than significant with mitigation.

Impact BIO-1E: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any invertebrate species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Direct Impacts

Construction

LSPGC Project Components

The 230 kV underground segment, telecommunication lines, and staging yard at the Pittsburg Substation are located in developed areas that do not contain habitat for special-status invertebrates and would have no impact on special-status invertebrates. No vernal pool habitat is located within the work areas for the LSPGC project components and construction of LSPGC project components would not directly impact any vernal pool invertebrates or their habitat. Suitable habitat for monarch butterfly, Crotch's bumblebee, and western bumble bee occurs within the LSPGC project construction area.

Crotch's Bumblebee and Western Bumblebee. Floristic resources that can be used for foraging by Crotch's bumblebee and western bumblebee are present throughout the LSPGC project component work areas. Crotch's bumblebee nest underground in burrows and can establish a new nest each year. While burrows were not observed during previous surveys, there is a possibility that rodent burrows could form in the LSPGC project component work areas prior to construction and such burrows could become occupied by Crotch's bumble bee or western bumble bee. Grading, vegetation removal, or crushing of vegetation could remove or degrade foraging and breeding habitat, which would be a significant impact. If a nest of Crotch's bumblebee were to occur in a work area at the time of construction, the impact from destruction of a nest would be significant. To reduce the impact, MM BIO-12 requires focused surveys for Crotch's bumblebee a season prior to construction, pre-construction surveys immediately prior to construction, monitoring of nests for avoidance of any Crotch's bumblebee in proximity to a work area (refer to Section 4.4.14 for the complete text of this MM). With implementation of MM BIO-12, the impact on Crotch's bumblebee from construction of the LSPGC project components would be less than significant with mitigation.

Construction of LSPGC project components would affect approximately 103.6 acres of suitable habitat for Crotch's bumble bee and western bumble bee including 90.1 acres of temporary impacts and 13.5 acres of permanent impacts. The LSPGC project components would not affect surrounding habitat. As abundant suitable foraging habitat would remain around the LSPGC project components and would not be affected by construction, the impact on Crotch's bumblebee and western bumblebee populations from habitat loss would be less than significant.

Monarch butterfly. Monarch butterfly foraging and breeding habitat occurs within the work area for LSPGC project components area (Insignia Environmental 2023; 2024a) (Appendix F.2). Removal of milkweed plants could remove or kill monarch butterfly eggs and hatchlings, which

would be a significant impact. To reduce the impact, MM BIO-13 defines requirements for pre-construction surveys of monarch butterfly and avoidance of host plants during the flight period (refer to Section 4.4.14 for the complete text of this MM). Due to avoidance of host plants, impacts on monarch butterfly would be less than significant with mitigation.

Construction of LSPGC project components would affect approximately 103.6 acres of suitable habitat for monarch butterfly including 90.1 acres of temporary impacts and 13.5 acres of permanent impacts. The LSPGC project components would not affect surrounding habitat. As abundant suitable foraging habitat would remain around the LSPGC project components and would not be affected by construction, the impact on monarch butterfly populations from habitat loss would be less than significant.

PG&E 500 kV Interconnection Lines and 12 kV Distribution Line

The same special-status invertebrates with potential to occur in the work areas for LSPGC project components (described above) have potential to occur within the work areas for the PG&E 500 kV interconnection lines and 12 kV distribution line. Impacts on Crotch's bumble bee, western bumble bee, and monarch butterfly would be significant as described previously for LSPGC project components. MM BIO-12 and MM BIO-13 would reduce impacts from PG&E 500 kV interconnection lines and 12 kV distribution line construction on special status invertebrates to a less-than-significant level.

PG&E 500 kV interconnection lines and 12 kV distribution line would impact habitat at each pole location. Due to the interspersed nature of the poles and the presence of surrounding suitable habitat. The loss of suitable foraging habitat for Crotch's bumble bee, western bumble bee, and monarch butterfly would be less than significant.

PG&E 500 kV Transposition Sites

Six special-status invertebrate species have potential to occur within the transposition site work areas: conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, western bumble bee, and Crotch's bumble bee. There is no habitat for Lange's metalmark butterfly and no breeding habitat for monarch butterfly; therefore, construction of the PG&E transposition sites would have no impact on these species. There was moderate potential for Longhorn fairy shrimp to occur within Transposition Site D, but habitat for this species would be outside of proposed work areas and therefore there would be no impacts to this species. Although Crotch's bumble bee was not found within 5 miles of the *transposition site survey area* in the CNDDB records search and, therefore, was not assessed in the BRTR addendum for the transposition sites (Insignia Environmental 2025d), separate analysis of Crotch's bumble bee for the PG&E work sites concluded that, because the species has been documented within 10 miles of the transposition sites and because the sites contain suitable foraging and breeding habitat, the species has a moderate potential to occur (BioMaAs 2025) (Appendix F.4). This determination is supported by the fact that protocol-level surveys for Crotch's bumble bee have not been conducted in these areas, which makes it difficult to rule out the presence of the species in areas that contain suitable habitat.

Crotch's bumble bee and Western bumble bee. Similar to the LSPGC project components and PG&E 500 kV interconnection lines and 12 kV distribution line, the 500 kV Transposition Site construction would result in significant impacts on Crotch's and western bumble bee. MM BIO-12 would reduce impacts on Crotch's bumble bee and western bumble bee at the transposition site work areas (refer to Section 4.4.14 for the complete text of this MMs). As such, impacts on these species during construction of the PG&E 500 kV transposition sites will be less than significant with implementation of the mitigation measure.

Conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Vernal pool-associated species were determined to have potential to occur within the transposition site survey area associated with Transposition Sites A and B. PG&E will implement CM BIO-4, which requires delineation and avoidance of sensitive habitat features during construction. Additionally, CM BIO-1 requires avoidance of vernal pools and waters specifically; vehicles and equipment would be prohibited from refueling within 250 feet of vernal pools and 100 feet of other wetlands, streams, or waterways; additionally, a buffer would be maintained 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or riparian areas. Therefore, no vernal pool habitat would be impacted during construction. CM BIO-8 requires parking or operation of vehicles on already disturbed or designated areas or roads, minimization of development of new roads, locating off-road access routes and work sites to minimize impacts on wildlife, which would further reduce potential impacts to vernal pool habitat. However, the provisions of the CMs are not adequate to fully protect vernal pools; destruction of vernal pool habitat would be a significant impact on special-status vernal pool species. To reduce the impact, MM BIO-4 provides increased protections for vernal pools, including requiring work activities within 250 feet of vernal pools to be minimized to the extent possible and be conducted outside of the rainy season or rain events and, if work within vernal pools is unavoidable, the use of matting or plating to minimize damage to the pool (refer to Section 4.4.14 for the complete text of this MM). Therefore, impacts to vernal pool special-status species during construction of the PG&E 500 kV transposition sites would be less than significant with implementation of the mitigation measure.

Operation and Maintenance

LSPGC Project Components

LSPGC project component inspection and maintenance activities would primarily be conducted within developed areas which would not contain habitat for special-status invertebrate species. The terrestrial area of the 230 kV overhead segment and submarine cables within which LSPGC's temporary access road to the submarine segment transmission structure occurs contains habitats with floristic resources that could provide suitable habitat for Crotch's bumblebee, western bumblebee, and monarch butterfly. Because this access road would be a temporary access road during construction, access to the submarine segment transmission structure and any maintenance of the on-land submarine segment could result in impacts on special-status invertebrate habitat during maintenance activities.

For routine maintenance and inspections of the riser structures, access would be provided on foot or by drone and would not impact special-status invertebrate populations. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain special-status invertebrate habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status invertebrates during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status invertebrates, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement activities would require separate authorization If the trenching is required in areas containing special-status invertebrate habitat, the impact on special-status invertebrates would be equivalent to construction and would be significant. MM BIO-5 defines requirements for pre-construction surveys in suitable habitat for special-status invertebrates and requires biological monitoring for work in areas containing special-status invertebrates. The impact on special-status invertebrates during cable replacement maintenance activities would be less than significant with mitigation.

PG&E Project Components

PG&E operation and maintenance activities would be conducted within the developed telecommunications yard and permanent access roads. PG&E operation and maintenance activities would generally be conducted by helicopter and in areas that do not contain vegetation and would thus have no potential to impact special-status invertebrate habitat. Vegetation management would include application of herbicides, as needed. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status invertebrate habitat during PG&E routine operation and maintenance activities would be less than significant.

Operation and maintenance activities for the PG&E project components would also be integrated into PG&E's existing operation and maintenance program for the existing transmission lines in the area. Five special-status invertebrates are covered by PG&E's Bay Area HCP (ICF 2017), including: conservancy fairy shrimp, Lange's metalmark butterfly, longhorn fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Since these species are covered by the Bay Area HCP, the impacts on these species from operation and maintenance of the PG&E project components would be less than significant.

Species not covered by the Bay Area HCP include Crotch's bumblebee, monarch butterfly, and western bumblebee. Impacts to special-status invertebrates due to operation and maintenance

of the PG&E project components would be the same as those associated with operation and maintenance of the LSPGC project components described above. The Bay Area HCP requires workers to limit speed limits to a maximum of 15 miles per hour, which would reduce the potential for vehicle strikes of flying special-status invertebrate species and HCP AMM Hot Zone-6 limits activities to foot access only when working off of established roadways unless a biological monitor delineates off-road access routes that avoid sensitive biological resources; both measures would reduce the potential for mortality from vehicle strikes as well as impacts to special-status invertebrate habitat. Additionally, PG&E would incorporate AMMs from the Bay Area HCP, including FP-01 through FP-04, FP-07, FP-10, FP-11, FP-12, and FP-14, as described under PG&E Practices, HCP Avoidance and Minimization Measures, and Applicant Proposed Measures (ICF 2017). FP-01 requires annual training on HCP requirements; FP-02 requires that vehicles and equipment be parked on existing roads or in other designated areas; FP-03 and FP-04 require use of existing ROW and minimization of disturbance and limits access routes to minimize impacts on vegetation and other natural features; FP-07 restricts speed on unpaved roads (15 mph) to reduce potential for collisions; FP-10 reduces the activity footprint and time onsite to reduce potential for take of species; and FP-12 requires establishment of an appropriate location for covered soil stockpiles. In addition, PG&E will apply for an Incidental Take Permit from CDFW for Crotch's bumblebee and will incorporate any additional permit measures.

Indirect Impacts

Construction

LSPGC Project Components

Construction disturbance could indirectly impact special-status invertebrates through increased erosion and sedimentation, fugitive dust release of toxic substances (e.g., oil), and invasive, non-native plant species (weeds) introduction and/or spread. Sedimentation associated with erosion would adversely affect vernal pool-associated species in vernal pools and road rut pools, for example, by increasing turbidity and adversely affecting water quality and/or by filling the pools and reducing their depth or surface area, resulting in a significant impact. Construction activities such as grading and driving of heavy equipment on unpaved roadways can result in increased levels of blowing dust that may settle on surrounding vegetation, for example, adversely affecting the plants (see Impact Bio-1A) and adversely affecting special-status invertebrates dependent on the plants, resulting in a significant impact. Vernal pool-associated species could be adversely affected by decreased water quality or suffer mortality if a toxic substance spilled or flowed into a pool. The Proposed Project would be constructed in compliance with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and HMMP. Due to implementation of sediment and erosion control BMPs and hazardous materials management in compliance with state and federal requirements, impacts from erosion, fugitive dust, and toxic substances on special-status invertebrates would be less than significant.

Special-status invertebrates could be adversely affected through habitat degradation from invasive, non-native plant species, which could outcompete native plants and provide lower

quality (or no) foraging habitat for special-status invertebrates including Crotch's bumble bee and western bumble bee. Non-native plant species could also outcompete milkweed, which would eliminate breeding habitat for monarch butterfly. Invasive, non-native plants can spread when seeds (or, rarely, vegetative propagules) are brought in on the soles of shoes or on the tires and undercarriages of vehicles or equipment. They can also be brought in if soil containing the seeds is imported. Furthermore, ground disturbance from construction activities generally favors the establishment of non-native species because they are more adapted to disturbance than native species. Once established, these non-native species are often able to outcompete the natives and sometimes displace them, especially if there is further disturbance, for example, from fire. These impacts would be significant. To reduce the impacts, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project site (refer to Section 4.4.14 for the complete text of this MM). Because of the implementation of this mitigation measure, impacts on special-status invertebrates from introduction of invasive plants would be less than significant.

As discussed in Section 4.20, Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn could lead to direct mortality of special-status invertebrates or alteration of their habitat. Wildfires caused by construction are rare but may occur and the associated land disturbance would result in a significant impact on special-status invertebrates. Implementation of APM FIRE-1 requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, which would reduce the risk of igniting a wildfire during construction. Therefore, impacts to special-status invertebrates from increased wildfire risk would be less than significant.

PG&E Project Components

Indirect impacts on special-status invertebrates caused by operation and maintenance of the PG&E project components would be the same as those described for the LSPGC components above. The Proposed Project would be constructed in compliance with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and HMMP. In addition, no refueling would occur within 250 feet of a vernal pool in compliance with CM BIO-1. CM FIRE-1 includes fire prevention and fire suppression requirements to reduce the potential for a catastrophic fire in the Proposed Project area. Impacts from potential introduction or spread of invasive plant species would be significant. To reduce the impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area (refer to Section 4.4.14 for the complete text of this MM). Potential impacts on special-status invertebrates would be less than significant with implementation of the mitigation measure.

Impact BIO-1F: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Direct Impacts

Construction

LSPGC Project Components

No suitable habitat for terrestrial special-status mammal species occurs within the 230 kV submarine segment, telecommunication lines, or staging area at Pittsburg Substation, which are located in developed areas. Construction in these areas would have no impact on special-status mammals. Habitat for terrestrial special-status mammals occurs within the LSPGC project components north of the Delta.

San Joaquin kit fox. Grassland areas that could provide suitable habitat for San Joaquin kit fox foraging habitat (grasslands) are located within the Collinsville Substation and 230 kV transmission line overhead segment. Due to the limited presence of rodents, the area does not contain suitable habitat for denning/breeding. LSPGC has proposed APM BIO-11 for biological monitoring, but the APM lacks details on approaches for monitoring or monitor qualifications to avoid impacts on San Joaquin kit fox and the impact would remain significant. To reduce the impact, MM BIO-5 specifies requirements for pre-construction surveys and monitoring (refer to Section 4.4.14 for the complete text of this MM). Because MM BIO-5 would ensure avoidance of San Joaquin kit fox foraging in the area, the impact on San Joaquin kit fox would be less than significant with implementation of this mitigation measure.

Construction of the Proposed Project would require ground disturbance and vegetation removal, which would result in direct permanent and temporary loss of suitable habitat for San Joaquin kit foxes. The habitat in the LSPGC project component area is of limited value to San Joaquin kit fox as suitable burrows for San Joaquin kit fox were not observed in the area. Permanent impact on 13 acres of foraging habitat would have a negligible impact on San Joaquin kit fox as there is suitable foraging habitat surrounding the Proposed Project and the habitat is of limited value due to the absence of denning areas. The impact from habitat loss would thus be less than significant.

Western red bat. Limited stands of trees along Stratton Lane and along the north shore of the Delta may provide marginal roost habitat (including temporary night roosts) adjacent the work areas for the Collinsville Substation and 230 kV overhead segment. Although isolated trees or small stands of trees may be considered marginal roosting habitat for this species (Pierson et al. 2004), there are documented cases of western red bat using isolated trees for roosting (Andersen and Geluso 2018). No tree removal is proposed as part of the Proposed Project and so no impacts to western red bat roost habitat would occur. Construction of the Proposed Project would require vegetation clearance, which would result in direct permanent and temporary loss of suitable foraging habitat for western red bats. Temporary and permanent impacts on suitable

foraging habitat would not substantially impact western red bats because of the low quality of the habitat to western red bat and because the impacts would be limited and dispersed along the Proposed Project linear features alignments. Unaffected suitable foraging habitat surrounds the Proposed Project site and bats would be able to avoid disturbance areas and travel to more suitable surrounding habitat. The impact on western red bats from habitat loss because of the Proposed Project would therefore be less than significant. Temporary impacts from any necessary nighttime lighting during construction, including disorientation and altered behavior, would be reduced by LSPGC APM AES-1, which requires temporary nighttime lighting to have shields to prevent light spillover effects. Therefore, the impact on special-status bats, including western red bat, from nighttime lighting would be temporary and less than significant.

LSPGC 230 kV Transmission Line Submarine Segment

San Joaquin kit fox. Marginal habitat for San Joaquin kit fox occurs within the temporary and permanent impact areas for the 230 kV submarine segment. The impacts on San Joaquin kit fox from construction of the submarine segment would be the same as those described above for the Collinsville Substation and 230 kV overhead segment and would be significant. To reduce the impact, MM BIO-5 defines procedures for pre-construction surveys and monitoring to avoid impacts on San Joaquin kit fox (refer to Section 4.4.14 for the complete text of this MM). The impact on San Joaquin kit fox less than significant with implementation of the mitigation measure.

Western red bat. Similar habitat as that described for the Collinsville Substation and 230 kV overhead segment occurs in the work area for the 230 kV submarine segment. Marginally suitable foraging habitat occurs in the work area with marginal roost habitat (isolated trees or small stands of trees) occurring nearby along Stratton Lane and the north shore of the Delta. Impacts would be the same as for the Collinsville Substation and 230 kV overhead segment. The loss of foraging habitat and temporary impacts from nighttime lighting would be less than significant.

Salt marsh harvest mouse. Habitat for salt marsh harvest mouse occurs within the work area for the proposed LSPGC 230 kV submarine segment. Construction of the riser structures and trenching of the 230 kV cable could disturb or destroy salt marsh harvest mouse nests or otherwise harm individuals if they occur in the area at the time of construction. Injuring or killing a salt marsh harvest mouse, or destroying a nest, would be a significant impact. APM BIO-11, which requires a qualified biologist to carefully inspect vegetation within salt marsh harvest mouse habitat (e.g., pickleweed habitats) prior to vegetation clearance and ground disturbance to ensure no salt marsh harvest mouse individuals or nests are present; if present, individuals would be encouraged to move into adjacent habitats prior to activities commencing. While APM BIO-11 would reduce impacts on Salt marsh harvest mouse, impacts would remain significant as the measure does not define specific requirements for pre-construction surveys in salt marsh harvest mouse habitat, exclusion fencing to prevent salt marsh harvest mouse from moving into a work area, or buffers from an active salt mouse harvest mouse nest; as a result construction could result in injury or mortality of salt marsh harvest mouse, which would be a significant impact. To reduce the impact, MM BIO-15 requires pre-construction surveys,

exclusion fencing, and vegetation clearing prior to work to avoid impacts on salt marsh harvest mouse (refer to Section 4.4.14 for the complete text of this MM). The impact on salt marsh harvest mouse would be less than significant with implementation of the mitigation measure.

PG&E 500 kV Interconnection Lines and 12 kV Distribution Line

San Joaquin kit fox have the potential to occur in the area of construction for the 500 kV interconnection lines and 12 kV distribution line. The habitat suitability and impacts on San Joaquin kit fox would be similar to the impacts at the Collinsville Substation, but the total area of ground disturbance would be limited to the individual pole work areas and stringing sites. If San Joaquin kit fox were moving through the area at the time of construction, the impact from harm to a San Joaquin kit fox would be significant. To reduce the impact, MM BIO-5 requires pre-construction surveys and monitoring for specials-status species including San Joaquin kit fox (refer to Section 4.4.14 for the complete text of this MM). Impacts on San Joaquin kit fox would be less than significant with implementation of the mitigation measure.

As with the 230 kV overhead segment, construction of the 500 kV interconnection lines, and 12 kV distribution lines would result in negligible habitat loss and is not located in high value habitat for San Joaquin kit fox. The impact from habitat loss on San Joaquin habitat would be less than significant.

Western red bat. Similar to LSPGC project components, construction of the PG&E 500 kV interconnection lines and 12 kV distribution line would result in negligible loss of foraging habitat for western red bat because of its limited area and marginal value. The impact from habitat loss on western red bat would be less than significant.

There would be no or minimal impacts to western red bats (including disorientation and altered behavior) from nighttime lighting during construction because PG&E would implement CM BIO-11, which requires construction activities to cease 30 minutes prior to sunset and to not begin prior to 30 minutes after sunrise, where feasible. Additionally, night work would be limited in extent, duration and brightness to the extent feasible. If temporary construction lighting is required, PG&E would use shielded construction light fixtures, or other types of screening, to reduce impacts to wildlife. Any impact on special-status bats from nighttime lighting would be temporary and less than significant.

PG&E 500 kV Transposition Sites

San Joaquin kit fox. San Joaquin kit fox could occur within the transposition site work areas. The transposition sites provide potentially suitable denning habitat for San Joaquin kit fox in addition to potentially suitable foraging habitat. Impacts on a den of San Joaquin kit fox would be significant. To reduce the impact, MM BIO-14 defines avoidance buffers for San Joaquin kit fox and requires an incidental take permit prior to any relocation of San Joaquin kit fox out of the work area (refer to Section 4.4.14 for the complete text of this MM). Impacts on San Joaquin kit fox would be less than significant with implementation of the mitigation measure.

American badger. American badger could occur within the transposition site work areas. Suitable habitat (grasslands) for American badger occurs within all four transposition sites.

Construction activities could result in disturbing or collapsing an active den or otherwise harming individual badgers. Injuring or killing an American badger, or destroying an active American badger den, would be a significant impact. To reduce the impact, MM BIO-16 requires pre-construction surveys for active American badger dens within 7 days prior to grading or vegetation clearing in work areas or use of overland access routes. Should active dens be located, MM BIO-16 would require work exclusion buffers of 250 feet for maternal dens and 50 feet for non-maternal dens to avoid impacts from noise on breeding or behavior or, if badger dens could not be avoided, passive relocation (refer to Section 4.4.14 for the complete text of this MM). MM BIO-16 would avoid substantial direct impacts on American badger, and, therefore, the impact would therefore be less than significant with mitigation.

Construction of the transposition structures would require ground disturbance, which could result in direct permanent and temporary loss of suitable habitat for American badgers, including denning sites. Impacts on habitat would be limited to the four transposition sites/structures adjacent the existing transmission structures and would not significantly impact this species because the impacts would be limited in area and dispersed along the existing transmission line.

Western red bat. Stands of trees that could be used for roosting by western red bat occur adjacent or in close proximity (approximately 100 to 300 feet) to temporary access roads and work areas within Transposition Sites A, B, and D. The lack of trees within or near site C make it less likely for western red bat to occur in this site. Similar to the LSPGC project components and the PG&E 500 kV interconnection lines and 12 kV distribution line, construction of the PG&E 500 kV transposition sites would result in negligible loss of foraging habitat for western red bat because of its limited area and marginal value. The impact from habitat loss on western red bat would be less than significant.

There would be no or minimal impacts to western red bats (including disorientation and altered behavior) from nighttime lighting during construction because PG&E would implement CM BIO-11, which requires construction activities to cease 30 minutes prior to sunset and to not begin prior to 30 minutes after sunrise, where feasible. Additionally, night work would be limited in extent, duration and brightness to the extent feasible. If temporary construction lighting is required, PG&E would use shielded construction light fixtures, or other types of screening, to reduce impacts to wildlife. Any impact on special-status bats from nighttime lighting would be temporary and less than significant.

Operation and Maintenance

LSPGC Project Components

The majority of operation and maintenance activities would be conducted within the developed substation and developed areas at the 230 kV transmission poles, which would not provide habitat for special-status mammals. Operation and maintenance activities in developed areas would have no impact on special-status mammals. Marginally suitable foraging (grassland)

habitat exists within the impact area for the temporary access road to the submarine segment riser structures.

For routine maintenance and inspections of the riser structures, access would be provided on foot or by drone and would not impact special-status terrestrial mammal populations. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain special-status mammal habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status mammals during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status mammals, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement would require separate authorization. If trenching is required in areas containing special-status mammal (salt marsh harvest mouse) habitat, the impact on special-status mammals would be equivalent to construction and would be significant. MM BIO-5 defines requirements for pre-construction surveys in suitable habitat for special-status mammals, including San Joaquin kit fox and salt marsh harvest mouse, and requires biological monitoring for work in areas containing special-status mammals. The impact on special-status mammals during cable replacement maintenance activities would be less than significant with mitigation.

Special-status bat species (e.g., western red bat) could be disturbed or disoriented by nighttime lighting during operation and maintenance of the LSPGC project components. APM AES-1 requires nighttime lighting to have shields to prevent light spillover effects, which would reduce impacts to special-status bats from nighttime lighting. Ground disturbance in the temporary access road for the submarine segment riser structures could remove marginally suitable foraging habitat for western red bat, but because of the low quality of the habitat, the limited impact area, and remaining suitable habitat surrounding the impact area, the impact from habitat loss would be less than significant.

PG&E 500 kV Project Components

PG&E operation and maintenance activities would be conducted within the developed telecommunications yard and permanent access roads. PG&E operation and maintenance activities would generally be conducted by helicopter and in areas that do not contain vegetation and would thus have no potential to impact special-status mammal habitat. Vegetation management would include application of herbicides, as needed. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide

application, impacts on special-status mammal habitat during PG&E routine operation and maintenance activities would be less than significant.

Impacts on San Joaquin kit fox and American badger during operation and maintenance of the PG&E project components would be similar to the impacts from operation and maintenance of the LSPGC project components within the developed substation and developed areas at the 230 kV transmission poles, which would not provide habitat for special-status mammals. Operation and maintenance activities in developed areas would have no impact on San Joaquin kit fox and American badger. Additionally, San Joaquin kit fox is covered by PG&E's Bay Area HCP (ICF 2017), which ensures any impact on San Joaquin kit fox from operation and maintenance of the PG&E project components would be less than significant.

Any lighting impacts from operation and maintenance of the PG&E project components on foraging western red bats would be minimal and temporary as most work would be conducted during daylight hours and any work conducted at night would be temporary. Therefore, impacts from nighttime lighting on western red bat would be less than significant.

Indirect Impacts

Construction

LSPGC Project Components

Construction disturbance would indirectly impact special-status mammals through fugitive dust and invasive, non-native plant species introduction and/or spread. Construction activities such as grading and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation adversely affecting plants (see Impact Bio-1A) thereby adversely affecting special-status mammals dependent on the plants (or the prey they consume that are dependent on the plants). The Proposed Project would be constructed in compliance with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and HMMP. Due to implementation of sediment and erosion control BMPs and hazardous materials management in compliance with state and federal requirements, the indirect impact from the LSPGC project components on special-status mammals would be less than significant.

Special-status mammals would also be adversely affected through habitat degradation from invasive, non-native plant species, which can out-compete the native species and, for example, change the species composition or habitat structure that a mammal species prefers or is dependent upon. This impact would be significant. To reduce the impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area (refer to Section 4.4.14 for the complete text of this MM). Therefore, impacts to special-status mammals would be less than significant with implementation of the mitigation measure.

As discussed in Section 4.20, Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn could lead to

direct mortality of special-status mammals or alteration of their habitat. Wildfires caused by construction are rare but may occur and the associated land disturbance would result in a significant impact on special-status mammals. Implementation of APM FIRE-1 requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, which would reduce the risk of igniting a wildfire during construction. Therefore, impacts to special-status mammals from increased wildfire risk would be less than significant.

PG&E 500 kV Interconnection Lines, 500 kV Transposition Sites, 12 kV Distribution Line, and Collinsville Substation Telecommunication Yard

Indirect impacts to special-status mammals caused by construction of the PG&E project components would be the same as those described for the LSPGC components above. The project would be constructed in compliance with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and HMMP, which would make impacts from fugitive dust, sediment and erosion, and hazardous materials on special-status mammals less than significant. CM FIRE-1 includes fire prevention and fire suppression requirements to reduce the potential for increased wildfire risk in the Proposed Project area. Impacts from invasive species introduction would be significant. To reduce the impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area (refer to Section 4.4.14 for the complete text of this MM). Therefore, the impacts to special-status mammals would be less than significant with implementation of the mitigation measure.

Impact BIO-1G: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any aquatic mammal species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Terrestrial portions of the Proposed Project including LSPGC Collinsville Substation, LSPGC 230 kV overhead segment, LSPGC underground segment, LSPGC telecommunication lines, PG&E 500 kV interconnection transmission lines, PG&E 12 kV distribution line, PG&E transposition sites, and PG&E existing substations would have no impact on aquatic mammals and are not discussed further. The analysis below focuses on impacts from construction and operation of the LSPGC submarine segment located within the Delta.

Direct Impacts

The proposed LSPGC 230 kV submarine segment would be installed approximately 6 to 15 feet below the bed of the Sacramento-San Joaquin River and would not result in permanent impacts to habitats. The cable installation would result in direct temporary disturbance of 17.04 acres of benthic aquatic habitat.

Construction

Construction activities could result in impacts that would adversely affect marine mammals if marine mammals are present in the Proposed Project area during submarine cable installation. The approximately 4.5-mile long proposed 230 kV submarine segment consists of four tri-core cables at a depth of 6 to 15 feet below the sediment surface. Cables would be installed using a

hydroplow that is pulled behind a barge. The hydroplow uses a water jet and long blade to mobilize sediment using high-pressure water, and cable is placed in the momentarily opened trench created by the plow. Concrete mattresses may be installed to protect the cable in locations where target depth for the cable cannot be met due to logs, boulders, or other obstructions in the cable path. This in-water trenching work would cause temporary disturbance of benthic aquatic habitat and has the potential to cause direct impacts such as watercraft collision, turbidity, noise, and concrete or other hazardous material spills in water. The installation of concrete mattresses would result in new concrete in the channel, which would be a permanent impact.

As described in Table 4.4-5, both Pacific harbor seal and California sea lion are known to occur year round within the Sacramento-San Joaquin Delta in proximity to the Proposed Project site (WRA 2024) (Appendix F.3). Both Pacific harbor seal and California seal lions are marine mammals protected under the Marine Mammal Protection Act (MMPA). While no haul-outs are known for either species within the Proposed Project area, individuals of each species are commonly observed foraging in the area. As year-round residents of the Proposed Project area, these species have the potential to be directly impacted by Proposed Project construction activities.

Collision

Operation of watercraft for in-water construction could result in collision with a Pacific harbor seal or a California sea lion. APM BIO-3 would require worker environmental awareness program training to inform construction personnel of resource protection and avoidance measures. Construction personnel would be trained in identification of marine mammals likely to be present in the Proposed Project area. In addition, there is substantial boat traffic in the Sacramento-San Joaquin Delta and Pacific harbor seal and California sea lion are adapted to the presence of watercraft. Due to the limited number of watercraft present (barge and tug boat) and slow travel of the boats for submarine cable installation, the potential for watercraft colliding with a seal or sea lion would be less than significant.

Foraging Habitat

Up to 27 concrete mattresses could be installed in the channel occupying a maximum area of 4,320 square feet (less than 0.1 acre). The permanent impact on less than 0.1 acres of benthic habitat would affect the foodweb that supports marine mammals. Pacific harbor seal and California sea lion have varied diets that consist of fish, crustaceans, cephalopods, and shellfish (NMFS and NOAA 2025b; 2025a). Because these marine mammals have a diverse diet and the volume of impact is small relative to the surrounding available habitat within the approximately 2-mile wide channel, installation of concrete mattresses in the channel would be a less than significant impact to special-status marine mammals.

Suspended Sediment/Turbidity

Suspended sediments in the water column have the potential to affect marine mammals by disrupting normal feeding behavior, reducing growth rates, and increasing stress levels. Sediment resuspension caused by construction activities (e.g., removal of structures or debris) is

defined as those sediment particles suspended into the water column that do not rapidly settle out of the water column following resuspension. An increase in suspended solids can affect aquatic organisms by reducing dissolved oxygen levels and light transmission until sediment resettles, which could have the potential to smother aquatic habitats and organisms that serve as food for marine mammals. Studies of turbidity in San Francisco Bay showed that turbidity associated with dredging (an activity which causes similar levels of disturbance to benthic environments as hydroplows or may use excavators for the dredging process) typically diminish to background levels within a radius of approximately 600 feet within one tidal cycle for singular events (WRA 2024). The actual distance suspended sediment caused by the Proposed Project would move is dependent upon multiple factors (i.e., tide, river outflows, wind condition, etc.); however, it is anticipated that the area affected, and the duration of turbidity increases resulting from cable installation will be similar to turbidity increases resulting from dredging. Elevated turbidity due to in-water work may create temporary conditions which are unsuitable for some species in the immediate vicinity of the work area. These conditions are anticipated to be temporary, resolving to background conditions shortly after the conclusion of the Proposed Project construction activities in the area. Turbidity in the waters within and surrounding the Proposed Project area can vary substantially under natural conditions as a result of the dynamic hydrological conditions in San Francisco Bay and the Delta. Marine mammals that are present year round have adapted to such conditions, and some of their prey have adapted to rely on high turbidity areas for concealment and forage (WRA 2024). Turbidity can vary with incoming and outgoing tides as a result of windy conditions, with storm flows, and with passing boats under existing conditions.

Background turbidity within the Delta is generally between 20 and 40 NTUs but can increase to as high as 250 to 500 NTUs during high-wind events that stir light sediments (WRA 2024). Increases in turbidity due to construction of the proposed LSPGC 230 kV submarine segment are expected to create localized increases in turbidity in the range of background turbidity within a radius of 100 to 600 feet of construction activities; these increases are expected to diminish to pre-activity levels within one tidal cycle (WRA 2024). To further reduce the spread of turbidity, a turbidity curtain would be installed to surround the work area at the south and north shores during cable installation activities, as operationally feasible. This would contain the temporary turbidity plume within the work area during cable installation activities, by enclosing approximately 0.3 acre of open water adjacent to each shoreline. The impact on marine mammal habitat due to enclosure with a turbidity curtain, which would prevent marine mammal access, would be 0.6 acre. With the use of turbidity curtain to contain the turbidity plume to the work area on each shoreline, and the temporary nature of turbidity, impacts to special-status marine mammals from turbidity would be less than significant.

Barotrauma

Pile Driving

Marine mammals can be injured if sounds produced by construction surpass certain tolerances. Ambient underwater sound levels within the San Francisco Bay typical are between 120 and 155 dB, which results in a baseline condition of regular noise disturbance lower than the threshold

for the NMFS threshold for Post-traumatic Stress (PTS) onset of pinnipeds (i.e. seals and sea lions). As shown in Table 4.4-7, the onset of PTS from impulsive sounds (such as an impact hammer) for California sea lion is at levels above 185 dB, and for harbor seal, the level is 203 dB. The threshold for non-impulsive sounds (such as a vibratory hammer or hydroplow) is 201 dB for sea lion and 219 dB for harbor seal (NMFS 2018). Construction activities would only use non-impulsive methods. Noise from sheet piling on land was modeled for the Proposed Project installation of a vault within the underground segment, with a vibratory hammer. The impact was calculated at 163 dB for pile driving with a vibratory hammer (WRA Environmental Consultants 2025) which is below the PTS level of 201 dB for sea lion and 219 dB for harbor seal for non-impulsive sounds (Appendix F.3). Since all pile driving would use a vibratory hammer and noise impacts would be below the PTS threshold for California sea lion and Pacific harbor seal, impacts from pile driving would be less than significant and no mitigation is needed.

Hydroplow

The Proposed Project has been designed to minimize potential noise impacts on special-status species by using a hydroplow for in-water construction activities, which generates considerably less noise than other in-water construction equipment. Cable laying using a hydroplow was modeled at 160 dB for expected noise over a 24 hour period and at 180 dB for exceptionally loud conditions, which would only occur under rare circumstances (WRA Environmental Consultants 2025). Both expected and exceptionally loud noise from hydroplow use would be below the threshold for PTS noise impacts of 201 dB for California sea lion and 219 dB for Pacific harbor seal. Since noise impacts from hydroplowuse would be below the PTS threshold for California sea lion and Pacific harbor seal, impacts from hydroplow construction would be less than significant and no mitigation is needed.

Toxicity

The construction of submarine cable trenches and concrete mattresses could impact water quality for special-status marine mammals from increased toxicity as a result of disturbance of sediments containing hazardous materials, in water concrete use, or an uncontained spill on the watercraft could reduce water quality and impact sensitive marine mammal habitat and forage. Per APM BIO-21, prior to cable installation, the Proposed Project alignment would be screened to determine if there have been any known spills or hazardous materials released that could harm marine mammals or their habitats. If any known spills or other hazardous materials releases are discovered, APM BIO-21 would require screening and testing of aquatic sediments before they are disturbed to reduce the risk of exposing hazardous sediments to the marine environment. Additionally, under APM BIO-22, LSPGC would develop a spill prevention and control plan for the project, to reduce potential effects from spills. The impact on marine mammals from toxicity would be less than significant.

Operation and Maintenance

The Proposed LSPGC 230 kV submarine segment cables would be buried beneath the Delta and operation of the cables would have no impact on marine mammals. If a cable were damaged and needed repairs, the damaged segment of the cable would be cut and a new segment of cable would be installed using the same methods used during initial cable installation as

described in construction above. The new segment of cable would form a loop around the damaged segment of cable. The damaged segment of cable would either be left in place or would be removed if required by agency permit conditions. Removal of the damaged segment of cable would mobilize sediment and would generate noise similar to the cable installation. As is the case with construction, the cable maintenance activities would not generate noise levels that would not exceed noise thresholds for pinniped species and the impact would be less than significant. As discussed for construction, APMs BIO-3 and BIO-18 through 22 would be implemented to avoid impacts on special-status marine mammals from cable maintenance activities. As a result of implementing these APMs and compliance with conditions of any regulatory permits from CDFW, NMFS, and USFWS, the impacts of operation and maintenance of the Proposed LSPGC 230 kV submarine segment cables on special-status marine mammals would be less than significant.

Indirect Impacts

Special-status marine mammal species and their habitat could be altered by the introduction of invasive species through the ballast of aquatic vessels or organisms attached to the surface of vessels and equipment. Invasive species have the potential to alter sensitive marine mammal food and habitat resources or could introduce novel diseases or impair water quality. In addition, to the potential for invasive aquatic mussels to occur in the area, nutria (*Myocastor coypus*), is a large aquatic rodent that has been identified by CDFW and the Delta Stewardship Council as an invasive species in the Delta and Central Valley (California Department of Fish and Wildlife (CDFW), n.d.). As large mammals, nutria are not likely to be spread by the same means as marine plants and invertebrates (such as the golden mussel) and would be easily detected visually. The introduction of invasive species would be a significant impact to special-status marine mammals and their habitat. LSPGC has proposed APM BIO-20, which requires aquatic vessels and equipment to be cleaned and follow maritime regulations relating to ballast water exchange. Additionally, APM BIO-20 would require all in-fill materials to be new and any in-water pumps or equipment to be cleaned and dried prior to use on the Proposed Project, reducing the likelihood of introducing invasive species that may create indirect impacts to native marine mammal species. However, the increased presence of invasive species such as golden mussel in the region could result in inadvertent transportation of invasive species from one work area to another and the impact would be significant. To reduce the risks of introducing or spreading invasive species, MM BIO-17 would require an Invasive Marine Species Control plan to be developed prior to any in-water work. This plan would include inspection of equipment prior to and following use, and environmental training for crew members in identifying, removing, and disposing of invasive species (refer to Section 4.4.14 for the complete text of this MM). With the implementation of MM BIO-17, impacts from invasive species on special-status marine mammals would be less than significant with mitigation.

Increased sedimentation or introduction of hazardous materials to the marine environment could cause direct physiological impacts to marine mammals and degrade marine mammal habitat. Because of the limited in-water work window (APM BIO-18) and implementation of APMs BIO-19 through BIO-22, which would require intake screens to minimize fish

entrainment, implement invasive species management measures, screen and test aquatic sediment, and implement an aquatic spill prevention and control plan, impacts from sediment or hazardous materials to special-status marine mammals would be less than significant.

Impact BIO-1H: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Work within terrestrial portions of the Proposed Project site, including the proposed LSPGC Collinsville Substation site, LSPGC 230 kV overhead segment alignment, LSPGC underground segment alignment, LSPGC telecommunication lines alignment, PG&E 500 kV interconnection lines alignment, PG&E 12 kV distribution line alignment, PG&E transposition sites, and PG&E existing substations would have no impact on special-status fish species and are not discussed further. The analysis below focuses on impacts from construction and operation of the LSPGC submarine segment located within the Delta.

Direct Impacts

Construction and operation of the proposed LSPGC 230 kV submarine segment would not result in permanent impacts to habitats but would result in temporary impacts to 17.04 acres of benthic aquatic habitat.

Construction

Construction activities could result in impacts that would adversely affect fish if they are present in the project area during construction.

As described in Table 4.4-5, the following special-status fish species and ecologically significant units (ESUs) of fish are designated as special-status species and are present within the Delta, either seasonally or year-round:

- Chinook salmon Central Valley fall/late fall-run ESU
- Chinook salmon Central Valley spring-run ESU
- Chinook salmon Sacramento River winter-run ESU
- Steelhead California Central Valley DPS
- Pacific lamprey
- River lamprey
- Western brook lamprey
- Delta smelt
- Green sturgeon Southern DPS
- Longfin smelt
- Sacramento splittail
- White sturgeon

All Special Status Fish Species

Hazardous Materials. The introduction of hazardous materials from construction equipment including concrete use where concrete mattresses are installed could reduce water quality and

impact sensitive fish habitat. Per APM-BIO 21, prior to cable installation, the alignment would be screened to determine if there have been any known spills or hazardous materials released that could harm fish or their habitats. If any known spills or other hazardous materials releases are discovered, APM BIO-21 would require screening and testing of aquatic sediments would be screened and tested before they are disturbed to reduce the risk of exposing hazardous sediments to the marine environment. Additionally, under APM BIO-22, LSPGC would develop a spill prevention and control plan for the project, to reduce potential effects from spills. Water quality impacts from overwater concrete casting for the concrete mattresses would be minimized through implementation of APM BIO-23, which requires monitoring of all concrete work, including inspection of containment structures and placement away from potential runoff. Therefore, the impacts to special-status fish from hazardous materials would be less than significant.

Habitat. The approximately 4.5-mile-long proposed LSPGC 230 kV submarine segment would involve burying four tri-core cables at a depth of 6 to 15 feet below the sediment surface. Cables would be installed using a hydroplow that is pulled behind a barge. The hydroplow uses a water jet and long blade to mobilize sediment using high-pressure water, and cable is placed in the momentarily opened trench created by the plow. The area of temporary impact during cable installation would be between 4 and 23 feet wide, depending on soil stability and location relative to the water line and would impact approximately 17.04 acres. As the hydroplow moves along the channel bottom, the sediments that are temporarily mobilized would return to the channel bottom and the impacts on the benthic habitat for special-status fish species from the temporary sediment mobilization would not be significant. The installation of up to 27 concrete mattresses would result in up to 4,320 square feet (less than 0.1 acre) of permanent impact to the river bottom, through introduction of permanent concrete fill materials. That permanent impact on habitat for special-status fish species would be significant. MM BIO-18 requires LSPGC to provide compensatory mitigation for permanent disturbance to special-status fish habitat, following a Benthic Habitat Mitigation and Monitoring Plan (refer to Section 4.4.14 for the complete text of this MM). With implementation of MM BIO-18, permanent impact on habitat from special-status fish would be less than significant.

Chinook salmon, steelhead, and lamprey

Chinook salmon, steelhead, and lamprey are only present seasonally within the Proposed Project area when migrating to and from natal streams. Core habitats are not present for these species in the Proposed Project area. There are three ESUs of chinook salmon that pass through the Proposed Project area, with adults migrating from the Pacific Ocean to spawning grounds in the Sacramento and San Joaquin Rivers and juveniles migrating from spawning grounds to the Pacific Ocean. The fall-run ESU of Chinook salmon would be present during the adult upstream migratory period of February through June and the juvenile downstream migratory period of December through March. The spring-run ESU of Chinook salmon would be present during the adult upstream migratory period of March through September and the juvenile downstream migratory period of October through March. The winter run ESU of chinook salmon would be present during the adult upstream migratory period of December through early August and the

juvenile downstream migratory period of September through June. Pacific lamprey, river lamprey, and western brook lamprey juveniles and adults migrate through the Proposed Project area in the early spring and summer (March through July) as juveniles and adults. Steelhead adults migrate upstream from late September through late October, and juveniles migrate downstream from late December through early May.

The Proposed Project site lies along the migratory corridor for three ESUs of Chinook salmon, one steelhead DPS, and three species of lamprey. As such, these species are only present at certain times of the year. With the presence of core habitat areas upstream and downstream of the Proposed Project area, waters within the Proposed Project area function as a corridor for Chinook salmon, steelhead, and lamprey fish species moving between natal streams and marine habitats.

LSPGC proposes construction of the submarine segment between July 1 to November 30. Lamprey species are only present in the area in the spring and early summer and would not be present during the submarine segment construction. Steelhead juveniles are only present in winter and early spring, though adults may begin their spawning migration in September, which would overlap with the Proposed Project work window. Chinook salmon fall-run ESU are present in the Sacramento River from July through December (CDFW 2025) and would be present during the July to November construction period. In addition, spring-run and winter-run adults and juveniles migrate through Sacramento River from March through September and December through August, respectively (CDFW 2025) and may be present during construction in July through November. The impact on lamprey and steelhead juveniles would be less than significant as the submarine segment construction would occur outside of the migration for the species and they are not expected to be present when construction is occurring. Since steelhead adults and chinook salmon spring- and winter-run ESUs may be present during the scheduled work window, injury or mortality of these species as a result of the submarine segment construction could occur, and is discussed below.

Steelhead, Chinook salmon, Delta smelt, green sturgeon, longfin smelt, Sacramento splittail, and white sturgeon

Migratory steelhead adults and fall-run, spring-run and winter-run ESUs of chinook salmon may be present in the Proposed Project area during the proposed work window, as discussed above. Delta smelt, green sturgeon, longfin smelt, Sacramento splittail, and white sturgeon are present year-round in the Proposed Project area and both Delta smelt and longfin smelt have been documented in CDFW trawls in small numbers in the fall (WRA 2024) (Appendix F.3). Because Delta smelt and longfin smelt are special-status species, injury or mortality of these species would be a significant impact. Additionally, critical habitat for Delta smelt has been designated in the Proposed Project area (U.S. Fish and Wildlife Service (USFWS), n.d.), and critical habitat for longfin smelt has been proposed in the Proposed Project area (U.S. Fish and Wildlife Service (USFWS) 2025b). Delta smelt and longfin smelt both spawn in the Delta and then remain within the local area to rear as juveniles or forage as adults. Green sturgeon spawn in the Sacramento River and are known to rear year-round within the greater San Francisco Bay region. Sacramento splittail has a high potential to occur adjacent to the Proposed Project area,

within the sloughs and marshes of Winter Island. White sturgeon spawns and rears within tributaries and the mainstem of the Sacramento and San Joaquin rivers year-round. Since these species are present year-round, they have the potential to be impacted by entrainment by water pumps and noise from trenching. Cable installation via jet plow or vertical injector requires water intake at an inlet onboard the ship, which is then run through a pump to pressurize the system. High pressure water is then expelled through jets aimed at the substrate. Because operation of the hydroplow or vertical injector requires that water be pumped from the river to supply the jets, this type of operation poses a threat to fish via entrainment in water pumping systems. Unscreened water diversions pose a threat to fish of all species as fish have the chance to be sucked into the inlet and entrained by the pump. In laboratory tests, up to 50 percent of green sturgeon were entrained when passing within 1.5 meters of an unscreened agricultural diversion pipe (Mussen et al. 2014). As such, water intakes to support the hydroplow may cause significant impacts to fish if fish pass near to the inlet and are subsequently entrained. The potential for fish entrainment in water pumps and intakes would be minimized through the use of appropriately-sized fish screens on all pumps or water intakes in accordance with LSPGC APM BIO-19, which would ensure any pumps or water intakes used by the Proposed Project would be screened in accordance with CDFW and NMFS screening requirements for water diversions within the Delta to prevent fish from entering the intakes. However, Delta and longfin smelt larvae, which could be present within the 230 kV submarine segment construction, are small enough to be caught in intake equipment that is screened. Because Delta and longfin smelt are protected under the State and federal ESA, impacts on these species will require an incidental take permit from USFWS and CDFW. LSPGC will be required to comply with the conditions of the incidental take permit to address impacts on larvae. Due to screening of the intakes in accordance with APM BIO-19 and compliance with the State and federal ESA, impacts on Delta smelt and longfin smelt would be less than significant.

Barotrauma

Special-status fish can be injured if sounds produced by construction surpass certain tolerances. The NMFS threshold for physical injury to fish is 187 dB for fish weighing more than two grams and 183 dB for fish weighing less than two grams; behavioral changes for fish can occur at a threshold of 150 dB (NMFS 2024). Thresholds for noise impacts on fish have been developed by NMFS (2024) and consider two main impacts, the onset of physical injury, and adverse behavioral effects. Impacts are based upon the size of the fishes under consideration and noise impacts above 150 dB were considered to have potentially adverse effects on fish behavior, regardless of size. In busy ports and bays, underwater noise is frequently measured at or above 150 dB under baseline conditions, therefore the baseline noise conditions are frequently at or above the standard thresholds for behavioral effects (Caltrans 2020). Impacts to behavior were evaluated as significant if the noise levels generated from a vibratory hammer, pile driving or hydroplow construction activities exceed 150 dB, and physical impacts would be considered significant if they exceed 183 dB in areas that could overlap the habitat of small fish (less than 2 grams in weight) and would be significant for fish larger than 2 grams in weight if noise exceeds 187 dB.

Sheet pile installation. Sheet pile installation scenarios were modeled to determine the distance that sound could attenuate and cause potential hydroacoustic effects on special-status fish species. The Proposed Project would require installation of a series of temporary sheetpiles near the southern shoreline to stabilize the soils around the underground segment utility vault. For vibratory hammer pile driving on land over the course of an 8-hour workday, unattenuated modeled sound levels would be 163, which would exceed the threshold limits for behavior of 150 dB but would not exceed the threshold for physical impacts of 183 dB for small fish, 187 dB for larger fish at the source of the noise (WRA Environmental Consultants 2025). Because unattenuated pile driving noise would be limited to the duration of pile driving activities and would not cause injury or death to fish, impacts from sheet pile installation would be less than significant.

Hydroplow. The Proposed Project has been designed to install cables using a hydroplow . Underwater sound for a hydroplow is similar to that of a vibratory hammer driving a small steel pile, and therefore, the NMFS Pile Driving Calculator (NMFS 2024) was used as a proxy. Modeling assumed a duration of 24 hours of hydroplow use at both expected (160 dB) and extreme high (180 dB) noise levels, with the extreme high noise level attenuating to a background noise level of 150 dB within 100 meters of the hydroplow, and no cumulative effects (WRA Environmental Consultants 2025). Because the hydroplow would not be expected to exceed the threshold for injury to fish (183 dB for small fish and 187 dB for larger fish) at any time, the impacts from hydroplow use would be less than significant.

Suspended Sediment. Sediment suspension in the water column could occur during installation of the submarine cable segment through use of a hydroplow. Hydroplow operations disturb benthic substrate, resuspending fine particles into the water column that do not immediately settle. Resuspended sediments have the potential to affect sensitive fish species by disrupting feeding behavior, reducing growth rates, and increasing stress, particularly during early life stages such as eggs or fry. Elevated suspended sediment may also reduce dissolved oxygen, decrease light penetration, and temporarily smother aquatic habitats and prey resources for special-status fish. Critical habitat for Delta smelt and proposed critical habitat for longfin smelt could be affected by these short-term increases. However, studies of dredging in San Francisco Bay, which is a comparable activity to hydroplow use, demonstrate that turbidity typically diminishes to background conditions within approximately 600 feet of disturbance within one tidal cycle (WRA Environmental Consultants 2025).

Although increased turbidity may temporarily create unsuitable conditions for some fish in the immediate vicinity, these effects would be localized, temporary, and occur within the natural variability of turbidity in San Francisco Bay and the Delta. Delta and longfin smelt, which are year-round residents in the Proposed Project area, utilize turbid conditions for foraging and cover. Adult steelhead and chinook salmon migration would not be substantially impacted by the turbidity as fish could migrate around the 600-foot area of turbid waters within the 1- to 2-mile-wide channel. The turbidity would not substantially affect any species migration or life cycle stages. Impacts related to suspended sediment on special-status fish species and their habitat would be less than significant.

Operation and Maintenance

The Proposed LSPGC 230 kV submarine segment cables would be buried beneath the Delta. If a cable were damaged and needed repairs, the damaged segment of the cable would be cut and a new segment of cable would be installed using the same methods used during initial cable installation as described in construction above. The new segment of cable would form a loop around the damaged segment of cable. The damaged segment of cable would either be left in place or would be removed if required by agency permit conditions. Removal of the damaged segment of cable would mobilize sediment and would generate noise similar to the cable installation. Similar to construction with the hydroplow, the cable maintenance activities would generate noise levels of 160 to 180 dB. The threshold for fish is 183 dB for fish weighing less than 2 grams and 187 dB for fish greater than 2 grams(NMFS 2024). As the noise from hydroplow installation would not exceed the noise thresholds for special status fish species the impact from noise would be less than significant.

Similar to construction, LSPGC would be required to obtain permits from USACE (including Section 7 consultation with NMFS), BCDC, and CDFW for cable replacement within the Delta and the work would be limited to the regulatory work windows (e.g., July 1 to October 31). Similar to construction, the work window defined in APM BIO-18 would avoid significant impacts on steelhead adults, and lamprey. However, juvenile steelhead, Chinook salmon, Delta and longfin smelt larvae, sturgeon and splittail could be present outside of the seasonal work window and could be impacted by cable replacement activities. APM BIO-19 requires screens that comply with CDFW and NMFS regulations on all pumps or water intakes to minimize potential for fish entrainment. Even with implementation of the APMs, Delta and longfin smelt larvae are small enough to be caught in intake equipment that is screened and similar to construction, LSPGC would need to obtain any required incidental take permits for impacts on larvae and comply with the conditions of the permits. With implementation of the APMs and compliance with regulatory requirements under the ESA, impacts on special-status fish species and their associated critical habitat from operation and maintenance activities would be less than significant.

Indirect Impacts

Sensitive fish species and their habitat could be impacted by the introduction of invasive species, through the ballast of aquatic vessels or organisms attached to the surface of vessels and equipment. Invasive species have the potential to outcompete sensitive fish for food and habitat resources or could introduce novel diseases or impair water quality. Aquatic vessels and equipment would be cleaned and follow maritime regulations relating to ballast water exchange, in accordance with APM BIO-20. Additionally, APM BIO-20 would require all in-fill materials to be new and any in-water pumps or equipment to be cleaned and dried prior to use on the Proposed Project, reducing the likelihood of introducing invasive species that may create indirect impacts to native fish species. However, the increased presence of invasive species such as golden mussel in the region could result in inadvertent transportation of invasive species from the project area after construction is complete and could introduce invasive species to other areas. The introduction of invasive species from the project area would be a significant

impact. To reduce the risks of introducing or spreading invasive species, MM BIO-17 would require an Invasive Marine Species Control plan to be developed and implemented during any in-water work. This plan would include inspection of equipment prior to and following use, and environmental training for crew members in identifying, removing, and disposing of invasive species (refer to Section 4.4.14 for the complete text of this MM). With the implementation of MM BIO-17 impacts from invasive species on special-status fish would be less than significant.

Impact BIO-2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (*Less than significant with mitigation*)

Direct Impacts

No riparian habitat occurs within the area of disturbance for the Proposed Project. This was verified during the field surveys conducted in 2023 in the *initial survey area* and 2025 in the *transposition site survey area*. Therefore, the Proposed Project would have no impact on riparian areas. Impacts on sensitive natural communities are described below.

Construction

LSPGC Project Components

The 230 kV underground segment and telecommunication lines alignments and the staging area at the Pittsburg Substation do not contain sensitive natural communities. Construction of the 230 kV underground segment and telecommunication lines would have no impact on sensitive natural communities.

Four sensitive natural communities occur within the temporary disturbance area for the Collinsville Substation, 230 kV overhead segment, and 230 kV submarine segment, as summarized in Table 4.4-9. Construction activities in temporary work areas (including grading, vegetation clearing, excavating, earth-moving, rehabilitation of existing roads, establishment of staging areas, and vehicle traffic) would impact sensitive natural communities through removal and/or damage to vegetation that comprises the sensitive natural community. To avoid and minimize potential impacts to sensitive natural communities from construction activities such as native vegetation clearing and grubbing, grading, and earth-moving, pre-construction biological surveys would be conducted in accordance with APM BIO-5 and boundaries of areas supporting native vegetation and sensitive natural communities would be flagged for avoidance in accordance with APMs BIO-1 and BIO-4, when feasible. In accordance with APM BIO-3, a worker environmental awareness training would be provided to ensure contractor understanding and implementation of these protective measures. Implementation of APM BIO-4 minimizes impacts on special-status plant communities but would not avoid temporary impacts on sensitive natural communities, including removal of the sensitive natural community. The impact would be significant. To reduce the impact, MM BIO-2 specifies procedures for restoration of habitats within temporary disturbance areas, including restoration of sensitive natural communities to avoid loss of the sensitive natural community (refer to

Section 4.4.14 for the complete text of this MM). With implementation of MM BIO-2, temporary impacts on sensitive natural communities would be less than significant.

One sensitive natural community, *Distichlis spicata – Frankenia salina* Coastal Herbaceous Alliance, occurs within the permanent disturbance area for the 230 kV overhead segment. The impact area is less than 0.01 acre (approximately 191 square feet). This permanent loss of sensitive natural communities would be a significant impact. To reduce the impact, MM BIO-19 would require permanent impacts on sensitive natural communities be adequately mitigated through the use of compensatory mitigation. Additionally, MM BIO-19 would minimize impacts in sensitive natural plant communities by requiring avoidance of vegetation removal where sensitive natural plant communities occur to the greatest extent feasible and compensation lands containing the sensitive natural community at a 1:1 ratio (acres of restoration per acres of disturbance) for the amount of land containing the sensitive natural community affected by the project (refer to Section 4.4.14 for the complete text of this MM). Because permanent impacts will receive compensatory mitigation in the form of restoring or protecting equivalent habitat in another location, the impact from permanent loss of sensitive natural communities would be less than significant with implementation of these mitigation measures.

PG&E Project Components

Two sensitive natural communities occur within the temporary disturbance area for the PG&E project components, as detailed in Table 4.4-9. One sensitive natural community, *Allenrolfea occidentalis* Shrubland Alliance, is present within the temporary disturbance area for the transposition structures. To minimize impacts on sensitive natural communities from construction activities (e.g., native vegetation clearing and grubbing, grading, and earth-moving), boundaries of sensitive natural communities and rare plants would be flagged for avoidance, in accordance with CMs BIO-4 and BIO-5, when feasible. In accordance with CM BIO-3, an HCP training would be provided to ensure contractor understanding and implementation of these protective measures. In addition, implementation of CM BIO-2 would require mitigation strategies, such as site reseeding. Implementation of CM BIO-4 would ensure minimization of impacts to special-status natural communities and wetlands. With the implementation of these CMs, impacts to sensitive natural communities would be less than significant.

One sensitive natural community, *Distichlis spicata – Frankenia salina* Coastal Herbaceous Alliance, occurs within the permanent disturbance area of the 12 kV distribution line. The area of permanent impact to this community would be 0.06 acre. This permanent loss of sensitive natural communities would be a significant impact. To reduce the impact, MM BIO-19 would require permanent impacts on sensitive natural communities be adequately mitigated through the use of compensatory mitigation. Additionally, MM BIO-19 would minimize impacts in sensitive natural plant communities by requiring avoidance of vegetation removal where sensitive natural plant communities occur to the greatest extent feasible and compensation lands containing the sensitive natural community at a 1:1 ratio (acres of restoration per acres of disturbance) for the amount of land containing the sensitive natural community affected by the

project (refer to Section 4.4.14 for the complete text of this MM). Because permanent impacts will receive compensatory mitigation in the form of restoring or protecting equivalent habitat in another location, the impact from permanent loss of sensitive natural communities would be less than significant with implementation of these mitigation measures.

Operation and Maintenance

LSPGC Project Components

Operation and maintenance of the Collinsville Substation, 230 kV overhead segment, 230 kV underground segment, and telecommunication lines would be conducted from developed areas within the substation or around the transmission structures, which would not contain sensitive natural communities. For routine maintenance and inspections of the riser structures, access would be provided on foot or by drone and would not impact special-status reptile populations. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain sensitive natural communities. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on sensitive natural communities during LSPGC routine operation and maintenance activities would be less than significant.

Replacement of a damaged segment of 230 kV submarine could involve trenching. Trenching in the area of the 230 kV submarine segment could impact sensitive natural communities, which would be a significant impact. MM BIO-19 requires of avoidance of sensitive natural communities wherever possible and, in the event that sensitive natural communities cannot be avoided, requires compensatory mitigation at a 1:1 ratio. Additionally, MM BIO-2 requires restoration for temporary impacts on sensitive natural communities (refer to Section 4.4.14 for the complete text of these MMs). Therefore, impacts on sensitive natural communities from operation and maintenance activities would be less than significant with implementation of these mitigation measures.

PG&E Project Components

PG&E operation and maintenance activities would be conducted within the developed telecommunications yard and permanent access roads that would not contain sensitive natural communities. PG&E operation and maintenance activities would generally be conducted by helicopter and in areas that do not contain vegetation and would thus have no potential to impact sensitive natural communities. Vegetation management would include application of herbicides, as needed. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on sensitive natural communities during PG&E routine operation and maintenance activities would be less than significant.

Indirect Impacts

Construction

LSPGC Project Components

Proposed Project construction could result in the introduction and proliferation of invasive weeds if invasive weeds were carried into the Project work areas via construction equipment or vehicles. Uncontrolled invasive weeds could degrade the quality of sensitive vegetation communities, especially riparian areas, as seeds are often transported in water and the spread along waterways can be rapid. The degradation of sensitive vegetation communities and riparian habitat would be a significant impact. To reduce the impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area and would reduce the impacts from invasive, non-native plant species to a less-than-significant level (refer to Section 4.4.14 for the complete text of this MM). The impact on sensitive natural vegetation communities and riparian areas from invasive weeds would be less than significant with implementation of this mitigation measure.

Grading and earthwork at Proposed Project work areas could result in loosened soils, erosion, and sedimentation off site. Erosion and sedimentation in off-site areas could result in loss or degradation of downstream riparian habitats and other sensitive vegetation communities. LSPGC would comply with the Construction Stormwater General Permit (Order No. 2022-0057-DWQ) and a SWPPP, including sediment and erosion control BMPs. LSPGC would also prepare and implement a Hazardous Materials Management Plan, Hazardous Material Business Plan, and Spill Control and Countermeasures Plan for storage and handling of hazardous materials. Potential impacts from increased erosion (and subsequent sedimentation), fugitive dust, and release of toxic substances would, therefore, be less than significant.

As discussed in Section 4.20: Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn could destroy riparian habitat and sensitive vegetation communities. Wildfires caused by construction are rare but may occur and the associated land disturbance would result in a significant impact on riparian habitat and sensitive vegetation communities. Implementation of APM FIRE-1 requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, which would reduce the risk of igniting a wildfire during construction. Therefore, impacts on riparian habitat and sensitive vegetation communities from increased wildfire risk would be less than significant.

PG&E Project Components

Indirect impacts on riparian areas and sensitive vegetation communities caused by construction of the PG&E project components would be the same as those described for the LSPGC project components above. CM FIRE-1 includes fire prevention and fire suppression requirements to reduce the risk of increased wildfires in the Proposed Project site. Impacts from introduction of invasive weeds would be significant. PG&E would be required to implement MM BIO-3, which defines methods to identify and control invasive, non-native plant species within the Proposed

Project area (refer to Section 4.4.14 for the complete text of this MM). With implementation of this mitigation measure, indirect impacts on riparian areas and sensitive vegetation communities would be less than significant.

Impact BIO-3: Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (*Less than significant with mitigation*)

Direct Impacts

Construction

Table 4.4-12 presents the areas of impacts to wetlands from the Proposed Project. Impacts are described in more detail below.

Table 4.4-12 Impacts to Wetlands within the Proposed Project Site

Proposed Project Component	Temporary (acres)	Permanent (acres)
LSPGC Collinsville Substation	0.03	—
LSPGC 230 kV transmission line submarine segment[a]	0.63	—
PG&E 12 kV distribution Line	0.03	—
PG&E 500 kV transposition sites	0.18	—
Total	**0.89**	—

[a] Impact area overlaps the temporary wetland impact area of the 230 kV overhead segment. This area of overlap is 0.12 acre and has been attributed to the submarine segment.

LSPGC Project Components

No wetlands occur within the permanent disturbance areas of the LSPGC project components. Additionally, no wetlands occur within the temporary disturbance area of the 230 kV overhead segment, 230 kV underground segment, or telecommunication lines. The Collinsville substation and 230 kV submarine segment and riser structures would temporarily impact wetlands through access roads, temporary work areas, and trenching in areas containing wetland resources. The total area of temporary disturbance in wetlands is listed in Table 4.4-12. Temporary impacts would be significant if the wetland functions and values were not restored, resulting in the loss or degradation of wetlands. Because the Proposed Project does not contain specifications for restoration of wetlands, the impacts would be significant. To reduce the impact, MM HYD-1 defines specific procedures for restoration, monitoring, and adaptive management for temporary impacts on wetlands and compensatory mitigation for any permanent impacts to wetlands (refer to Section 4.10: Hydrology for the complete text of this MM). With the implementation of this mitigation measure, impacts on wetlands would be less than significant.

PG&E 500 kV Project Components

No wetlands occur within the permanent disturbance areas of the PG&E project components. Additionally, no wetlands occur within the temporary disturbance area of the 500 kV

interconnection lines. The 12 kV distribution line and transposition sites would temporarily impact wetlands through access roads and temporary work areas in areas containing wetland resources. The total area of temporary disturbance in wetlands is listed in Table 4.4-12. Temporary impacts would be significant if wetland functions and values were not restored, resulting in the loss or degradation of wetlands. Because the Proposed Project does not contain specifications for restoration of wetlands, the impacts would be significant. To reduce the impact, MM HYD-1 defines specific procedures for restoration, monitoring, and adaptive management for temporary impacts on wetlands and compensatory mitigation for any permanent impacts to wetlands (refer to Section 4.4.14 for the complete text of this MM). With the implementation of this mitigation measure, impacts on wetlands would be less than significant.

Operation and Maintenance

LSPGC Project Components

Operation and maintenance activities for the Collinsville Substation, 230 kV overhead segment, 230 kV underground segment, and telecommunication lines would be conducted from developed and disturbed areas and would not impact wetlands. Wetlands occur within and surrounding the terrestrial portion of the submarine segment between the riser structures and the Delta and within the temporary access road area for accessing the riser structures.

Replacement of a damaged submarine cable could be required in the event of a damaged cable and would require separate permits and approvals. The replacement cable would be installed in a trench similar to construction of the submarine segment. Trenching for installation of a replacement cable could result in temporary and permanent impacts if wetlands occur within the area of the replacement cable trench. Overland travel to access the riser structures for maintenance could also result in temporary impacts. Impacts from trenching and overland travel within wetlands would be significant. To reduce the impact, MM HYD-1 defines procedures for mitigation of wetland impacts, which would apply to impacts from maintenance activities (refer to Section 4.10: Hydrology and Water Quality for the complete text of this MM). Impacts from operation and maintenance would be less than significant with implementation of this mitigation measure.

PG&E Project Components

Operation and maintenance of PG&E project components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Operation and maintenance of PG&E project components would not directly fill, remove, or cause hydrologic interruption of wetlands. No impacts on wetlands would occur.

Indirect Impacts

Construction

LSPGC Project Components

Proposed Project construction could result in the introduction and proliferation of invasive weeds if invasive weeds were carried into the Project work areas via construction equipment or

vehicles. Uncontrolled invasive weeds could degrade the quality of wetlands near the Proposed Project area. The degradation of wetlands from introduction of invasive plant species would be a significant impact. To reduce the impact, MM BIO-3 defines methods to identify and control invasive, non-native plant species within the Proposed Project area and would reduce the impacts from invasive, non-native plant species to a less-than-significant level (refer to Section 4.4.14 for the complete text of this MM). The impact on wetlands from invasive weeds would be less than significant with implementation of this mitigation measure.

Grading and earthwork at Project work areas could result in loosened soils, erosion, and sedimentation off site. Erosion and sedimentation in off-site areas could result in loss or degradation of downstream wetlands. Implementation of all sediment and erosion control measures contained in the Proposed Project-specific SWPPP would reduce the potential for significant erosion and sedimentation. Therefore, the impact on sensitive vegetation communities and riparian habitat from dust, erosion and sedimentation would be less than significant.

As discussed in Section 4.20, Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn could lead to the loss or degradation of wetlands. Wildfires caused by construction are rare but may occur and the associated land disturbance would result in a significant impact on wetlands. Implementation of APM FIRE-1 requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, which would reduce the risk of igniting a wildfire during construction. Therefore, impacts on wetlands from increased wildfire risk would be less than significant.

PG&E Project Components

Indirect impacts to wetlands caused by construction of the PG&E project components would be the same as those described for the LSPGC components above. CM FIRE-1 includes fire prevention and fire suppression requirements to reduce the risk of increased wildfire in the Proposed Project area and the subsequent impact on wetlands due to fire during construction would be less than significant. Similar to LSPGC project components, impacts from introduction of invasive plant species on wetlands would be significant. To reduce the impact, MM BIO-3 would be implemented and defines methods to identify and control invasive, non-native plant species within the Proposed Project area (refer to Section 4.4.14 for the complete text of this MM). Indirect impacts on wetlands would be less than significant with implementation of this mitigation measure.

Impact BIO-4: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (*Less than significant with mitigation*)

Direct Impacts

Construction

LSPGC Collinsville Substation, 230 kV Transmission Line (Overhead and Underground Segments), and Telecommunication Lines

Significant impacts to wildlife movement may occur if a wildlife movement corridor were to be interrupted by a feature that physically blocks wildlife movement (e.g., a roadway) or if suitable habitat that supports wildlife in the movement corridor were to be directly removed during construction or affected by construction noise. LSPGC 230 kV underground segment and telecommunication lines would be located underground in disturbed and developed areas and would have no impact on wildlife movement.

Project temporary and permanent disturbance within annual grasslands at dispersed work areas along the 230 kV transmission line or at the Collinsville Substation would not create a barrier to wildlife movement or otherwise interfere with local short-distance wildlife movement. The terrestrial LSPGC project components would not be located within resident or migratory corridors other than the Pacific Flyway, which covers roughly one-third of the North American continent. Impacts on wildlife migration associated with construction of the LSPGC terrestrial project components would be less than significant.

Impacts to nursery sites may occur if nursery habitat were to be damaged or destroyed by construction activities for the LSPGC terrestrial components, including grading, vegetation removal, trenching, and other ground-disturbing activities. The potential for species to occur and breed in the Proposed Project area, as well as potential impacts to breeding are discussed in detail in Impact BIO-1B through Impact BIO-1F. APMs BIO-1, BIO-3, BIO-4, and BIO-6 would ensure sensitive areas are avoided, workers are trained in resource protection, and a qualified biologist conducts monitoring within any suitable special-status species habitat. However, these APMs are not sufficient to avoid significant impacts to nursery sites as they do not require pre-activity surveys or monitoring or specify requirements for bird nests avoidance to ensure adequate protections are provided for nursery sites. The resulting impact on nursery sites would be significant. To reduce the impact on nursery sites, MM BIO-5 would require pre-activity surveys and biological monitoring to be implemented prior to the initiation of construction and in work areas within suitable habitat for special-status species. Additionally, MM BIO-6 defines specific requirements for avoidance of nesting birds (refer to Section 4.4.14 for the complete text of these MMs). With implementation of these MMs, impacts on nursery sites would be less than significant with mitigation.

LSPGC Submarine Segment

Native fish nursery sites. The LSPGC submarine segment is located within essential fish habitat (EFH) listed under three fisheries management plans: the Coastal Pelagic Species Fishery Management Plan, the Groundfish Fisheries Management Plan, and the Salmonid Fishery Management Plan (WRA 2024) (Appendix F.3). EFH provides protection for certain species of aquatic vegetation that provides cover, forage and rearing areas for native fishes. Habitat impacts associated with cable installation are temporary, as the furrows created to install cables below the riverbed will be naturally backfilled immediately after the cables are installed. Therefore, the impact on EFH/native nursery sites from cable installation would be less than significant. As discussed in Impact BIO-1H, up to 27 concrete mattresses could be installed along the cable alignment. The concrete mattresses would introduce permanent fill/concrete to the channel, which would be a permanent impact on EFH. The permanent impact on EFH would be significant. MM BIO-18 requires LSPGC to provide compensatory mitigation for permanent impacts to special-status fish habitat, following a Benthic Habitat Mitigation and Monitoring Plan (refer to Section 4.4.14 for the complete text of this MM). Because MM BIO-18 requires compensatory mitigation to offset the permanent impacts for the concrete mattresses the resulting impact on EFH would be less than significant with mitigation.

Migration. With the presence of core habitat areas upstream and downstream of the Proposed Project site, waters within the Proposed Project area function as a corridor for anadromous fish species moving between natal streams in the Central Valley and marine habitats in the Pacific Ocean. Migratory fish species include the three ESUs of Chinook salmon, one steelhead DPS and three species of lamprey discussed above, as well as eulachon, which spawn in freshwater rivers and migrate to coastal marine environments for adulthood. Eulachon migrations only take place between December and June and would not overlap with submarine segment construction. Similarlary, Pacific lamprey, river lamprey, and western brook lamprey juveniles and adults migrate through the Proposed Project area in the early spring and summer and the migration period does not overlap with the submarine segment construction period.

As discussed in Impact BIO-1H, The fall-run, spring-run, and winter-run ESU of Chinook salmon, and steelhead migration overlaps with the Proposed Project submarine segment construction period of July to November. As discussed in Impact BIO-1H, the submarine cable installation would increase sediment within approximately 600 feet of the work area beyond which the turbidity would subside to background levels. Due to the 1 to 2 mile width of the channel in the Proposed Project area, the turbidity caused by construction would not create a barrier to fish migration as fish could travel around the area of increased turbidity, and the impact would be less than significant.

Hazardous Materials. The introduction of hazardous materials from construction equipment could reduce water quality and impact sensitive fish life stages and nursery habitat. Per APM-BIO 21, prior to cable installation, the alignment would be screened to determine if there have been any known spills or hazardous materials released that could harm fish or their habitats. If any known spills or other hazardous materials releases are discovered, APM BIO-21 would require screening and testing of aquatic sediments would be screened and tested before they are

disturbed to reduce the risk of exposing hazardous sediments to the marine environment. Additionally, under APM BIO-22, LSPGC would develop a spill prevention and control plan for the project to reduce potential effects from spills. Impacts from hazardous materials on marine nursery sites and wildlife movement would be less than significant with implementation of APMs BIO-21 and BIO-22.

PG&E Project Components

Significant impacts on wildlife movement may occur if a wildlife movement corridor were to be interrupted by a feature that physically blocks wildlife movement (e.g., a roadway) or if suitable habitat that supports wildlife in the movement corridor were to be directly removed during construction or indirectly affected by construction and decommissioning noise or dust. The PG&E 500 kV interconnection lines, transposition structures, and 12 kV distribution line construction work areas would be interspersed and would not create barriers to the movement of any native or migratory wildlife species, which would be able to move uninterrupted around the work areas. The PG&E project components would not be located within resident or migratory corridors other than the Pacific Flyway, which covers roughly one-third of the North American continent. Impacts on wildlife corridors associated with PG&E project components would be less than significant.

Impacts to nursery sites may occur if nursery habitat were to be damaged or destroyed by construction activities for the PG&E project components, including grading, vegetation removal, trenching, and other ground-disturbing activities. The potential for species to occur and breed in the Proposed Project area, as well as potential impacts to breeding are discussed in detail in impact BIO-1B through BIO-1F. PG&E CMs BIO-1, BIO-3, BIO-4, and BIO-6 would ensure workers are trained in resource protection, revegetation is implemented, and a qualified biologist conducts monitoring within any suitable special-status species habitat. CM BIO-12 would implement avian-specific measures, including seasonal nesting bird avoidance. Potential impacts on wildlife nursery sites would remain significant after implementation of PG&E CMs due to inadequate protection of bird nests and other species nursery sites. To reduce the impact, MM BIO-5 would require pre-activity surveys prior to the initiation of construction and biological monitoring during construction in work areas within suitable habitat for special-status species. MM BIO-7 defines specific buffers to minimize impacts on nesting birds (refer to Section 4.4.14 for the complete text of these MMs). With the implementation of these MMs, impacts on nursery sites would be less than significant.

Operation and Maintenance

LSPGC Collinsville Substation, 230 kV Transmission Line (Overhead and Underground Segments), and Telecommunication Interconnection Lines

The new substation, transmission, and distribution structures and poles, as well as the electric lines installed on those structures and poles, may result in a risk of collisions for birds, interfering with the movement of individuals or flocks. This would be a significant impact. To avoid impacts on avian movement from new electric lines, LSPGC would implement MM BIO-11, wherein all LSPGC transmission lines would be designed to follow current APLIC

guidelines. The potential impacts on avian movement would be less than significant. The Proposed Project would result in a nominal increase in operation and maintenance activities, such as increased maintenance and inspection trips. However, operation and maintenance activities would occur periodically but infrequently. Given the periodic but infrequent nature of these continuing operations, potential impacts to wildlife movement or established corridors would be less than significant.

Impacts to nursery sites during operation and maintenance of the LSPGC project components may occur from vehicle travel and vegetation removal or trimming during inspection and maintenance activities outside of developed areas. The potential for species to occur and breed in the Proposed Project area, as well as potential impacts to breeding, are discussed in detail in impact BIO-1B through BIO-1F. The majority of operation and maintenance activities would be conducted within the developed substation and developed areas at the 230 kV transmission poles, which would not provide nesting habitat. Operation and maintenance activities in developed areas would have no impact avian nursery sites.

For routine maintenance and inspections of the riser structures, access would be provided on foot or by drone and would not impact avian nursery sites. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain nesting habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on avian nursery sites during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on avian nursery sites, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement would require separate authorization. If the trenching is required in areas containing nesting habitat, the impact on avian nursery sites would be equivalent to construction and would be significant. MM BIO-7 defines requirements for pre-activity nesting bird surveys in suitable habitat and requires nest avoidance buffers and monitoring where nests are found. The impact on nursery sites during cable replacement maintenance activities would be less than significant with mitigation.

LSPGC 230 kV Transmission Line Submarine Segment

The Proposed LSPGC 230 kV submarine segment cables would be buried beneath the Delta. If a cable were damaged and needed repairs, the damaged segment of the cable would be cut and a new segment of cable would be installed using the same methods used during initial cable installation as described in construction above. The new segment of cable would form a loop around the damaged segment of cable. The damaged segment of cable would either be left in place or would be removed if required by agency permit conditions. Removal of the damaged segment of cable would mobilize sediment and would generate noise similar to the cable

installation during construction. Cable repair activities would require separate authorization. Similar to construction, the cable maintenance would require use of a hydroplow. As discussed for construction, APMs BIO-3 and APM BIO-18 through APM BIO-22 would be implemented to minimize impacts on migratory fish and nursery sites from cable repair activities. Cable maintenance activities would not involve installation of any new permanent structures within the nursery habitat and would generate turbidity and noise similar to the Proposed Project construction, which would result in localized and temporary impacts that would not create a barrier to migration or impede use of nursery sites. The impact from submarine cable maintenance would thus be less than significant.

PG&E Project Components

PG&E operation and maintenance activities would be conducted within the developed telecommunications yard and permanent access roads. PG&E operation and maintenance activities would generally be conducted by helicopter and in areas that do not contain vegetation and would thus have no potential to impact wildlife nursery sites. Vegetation management would include application of herbicides, as needed. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on wildlife nursery sites during PG&E routine operation and maintenance activities would be less than significant.

Impacts on wildlife nursery sites would be reduced by PG&E's adherence to measures within their Bay Area HCP. The Bay Area HCP requires workers to limit speed limits to a maximum of 15 miles per hour, which will reduce potential for vehicle strikes. Bay Area HCP measure AMM FP-10 requires workers to minimize the activity footprint and amount of time spent at work stations to reduce the potential for take of species and AMM Hot Zone-6 limits activities to foot access only when working off of established roadways unless a biological monitor delineates off-road access routes that avoid sensitive biological resources; both measures would reduce the potential for wildlife mortality from vehicle strikes as well as impacts to amphibian habitat (ICF 2017). Due to adherence to the measures in the HCP, the impact on wildlife nursery sites during operation and maintenance would be less than significant.

The new distribution structures and poles, as well as the electric lines installed on those structures and poles, may result in a risk of collisions for birds, interfering with the migration of individuals or flocks. This would be a significant impact. To avoid impacts on special-status birds from new electric lines, MM BIO-11 would require all PG&E transmission lines to be designed to follow the current APLIC guidelines. With the implementation of the APLIC guidelines, the direct impact on special-status birds from operation and maintenance of the PG&E project components would be less than significant.

Indirect Impacts

Construction

LSPGC Collinsville Substation, 230 kV Transmission Line (Overhead and Underground Segments), and Telecommunication Interconnection Lines

There would be no indirect impacts to wildlife movement as a result of construction of the LSPGC Collinsville Substation, 230 kV overhead and underground segments, and telecommunication lines.

Indirect impacts to nursery sites may occur if invasive species, wildfire or excessive sediment were to be introduced to nursery habitat as a result of construction activities for the LSPGC terrestrial components. The potential for species to occur and breed in the Proposed Project area as well as potential impacts to breeding are discussed in detail in impact BIO-1B through BIO-1F.

As discussed in Section 4.20, Wildfire, construction of the LSPGC project components would involve the use of vehicles and equipment on dry terrain, and heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, which in turn destroy nursery sites. Wildfires caused by construction are rare but may occur and the associated land disturbance would result in a significant impact on special-status plants. Implementation of APM FIRE-1 requires implementation of a Construction Fire Prevention Plan that includes fire prevention and suppression measures, which would reduce the risk of igniting a wildfire during construction. Therefore, impacts to nursery sites from increased wildfire risk would be less than significant.

LSPGC 230 kV Transmission Line Submarine Segment

Migratory sensitive fish species and nursery habitat could be impacted by the introduction of invasive species, through the ballast of aquatic vessels or organisms attached to the surface of vessels and equipment. Invasive species have the potential to outcompete sensitive fish for food and habitat resources or could introduce novel diseases or impair water quality. Aquatic vessels and equipment would be cleaned and follow maritime regulations relating to ballast water exchange, in accordance with APM BIO-20. Additionally, APM BIO-20 would require all in-fill materials to be new and any in-water pumps or equipment to be cleaned and dried prior to use on the Proposed Project, reducing the likelihood of introducing invasive species that may create indirect impacts to native fish species, particularly in nursery habitat. However, the increased presence of invasive species such as golden mussel in the region could result in inadvertent transportation of invasive species from the Proposed Project area to other locations, which would be a significant impact. To reduce the risks of introducing or spreading invasive species, MM BIO-17 would require an Invasive Marine Species Control plan to be developed prior to any in-water work. This plan would include inspection of equipment prior to and following use, and environmental training for crew members in identifying, removing, and disposing of invasive species (refer to Section 4.4.14 for the complete text of this MM). With the implementation of MM BIO-17 impacts from invasive species would be less than significant.

PG&E 500 kV Interconnection Lines, 500 kV Transposition Sites, 12 kV Distribution Line, and Collinsville Substation Telecommunication Yard

There would be no indirect impacts to wildlife movement as a result of construction of the PG&E 500 kV interconnection lines, 500 kV transposition structures, and 12 kV distribution line.

Indirect impacts to nursery sites may occur if invasive species, wildfire or excessive sediment were to be introduced to nursery habitat as a result of construction activities for the PG&E components. The potential for species to occur and breed in the Proposed Project area, as well as potential impacts to breeding are discussed in detail in impact BIO-1B through BIO-1F. Construction of the Proposed Project could result in an increased risk of wildfire, which could result in the loss or degradation of riparian habitat and sensitive vegetation communities. CM FIRE-1 includes fire prevention and fire suppression requirements to reduce the risk of increased wildfire in the Proposed Project area.

Impact BIO-5: Would the Proposed Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (*Less than significant with mitigation*)

The Solano County General Plan (Solano County 2008), Contra Costa County General Plan (PlaceWorks 2024), City of Pittsburg General Plan (City of Pittsburg 2024), and the Delta Plan (Delta Stewardship Council 2025b) include policies that apply to biological resources within the Proposed Project area as described in the Regulatory Setting (Section 4.4.3). Because the CPUC has exclusive jurisdiction over its siting, design, and construction, the Proposed Project is not subject to local land use and zoning regulations or discretionary permits. However, a conflict with a local policy, ordinance protecting biological resources would be a significant impact under CEQA. Table 4.4-13 presents the text of the local policies and ordinances protecting biological resources and the Proposed Project's consistency or conflict with those policies and ordinances.

Table 4.4-13 Proposed Project Consistency with Local Plan Policies and Goals

Policy or Regulation	Consistency Analysis
Solano County General Plan	
RS.P-1: Protect and enhance the county's natural habitats and diverse plant and animal communities, particularly occurrences of special-status species, wetlands, sensitive natural communities, and habitat connections. Actions to enhance or restore habitat areas should not cause adverse impacts to airports, including Travis Air Force Base.	**Consistent.** The Proposed Project impacts on special-status plants are described in Impact BIO-1A and quantified in Table 4.4-11. The Proposed Project would result in temporary and permanent impacts on special-status plants, which would conflict with the policy requirements for protecting special-status species. The impact would be significant. MM BIO-1 defines procedures to minimize and compensate for impacts on special-status plants. With implementation of MM BIO-1, the impact from conflict with the policy requirements for protection of special-status plants would be less than significant.

Policy or Regulation	Consistency Analysis
	The Proposed Project habitat impacts are presented in Table 4.4-9. With the exception of 0.06 acre of permanent impact from the PG&E distribution line and 230 kV overhead segment, all of the permanent habitat impacts are not within natural habitats. The temporary and permanent impact on natural communities would conflict with the policy to protect natural habitats and diverse plant and animal communities if areas of temporary impact were not properly restored to pre-project conditions and permanent impacts were not compensated. The impact from conflict with the policy would be significant. MM BIO-2 defines specific requirements for habitat restoration to ensure the habitat matches pre-project conditions and MM BIO-19 defines requirements for restoration and compensatory mitigation of sensitive natural communities. The conflict due to impacts on natural habitats and sensitive natural communities would be less than significant with implementation of the mitigation measures. Impacts on wetlands are discussed in the analysis for Impact BIO-3 above. The project would result in temporary and potentially permanent impacts from construction in wetland areas. Those temporary impacts would conflict with the policy of protecting wetlands if the wetlands were not restored to pre-project conditions or the functions and values were not compensated for, which would be a significant impact. MM HYD-1 (refer to Section 4.10: Hydrology and Water Quality) defines specific requirements for restoration of temporary impacts and compensatory mitigation of any permanent impacts on wetlands. With implementation of MM HYD-12 the conflict with the policy due to impact on wetlands would be less than significant. The Proposed Project would not create a barrier to species migration/movement and would thus not conflict with the policy to protect habitat connections. Impacts on habitat connections would thus create a less than significant impact from conflict with the policy.
RS.P-5: Protect and enhance wildlife movement corridors to ensure the health and long-term survival of local animal and plant populations. Preserve contiguous habitat areas to increase habitat value and to lower land management costs.	**Consistent.** The Proposed Project would not create a barrier to species migration/movement and would thus not conflict with the policy to protect wildlife movement corridors to ensure health and long-term survival of local animal and plant populations. The Proposed Project is not a habitat preservation project, but would not conflict with County plans for habitat preservation of contiguous habitat areas. The Proposed Project

Policy or Regulation	Consistency Analysis
	would not conflict with the policy and the impact would be less than significant.
RS.P-7: Preserve and enhance the diversity of habitats in marshes, delta to maintain these unique wildlife resources.	**Consistent.** The Proposed Project would result in temporary impact on wetlands/marsh as provided in Table 4.4-12. The impacts on marsh areas could be significant and conflict with the policy of preserving marsh areas if the impacts were not properly restored or compensated, which would be a significant impact. MM HYD-1 (refer to Section 4.10: Hydrology and Water Quality) requires restoration of wetlands and habitat compensation for any permanent impacts. With implementation of MM HYD-1, the conflict with the policy to preserve and enhance marsh habitats would be less than significant.
RS.P-8: Protect marsh waterways, managed wetlands, tidal marshes, seasonal marshes, and lowland and grasslands because they are critical habitats for marsh-related wildlife and are essential to the integrity of the marshes.	**Consistent.** Conflicts with the policy due to impacts on marshes and wetlands would be significant as described for RS.P-7 above. MM HYD-1 (refer to Section 4.10: Hydrology and Water Quality) requires restoration of wetlands and habitat compensation for any permanent impacts. With implementation of MM HYD-1, the conflict with the policy to preserve and enhance marsh habitats would be less than significant. The Proposed Project would temporarily impact 80.2 acres of grasslands and permanently impact 13.4 acres of grasslands. The Proposed Project impacts in areas near the marshlands would be isolated to work areas and would not be continuous. The Proposed Project would not affect any critical habitat areas. Due to the dispersed and temporary nature of impacts in grasslands adjacent the marsh/wetland habitat areas, the impact would not conflict with the policy for protection of marsh dependent wildlife and the impact would be less than significant.
RS.P-21: Preserve and protect the natural resources of the Delta including soils and riparian habitat. Lands managed primarily for wildlife habitat should be managed to provide inter-related habitats.	**Consistent.** There are no riparian habitats within the Proposed Project area; therefore, there will be no conflict with the policy protections of riparian habitat. The soil units within the Proposed Project area are not unique to the site. The Proposed Project permanent impacts would be primarily at the substation site, which is set back from the Delta and does not contain Delta soils. The impact would thus be less than significant.
Contra Costa County General Plan	
COS-P4.4: Protect wildlife migration corridors, including natural and channelized creeks providing habitat in urban settings, and support projects that enhance these areas.	**Consistent.** The Proposed Project would not affect natural or channelized creeks in Contra Costa County. Approximately 2 linear feet of an ephemeral, artificial drainage feature may be impacted by a temporary

Policy or Regulation	Consistency Analysis
	access road for Transposition Site D, but this feature is very shallow and would likely not be classified as a creek; it is also unlikely to serve as a migration corridor for any wildlife species. Therefore, the Proposed Project elements in Contra Costa County would have no impact on wildlife migration corridors and would thus not conflict with the policy. No impact would occur.
COS-P4.7: Require projects near sensitive habitat areas to minimize lighting in general and mitigate light pollution by incorporating best practices for wildlife-friendly lighting.	**Consistent.** PG&E Transposition site D is within unincorporated Contra Costa County and within proximity of sensitive habitats (Appendix F.1). There would be no night lighting associated with the 500 kV line structures after completion of construction. PG&E would implement CM BIO-11, which requires construction activities to cease 30 minutes before sunset and not begin prior to 30 minutes after sunrise whenever feasible; limited night work to the extent feasible; and the use of shielding on required lighting. Therefore, implementation of CM BIO-11 brings the Proposed Project in line with the policy's objectives of minimizing lighting and incorporating wildlife-friendly features; as such, there would be no conflict with the policy and no impact would occur.
COS-P4.9: Require avoidance and protection of sensitive ecological resources not approved for disturbance or removal during project entitlement, and require restitution in exceedance of standard mitigation ratios for deliberate or inadvertent damage to these resources.	**Consistent.** The Proposed Project would not impact any sensitive ecological resources not approved for disturbance or removal during project entitlement and would thus not conflict with the policy. No impact would occur.
Goal COS-5: Protected and restored natural watercourses, riparian corridors, and wetland areas that improve habitat, water quality, wildlife diversity, stormwater flows, and scenic values.	**Consistent.** The Proposed Project would not impact any protected or restored natural watercourses, riparian corridors, or wetland areas in Contra Costa County and would not conflict with the policy. No impact would occur.
COS-P5.2: Require public infrastructure and private development projects to preserve, and whenever possible restore and enhance, natural watercourses, floodplains, and riparian habitat.	**Consistent.** The Proposed Project would have no impact on natural watercourses or riparian habitat in Contract Costa County. The Proposed Project would thus not conflict with the policy and no impact would occur.
Goal COS-6: Preserve and enhance native upland habitat, including woodlands, grasslands, and rangelands.	**Consistent.** Transposition site D is the only part of the Proposed Project within unincorporated Contra Costa County. The permanent impact area and the majority of the temporary impact areas associate with transposition site D are within agricultural or disturbed, semi-natural vegetation communities, and disturbance of these areas would not conflict with the policy's goal of preserving and enhancing native upland habitat. A

Policy or Regulation	Consistency Analysis
	small (<0.01 acre) part of the temporary access road would temporarily impact the sensitive natural community, *Allenrolfea occidentalis* shrubland alliance, which would conflict with the policy if the impact area were not properly restored or compensated, which would be a significant impact. MM BIO-2 defines specific requirements for habitat restoration to ensure the habitat matches pre-project conditions and MM BIO-19 defines requirements for restoration and compensatory mitigation of sensitive natural communities. With implementation of MM BIO-2 and MM BIO-19, the conflict with the policy for protection of native upland habitat would be less than significant.
City of Pittsburg General Plan	
Goal-10-2: Conserve biological and ecological resources, particularly the health of Suisun Bay and Marsh (Bay) and the Sacramento-San Joaquin Delta (Delta), special status species, including species that are State or Federally listed as endangered, threatened, or rare, habitats that support special status species, and sensitive habitats.	**Consistent.** The Proposed Project would involve installation of the submarine segment using a hydroplow and construction of the underground segment in/adjacent the Delta. As discussed in Impact BIO-1G and Impact BIO-1H, LSPGC would implement APM BIO-19 (screen fish intakes), APM BIO-21 for sediment screening to address potential for disturbance of contaminated sediments, and APM BIO-22 for spill prevention and control during work in the Delta. The APMs would avoid pollution of the Delta waterways and the impact on on biological and ecological resources within the Bay would be less than significant with mitigation.
Policy 10-P-2.15: Protect and restore threatened natural resources, such as wildlife, estuaries, tidal zones, marine life, wetlands, and waterfowl habitat.	**Consistent.** The Proposed Project would not significantly impact threatened natural resources. There are no estuaries or wetlands within the Proposed Project area within the City of Pittsburg. Additionally, because of the lack of suitable habitat, there are unlikely to be threatened wildlife species within this area. Therefore, there would be no conflict with the policy for protection of these resources and no impact. A small area (0.04 acre) of the sensitive natural community, *Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance mixed with rip rap occurs in the northern part of the Proposed Project area within the City of Pittsburg, but no project components or work areas are currently planned within that habitat, and so there would be no conflict with the policy and no impact would occur. Tidal zones do occur within the Proposed Project area. The Pittsburg city limits extend into the Delta, and marine life is expected to occur within the impact areas associated with the 230 kV submarine segment. As

Policy or Regulation	Consistency Analysis
	discussed in Impact BIO-1G and Impact BIO-1H, no significant impact would occur to special-status marine mammal habitat, but special-status fish habitat would be permanently impacted by installation of concrete mattresses as part of the submarine cable segment installation. MM BIO-18 requires compensatory mitigation for permanent impacts to benthic habitat through the development and implementation of a Benthic Habitat Mitigation and Monitoring Plan. With the implementation of MM BIO-18, the conflict with the policy to protect threatened marine life would be less than significant.

LSPGC Project Components

Consistency with local plans and policies pertaining to protecting biological resources for the LSPGC project components is analyzed in Table 4.4-13 above. Application of MM BIO-1 (special-status plants avoidance and minimization), MM BIO-2 (habitat restoration), MM BIO-3 (invasive plant management), MM BIO-17 (invasive marine species control), MM BIO-18 (compensatory mitigation for benthic impacts), MM BIO-19 (sensitive natural plant communities restoration and compensation), and MM HYD-1 (wetland avoidance, minimization, and mitigation) would reduce conflicts. The impact from conflicts with local policies protecting biological resources would be less than significant with mitigation as described in Table 4.4-13 above.

PG&E Project Components

Consistency with local plans and policies pertaining to protecting biological resources for the PG&E project components is analyzed in Table 4.4-13 above. Construction or operation of the PG&E project components would conflict with policies for preservation of sensitive natural communities and wetlands, which would be a significant impact. Application of MM BIO-2 (habitat restoration), MM BIO-19 (sensitive natural plant communities restoration and compensation), and MM HYD-1 (wetland avoidance, minimization, and mitigation) would reduce conflicts to less than significant with all applicable local policies, as described in Table 4.4-13 above. Therefore, the impact on local plans and policies from the PG&E project components would be less than significant with mitigation.

Impact BIO-6: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (*Less than significant with mitigation*)

LSPGC Project Components

The LSPGC project components are located within the boundaries of two HCPs and one HCP/HNCCP, which are described in Section 4.4.2 (Environmental Setting). An analysis of the potential conflicts with each plan is provided in the subsections that follow.

Solano County Water Agency Solano Multispecies Habitat Conservation Plan

The proposed LSPGC Collinsville Substation, 230 kV overhead segment, and northern end of the 230 kV submarine segment would be located within the Solano Multispecies HCP Plan Area (Solano County Water Agency 2012). The Proposed Project is not a covered activity under the HCP. The LSPGC project components occur within several conservation areas identified in the HCP, including Vernal Pool Medium Value Conservation Areas, Delta Region Marsh Conservation Area, and Valley Floor Grassland Conservation Area. Analysis of the LSPGC project components' consistency with the HCP goals for these conservation areas is provided in the following paragraphs.

Valley Floor Grassland and Vernal Pool Conservation Strategy

The Collinsville Substation, 230 kV overhead segment, and northern end of the 230 kV submarine segment are located within the Vernal Pool Medium Value Conservation Area, Subarea 2I (Solano County Water Agency 2012). HCP Objective VPG 1.1 aims to preserve 13,000 to 15,000 acres of Valley Floor Grassland and Vernal Pool habitat within High Value Vernal Pool Conservation Areas and/or potential preserve and reserve areas, specifying acreages within some subareas. Because Subarea 2I is a Medium Value Conservation Area, which is not the primary target of VPG 1.1, and it contains 69,750 acres, the approximately 24.7 acres of temporary impact and 12.7 acres of permanent impact (Table 4.4-9) on this habitat associated with the LSPGC project components would not interfere with Solano County Water Agency's ability to implement the HCP. The conflict with the HCP would be less than significant.

HCP Objective VPG 1.3 aims to restore a minimum of 1 acre of vernal pool habitats within High and Medium Value Vernal Pool Conservation Areas for every acre of seasonal wetland directly impacted by Covered Activities. In total, there are 39,555 acres of High Value Conservation Area and 90,780 acres of Medium Value Conservation Area. The approximately 24.7 acres of temporary impact and 12.7 acres of permanent impact (Table 4.4-9) associated with the LSPGC project components within Medium Value Conservation Area would not interfere with Solano County Water Agency's ability to implement the HCP. The conflict with the HCP would be less than significant.

Coastal Marsh Conservation Strategy

The LSPGC project components would permanently impact approximately 0.1 acre and temporarily impact approximately 2 acres within the Delta Region Marsh Conservation Area (Solano County Water Agency 2012). HCP Objective CM 1.1 aims to increase the quality of coastal marsh habitat in the Plan Area by implementing programs to control invasive exotic plants and animals and improve water quality. The Proposed Project would conflict with HCP Objective CM 1.1 if it were to introduce nonnative invasive plants to areas that would otherwise be used for HCP conservation, which would be a significant impact. The Proposed Project would implement MM BIO-3, which requires monitoring and treatment of invasive plants and measures to prevent new infestations, and the resulting conflict with the HCP would be less than significant.

Swainson's Hawk and Burrowing Owl Conservation Areas

The Collinsville Substation, 230 kV overhead segment, and northern end of the 230 kV submarine segment are located within the Valley Floor Grassland Conservation Area (Solano County Water Agency 2012), which supports Swainson's Hawk foraging habitat and burrowing owl habitat as defined in the Solano HCP. HCP Goal SH 1, objectives SH 1.1, SH 1.2, SH 1.3, and SH 1.4 and HCP Goal BO 1, objective BO 1.1., 1.2. and 1.3, specify that 21,210 acres of Swainson's hawk habitat would be protected and managed in Swainson's Hawk Potential Reserve Areas including 13,000 to 15,000 in the Valley Floor Grassland Potential Reserve Area. They also specify that the reserves and preserves established for Swainson's hawk will also be managed to support burrowing owl. Because the size of the permanent impact area associated with the LSPGC project components within the Valley Floor Grassland Conservation Area (12.7 acres) is small compared to the total Vally Floor Grassland Conservation Area (136,785 acres), the Proposed Project would not interfere with the ability to conserve 13,000 to 15,000 acres of Valley Floor Grassland Conservation Area. As a result, the impact from conflicts with the HCP would be less than significant.

East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan

The proposed LSPGC 230 kV underground segment and telecommunication lines would be located within the plan area for the ECCC HCP/NCCP (ECCC 2007). The Proposed Project is not a covered activity under the ECCC HCP/NCCP. Construction, operation, and maintenance for the Proposed Project would be limited to developed areas within the ECCC HCP/NCCP plan area. The Proposed Project is not located in any reserve areas and would not conflict with future habitat preservation under the ECCC HCP/NCCP. Therefore, the Proposed Project would not conflict with the ECCC HCP/NNCP and no impact would occur.

Pacific Gas and Electric Company Bay Area Operations and Maintenance Habitat Conservation Plan

The PG&E Bay Area HCP covers PG&E operation and maintenance activities within nine counties surrounding the San Francisco Bay, including Solano County and Contra Costa County (ICF 2017). The LSPGC project components would not be covered under the PG&E Bay Area HCP as the HCP only covers PG&E operation and maintenance activities. The Proposed Project is not located in a habitat reserve area within the PG&E Bay Area HCP and would not conflict with conservation actions covered under the HCP. The LSPGC project components would not conflict with provisions of the HCP and no impact would occur.

PG&E 500 kV Interconnection Lines, 500 kV Transposition Sites, and 12 kV Distribution Line

The PG&E project components are located within the boundaries of the Solano Multispecies HCP and the PG&E Bay Area HCP, which are described in Section 4.4.2 Environmental Setting. An analysis of the potential conflicts with each plan is provided in the subsections that follow.

Solano County Water Agency Solano Multispecies Habitat Conservation Plan

The proposed PG&E 500 kV interconnection lines, 12 kV distribution line, and transposition sites A, B, and C would be located within the Solano Multispecies HCP Plan Area (Solano

County Water Agency 2012). The PG&E project components occur within several conservation areas identified by the HCP, including Vernal Pool Medium Value and High Value Conservation Areas and Valley Floor Grassland Conservation Area, which protects Swainson's hawk and burrowing owl. Analysis of the PG&E project components' consistency with the HCP goals for these conservation areas is provided in the following paragraphs.

Valley Floor Grassland and Vernal Pool Conservation Strategy

The PG&E 500 kV interconnection lines, 12 kV distribution line, and transposition sites A, B, and C are located within Vernal Pool Medium Value and High Value Conservation Areas (Solano County Water Agency 2012). The 500 kV interconnection lines, 12 kV distribution line structures, and transposition sites B and C are located within Subarea 2I, which is a Medium Value Conservation Area, while transposition site A is located within Subarea 1A, which is a High Value Conservation Area. HCP Objective VPG 1.1 aims to preserve 13,000 to 15,000 acres of Valley Floor Grassland and Vernal Pool habitat within High Value Vernal Pool Conservation Areas and/or potential preserve and reserve areas, specifying acreages within some High Value subareas. Because Subarea 2I is a Medium Value Conservation Area, which is not the primary target of VPG 1.1, and it contains 69,750 acres, the approximately 53.2 acres of temporary impact and 0.6 acre of permanent impact (Table 4.4-9) on this habitat associated with the 500 kV interconnection lines, 12 kV distribution line, and transposition sites B and C would not interfere with Solano County Water Agency's ability to implement the HCP. The HCP specifies that 11,140 to 13,220 acres should be preserved within Subarea 1A or other potential vernal pool preserve and reserve areas. Because Subarea 1A contains 26,860 acres, the approximately 9.9 acres of temporary impact and 0.04 acre of permanent impact (Table 4.4-9) on this habitat associated with transposition site A would not interfere with Solano County Water Agency's ability to implement the HCP. The conflict with the HCP would be less than significant.

HCP Objective VPG 1.3 aims to restore a minimum of 1 acre of vernal pool habitats within High and Medium Value Vernal Pool Conservation Areas for every acre of seasonal wetland directly impacted by Covered Activities. In total, there are 39,555 acres of High Value Conservation Area and 90,780 acres of Medium Value Conservation Area. The approximately 53.2 acres of temporary impact and 0.6 acre of permanent impact (Table 4.4-9) associated with the PG&E project components within Medium Value Conservation Area, and the approximately 9.9 acres of temporary impact and 0.04 acre of permanent impact (Table 4.4-9) associated with the PG&E project components within High Value Conservation Area, would not interfere with Solano County Water Agency's ability to implement the HCP. The conflict with the HCP would be less than significant.

Swainson's Hawk and Burrowing Owl Conservation Areas

The PG&E 500 kV interconnection lines, 12 kV distribution line, and transposition sites A, B, and C are located within the Valley Floor Grassland Conservation Area (Solano County Water Agency 2012). HCP Goal SH 1, objectives SH 1.1, SH 1.2, SH 1.3, and SH 1.4, and HCP Goal BO 1, objective BO 1.1., 1.2. and 1.3 specify that 21,210 acres of Swainson's hawk and burrowing owl habitat would be protected and managed in Swainson's Hawk Potential Reserve Areas composed of at least 13,000 to 15,000 in the Valley Floor Grassland Potential Reserve Area. They

also specify that the reserves and preserves established for Swainson's hawk will also be managed to support burrowing owl. Permanent impact area associated with the PG&E project components within the Valley Floor Grassland Conservation Area would be approximately 0.7 acre out of the 136,785-acre area defined as Valley Floor Conservation Area and would not interfere with the ability to conserve 13,000 to 15,000 acres of Valley Floor Grassland Conservation Area. As a result, the impact from conflicts with the HCP would be less than significant.

Pacific Gas and Electric Company Bay Area Operations and Maintenance Habitat Conservation Plan

The Proposed Project is located within the PG&E Bay Area HCP (ICF 2017). Although the Proposed Project is located within the boundaries of the Bay Area HCP, construction of PG&E project components is not a covered activity because construction of the Proposed Project is not considered operation and maintenance, minor new construction, or part of a pipeline safety program activity. (See the Environmental Setting for the definition of minor new construction.) The PG&E proposed CMs are also consistent with HCP measures. In addition, operation and maintenance activities of PG&E project components would comply with the HCP; therefore, the Proposed Project would not conflict with the HCP and no impact would occur.

4.4.6 Impact Analysis – Cumulative

Geographic Scope

The geographic scope for the biological resources cumulative analysis includes the entire extent of all vegetation and wildlife communities and special-status species (including their habitats) that could be adversely affected by construction, operation, restoration, and decommissioning of the Proposed Project, specifically all similar habitats within 10 miles of the Proposed Project. This geographic scope is appropriate because it accounts for the cumulative degradation or loss of a particular vegetation community or special-status species from all projects that have impacted or would impact vegetation communities of concern or special-status species.

Cumulative Analysis

Special-Status Plants (Impact BIO-1A)

Three special-status plant species were documented within temporary work areas for the Proposed Project along the north and south shores of the Delta. The cumulative projects listed in Section 4.0, specifically the potential future ship building project proposed by California Forever, would be expected to impact the same plant species as the Proposed Project due to the location along the shoreline of the Delta where these special-status plant populations occur. The cumulative impact on special-status plants would be significant. The estimated numbers of individuals impacted during construction are shown in Table 4.4-11. The Proposed Project would contribute considerably to the cumulative impact. MM BIO-1 requires minimization of impacts on special-status plants through replanting and replacement of any impacted special-status plant population. The Proposed Project contribution to the cumulative impact would be less than considerable with implementation of MM BIO-1.

Terrestrial Special-Status Wildlife Species (Impact BIO-1B, Impact BIO-1C, Impact BIO-1D, Impact BIO-1E, and Impact BIO-1F)
The Proposed Project construction would not overlap with the construction of the potential future California Forever Project and Humboldt-Collinsville 500 kV Transmission Line. However, the Proposed Project and cumulative projects could introduce invasive species and operation of the Proposed Project and Humboldt-Collinsville 500 kV Transmission Line could both introduce additional LSTs that would increase perching and avian interactions with the wind farm. The Solano 5 Project would also introduce new turbines that could cause additional avian mortality. The cumulative impact from invasive weed introduction and avian interaction with the wind turbines would be significant.

The Proposed Project would contribute considerably to the cumulative impact from introduction of invasive weeds and avian interactions with the wind farm. MM BIO-3 defines procedures for management of invasive weeds to avoid increases in invasive weed populations. The Proposed Project would not contribute considerably to cumulative impacts from invasive weeds with implementation of mitigation. However, the Proposed Project would still introduce LSTs to the area that would increase potential for avian mortality within the windfarm and the Proposed Project's contribution to the cumulative impact would be significant and unavoidable.

Special-Status Marine Mammals and Special-Status Fish (Impact BIO-1G and Impact BIO 1H)
The San Francisco Bay and Delta Sand Mining Project, the Sacramento River 30 ft Channel (O&M) Project, and the Maintenance Dredging of the Federal Navigation Channels in the San Francisco Bay Project could involve dredging of the benthic habitat at the same time the Project is installing cable for the proposed 230 kV submarine segment. Noise and turbidity from submarine segment installation would dissipate to baseline levels within 600 feet of the Proposed Project cable installation and would not be cumulative as dredging activities would not be conducted within 600 feet of the cable installation while the cable installation is occurring due to safety. However, cumulative projects in combination with the Proposed Project could impacts special-status marine mammals and fish through increased invasive species introduction, and contamination from hazardous materials, which would be a significant cumulative impact.

LSPGC would implement APM BIO-20 (invasive species management), APM BIO-21 (aquatic sediment screening and testing), and APM BIO-22 (aquatic spill prevention and control), which would reduce the Proposed Project contribution to cumulative impacts from invasive species introduction, contamination, and hazardous materials. The Proposed Project contribution to a cumulative impact on special-status fish would be less than considerable with implementation of the APMs. .

Riparian Habitat and Sensitive Natural Communities (Impact BIO-2)
There is no riparian habitat within the Proposed Project area. Therefore, the Proposed Project would not contribute to any cumulative impacts on riparian habitat and no cumulative impact would occur.

The Proposed Project would permanently impact approximately 0.06 acre of sensitive natural communities, specifically *Distichlis spicata - Frankenia salina* Coastal Herbaceous Alliance. The cumulative projects listed in Section 4.0, specifically the potential future ship building project proposed by California Forever, would be expected to impact this sensitive natural community due to the location along the shoreline and just inland of the Delta within wet lowland areas where this sensitive natural community occurs. The cumulative impact on sensitive natural communities would be significant. The Proposed Project impact on sensitive natural communities would be small, but cumulatively considerable. MM BIO-19, requires compensatory mitigation for permanently impacted sensitive natural communities. Because the mitigation measure would compensate for Proposed Project impacts on sensitive natural communities the Proposed Project contribution to the cumulative impact would be less than considerable with mitigation.

Wetlands (Impact BIO-3)
The Proposed Project would not permanently impact wetlands. The Proposed Project temporary impact on wetlands (approximately 0.9 acre) would not overlap temporally with the potential future California Forever future ship building project. By the time the California Forever project is constructed, areas of temporary impact for the Proposed Project would be restored. As a result, no cumulative impact on wetlands would occur.

Wildlife Movement and Nursery Sites (Impact BIO-4)
The Proposed Project is located within two wildlife movement corridors: the Pacific Flyway and a migratory corridor for numerous anadromous fish species. The cumulative projects in the area, including the Humboldt 500 kV Substation, with 500/115 kV Transformer, and a 500 kV line to Collinsville [HVDC operated as AC] Project and the Solano 5 Wind Farm Project could adversely affect avian migration in the area in combination with the Proposed Project. The cumulative impact on avian migration would be significant. The Proposed Project would involve a small segment of 230 kV overhead transmission line (less than 1 mile) and approximately 1 mile of new 500 kV interconnection lines. Due to the small total area of the Proposed Project, the Proposed Project would not contribute considerably to a significant impact on avian migration.

The Proposed Project could potentially impact fish and marine mammal movement during construction and maintenance. The San Francisco Bay and Delta Sand Mining Project, the Sacramento River 30 ft Channel (O&M) Project, and the Maintenance Dredging of the Federal Navigation Channels in the San Francisco Bay Project could involve dredging of the benthic habitat at the same time the Proposed Project is installing cable for the proposed 230 kV submarine segment. Noise and turbidity from submarine segment installation would dissipate to baseline levels within 600 feet of the Proposed Project cable installation. Due to the 1 to 2-mile-width of the channel in the Proposed Project area, the cumulative impact from dredging and submarine cable installation on fish and marine mammal migration would be less than significant.

Bird nesting sites (a type of nursery site) would be impacted by the Proposed Project because of the approximately 90.1 acres of temporary impacts on potential nesting habitat and approximately 13.5 acres of permanent removal of potential nesting habitat. The cumulative projects in the area, specifically the potential future California Forever Project, the Humboldt 500 kV Substation, with 500/115 kV Transformer, and a 500 kV line to Collinsville [HVDC operated as AC] Project, and the potential future Solano 5 Wind Farm Project, would also remove nesting habitat and the cumulative impact would be significant. Construction of the Proposed Project would not overlap with the cumulative projects and temporary habitat impacts would not contribute to a cumulative impact. The permanent impact on approximately 13 acres of potentially suitable nesting habitat in an area that is subject to agricultural production would be less than considerable given the large amount of surrounding habitat and limited value of the permanently impacted habitat.

The Proposed Project could potentially impact fish nursery sites during construction and maintenance. The San Francisco Bay and Delta Sand Mining Project, the Sacramento River 30 ft Channel (O&M) Project, and the Maintenance Dredging of the Federal Navigation Channels in the San Francisco Bay Project could involve dredging of the benthic habitat at the same time the Project is installing cable for the proposed 230 kV submarine segment. Cumulative projects in combination with the Proposed Project could impacts fish nursery sites through increased invasive species introduction, and contamination from hazardous materials, which would be a significant cumulative impact.

LSPGC would implement APM BIO-20 (invasive species management), APM BIO-21 (aquatic sediment screening and testing), and APM BIO-22 (aquatic spill prevention and control), which would reduce the Proposed Project contribution to cumulative impacts from invasive species introduction, contamination, and hazardous materials. The Proposed Project contribution to a cumulative impact on special-status fish would be less than considerable with implementation of the APMs.

Local Policies and Ordinances (Impact BIO-5)

The Proposed Project is consistent with policies adopted to protect biological resources, with the exception of impacts during construction and consistency with the Delta Plan. The Proposed Project construction would not overlap with the potential future California Forever Project, the Humboldt 500 kV Substation, with 500/115 kV Transformer, and a 500 kV line to Collinsville [HVDC operated as AC] Project, or the potential future Solano 5 Wind Farm Project. The only cumulative projects located within the Suisun Marsh Priority Habitat Management Area consist of restoration projects, which would not conflict with policies in the Delta Plan. As a result, there would be no cumulative impact from conflict with local policies.

HCPs, NCCPs, and other Plans (Impact BIO-6)

The Solano County Water Agency Solano Multispecies HCP contains goals and objectives for the conservation of key habitats within its planning area, including the prevention of the spread of invasive species into the areas that could otherwise have been used for conservation. The potential future California Forever Project would occupy a large portion of the HCP area for

conservation and the cumulative impact on implementation of the HCP would be significant (LSA 2023). The Proposed Project would occupy approximately 13.5 acres of habitat suitable for restoration within the areas that have been defined for potential conservation (thousands of acres). The Proposed Project contribution to a cumulative impact from conflict with the HCP would be less than considerable and thus less than significant.

4.4.7 Alternative 1: Collinsville Substation North of Talbert Lane

Environmental Setting – Alternative 1

Alternative 1 involves relocating the proposed Collinsville Substation to a different site, approximately 1.2 miles north of the Proposed Project substation site. Alternative 1 would also include an approximately 500-foot segment of PG&E 500 kV interconnection lines, approximately 700-foot segment of 12 kV distribution line, and an approximately 2-mile-long segment of LSPGC 230 kV overhead line. Alternative 1 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this Draft EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 1.

Alternative 1 Vegetation Communities

Vegetation community mapping was conducted using aerial imagery for the Alternative 1 areas plus an approximate 500-foot buffer. All Alternative 1 work areas were covered by the vegetation mapping and can be viewed on the vegetation community maps in Appendix F.6. The relocated Alternative 1 substation, 230 kV overhead line, 500 kV interconnection lines, and 12 kV distribution line would be within vegetation communities that are also present within the Proposed Project and described in Section 4.4.2. Vegetation communities in the Alternative 1 disturbance area are listed in Table 4.4-14. Sensitive natural communities *Distichlis spicata - Frankenia salina* coastal herbaceous alliance and *Schoenoplectus (acutus, californicus)* herbaceous alliance occur within the Alternative 1 230 kV overhead segment pulling sites.

Special-Status Species

An analysis of special-status plant and wildlife species' potential to occur within the Alternative 1 work areas was conducted and the full results are reported in Appendix F.7. The species determined to have potential to occur within Alternative 1 area are similar to those for the Proposed Project with a few exceptions. One plant species, large-flowered fiddleneck (*Amsinckia grandiflora*), and two wildlife species, double-crested cormorant (*Nannopterum auritum*) giant garter snake (*Thamnophis gigas*) were determined to have potential to occur within the Alternative 1 work areas . Large-flowered fiddleneck has a low potential to occur within the Alternative 1 work areas; double-crested cormorant has a moderate potential to occur for nesting and high potential to occur for foraging; and giant garter snake has a low potential to occur. .

Table 4.4-14 Vegetation Communities and Land Cover Types within the Alternative 1 Work Areas‡

Vegetation Community Or Land Cover Type	LSPGC Collinsville Substation	LSPGC 230 kV Transmission Line Overhead Segment	PG&E 500 kV Interconnection Lines	PG&E 12 kV Distribution Line	Vegetation Community Or Land Cover Type Impact Total
Avena spp. – Bromus spp. Herbaceous SNA[a]	32.98 (T) 13.40 (P)	1.08 (T) <0.01 (P)	5.85 (T) 0.11 (P)	0.24 (T) 0.02 (P)	**40.15 (T)** **13.53 (P)**
Brassica nigra – Centaurea (*solstitialis*, *melitensis*) Herbaceous SNA	—	0.91 (T) — (P)	— (T) — (P)	— (T) — (P)	**0.91 (T)** **— (P)**
Distichlis spicata - Frankenia salina Coastal Herbaceous Alliance*	— (T) — (P)	0.19 (T) — (P)	— (T) — (P)	— (T) — (P)	**0.19 (T)** **— (P)**
Lolium perenne Herbaceous SNA	— (T) <0.01 (P)	20.23 (T) 0.04 (P)	— (T) — (P)	— (T) — (P)	**20.32 (T)** **13.59 (P)**
Schoenoplectus (*acutus*, *californicus*) Herbaceous Alliance*	—	0.27 (T) — (P)	—	—	**0.27 (T)** **— (P)**
Disturbed	— (T) 0.01 (P)	0.09 (T) — (P)	<0.01 (T) — (P)	—	**0.10 (T)** **0.01 (P)**
Road	— (T) — (P)	1.10 (T) — (P)	— (T) — (P)	— (T) — (P)	**1.10 (T)** **— (P)**
Totals	**32.98 (T)** **13.41 (P)**	**24.50 (T)** **0.05 (P)**	**5.86 (T)** **0.11 (P)**	**0.24 (T)** **0.02 (P)**	**63.58 (T)** **13.59 (P)**

‡All impacts are reported in acres. Work areas are categorized by impact type: T = Temporary; P = Permanent

*CDFW-designated sensitive natural community (State Rarity Rank S1-S3).

[a] There are 1.13 acres of overlap among the temporary work areas for the Alternative 1 components within the *Avena spp. – Bromus spp.* Herbaceous SNA vegetation community. The components with overlapping temporary work areas include the alternative Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line. There is also <0.01 acre of overlap in permanent impact area for the alternative Collinsville Substation and the 12 kV distribution line.

Wetlands

Field surveys could not be performed to verify the locations of wetlands within or in proximity to the Alternative 1 work areas due to lack of site access for LSPGC to perform the surveys. In the absence of surveys, National Wetland Inventory (NWI) data (USFWS 2025f) were used to identify potential wetlands within the Alternative 1 work areas. These potential wetlands are shown on maps in Appendix F.6. Potential wetlands occurring with the Alternative 1 work areas are summarized in Table 4.4-15.

Table 4.4-15 Wetlands within the Alternative 1 Work Areas (NWI Data)‡

Proposed Project Component	Temporary (acres)	Permanent (acres)
LSPGC Collinsville Substation	0.22	—
LSPGC 230 kV transmission line overhead segment	0.13	—
PG&E 500 kV interconnection lines	0.26	<0.01
Total	**0.62**	**<0.01**

‡NWI Data were used in lieu of field survey data to calculate potential wetland impacts. All NWI aquatic features were used, including riverine features, in order to make a conservative estimate of impacts since riverine features can have associated wetland features.

Source: (USFWS 2025f)

HCP

Alternative 1 is located within the planning areas of the Solano County Water Agency Solano Multispecies HCP, PG&E Bay Area HCP, and the Solano County General Plan.

Impact Analysis – Alternative 1

Alternative 1 would result in approximately 63.58 acres of temporary impact and 13.59 acres of permanent impact. The total area of impact would be approximately 14 acres less than the comparable components of the Proposed Project.

Alternative 1 has no project components within the Delta and, therefore, would not impact special-status marine mammals (Impact BIO-1G), special-status fish (Impact BIO 1-H), or fish migratory corridors or nursery sites (Impact BIO-4). Because Alternative 1 would have no impact on these resources, they are not analyzed further here. The Alternative 1 impacts on other special-status species (Impact BIO-1A through BIO-1F), sensitive natural communities (Impact BIO-2), wetlands (Impact BIO-3), bird nesting sites (Impact BIO-4), local policies and ordinances (Impact BIO-5), and HCPs or other plans (Impact BIO-6) are discussed below.

Impact BIO-1A: Would Alternative 1 have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Construction

The Alternative 1 substation and work areas are located in suitable habitat for special-status plants (refer to Appendix F.6). Construction of Alternative 1 involves vegetation removal and could result in removal of special-status plants, which would be a significant impact. MM BIO-1 requires pre-construction botanical surveys, avoidance of special-status plants where feasible, and transplanting or compensation of special-status plant where avoidance is not feasible. With implementation of MM BIO-1, special-status plants would be avoided or impacted populations would be replaced and the Alternative 1 impact would be less than significant. Alternative 1 impacts on special-status plants would be equivalent to the Proposed Project components replaced by Alternative 1.

Indirect impacts on special-status plants would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 1 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 1 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Vegetation maintenance with the use of herbicides could be required to maintain the project components and reduce fire risk. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status plants during LSPGC routine operation and maintenance activities would be less than significant and would be equivalent to the impacts of the Proposed Project.

Impact BIO-1B: Would Alternative 1 have a substantial adverse effect, either directly or through habitat modifications, on any amphibian species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Construction

California red-legged frog and California tiger salamander have a low potential to occur in the Alternative 1 area. The Alternative 1 area does not include any suitable breeding habitat for either California red-legged frog or California tiger salamander. While California red-legged frog and California tiger salamander are not known to occur in the Alternative 1 area, the Alternative 1 area could provide refugia for California red-legged frog or California tiger salamander. LSPGC has defined APMs to reduce impacts on special-status amphibians. APM BIO-3 requires all workers to be trained in the identification of special-status amphibian species and the actions to take if any are encountered, APM BIO-11 requires preconstruction wildlife surveys, and APM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be covered or wildlife escape ramps installed to prevent entrapment of wildlife. PG&E has defined CMs to reduce impacts on special-status amphibians. CM BIO-3 requires all workers to be trained in the identification of special-status amphibian species and the actions to take if any are encountered and CM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be fitted with wildlife escape ramps to prevent entrapment of wildlife. While the APMs and CMs would reduce the potential for encounters and harm to special-status amphibians, the APMs and CMs do not define specific requirements for pre-construction surveys or requirements to avoid causing harm to the species. Therefore, the impact on special-status amphibians from construction would remain significant. To reduce the impact, MM BIO-4 defines specific requirements for pre-construction surveys and avoidance of any special status amphibians without obtaining an incidental take permit (refer to Section 4.4.14 for the complete text of this MM). With implementation of MM BIO-4, Alternative 1 impact on special-status

amphibians would be less than significant with mitigation. Alternative 1 impacts on special-status amphibians would be equivalent to the Proposed Project components replaced by Alternative 1.

Indirect impacts on special-status amphibians would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 1 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 1 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, additional amphibian habitat would not be impacted.

Impact BIO-1C: Would Alternative 1 have a substantial adverse effect, either directly or through habitat modifications, on any reptile species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Northern legless lizard has a low potential to occur in the Alternative 1 area due to the lack of shrubs and leaf litter. Giant garter snake also has a low potential to occur within the Alternative 1 area due to the absence of suitable habitat in proximity to the Alternative 1 area, but records of giant garter snake within 5 miles. Construction would involve earth moving activities and use of heavy equipment that could impact a northern legless lizard or giant garter snake if one were present within the work area at the time of construction. LSGPC has proposed APM BIO-3, which requires all workers to be trained in the identification of special-status species and the actions to take if any are encountered and APM BIO-9, which requires all holes/trenches that are not filled at the end of a workday to be covered or wildlife escape ramps installed to prevent entrapment of wildlife. PG&E has proposed CM BIO-3, which requires all workers to be trained in the identification of special-status reptile species and the actions to take if any are encountered and CM BIO-9, which requires all holes/trenches that are not filled at the end of a workday to be fitted with wildlife escape ramps to prevent entrapment of wildlife. While APMs and CMs would reduce the potential for impacts on special-status reptiles, the impact would remain significant as the APMs and CMs do not define specific procedures for surveys and construction monitoring to avoid injuring or killing a Northern California legless lizard or giant garter snake. MM BIO-5 requires pre-construction surveys, biological monitoring, and/or establishment of avoidance buffers that would apply to Northern California legless lizard and giant garter snake. Due to the low potential for either species to occur in the area and surveys and monitoring to ensure avoidance of either species, the impact of Alternative 1 on special-status reptile species would be less than significant with mitigation. Alternative 1 impacts on special-status reptile species would be equivalent to the Proposed Project components replaced by Alternative 1.

Indirect impacts on special-status reptiles would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 1 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 1 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, special-status reptile habitat would not be impacted during Alternative 1 operation and maintenance and no impact on special-status reptiles would occur.

Impact BIO-1D: Would Alternative 1 have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? *(Less than significant with mitigation)*

The additional special-status bird species determined to have potential to occur in the Alternative 1 work areas, double-crested cormorant, would not require mitigation in addition to that already defined for special-status birds for the Proposed Project.

Construction

Similar to the Proposed Project, Alternative 1 would involve use of noise generating heavy equipment including helicopters and removal of vegetation in areas of temporary and permanent impacts. Vegetation removal and construction noise could disturb a nest of special-status bird species. In addition to the birds occurring within the Proposed Project area, double-crested cormorant has the potential to occur within the Alternative 1 area. The Alternative 1 segment is not located in proximity to habitat for California black rail, California Ridgway's rail, or western snowy plover as the Alternative 1 segment does not approach the Delta. To reduce impacts on special-status birds, LSPGC proposes implementation of APM BIO-12, which requires avoidance of construction and vegetation trimming/removal during the migratory bird nesting or breeding season (February 15 to August 31) to the extent feasible. PG&E proposes CM BIO-12 for nesting birds, which states that PG&E may follow guidance for nest exclusion zones. Neither the APMs or CMs include sufficient procedures to ensure nest abandonment is avoided. The impact of special-status bird nest abandonment would be significant. To reduce this impact, MM BIO-7 would supersede APM BIO-12 and CM BIO-12. MM BIO-7 requires pre-construction surveys for nesting birds during the nesting season and defines buffers and monitoring requirements to ensure construction disturbances do not cause nest failure or abandonment. In addition, MM BIO-8 defines specific requirements for burrowing owl surveys, avoidance buffers, and burrow replacement to minimize impacts on burrowing owl, MM BIO-9 defines surveys requirements and buffers for Swainson's hawk, and MM BIO-10 defines survey requirements and avoidance buffers for golden eagle (refer to Section 4.4.14 for the complete text of this MM). The Alternative 1 impact on special-status birds would be less than significant with implementation of MM BIO-7, MM BIO-8, MM BIO-9, and MM BIO-10.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 1 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 1 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, additional impacts on bird habitat would be less than significant during operation.

Similar to the Proposed Project, vegetation management required to maintain the project components and reduce fire risk could impact additional bird habitat. MM BIO-7 would be implemented to avoid impacting nesting birds or their nests during vegetation management activities. The impacts from vegetation management would be the same as those described for the Proposed Project in Section 4.4.5.

Similar to the Proposed Project, Alternative 1 would introduce high voltage transmission lines to the area that have the potential to cause electrocution of special-status avian species. This would be a significant impact. MM BIO-11 requires implementation of current APLIC guidelines in the design of the transmission lines to reduce potential for electrocution. With implementation of the APLIC design measures, the impact from the Alternative 1 transmission lines would be less than significant with mitigation.

The Alternative 1 500 kV line would be installed entirely on TSPs and would not introduce LSTs to the windfarm. As a result, Alternative 1 would avoid the Proposed Project indirect impact of attracting special-status birds and avian species to perch or nest in proximity to the wind turbines. The indirect impact on special-status birds from wind turbine interactions would be less than significant. This impact is less than that of the Proposed Project components replaced by Alternative 1.

Impact BIO-1E: Would Alternative 1 have a substantial adverse effect, either directly or through habitat modifications, on any invertebrate species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Crotch's bumble bee, western bumble bee, and monarch butterfly have the potential to occur in the Alternative 1 area.

Construction

Alternative 1 vegetation removal and grading could impact Crotch's bumble bee, western bumble bee, and monarch butterfly if the species occurred in the Alternative 1 at the time of construction. Alternative 1 could result in destruction of a Crotch's bumble bee or western bumble nest or removal of monarch butterfly host plants during the migration season. Impacts on special-status invertebrates due to injury or mortality of Crotch's bumble bee, western bumble bee, or monarch butterfly would be significant. MM BIO-12 defines survey requirements and avoidance buffers for Crotch's bumble bee and western bumble bee and MM BIO-13 defines survey requirements for larval host plants of monarch butterfly and procedures

to avoid impacts on monarch butterfly larvae. With proper surveys and avoidance of individual special-status invertebrate per the mitigation measures, direct impacts on special-status invertebrates would be less than significant. Alternative 1 impacts on special-status invertebrates would be equivalent to the Proposed Project components replaced by Alternative 1.

Indirect impacts on special-status invertebrates would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 1 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 1 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, additional impacts to invertebrate habitat would be minimal. However, as with the Proposed Project, vegetation maintenance required to maintain the project components and reduce fire risk could impact additional invertebrate habitat. Herbicides used for vegetation maintenance could land on special-status invertebrate host plants or directly on to special-status invertebrates. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status invertebrates during LSPGC routine operation and maintenance activities would be less than significant.

Impact BIO-1F: Would Alternative 1 have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

The Alternative 1 area consists of grasslands that is marginally suitable habitat for San Joaquin kit fox. No trees occur in proximity to Alternative 1 and the area would not support western red bat. The Alternative 1 area is set back from the Delta and does not contain salt marsh harvest mouse habitat. Use of heavy equipment and grading and ground disturbance could impact a den of San Joaquin kit fox if one were to occur in the area at the time of construction. LSPGC has proposed APM BIO-11 for biological monitoring, but the APM lacks details on approaches for monitoring or monitor qualifications to avoid impacts on San Joaquin kit fox and the impact would remain significant. To reduce the impact, MM BIO-5 specifies requirements for pre-construction surveys and monitoring (refer to Section 4.4.14 for the complete text of this MM). Because MM BIO-5 would ensure avoidance of San Joaquin kit fox foraging in the area, the impact on terrestrial mammals would be less than significant with implementation of this mitigation measure. Alternative 1 impacts on special-status mammals would be equivalent to the Proposed Project components replaced by Alternative 1.

Indirect impacts on special-status mammals are the same as the Proposed Project described in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 1 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 1 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, additional special-status mammal habitat is not expected to be impacted and the impact would be less than significant.

Impact BIO-2: Would Alternative 1 have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

The work areas for Alternative 1 would temporarily impact sensitive natural communities as detailed in Table 4.4-14 and shown on the maps in Appendix F.6. The only portion of the Alternative 1 area in sensitive natural communities consists of pulling sites for the 230 kV overhead segment. The impact on sensitive natural communities would be significant. MM BIO-19 defines requirements for avoidance of sensitive natural communities, restoration of temporary impacts, and compensation for permanent impacts on sensitive natural communities. The impact on sensitive natural communities would be less than significant with implementation of MM BIO-19. Alternative 1 impacts on sensitive natural communities would be equivalent to the Proposed Project.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 1 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 1 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Vegetation maintenance with the use of herbicides could be required to maintain the Alternative 1 components and reduce fire risk. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on sensitive natural communities during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status plants, non-routine cable replacement/repair activities could require trenching to replace a defective cable. If the trenching is required on the shoreline in areas containing special-status plants, the impact on special-status plants would be equivalent to construction and would be significant. MM BIO-1 defines requirements for pre-construction surveys in suitable habitat for

special-status plants and requires transplanting or compensatory mitigation for any unavoidable impacts on special-status plants. The impact on special-status plants during cable replacement maintenance activities would be less than significant with mitigation.

Impact BIO-3: Would Alternative 1 have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(Less than significant with mitigation)***

Construction

The work areas for Alternative 1 would temporarily impact 0.62 acre and permanently impact <0.01 acre of potential wetlands as detailed in Table 4.4-15 and shown on the maps in Appendix F.6. A wetland delineation has not been completed for Alternative 1 and the project design has not been optimized to avoid wetlands. The Alternative 1 impact on wetlands would be significant. MM HYD-1 defines protocols for delineation of wetlands, avoidance, minimization, and compensatory mitigation where avoidance is not feasible. With implementation of MM HYD-1, wetland impacts would be avoided and restored or mitigated through compensatory habitat mitigation to avoid loss of wetland habitats. The Alternative 1 impact on wetlands would be less than significant with mitigation. Alternative 1 impacts on wetlands would be equivalent to the Proposed Project components that are replaced by Alternative 1 after MM HYD-1 is applied.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 1 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 1 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Operation and maintenance of Alternative 1 components would not directly fill, remove, or cause hydrologic interruption of wetlands. No impacts on wetlands would occur.

Impact BIO-4: Would Alternative 1 interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(Less than significant with mitigation)***

The impact of the Alternative 1 components on wildlife movement, wildlife corridors, or wildlife use of nursery sites would be similar to the impact of the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line addressed in Section 4.4.5 (above). Alternative 1 is also located within the Pacific Flyway and would result in a significant impact due to the introduction of high voltage transmission lines to the area that have the potential to cause electrocution of special-status avian species. As with the Proposed Project, this would be a significant impact, and MM BIO-11 would be required to reduce potential for avian collision risk with transmission infrastructure by requiring LSPGC/PG&E to adhere to the APLIC guidelines (APLIC 2012; 2006).

Similar to the Proposed Project, grading and vegetation removal has the potential to impact potential bird nesting or other wildlife nesting sites if an active nest were present in the Alternative 1 construction area at the time of construction. APM BIO-1 through APM BIO-6, APM BIO-13 through APM BIO- 17, CM BIO-1 through BIO-8, CM BIO-12,and CM BIO-14 through BIO-16 would ensure sensitive areas are avoided, workers are trained in resource protection, and a qualified biologist conducts monitoring within any suitable special-status species habitat and implement avian-specific measures, including seasonal nesting bird avoidance, burrowing owl surveys, wetland work windows to avoid bird disturbance, vegetation and tree trimming limitations, and raptor nest monitoring. However, these APMs are not sufficient to avoid significant impacts to nursery sites as they do not require pre-activity surveys or monitoring or specify requirements for bird nests avoidance to ensure adequate protections are provided for nursery sites. The resulting impact on nursery sites would be significant. To reduce the impact on nursery sites, MM BIO-5 would require pre-activity surveys and biological monitoring to be implemented prior to the initiation of construction. Additionally, MM BIO-7 defines specific requirements for avoidance of nesting birds (refer to Section 4.4.14 for the text of the MMs). The Alternative 1 impact on wildlife nursery sites would be less than significant with mitigation.

Because Alternative 1 would avoid installation of LSTs, impacts on avian migration would be less than the Proposed Project 500 kV interconnection lines.

Impact BIO-5: Would Alternative 1 conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Less than significant with mitigation)***

The impact of Alternative 1 on local policies or ordinances, particularly contained within the Solano County General Plan, City of Pittsburg General Plan, and the Delta Plan, would be the same as the impact of the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line addressed in Solano County as discussed in Section 4.4.5 (above). However, Alternative 1 would avoid locating the Proposed Project substation on in an area designated by the State for habitat restoration. The Alternative 1 impact would be less than significant with mitigation.

Alternative 1 conflict with local policies or ordinances protecting biological resources would generally be equivalent to the Proposed Project; however, Alternative 1 would be located outside of the Suisun Marsh Priority Habitat Management Area and would not require a Marsh Development Permit.

Impact BIO-6: Would Alternative 1 conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(Less than significant with mitigation)***

The impact of Alternative 1 on the provisions of adopted HCPs, NCCPs, or other local, regional, or state HCPs, including the Solano County Water Agency Solano Multispecies HCP and the PG&E Bay Area HCP, would be the same as the impact of the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line

addressed in Section 4.4.5 (above). The slight increase of 0.28 acre of permanent impact would not change the ability for Solano County Water Agency to obtain and conserve habitats within the thousands of acres covered by the HCP. Similar to the Proposed Project, Alternative 1 could conflict with HCP Objective CM 1.1 if Alternative 1 were to introduce nonnative invasive plants to areas that would otherwise be used for HCP conservation, which would be a significant impact. MM BIO-3 requires monitoring and treatment of invasive plants and measures to prevent new infestations of invasive plants. The resulting conflict with the HCP would be less than significant with mitigation. Alternative 1 conflict with an HCP would be equivalent to the Proposed Project.

Due to the short extent of the Alternative 1 500 kV transmission lines and 12 kV distribution line, PG&E would evaluate whether Alternative 1 could be a covered activity under the HCP. If Alternative 1 is a covered activity under the HCP, then PG&E would comply with the HCP. The impact from conflict with the PG&E Bay Area HCP would be less than significant.

4.4.8 Alternative 2: Collinsville Substation East of Wind Energy Substations

Environmental Setting – Alternative 2

Alternative 2 involves relocating the proposed LSPGC Collinsville Substation to a different site, approximately 3.0 miles north of the location proposed under the Proposed Project. Alternative 2 would also include an approximately 1,200-foot segment of PG&E 500 kV interconnection lines and a four-mile-long segment of LSPGC 230 kV overhead line, as well as an approximately 0.3-mile-long PG&E 12 kV distribution line. Alternative 2 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this Draft EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 2. Alternative 2 is located within the planning areas of the Solano County Water Agency Solano Multispecies HCP, PG&E Bay Area HCP, and the Solano County General Plan.

Alternative 2 Vegetation Communities

Vegetation community mapping was conducted using aerial imagery for the Alternative 2 areas plus an approximate 500-foot buffer. All Alternative 2 work areas were covered by the vegetation mapping and can be viewed on the vegetation community maps in Appendix F.6. The relocated Alternative 2 substation, 230 kV overhead line, 500 kV interconnection lines, and 12 kV distribution line would be within vegetation communities that are also present within the Proposed Project and described in Section 4.4.2. Vegetation communities in the Alternative 2 disturbance area are listed in Table 4.4-16. Sensitive natural communities *Distichlis spicata - Frankenia salina* coastal herbaceous alliance and *Schoenoplectus (acutus, californicus)* herbaceous alliance occur within the Alternative 2 230 kV overhead segment pulling site.

Special-Status Species

An analysis of special-status plant and wildlife species' potential to occur within the Alternative 2 work areas was conducted and the full results are reported in Appendix F.7. Special-status species potential to occur within the Alternative 2 area are similar to those for the Proposed

Project with a few exceptions. One plant species, large-flowered fiddleneck (*Amsinckia grandiflora*), and one wildlife species, double-crested cormorant (*Nannopterum auritum*) was determined to have potential to occur within the Alternative 2 work areas, but were not evaluated for the Proposed Project because database record searches yielded no records within the Proposed Project vicinity. Large-flowered fiddleneck has a low potential to occur within the Alternative 2 work areas; double-crested cormorant has a moderate potential to occur for nesting and high potential to occur for foraging. One wildlife species, giant garter snake (*Thamnophis gigas*), was analyzed and determined to have no potential to occur within the Proposed Project and would have low potential to occur within the Alternative 2 work areas.

Table 4.4-16 Vegetation Communities and Land Cover Types within the Alternative 2 Work Areas‡

Vegetation Community Or Land Cover Type	LSPGC Collinsville Substation	LSPGC 230 kV Transmission Line Overhead Segment	PG&E 500 kV Interconnection Lines	PG&E 12 kV Distribution Line	Vegetation Community Or Land Cover Type Impact Total
Avena spp. – Bromus spp. Herbaceous SNA[a]	31.88 (T) 13.45 (P)	18.77 (T) 0.05 (P)	4.53 (T) 0.11 (P)	0.55 (T) 0.05 (P)	**54.40 (T)** **13.53 (P)**
Brassica nigra – Centaurea (*solstitialis*, *melitensis*) Herbaceous SNA	—	1.85 (T) 0.01 (P)	—	—	**1.85 (T)** **— (P)**
Distichlis spicata - Frankenia salina Coastal Herbaceous Alliance*	—	0.19 (T) — (P)	—	—	**0.19 (T)** **— (P)**
Lolium perenne Herbaceous SNA	—	25.08 (T) 0.04 (P)	—	—	**25.08 (T)** **13.59 (P)**
Schoenoplectus (*acutus*, *californicus*) Herbaceous Alliance*	—	0.27 (T) — (P)	—	—	**0.27 (T)** **— (P)**
Disturbed	— (T) <0.01 (P)	0.21 (T) — (P)	—	—	**0.21 (T)** **0.01 (P)**
Road	—	1.31 (T) — (P)	—	—	**1.31 (T)** **— (P)**
Totals	**31.88 (T)** **13.45 (P)**	**48.37 (T)** **0.11 (P)**	**4.53 (T)** **0.11 (P)**	**0.67 (T)** **0.05 (P)**	**63.58 (T)** **13.59 (P)**

‡ All impacts are reported in acres. Work areas are categorized by impact type: T = Temporary; P = Permanent

*CDFW-designated sensitive natural community (State Rarity Rank S1-S3).

[a] There are 4.25 acres of overlap among the temporary work areas for the Alternative 2 components within the *Avena spp. – Bromus spp.* Herbaceous SNA vegetation community. The components with overlapping temporary work areas include the alternative Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and

12 kV distribution line. There is also <0.01 acre of overlap in permanent impact area for the alternative Collinsville Substation and the 12 kV distribution line.

Wetlands

Field surveys could not be performed to verify the locations of wetlands within or in proximity to the Alternative 2 work areas due to lack of site access. In the absence of surveys, NWI data (USFWS 2025f) were used to identify potential wetlands within the Alternative 2 work areas. Potential wetlands in the Alternative 2 area are shown on maps in Appendix F.6 and summarized in Table 4.4-17.

Table 4.4-17 Wetlands within the Alternative 2 Work Areas (NWI Data)‡

Proposed Project Component	Temporary (acres)	Permanent (acres)
LSPGC Collinsville Substation	0.35	—
LSPGC 230 kV transmission line overhead segment	0.48	<0.01
PG&E 500 kV interconnection lines	0.08	—
Total	**0.92**	**<0.01**

‡NWI Data were used in lieu of field survey data to calculate potential wetland impacts. All NWI aquatic features were used, including riverine features, in order to make a conservative estimate of impacts since riverine features can have associated wetland features.

Source: (USFWS 2025f)

Impact Analysis – Alternative 2

Alternative 2 would have greater temporary and permanent habitat impacts/disturbance due to the increased length of 230 kV overhead line compared to the Proposed Project.

Alternative 2 has no project components within the Delta and, therefore, would not impact special-status marine mammals (Impact BIO-1G), special-status fish (Impact BIO 1-H), or fish migratory corridors or nursery sites (Impact BIO-4). Because Alternative 2 would have no impact on these resources, they are not analyzed further here. The Alternative 2 impacts on other special-status species (Impact BIO-1A through BIO-1F), sensitive natural communities (Impact BIO-2), wetlands (Impact BIO-3), bird nesting sites (Impact BIO-4), local policies and ordinances (Impact BIO-5), and HCPs or other plans (Impact BIO-6) are discussed below.

Impact BIO-1A: Would Alternative 2 have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Construction

The Alternative 2 substation and work areas are located in suitable habitat for special-status plants (refer to Appendix F.6). Construction of Alternative 2 involves vegetation removal and could result in removal of special-status plants, which would be a significant impact. MM BIO-1 requires pre-construction botanical surveys, avoidance of special-status plants where feasible, and transplanting or compensation of special-status plant where avoidance is not feasible. With

implementation of MM BIO-1, special-status plants would be avoided or impacted populations would be replaced and the Alternative 2 impact would be less than significant. Alternative 2 impacts on special-status plants would be equivalent to the Proposed Project components replaced by Alternative 2.

Indirect impacts on special-status plants would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 2 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 2 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Vegetation maintenance with the use of herbicides could be required to maintain the project components and reduce fire risk. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status plants during LSPGC routine operation and maintenance activities would be less than significant.

Impact BIO-1B: Would Alternative 2 have a substantial adverse effect, either directly or through habitat modifications, on any amphibian species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Construction

California red-legged frog and California tiger salamander are not known to occur in the Alternative 2 area and the Alternative 2 area does not contain suitable breeding habitat for either species. The Alternative 2 area could provide refugia for California red-legged frog or California tiger salamander. LSPGC has defined APMs to reduce impacts on special-status amphibians. APM BIO-3 requires all workers to be trained in the identification of special-status amphibian species and the actions to take if any are encountered, APM BIO-11 requires preconstruction wildlife surveys, and APM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be covered or wildlife escape ramps installed to prevent entrapment of wildlife. PG&E has defined CMs to reduce impacts on special-status amphibians. CM BIO-3 requires all workers to be trained in the identification of special-status amphibian species and the actions to take if any are encountered and CM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be fitted with wildlife escape ramps to prevent entrapment of wildlife. While the APMs and CMs would reduce the potential for encounters and harm to special-status amphibians, the APMs and CMs do not define specific requirements for pre-construction surveys or requirements to avoid causing harm to the species. Therefore, the impact on special-status amphibians from construction would remain significant. To reduce the impact, MM BIO-4 defines specific requirements for pre-construction surveys and avoidance of

any special status amphibians without obtaining an incidental take permit (refer to Section 4.4.14 for the complete text of this MM). With implementation of MM BIO-4, Alternative 1 impact on special-status amphibians would be less than significant with mitigation. Alternative 2 impacts on special-status amphibians would be equivalent to the Proposed Project components replaced by Alternative 2.

Indirect impacts on special-status amphibians would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 2 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 2 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, additional amphibian habitat would not be impacted and no impact on special-status amphibians would occur.

Impact BIO-1C: Would Alternative 2 have a substantial adverse effect, either directly or through habitat modifications, on any reptile species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Northern legless lizard has a low potential to occur in the Alternative 2 area due to the lack of shrubs and leaf litter. Giant garter snake also has a moderate potential to occur within the Alternative 2 area due to the presence of potential wetlands north of the staging area and records of giant garter snake within 5 miles. Construction would involve earth moving activities and use of heavy equipment that could impact a northern legless lizard or giant garter snake if one were present within the work area at the time of construction. LSGPC has proposed APM BIO-3, which requires all workers to be trained in the identification of special-status species and the actions to take if any are encountered and APM BIO-9, which requires all holes/trenches that are not filled at the end of a workday to be covered or wildlife escape ramps installed to prevent entrapment of wildlife. PG&E has proposed CM BIO-3, which requires all workers to be trained in the identification of special-status reptile species and the actions to take if any are encountered and CM BIO-9, which requires all holes/trenches that are not filled at the end of a workday to be fitted with wildlife escape ramps to prevent entrapment of wildlife. While APMs and CMs would reduce the potential for impacts on special-status reptiles, the impact would remain significant as the APMs and CMs do not define specific procedures for surveys and construction monitoring to avoid injuring or killing a Northern California legless lizard or giant garter snake. MM BIO-5 requires pre-construction surveys, biological monitoring, and/or establishment of avoidance buffers that would apply to Northern California legless lizard and giant garter snake. Due to surveys and monitoring to ensure avoidance of both species, the impact of Alternative 2 on special-status reptile species would be less than significant with

mitigation. Alternative 2 impacts on special-status reptiles would be equivalent to the Proposed Project components replaced by Alternative 2.

Indirect impacts on special-status reptiles would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 2 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 2 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, additional reptile habitat would not be impacted and no impact on special-status reptiles would occur.

Impact BIO-1D: Would Alternative 2 have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Similar to the Proposed Project, Alternative 2 would involve use of noise generating heavy equipment including helicopters and removal of vegetation in areas of temporary and permanent impacts. Vegetation removal and construction noise could disturb a nest of special-status bird species. In addition to the birds occurring within the Proposed Project area, double-crested cormorant has the potential to occur within the Alternative 2 area. The Alternative 2 segment is not located in proximity to habitat for California black rail, California Ridgway's rail, or western snowy plover as the Alternative 2 segment does not approach the Delta. To reduce impacts on special-status birds, LSPGC proposes implementation of APM BIO-12, which requires avoidance of construction and vegetation trimming/removal during the migratory bird nesting or breeding season (February 15 to August 31) to the extent feasible. PG&E proposes CM BIO-12 for nesting birds, which states that PG&E may follow guidance for nest exclusion zones. Neither the APMs nor CMs include sufficient procedures to ensure nest abandonment is avoided. The impact of special-status bird nest abandonment would be significant. To reduce this impact, MM BIO-7 would supersede APM BIO-12 and CM BIO-12. MM BIO-7 requires pre-construction surveys for nesting birds during the nesting season and defines buffers and monitoring requirements to ensure construction disturbances do not cause nest failure or abandonment. In addition, MM BIO-8 defines specific requirements for burrowing owl surveys, avoidance buffers, and burrow replacement to minimize impacts on burrowing owl, MM BIO-9 defines surveys requirements and buffers for Swainson's hawk, and MM BIO-10 defines survey requirements and avoidance buffers for golden eagle (refer to Section 4.4.14 for the complete text of this MM). The Alternative 2 impact on special-status birds would be less than significant with implementation MM BIO-7, MM BIO-8, MM BIO10, and MM BIO-10.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 2 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 2 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas that would not contain vegetation suitable for bird nesting. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status birds during LSPGC routine operation and maintenance activities would be less than significant.

Similar to the Proposed Project, Alternative 2 would introduce high voltage transmission lines to the area that have the potential to cause electrocution of special-status avian species. This would be a significant impact. MM BIO-11 requires implementation of current APLIC guidelines in the design of the transmission lines to reduce potential for electrocution. With implementation of the APLIC design measures, the impact from the Alternative 2 transmission lines would be less than significant with mitigation.

The Alternative 2 500 kV line would be installed entirely on TSPs and would not introduce LSTs to the windfarm. As a result, Alternative 2 would avoid the Proposed Project indirect impact of attracting special-status birds and avian species to perch or nest in proximity to the wind turbines. The indirect impact on special-status birds from wind turbine interactions would be less than significant. This impact is less than that of the Proposed Project components replaced by Alternative 2.

Impact BIO-1E: Would Alternative 2 have a substantial adverse effect, either directly or through habitat modifications, on any invertebrate species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Alternative 2 vegetation removal and grading could impact Crotch's bumble bee, western bumble bee, or monarch butterfly if the species occurred in the Alternative 2 at the time of construction. Alternative 2 could result in destruction of a Crotch's bumble bee or western bumble nest or removal of monarch butterfly host plants during the migration season. These impacts on special-status invertebrates due to injury or mortality of Crotch's bumble bee, western bumble bee, or monarch butterfly would be significant. MM BIO-12 defines survey requirements and avoidance buffers for Crotch's bumble bee and western bumble bee and MM BIO-13 defines survey requirements for larval host plants of monarch butterfly and procedures to avoid impacts on monarch butterfly larvae. With proper surveys and avoidance of individual special-status invertebrates per the mitigation measures, direct impacts on special-status invertebrates would be less than significant. Alternative 2 impacts on special-status

invertebrates would be equivalent to the Proposed Project components replaced by Alternative 2.

Indirect impacts on special-status invertebrates would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 2 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 2 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, additional impacts to invertebrate habitat would be minimal and less than significant. However, as with the Proposed Project, vegetation management required to maintain the project components and reduce fire risk could impact additional invertebrate habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status invertebrates during LSPGC routine operation and maintenance activities would be less than significant.

Impact BIO-1F: Would Alternative 2 have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

The Alternative 2 area consists of grasslands that are marginally suitable habitat for San Joaquin kit fox. No trees occur in proximity to Alternative 2 and the area would not support western red bat. The Alternative 2 area is set back from the Delta and does not contain salt marsh harvest mouse habitat. Use of heavy equipment and grading and ground disturbance could impact a den of San Joaquin kit fox if one were to occur in the area at the time of construction. LSPGC has proposed APM BIO-11 for biological monitoring, but the APM lacks details on approaches for monitoring or monitor qualifications to avoid impacts on San Joaquin kit fox and the impact would remain significant. To reduce the impact, MM BIO-5 specifies requirements for pre-construction surveys and monitoring (refer to Section 4.4.14 for the complete text of this MM). Because MM BIO-5 would ensure avoidance of San Joaquin kit fox foraging in the area, the impact on terrestrial mammals would be less than significant with implementation of this mitigation measure. Alternative 2 impacts on special-status mammals would be equivalent to the Proposed Project components replaced by Alternative 2.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 2 components would not require grading or earthwork in new areas during operation. Operation and maintenance of

Alternative 2 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Therefore, additional terrestrial mammal habitat would not be impacted and no impact on terrestrial mammals would occur.

Impact BIO-2: Would Alternative 2 have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

An Alternative 2 pulling site is located within sensitive natural communities and use of the pulling site would result in temporary impacts on sensitive natural communities, as detailed in Table 4.4-14 and shown on the maps in Appendix F.6. The impact on sensitive natural communities would be significant. MM BIO-19 defines requirements for avoidance of sensitive natural communities, restoration of temporary impacts, and compensation for permanent impacts on sensitive natural communities. The impact on sensitive natural communities would be less than significant with implementation of MM BIO-19. Alternative 2 impacts on special-status plants would be equivalent to the Proposed Project components replaced by Alternative 2.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 2 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 2 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Vegetation management with the use of herbicides could be required to maintain the Alternative 2 components. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status invertebrates during LSPGC routine operation and maintenance activities would be less than significant.

Impact BIO-3: Would Alternative 2 have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(Less than significant with mitigation)***

Construction

The work areas for Alternative 2 would temporarily impact 0.92 acre and permanently impact <0.01 acre of potential wetlands as detailed in Table 4.4-17and shown on the maps in Appendix F.6. A formal wetland delineation has not been completed for Alternative 2 and the project design has not been optimized to avoid wetlands. The Alternative 2 impacts on wetlands would be significant. MM HYD-1 defines protocols for delineation of wetlands, avoidance, minimization, and compensatory mitigation where avoidance is not feasible. With implementation of MM HYD-1, wetland impacts would be avoided and restored or mitigated

through compensatory habitat mitigation to avoid loss of wetland habitats. The Alternative 2 impact on wetlands would be less than significant with mitigation. Alternative 2 impacts on wetlands would be equivalent to the Proposed Project components that are replaced by Alternative 1 after MM HYD-1 is applied.

Operation and Maintenance

Similar to the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line, the Alternative 2 components would not require grading or earthwork in new areas during operation. Operation and maintenance of Alternative 2 components would be conducted from developed and disturbed areas, including existing access roads and permanent work areas. Operation and maintenance of Alternative 2 components would not directly fill, remove, or cause hydrologic interruption of wetlands. No impacts on wetlands would occur.

Impact BIO-4: Would Alternative 2 interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(Less than significant with mitigation)***

The impact of the Alternative 2 components on wildlife movement, wildlife corridors, or wildlife use of nursery sites would be similar to the impact of the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line addressed in Section 4.4.5 (above). Alternative 2 is also located within the Pacific Flyway and would result in a significant impact due to the introduction of high voltage transmission lines to the area that have the potential to cause electrocution of special-status avian species. As with the Proposed Project, this would be a significant impact, and MM BIO-11 would be required to reduce potential for avian collision risk with transmission infrastructure by requiring LSPGC/PG&E to adhere to the APLIC guidelines (APLIC 2012; 2006).

Similar to the Proposed Project, grading and vegetation removal has the potential to impact potential bird nesting or other wildlife nesting sites if an active nest were present in the Alternative 2 construction area at the time of construction. APM BIO-1 through APM BIO-6, APM BIO-13 through APM BIO- 17, CM BIO-1 through BIO-8, CM BIO-12,and CM BIO-14 through BIO-16 would ensure sensitive areas are avoided, workers are trained in resource protection, and a qualified biologist conducts monitoring within any suitable special-status species habitat and implement avian-specific measures, including seasonal nesting bird avoidance, burrowing owl surveys, wetland work windows to avoid bird disturbance, vegetation and tree trimming limitations, and raptor nest monitoring. However, these APMs are not sufficient to avoid significant impacts to nursery sites as they do not require pre-activity surveys or monitoring or specify requirements for bird nests avoidance to ensure adequate protections are provided for nursery sites. The resulting impact on nursery sites would be significant. To reduce the impact on nursery sites, MM BIO-5 would require pre-activity surveys and biological monitoring to be implemented prior to the initiation of construction. Additionally, MM BIO-7 defines specific requirements for avoidance of nesting birds (refer to

Section 4.4.14 for the text of the MMs). The Alternative 2 impact on wildlife nursery sites would be less than significant with mitigation.

Because Alternative 2 would avoid installation of LSTs, impacts on avian migration would be less than the Proposed Project 500 kV interconnection lines.

Impact BIO-5: Would Alternative 2 conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Less than significant with mitigation)***

The impact of Alternative 2 on local policies or ordinances, particularly contained within the Solano County General Plan, City of Pittsburg General Plan, and the Delta Plan, would be the same as the impact of the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line in Solano County addressed in Section 4.4.5 (above). However, Alternative 2 would avoid locating the Proposed Project substation on in an area designated by the State for habitat restoration. The Alternative 2 impact from conflicts with policies protecting biological resources would be less than significant with mitigation.

Alternative 2 conflict with local policies or ordinances protecting biological resources would generally be equivalent to the Proposed Project; however, Alternative 2 would be located outside of the Suisun Marsh Priority Habitat Management Area and would not require a Marsh Development Permit.

Impact BIO-6: Would Alternative 2 conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(Less than significant with mitigation)***

The impact of Alternative 2 on the provisions of adopted HCPs, NCCPs, or other local, regional, or state HCPs, including the Solano County Water Agency Solano Multispecies HCP and the PG&E Bay Area HCP, would be the same as the impact of the Proposed Project Collinsville Substation, 230 kV overhead segment, 500 kV interconnection lines, and 12 kV distribution line addressed in Section 4.4.5 (above). The minor increase in permanent impact would not change the ability for Solano County Water Agency to obtain and conserve habitats within the thousands of acres covered by the HCP. Similar to the Proposed Project, Alternative 2 could conflict with HCP Objective CM 1.1 if Alternative 2 were to introduce nonnative invasive plants to areas that would otherwise be used for HCP conservation, which would be a significant impact. MM BIO-3 requires monitoring and treatment of invasive plants and measures to prevent new infestations of invasive plants. The resulting conflict with the HCP would be less than significant with mitigation. Alternative 2 conflict with an HCP would be equivalent to the Proposed Project.

Due to the short extent of the Alternative 2 500 kV transmission lines and 12 kV distribution line, PG&E would evaluate whether Alternative 2 could be a covered activity under the HCP. If Alternative 2 is a covered activity under the Bay Area HCP, then PG&E would comply with the HCP. The impact from conflict with the PG&E Bay Area HCP would be less than significant

4.4.9 Alternative 3: 500 kV Interconnection Lines on Entirely TSPs

Environmental Setting – Alternative 3

Alternative 3 involves constructing the PG&E 500 kV interconnection lines on entirely TSPs, instead of the combination of LSTs and three-pole TSPs under the Proposed Project. The 500 kV interconnection lines would be in the same general alignment as the Proposed Project PG&E 500 kV interconnection lines. Alternative 3 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this Draft EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 3. The environmental setting for Alternative 3 is the same as the setting for the PG&E 500 kV interconnection lines addressed in Section 4.4.2 and includes the same vegetation communities as the Proposed Project 500 kV interconnection lines.

Impact Analysis – Alternative 3

The use of TSPs for the Alternative 3 500 kV interconnection lines instead of LSTs for the Proposed Project 500 kV interconnection lines would involve a small increase in the amount of habitat permanently impacted due to the increased foundational requirements of the TSPs. The vegetation community types permanently impacted by the Alternative 3 TSPs (would be the same as those impacted by the Proposed Project LSTs.

Alternative 3 impacts on special-status plants (Impact BIO-1A), special-status amphibians (Impact BIO-1B), special-status reptiles (Impact BIO-1C), special-status invertebrates (Impact BIO-1E), special-status terrestrial mammal species (Impact BIO-1F), riparian habitat or sensitive natural communities (Impact BIO-2), state or federally protected wetlands (Impact BIO-3), wildlife movement, corridors, or use of nursery sites (Impact BIO-4), local policies or ordinances (Impact BIO-5), and HCPs and NCCPs (Impact BIO-6) would be the same as the impacts of the Proposed Project 500 kV interconnection lines; Alternative 3 changes the structure type for the 500 kV interconnection line, but does not change the location of habitat conditions for construction or operation and maintenance. As a result, these impacts are not discussed further. Refer to Section 4.4.5 for the analysis of impacts of the 500 kV interconnection line construction and operation on these resources.

Special-status marine mammals (Impact BIO-1G) and special-status fish (Impact BIO 1-H) do not occur within the Alternative 3 area and are not discussed further.

Impact BIO-1D: Would Alternative 3 have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Construction

The impact of Alternative 3 500 kV interconnection lines on special-status bird species would be equivalent to the Proposed Project 500 kV interconnection lines. Refer to the analysis of construction impacts for the 500 kV interconnection lines in Section 4.4.5 for further details.

Operation and Maintenance
Similar to the Proposed Project, Alternative 3 would introduce high voltage transmission lines that have the potential to cause electrocution of special-status avian species. This would be a significant impact. MM BIO-11 requires implementation of current APLIC guidelines in the design of the transmission lines to reduce potential for electrocution. With implementation of the APLIC design measures, the impact from the Alternative 3 transmission lines would be less than significant with mitigation.

The Alternative 3 500 kV line would be installed entirely on TSPs and would not introduce LSTs to the windfarm. As a result, Alternative 3 would avoid the Proposed Project indirect impact of attracting special-status birds and avian species to perch or nest in proximity to the wind turbines. The indirect impact on special-status birds from wind turbine interactions would be less than significant. This impact is less than that of the Proposed Project components replaced by Alternative 3.

4.4.10 Alternative 4: 230 kV Overhead Segment Alternative Route

Environmental Setting – Alternative 4

Alternative 4 involves a relocation of a short segment of the LSPGC 230 kV overhead segment between the proposed LSPGC Collinsville Substation and the Delta, west of the proposed LSPGC 230 kV overhead segment route. Additionally, the northern end of the LSPGC 230 kV submarine segment would be rerouted to meet up with the southern end of the Alternative 4 230 kV overhead segment. Alternative 4 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this Draft EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 4. Alternative 4 is located within the planning areas of the Solano County Water Agency Solano Multispecies HCP, PG&E Bay Area HCP, Solano County General Plan, City of Pittsburg General Plan, and the Delta Plan.

Alternative 4 Vegetation Communities
A vegetation mapping field survey was conducted for the entire terrestrial parcels that Alternative 4 is located within. A description of the survey methods may be found in the Terrestrial Biological Resources Technical Report Addendum #2, which covers the Alternative 4 survey area (Insignia Environmental 2025c) (Appendix F.8). The Alternative 4 terrestrial components would be located predominantly within vegetation communities that also occur within the Proposed Project with one exception. *Sarcocornia pacifica* Herbaceous Alliance is a vegetation community that's unique to the Alternative 4 work areas. This vegetation community provides habitat for salt marsh harvest mouse. Approximately 0.19 acre of this vegetation community occurs within the Alternative 4 work areas. Vegetation communities in the work areas for Alternative 4 are shown on maps in Appendix F.6 and the acreage of each vegetation community within the work areas are shown in Table 4.4-18.

Special-Status Species

An analysis of special-status plant and wildlife species' potential to occur within the Alternative 4 work areas was conducted and the full results are reported in Appendix F.9. Special-status species potential to occur within Alternative 4 area is similar the Proposed Project with a few exceptions. One plant species, large-flowered fiddleneck (*Amsinckia grandiflora*), was not previously analyzed for the Proposed Project because of a lack of records in the vicinity of the Proposed Project, but was determined to have low potential to occur within the Alternative 4 work areas. Double-crested cormorant was not evaluated for the Proposed Project because database record searches yielded no records within the Proposed Project vicinity, but was determined to have moderate potential to occur within the Alternative 4 area for nesting.

Delta tule pea was incidentally observed within the survey area for Alternative 4, and it is possible is potentially present within the work areas.

Table 4.4-18 Vegetation Communities and Land Cover Types within the Alternative 4 Work Areas‡

Vegetation Community Or Land Cover Type	LSPGC 230 kV Transmission Line Overhead Segment	LSPGC 230 kV Transmission Line Submarine Segment	Vegetation Community Or Land Cover Type Impact Total
Brassica nigra – Centaurea (*solstitialis*, *melitensis*) Herbaceous SNA	0.13 (T) — (P)	— (T) — (P)	**0.13 (T)** **— (P)**
Distichlis spicata - Frankenia salina Coastal Herbaceous Alliance*	3.79 (T) 0.02 (P)	0.10 (T) — (P)	**3.90 (T)** **0.02 (P)**
Lolium perenne Herbaceous SNA	3.79 (T) 0.02 (P)	— (T) — (P)	**3.79 (T)** **0.02 (P)**
Rosa californica Shrubland Alliance*	0.04 (T) — (P)	0.04 (T) — (P)	**0.08 (T)** **— (P)**
Sarcocornia pacifica Herbaceous Alliance*	0.19 (T) — (P)	—	**0.19 (T)** **— (P)**
Bare Ground	<0.01 (T) — (P)	—	**<0.01 (T)** **— (P)**
Disturbed	0.03 (T) — (P)	— (T) — (P)	**0.03 (T)** **— (P)**
Open Water	—	0.42 (T) — (P)	**0.42 (T)** **— (P)**
Road	0.12 (T) — (P)	— (T) — (P)	**0.12 (T)** **— (P)**
Totals	**8.10 (T)** **0.04 (P)**	**0.57 (T)** **0.00 (P)**	**8.66 (T)** **0.04 (P)**

‡ All impacts are reported in acres. Work areas are categorized by impact type: T = Temporary; P = Permanent
*CDFW-designated sensitive natural community (State Rarity Rank S1-S3).

Wetlands

Potential wetlands were also mapped during the vegetation mapping field surveys. These wetlands are shown on maps in Appendix F.6. As shown in Table 4.4-19, approximately 1.74 acres of wetland habitat occur within the Alternative 4 work areas.

Table 4.4-19 Wetlands within the Alternative 4 Work Areas

Proposed Project Component	Temporary (acres)	Permanent (acres)
LSPGC 230 kV transmission line overhead segment	1.59	—
LSPGC 230 kV transmission line submarine segment	0.15	—
Total	**1.74**	**—**

Impact Analysis – Alternative 4

Impact BIO-1A: Would Alternative 4 have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Special-status plant species have the potential to occur within the work areas for Alternative 4 due to the presence of suitable habitat, particularly along the Delta shoreline. Construction of Alternative 4 involves vegetation removal and trenching and could result in removal or disturbance of special-status plants, which would be a significant impact. MM BIO-1 requires pre-construction botanical surveys, avoidance of special-status plants where feasible, and transplanting or compensation of special-status plant where avoidance is not feasible. With implementation of MM BIO-1, special-status plants would be avoided or impacted populations would be replaced and the Alternative 4 impact would be less than significant. Alternative 4 impacts on special-status plants would be equivalent to the Proposed Project components replaced by Alternative 4.

Indirect impacts on special-status plants would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project, operation and maintenance of Alternative 4 components would be conducted from developed and disturbed areas with the exception of the buried cables, which would require trenching to replace a buried cable segment. In addition, herbicide use has the potential to significantly impact special-status plant if herbicides were to drift onto a special-status plant population. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to

compliance with State law for herbicide application, impacts on special-status plants during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status plants, non-routine cable replacement/repair activities could require trenching to replace a defective cable and could impact special-status plants if one occurred in the area. Cable replacement activities would require separate authorization. If trenching is required on the shoreline in areas containing special-status plants, the impact on special-status plants would be equivalent to construction and would be significant. MM BIO-1 defines requirements for pre-construction surveys in suitable habitat for special-status plants and requires transplanting or compensatory mitigation for any unavoidable impacts on special-status plants. The impact on special-status plants during cable replacement maintenance activities would be less than significant with mitigation.

Impact BIO-1B: Would Alternative 4 have a substantial adverse effect, either directly or through habitat modifications, on any amphibian species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Alternative 4 has low habitat suitability for special-status amphibians California red-legged frog and California tiger salamander due to the salinity of the ponded areas in proximity to Alternative 4. Even though there is low potential for special-status amphibians to occur in the area, if one were using the Alternative 4 site as refugia, earthwork would have a significant impact on special-status amphibians. MM BIO-4 requires pre-construction surveys and defines avoidance procedures to avoid significant impact on special-status amphibians. The impact on special-status amphibians would be less than significant with MM BIO-4. Alternative 4 impacts on special-status amphibians would be equivalent to the Proposed Project components replaced by Alternative 4.

Operation and Maintenance

Maintenance of the submarine segment riser structure and replacement of a submarine segment cable on land via trenching could result in impacts on special-status amphibian upland habitat. Cable replacement would require separate authorization. APM BIO-3 requires all workers to be trained in the identification of special-status amphibian species and the actions to take if any are encountered. The impact on special-status amphibians from trenching and ground disturbance during maintenance would remain significant. MM BIO-4 defines specific requirements for pre-activity surveys and avoidance of any special-status amphibian without obtaining an incidental take permit (refer to Section 4.4.14 for the complete text of this MM). Therefore, the impact on special-status amphibians from operation and maintenance of Alternative 4 would be less than significant with implementation of this mitigation measure.

Impact BIO-1C: Would Alternative 4 have a substantial adverse effect, either directly or through habitat modifications, on any reptile species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? *(Less than significant with mitigation)*

Construction

The Alternative 4 area has a moderate potential for Northern California legless lizard and a high potential for northwestern pond turtle to occur in the area. Construction would result in direct impacts on Northern California legless lizard or northwestern pond turtle during basking if one occurred in the Alternative 4 area during ground disturbance. LSGPC has proposed APM BIO-1 and APM BIO-4, which require delineation and avoidance of environmentally sensitive resources, including aquatic resources, during construction with a minimum 5-foot avoidance buffer. APM BIO-3 requires all workers to be trained in the identification of special-status species and the actions to take if any are encountered. APM BIO-11 requires preconstruction surveys for northwestern pond turtle and flagging of an active nest for avoidance. APM BIO-9 requires all holes/trenches that are not filled at the end of a workday to be covered or wildlife escape ramps installed to prevent entrapment of wildlife. While these measures would reduce impacts on special-status reptiles, they do not define specific procedures if a special-status reptile nest occurred within or adjacent a Proposed Project work area, and impacts to special-status reptiles remain significant. To reduce the impact, MM BIO-5 defines specific requirements for pre-construction surveys and biological monitoring, which would avoid impacts on California legless lizard and northwestern pond turtle (refer to Section 4.4.14 for the complete text of the MMs). Therefore, the impacts on special-status reptiles would be less than significant with implementation of these mitigation measures. Alternative 4 impacts on special-status reptiles would be equivalent to the Proposed Project components replaced by Alternative 4.

Indirect impacts on special-status reptiles would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

Maintenance of the buried portion of the submarine segment could require trenching in Northern California legless lizard or northwestern pond turtle habitat if repairs or replacement cable needs to be installed for a damaged cable segment. Cable replacement would require separate authorization. Trenching in Northern California legless lizard or northwestern pond turtle habitat has the potential to impact special-status reptiles. The impact would be significant. To reduce the impact, MM BIO-5 defines specific requirements for pre-construction surveys and biological monitoring, which would avoid impacts on California legless lizard and northwestern pond turtle (refer to Section 4.4.14 for the complete text of the MM). Therefore, the impacts on special-status reptiles would be less than significant with implementation of mitigation.

Impact BIO-1D: Would Alternative 4 have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (*Less than significant with mitigation*)

Construction

One bird species that was not identified as potentially occurring within the Proposed Project study area, the double-crested cormorant, was identified as potentially occurring within the Alternative 4 work areas. Similar to the Proposed Project, Alternative 4 would involve use of noise generating heavy equipment including helicopters and removal of vegetation in areas of temporary and permanent impacts. Vegetation removal and construction noise could disturb a nest of special-status bird species. In addition to the birds occurring within the Proposed Project area, double-crested cormorant has the potential to occur within the Alternative 4 area. The Alternative 4 segment is also located in proximity to habitat for California black rail, California Ridgway's rail, and western snowy plover. To reduce impacts on special-status birds, LSPGC proposes implementation of APM BIO-12, which requires avoidance of construction and vegetation trimming/removal during the migratory bird nesting or breeding season (February 15 to August 31) to the extent feasible. The APMs do not include sufficient procedures to ensure nest abandonment is avoided. The impact of special-status bird nest abandonment would be significant. To reduce this impact, MM BIO-7 would supersede APM BIO-12. MM BIO-7 requires pre-construction surveys for nesting birds during the nesting season and defines buffers and monitoring requirements to ensure construction disturbances do not cause nest failure or abandonment (including buffers for California black rail, California Ridgway's rail, western snowy plover, and double-crested cormorant). In addition, MM BIO-8 defines specific requirements for burrowing owl surveys, avoidance buffers, and burrow replacement to minimize impacts on burrowing owl, MM BIO-9 defines surveys requirements and buffers for Swainson's hawk, and MM BIO-10 defines survey requirements and avoidance buffers for golden eagle (refer to Section 4.4.14 for the complete text of this MM). The Alternative 4 impact on special-status birds would be less than significant with implementation MM BIO-7, MM BIO-8, MM BIO-9, and MM BIO-10. Alternative 4 impacts on special-status birds would be equivalent to the Proposed Project components replaced by Alternative 4.

Indirect impacts on special-status birds would be the same as the Proposed Project described in Section 4.4.5.

Operation and Maintenance

Similar to the Proposed Project, the majority of operation and maintenance activities would be conducted within the developed substation and developed areas at the 230 kV transmission poles, which would not provide habitat for special-status birds. Operation and maintenance activities in developed areas would have no impact on special-status birds. Special-status birds could be impacted during operation and maintenance from vehicle travel and vegetation removal or trimming during inspection and maintenance activities. Special-status birds could also be affected by herbicide use in the event of herbicide drift.

For routine maintenance and inspections of the riser structures, access would be provided by the existing access road and would not impact special-status bird populations. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain special-status bird habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on special-status birds during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on special-status birds, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement would require separate authorization. If trenching is required in areas containing special-status bird habitat, the impact on special-status birds would be equivalent to construction and would be significant. MM BIO-7 requires pre-activity surveys to identify the presence of nesting birds if vegetation maintenance or ground disturbance is to occur within the migratory bird breeding/nesting season (February 1 through September 30). The impact on special-status birds during cable replacement maintenance activities would be less than significant with mitigation.

Additionally, Alternative 4 230 kV overhead line may result in a risk of collisions for birds, interfering with the movement of individuals or flocks. This would be a significant impact. To avoid impacts on special-status birds from new electric lines, LSPGC would implement MM BIO-11, wherein all LSPGC transmission lines would be designed to follow the intent of the current Avian Power Line Interaction Committee (APLIC) guidelines thus reducing potential impacts on special-status birds from operation and maintenance of Alternative to less than significant.

Impact BIO-1E: Would Alternative 4 have a substantial adverse effect, either directly or through habitat modifications, on any invertebrate species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Alternative 4 vegetation removal and grading could impact Crotch's bumble bee, western bumble bee, or monarch butterfly if the species occurred in the Alternative 4 site at the time of construction. Alternative 4 could result in destruction of a Crotch's bumble bee or western bumble nest or removal of monarch butterfly host plants during the migration season. These impacts on special-status invertebrates due to injury or mortality of Crotch's bumble bee, western bumble bee, or monarch butterfly would be significant. MM BIO-12 defines survey requirements and avoidance buffers for Crotch's bumble bee and western bumble bee and MM BIO-13 defines survey requirements for larval host plants of monarch butterfly and procedures to avoid impacts on monarch butterfly larvae. With proper surveys and avoidance of individual

special-status invertebrates per the mitigation measures, direct impacts on special-status invertebrates would be less than significant. Alternative 4 impacts on special-status invertebrates would be equivalent to the Proposed Project components replaced by Alternative 4.

Indirect impacts on special-status invertebrates would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance
Routine maintenance activities would be conducted by the existing access road and developed areas and would not impact habitat for special-status invertebrates.

The Alternative 4 buried cables contains habitats with floristic resources that could provide suitable habitat for Crotch's bumblebee, western bumblebee, and monarch butterfly. Cable replacement would require separate authorization. Eggs or nests of Crotch's bumble bee, western bumble bee, and monarch butterfly could be impacted during maintenance/replacement of a submarine cable (e.g., trenching) along the shoreline. The impact would be significant. To reduce the impact, MM BIO-5 requires pre-construction surveys for sensitive biological resources, including Crotch's bumblebee and monarch butterfly, and flagging of sensitive biological resources for avoidance, which includes host plants for these species (refer to Section 4.4.14 for the complete text of this MM). The impact on special-status invertebrates from operation and maintenance of Alternative 4 would be less than significant with implementation of the mitigation measure.

Impact BIO-1F: Would Alternative 4 have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction
Salt marsh harvest mouse have a high potential to occur in the Alternative 4 area. Construction of the 230 kV structures and installation of the 230 kV cable could disturb or destroy salt marsh harvest mouse nests or otherwise harm individuals if they occur in the area at the time of construction. Injuring or killing a salt marsh harvest mouse, or destroying a nest, would be a significant impact. APM BIO-11, which requires a qualified biologist to carefully inspect vegetation within salt marsh harvest mouse habitat (e.g., pickleweed habitats) prior to vegetation clearance and ground disturbance to ensure no salt marsh harvest mouse individuals or nests are present; if present, individuals would be encouraged to move into adjacent habitats prior to activities commencing. While APM BIO-11 would reduce impacts on salt marsh harvest mouse, impacts would remain significant as the measure does not define specific requirements for pre-construction surveys in salt marsh harvest mouse habitat or buffers from an active salt mouse harvest mouse nest; as a result construction could result in injury or mortality of salt marsh harvest mouse, which would be a significant impact. To reduce the impact, MM BIO-15 requires pre-construction surveys, monitoring, and defines specific buffers for avoidance of salt marsh harvest mouse (refer to Section 4.4.14 for the complete text of this MM). The impact on

salt marsh harvest mouse would be less than significant with implementation of the mitigation measure. Alternative 4 impacts on special-status mammals would be greater than the Proposed Project components replaced by Alternative 4 due to the presence of greater salt marsh harvest mouse habitat in the Alternative 4 area.

Indirect impacts on special-status mammals would be the same as the Proposed Project described in Section 4.4.5.

Operation and Maintenance

Routine maintenance activities would be conducted by the existing access road and developed areas and would not impact habitat for special-status mammals.

Maintenance of the buried portion of the Alternative 4 submarine segment on land could require trenching in salt marsh harvest mouse habitat if repairs or replacement cable needs to be installed for a damaged cable segment. Trenching in salt marsh harvest mouse habitat has the same potential to impact salt marsh harvest mouse as construction of the Proposed Project. The impact would be significant. To reduce the impact, MM BIO-5 requires pre-construction surveys for sensitive biological resources, including salt marsh harvest mouse, and biological monitoring during the activity (refer to Section 4.4.14 for the complete text of this MM). Impacts on salt marsh harvest mouse would be less than significant with implementation of the mitigation measure.

Impact BIO-1G: Would Alternative 4 have a substantial adverse effect, either directly or through habitat modifications, on any marine mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

The Alternative 4 230 kV overhead segment and portion of the submarine segment on shore would have no impact on marine mammal species.

The impact of the Alternative 4 230 kV submarine segments on special-status marine mammal species would be the same as the 230 kV submarine segments addressed in Section 4.4.5 (above). The shift in the location of the submarine segment would shift the location of disturbance to marine mammal habitat, but the habitats impacted and potential marine mammal impacts including noise and sedimentation during construction and maintenance activities would remain the same as the method for installation of the submarine cable with a hydroplow would be the same. With the implementation of the APMs described in Section 4.4.5, the direct impact on marine mammals would be less than significant.

As described in Section 4.4.5, the submarine segment installation has the potential to cause indirect impacts through spread invasive aquatic species even after implementation of APMs. MM BIO-17 defines requirements for invasive marine species control to avoid spread of golden mussel or nutria. Indirect impacts from Alternative 4 construction on marine mammals would be less than significant with mitigation.

Alternative 4 impacts on special-status marine mammals would be equivalent to the Proposed Project components replaced by Alternative 4.

Impact BIO-1H: Would Alternative 4 have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

The Alternative 4 230 kV overhead segment and portion of the submarine segment on shore would have no impact on special-status fish species.

The impact of the Alternative 4 230 kV submarine segments on special-status fish species would be the same as the Proposed Project discussed in Section 4.4.5 (above) as the methods of construction would be the same as the Proposed Project (use of a hydroplow) and the impact from noise would be less than significant. The shift in the location of the submarine segment would not change the habitat or species present. No concrete mattresses are anticipated to be required within the Alternative 4 portion of the submarine segment; therefore, no permanent impacts are anticipated. The APMs applicable to the Proposed Project submarine segment would be applicable to Alternative 4 construction. As the portion of the submarine segment within the Alternative 4 area would not require installation of concrete mattresses, the direct impact of the small portion of the submarine segment within the Alternative 4 area would be less than significant.

As described in Section 4.4.5, the submarine segment installation has the potential to cause indirect impacts through spread invasive aquatic species even after implementation of APMs. MM BIO-17 defines requirements for invasive marine species control to avoid spread of golden mussel or nutria. Indirect impacts from Alternative 4 construction on special-status fish would be less than significant with mitigation.

Alternative 4 impacts on special-status fish species would be equivalent to the Proposed Project components replaced by Alternative 4.

Impact BIO-2: Would Alternative 4 have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

The terrestrial work areas for Alternative 4 would temporarily and permanently impact sensitive natural communities, as detailed in Table 4.4-18 and shown on the maps in Appendix F.6. The impacts on sensitive natural communities would be greater than the Proposed Project and would be significant. MM BIO-19 defines requirements for avoidance of sensitive natural communities, restoration of temporary impacts, and compensation for permanent impacts on sensitive natural communities. The Alternative 4 impact on sensitive natural communities would be less than significant with implementation of MM BIO-19.

Impacts of Alternative 4 on sensitive natural communities would be greater than the Proposed Project due to the increased temporary and permanent impacts on sensitive natural communities for Alternative 4 as summarized in Table 4.4-18.

Operation and Maintenance

Vegetation management with the use of herbicides could be required to maintain the Alternative 4 components and reduce fire risk. Herbicide drift as a result of vegetation management could significantly impact a sensitive vegetation community. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on sensitive natural communities during LSPGC routine operation and maintenance activities would be less than significant.

Alternative 4 maintenance of the submarine cable could require trenching which would impact a sensitive vegetation community. Cable replacement would require separate authorization. The impact from trenching within a sensitive natural community would be significant. MM BIO-19 defines requirements for avoidance of sensitive natural communities, restoration of temporary impacts, and compensation for permanent impacts on sensitive natural communities. The Alternative 4 cable replacement impact on sensitive natural communities would be less than significant with implementation of MM BIO-19.

Impact BIO-3: Would Alternative 4 have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(Less than significant with mitigation)***

The terrestrial work areas for the Alternative 4 230 kV overhead and submarine segments would temporarily impact 1.74 acres of wetlands and would not permanently impact wetlands, as detailed in Table 4.4-19 and shown on the maps in Appendix F.6. The Alternative 4 impact on wetlands would be slightly greater than the Proposed Project and would be significant. MM HYD-1 requires avoidance and minimization of wetland impacts where feasible and compensatory mitigation for any impacts that are unavoidable. With the implementation of MM HYD-1, the impact on wetlands would be less than significant.

Impact BIO-4: Would Alternative 4 interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(Less than significant with mitigation)***

The impact of the Alternative 4 230 kV overhead and submarine segments on wildlife movement, wildlife corridors, or wildlife use of nursery sites would be the same as the impact of the Proposed Project 230 kV overhead and submarine segments addressed in Section 4.4.5 (above). The Alternative 4 230 kV overhead segment would have the same impact on avian migration and the Proposed Project 230 kV overhead segment and submarine segment would have the same impact on fish migration.

The majority of operation and maintenance activities would be conducted within developed areas at the 230 kV transmission poles, which would not provide nursery habitat. Operation and maintenance activities in developed areas would have no impact avian nursery sites. For routine maintenance and inspections of the riser structures, access would be provided by an existing access road and would not impact avian nursery sites. Any vegetation management activities that would be conducted during operation and maintenance would be limited to vegetation removal required to manage wildfire risks and would generally be limited to areas around the structures which consist of permanent work pads and would not contain nesting habitat. Use of herbicides to control invasive weeds would be conducted in compliance with state regulations including application by a qualified pest control applicator and would follow the requirements for drift control in CCR 6460 for ground application. Due to compliance with State law for herbicide application, impacts on avian nursery sites during LSPGC routine operation and maintenance activities would be less than significant.

While routine maintenance activities would have a less than significant impact on avian nursery sites, non-routine cable replacement/repair activities could require trenching to replace a defective cable. Cable replacement would require separate authorization. If the trenching is required in areas containing nesting habitat, the impact on avian nursery sites would be equivalent to construction and would be significant. MM BIO-7 defines requirements for pre-activity nesting bird surveys in suitable habitat and requires nest avoidance buffers and monitoring where nests are found. The impact on nursery sites during cable replacement maintenance activities would be less than significant with mitigation.

Alternative 4 impacts on wildlife movement and nursery sites would be equivalent to the Proposed Project components that are replaced by Alternative 4.

Impact BIO-5: Would Alternative 4 conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Significant and unavoidable)***

The impact of the Alternative 4 230 kV overhead and submarine segment consistency with local policies or ordinances contained within the Solano County General Plan would be the same as the impact of the Proposed Project addressed in Section 4.4.5 (above). Alternative 4 would locate the 230 kV overhead segment within the Suisun Marsh secondary management area, which is subject to the Suisun Marsh Local Protection Plan (Solano County 2018). Alternative 4 would potentially conflict with the following policy in the Suisun Marsh Local Protection Plan:

> SM.P-25: In the Suisun Marsh, improvements to public utility and transportation facilities should follow these planning guidelines:
>
> a. New electric power transmission utility corridors should be located at least one-half mile from the edge of the Marsh. New transmission lines, whether adjacent to the Marsh or within existing utility corridors, should be constructed so that all wires are at least six feet apart.

Alternative 4 would install a new overhead transmission corridor within the Marsh. The potential conflict is due to the location of Alternative 4 within the Suisun Marsh and the impact would be significant and unavoidable. Therefore, Alternative 4 conflict with local policies or ordinances protecting biological resources would be greater than the Proposed Project components that are replaced by Alternative 4.

Impact BIO-6: Would Alternative 4 conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(Less than significant with mitigation)***

The impact of Alternative 4 230 kV overhead and submarine segments on the provisions of adopted HCPs, NCCPs, or other local, regional, or state HCPs, including the Solano County Water Agency Solano Multispecies HCP and the PG&E Bay Area HCP, would be the same as the impact of the Proposed Project 230 kV overhead and submarine segments addressed in Section 4.4.5 (described above).

4.4.11 Alternative 5: 230 kV Submarine Segment Alternative Route

Environmental Setting – Alternative 5

Alternative 5 involves rerouting a portion of the proposed LSPGC 230 kV submarine segment to the east of its current alignment as it approaches the southern shoreline in Pittsburg. The submarine cable would be installed in the same manner as the Proposed Project. Alternative 5 would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this Draft EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 5.

Impact Analysis – Alternative 5

Alternative 5 involves rerouting a portion of the 230 kV submarine segment. The 230 kV submarine segment would be directly buried in the riverbed of the Sacramento River and would be located within an area serving as a migratory corridor for anadromous species and habitat for fish and aquatic mammals.

Habitat within the rerouted location of the Alternative 5 230 kV submarine segment is the same as the habitat within the location of the Proposed Project 230 kV submarine segment. The Alternative 5 impacts on special-status aquatic mammals (Impact BIO-1G), special-status fish (Impact BIO-1H), wildlife movement, movement corridors, and use of nursery sites (Impact BIO-4), and local policies or ordinances (Impact BIO-5) are discussed below.

Alternative 5 is located within the Delta and would have no impacts on special-status plants(Impact BIO-1A), special-status reptiles (Impact BIO-1B), special-status reptiles (Impact BIO-1C), special-status birds (Impact BIO-1D), special-status invertebrates (Impact BIO-1E), special-status terrestrial mammals (Impact BIO-1F), riparian areas or sensitive vegetation communities (Impact BIO-2), wetlands (Impact BIO-3), and an HCP or NCCP (Impact BIO-6) as none of these resources occur within the Alternative 5 230 kV submarine segment.

Impact BIO-1G: Would Alternative 5 have a substantial adverse effect, either directly or through habitat modifications, on any marine mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

The impact of the Alternative 5 230 kV submarine segment on special-status marine mammal species would be the same as the impact of the Proposed Project 230 kV submarine segment addressed in Section 4.4.5 (above). The impact would be less than significant with mitigation.

Impact BIO-1H: Would Alternative 5 have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

The impact of the Alternative 5 230 kV submarine segment installation on special-status fish species would be similar to the impact of the Proposed Project 230 kV submarine segment addressed in Section 4.4.5 (above); however, Alternative 5 would require site preparation the year prior to submarine cable installation. The site preparation activities would involve dredging which would produce similar levels of turbidity and noise to the submarine cable installation. The site preparation activities would change the channel bottom resulting in a permanent impact on benthic habitat within the resurfaced channel bottom. The impact on benthic habitat would be significant. MM BIO-18 requires compensatory mitigation for permanent impacts on benthic habitat. With implementation of MM BIO-18, the impact on benthic habitat from Alternative 5 site preparation would be less than significant with mitigation. Alternative 5 impacts on special-status fish would be greater than the Proposed Project components replaced by Alternative 5 due to the additional site preparation activities and disturbance of benthic habitat over two seasons.

Operation and Maintenance

Alternative 5 operation and maintenance activities including potential cable replacement would have the same impact on special-status fish as the Proposed Project submarine segment (refer to Section 4.4.5).

Impact BIO-4: Would Alternative 5 interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(Less than significant with mitigation)***

The impact of the Alternative 5 230 kV submarine segment on wildlife species movement or migratory corridors, or wildlife species' use of nursery sites, would be the same as the impact of the Proposed Project 230 kV submarine segment addressed in Section 4.4.5 (above). The impact would be less than significant.

Impact BIO-5 Would Alternative 5 conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Less than significant with mitigation)***

The impact of the Alternative 5 230 kV submarine segment potential conflict with City of Pittsburg policies protecting biological resources would be the same as the impact of the Proposed Project 230 kV submarine segment within the City of Pittsburg addressed in Section 4.4.5 (above). The impact would be less than significant.

4.4.12 Alternative 6a/6b: Underground Portions of the 230 kV Transmission Line within Suisun Marsh Protection Plan Management Areas

Environmental Setting – Alternative 6a/6b

Alternative 6a/6b would locate the LSPGC 230 kV transmission line on primarily PG&E- owned property south of the proposed Collinsville Substation site (similar to Alternative 4). Alternative 6a/6b would be installed in conduit underground. Alternative 6a differs from Alternative 6b only at the northern end of the segment where options are provided for connection to the Proposed Project Collinsville Substation or Alternatives 1 or 2. Two overhead riser structures would be installed at the northern end of the Alternative 6a/6b underground duct bank where the LSPGC 230 kV line would transition between an overhead and underground position. For the purposes of this analysis, the work areas north of the Delta for the Alternative 6a/6b submarine segment are included as part of the underground segment. Alternative 6a/6b would not involve changes to any of the other Proposed Project components, which would have the same impacts as described throughout this Draft EIR for the Proposed Project or the other alternatives if selected in combination with Alternative 6a/6b.

Vegetation Communities

A vegetation mapping field survey was conducted for the Alternative 6a/6b parcels. A description of the survey methods may be found in the Terrestrial Biological Resources Technical Report Addendum #2, which covers the Alternative 6a/6b survey area (Insignia Environmental 2025c) (Appendix F.8). The Alternative 6a/6b 230 kV overhead and submarine work areas would be located within vegetation communities that are also present within the Proposed Project area and described in Section 4.4.2. Vegetation communities in the work areas for Alternative 6a/6b are shown on maps in Appendix F.6 and the acreage of each vegetation community within the work areas are shown in Table 4.4-20.

Special-Status Species

An analysis of special-status plant and wildlife species' potential to occur within the Alternative 6a/6b work areas was conducted and the full results are reported in Appendix F.9. The species determined to have potential to occur within Alternative 6a/6b were similar to those for the Proposed Project with a few exceptions. One plant species, large-flowered fiddleneck (*Amsinckia grandiflora*), was not previously analyzed for the Proposed Project because of a lack of records in the vicinity of the Proposed Project, but was determined to have low potential to occur within the Alternative 6a/6b work areas. Double-crested cormorant was not evaluated for the Proposed Project because database record searches yielded no records within the Proposed Project

vicinity, but was determined to have potential to occur within the Alternative 6a/6b work areas. Double-crested cormorant was determined to have moderate potential to occur for nesting and high potential to occur for foraging.

Delta tule pea was incidentally observed within the survey area for Alternative 6a/6b, and it is possible that it is present within the work areas.

Table 4.4-20 Vegetation Communities and Land Cover Types within the Alternative 6a/6b Work Areas‡

Vegetation Community Or Land Cover Type	LSPGC 230 kV Transmission Line Overhead Segment	LSPGC 230 kV Transmission Line Underground Segment†	Vegetation Community Or Land Cover Type Impact Total
Brassica nigra – Centaurea (*solstitialis*, *melitensis*) Herbaceous SNA	—	<0.01 (T) — (P)	**<0.01 (T)** **— (P)**
Distichlis spicata - Frankenia salina Coastal Herbaceous Alliance*	—	3.63 (T) 0.33 (P)	**3.63 (T)** **0.33 (P)**
Lolium perenne Herbaceous SNA[a]	4.64 (T) — (P)	1.85 (T) 0.20 (P)	**6.49 (T)** **0.20 (P)**
Rosa californica Shrubland Alliance*	—	0.02 (T) — (P)	**0.02 (T)** **— (P)**
Disturbed	—	0.05 (T) — (P)	**0.05 (T)** **— (P)**
Open Water	—	0.15 (T) — (P)	**0.15 (T)** **— (P)**
Road	0.07 (T) — (P)	0.13 (T) 0.09 (P)	**0.20 (T)** **0.09 (P)**
Totals	**4.71(T)** **— (P)**	**5.83 (T)** **0.62 (P)**	**10.54 (T)** **0.62 (P)**

‡ All impacts are reported in acres. Work areas are categorized by impact type: T = Temporary; P = Permanent

†Includes the work areas north of the Delta for the Alternative 6a/6b submarine segment.

*CDFW-designated sensitive natural community (State Rarity Rank S1-S3).

[a] There is 0.20 acre of overlap in the temporary work areas for the Alternative 6b 230 kV overhead and underground segments within the *Lolium perenne* Herbaceous SNA vegetation community.

Wetlands

Potential wetlands were mapped in the Alternative 6a/6b area during the vegetation mapping field surveys. These potential wetlands are shown on maps in Appendix F.6. Potential wetland impacts within the Alternative 6a/6b disturbance area is shown in Table 4.4-21.

Table 4.4-21 Potential Wetlands within the Alternative 6a/6b Work Areas‡

Proposed Project Component	Temporary (acres)	Permanent (acres)
LSPGC 230 kV transmission line overhead segment	—	—
LSPGC 230 kV transmission line underground segment	0.84	—
Total	**0.84**	**—**

‡NWI Data were used in lieu of field survey data to calculate potential wetland impacts. All NWI aquatic features were used, including riverine features, in order to make a conservative estimate of impacts since riverine features can have associated wetland features.

HCP

Alternative 6a/6b is located within the planning areas of the Solano County Water Agency Solano Multispecies HCP, PG&E Bay Area HCP, Solano County General Plan, City of Pittsburg General Plan, and the Delta Plan.

Impact Analysis – Alternative 6a/6b

For the purposes of this biological resources analysis, Alternative 6a and Alternative 6b are treated as a single alternative and the impacts are analyzed together. There would be 10.54 acres of temporary impact and 0.62 acres of permanent impact associated with Alternative 6a/6b. This represents an overall decrease in disturbance of 16.1 acres when compared to the Proposed Project 230 kV overhead and submarine segments north of the Delta (including a decrease of 16.7 acres of temporary impact and an increase of 0.56 acre of permanent impact). The Alternative 6a/6b impacts are analyzed in more detail below.

Impact BIO-1A: Would Alternative 6a/6b have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Special-status plant species have the potential to occur within the work areas for Alternative 6a/6b due to the presence of suitable habitat, particularly along the Delta shoreline. Construction of Alternative 6a/6b involves vegetation removal and trenching that could result in removal or disturbance of special-status plants, which would be a significant impact. MM BIO-1 requires pre-construction botanical surveys, avoidance of special-status plants where feasible, and transplanting or compensation of special-status plant where avoidance is not feasible. With implementation of MM BIO-1, special-status plants would be avoided or impacted populations would be replaced and the Alternative 6a/6b impact would be less than significant. Alternative 6a/6b impacts on special-status plants would be greater than the Proposed Project components replaced by Alternative 6a/6b because of the increased habitat for special-status plants that would be disturbed by Alternative 6a/6b construction.

Indirect impacts on special-status plants would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

The Alternative 6a/6b underground line would be maintained via the vaults/access points and would not require new disturbance in habitat for special-status plants. The underground line would also not require vegetation management using herbicides. As a result, maintenance activities for the underground line would thus not disturb special-status plants and no impact would occur.

Impact BIO-1B: Would Alternative 6a/6b have a substantial adverse effect, either directly or through habitat modifications, on any amphibian species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Alternative 6a/6b has low habitat suitability for special-status amphibians California tiger salamander and California red-legged frog due to the salinity of the habitat in the area. Even though there is low potential for special-status amphibians to occur in the area, if one were using the Alternative 6a/6b site as refugia, earthwork would have a significant impact on special-status amphibians. MM BIO-4 requires pre-construction surveys and defines avoidance procedures to avoid significant impact on special-status amphibians. The impact on special-status amphibians would be less than significant with MM BIO-4. Alternative 6a/6b impacts on special-status amphibians would be equivalent to the Proposed Project components replaced by Alternative 6a/6b.

Operation and Maintenance

The Alternative 6a/6b underground line would be maintained via the vaults/access points and would not require new disturbance in habitat for special-status amphibians. Maintenance activities for the underground line would thus not disturb special-status amphibians and no impact would occur.

Impact BIO-1C: Would Alternative 6a/6b have a substantial adverse effect, either directly or through habitat modifications, on any reptile species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

The Alternative 6a/6b area has a moderate potential for Northern California legless lizard and a high potential for northwestern pond turtle to occur in the area. Construction would result in direct impacts on Northern California legless lizard or northwestern pond turtle during basking if one occurred in the Alternative 6a/6b trench or work area during ground disturbance or became struck in the open trench. LSGPC has proposed APM BIO-1 and APM BIO-4, which require delineation and avoidance of environmentally sensitive resources, including aquatic resources, during construction with a minimum 5-foot avoidance buffer. APM BIO-3 requires all workers to be trained in the identification of special-status species and the actions to take if any are encountered. APM BIO-11 requires preconstruction surveys for northwestern pond turtle and flagging of an active nest for avoidance. APM BIO-9 requires all holes/trenches that

are not filled at the end of a workday to be covered or wildlife escape ramps installed to prevent entrapment of wildlife. While these measures would reduce impacts on special-status reptiles, they do not define specific procedures if a special-status reptile occurred within or adjacent a Proposed Project work area, therefore, impacts to special-status reptiles remain significant. To reduce the impact, MM BIO-5 defines specific requirements for pre-construction surveys and biological monitoring, which would avoid impacts on California legless lizard and northwestern pond turtle (refer to Section 4.4.14 for the complete text of the MMs). Therefore, the impacts on special-status reptiles would be less than significant with implementation of these mitigation measures. Alternative 6a/6b impacts on special-status reptiles would be equivalent to the Proposed Project components replaced by Alternative 6a/6b.

Indirect impacts on special-status reptiles would be the same as those described for the Proposed Project in Section 4.4.5.

Operation and Maintenance

The Alternative 6a/6b underground line would be maintained via the vaults/access points and would not require new disturbance in habitat for special-status reptiles. Maintenance activities for the underground line would thus not disturb special-status reptiles and no impact would occur.

Impact BIO-1D: Would Alternative 6a/6b have a substantial adverse effect, either directly or through habitat modifications, on any bird species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? *(Less than significant with mitigation)*

Construction

One bird species that was not identified as potentially occurring within the Proposed Project study area, the double-crested cormorant, was identified as potentially occurring within the Alternative 6a/6b work areas. Similar to the Proposed Project, Alternative 6a/6b would involve use of noise generating heavy equipment. Alternative 6a/6b would also require removal of vegetation along the underground duct bank and at the vaults. Vegetation removal and construction noise could disturb a nest of special-status bird species. In addition to the birds occurring within the Proposed Project area, double-crested cormorant has the potential to occur within the Alternative 6a/6b area. The Alternative 6a/6b segment is also located in proximity to habitat for California black rail, California Ridgway's rail, and western snowy plover. To reduce impacts on special-status birds, LSPGC proposes implementation of APM BIO-12, which requires avoidance of construction and vegetation trimming/removal during the migratory bird nesting or breeding season (February 15 to August 31) to the extent feasible. The APMs do not include sufficient procedures to ensure nest abandonment is avoided. The impact of special-status bird nest abandonment would be significant. To reduce this impact, MM BIO-7 would supersede APM BIO-12. MM BIO-7 requires pre-construction surveys for nesting birds during the nesting season and defines buffers and monitoring requirements to ensure construction disturbances do not cause nest failure or abandonment (including buffers for California black rail, California Ridgway's rail, western snowy plover, and double-crested cormorant). In

addition, MM BIO-8 defines specific requirements for burrowing owl surveys, avoidance buffers, and burrow replacement to minimize impacts on burrowing owl, MM BIO-9 defines surveys requirements and buffers for Swainson's hawk, and MM BIO-10 defines survey requirements and avoidance buffers for golden eagle (refer to Section 4.4.14 for the complete text of this MM). The Alternative 4 impact on special-status birds would be less than significant with implementation MM BIO-7, MM BIO-8, MM BIO-9, and MM BIO-10. Alternative 6a/6b impacts on special-status birds would be equivalent to the Proposed Project components replaced by Alternative 6a/6b.

Indirect on special-status birds during construction would be the same as the Proposed Project and are described in Section 4.4.5.

Operation and Maintenance
The buried 230 kV line would have no impact on special-status bird habitat as the buried cable would be accessed at vaults and would no vegetation management would be required. Buried 230 kV lines also do not cause avian electrocution. No impact on special-status bird species would occur as a result of Alternative 6a/6b operation and maintenance.

Impact BIO-1E: Would Alternative 6a/6b have a substantial adverse effect, either directly or through habitat modifications, on any invertebrate species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction
Alternative 6a/6b vegetation removal and grading could impact Crotch's bumble bee, western bumble bee, or monarch butterfly if the species occurred in the Alternative 6a/6b construction area (vegetation or disturbance area for the duct bank or vault) at the time of construction. Alternative 6a/6b could result in destruction of a Crotch's bumble bee or western bumble nest or removal of monarch butterfly host plants during the migration season. These impacts on special-status invertebrates due to injury or mortality of Crotch's bumble bee, western bumble bee, or monarch butterfly would be significant. MM BIO-12 defines survey requirements and avoidance buffers for Crotch's bumble bee and western bumble bee and MM BIO-13 defines survey requirements for larval host plants of monarch butterfly and procedures to avoid impacts on monarch butterfly larvae. With proper surveys and avoidance of individual special-status invertebrate per the mitigation measures, direct impacts on special-status invertebrates would be less than significant.

Indirect impacts on special-status invertebrates would be the same as those described for the Proposed Project in Section 4.4.5. Alternative 6a/6b impacts on special-status invertebrates would be equivalent to the Proposed Project components replaced by Alternative 6a/6b.

Operation and Maintenance
Alternative 6a/6b maintenance activities would be conducted from the vaults. No impacts on special-status invertebrate habitat or host plants would occur during operation or maintenance.

As a result, operation and maintenance of Alternatives 6a/6b would have no impact on special-status invertebrates.

Impact BIO-1F: Would Alternative 6a/6b have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? *(Less than significant with mitigation)*

Construction

Salt marsh harvest mouse have a high potential to occur in the Alternative 6a/6b area. Construction of the underground vault would disturb salt marsh harvest mouse habitat and could destroy a salt marsh harvest mouse nests or otherwise harm individuals if they occur in the area of the underground transmission line construction at the time of construction. Injuring or killing a salt marsh harvest mouse, or destroying a nest, would be a significant impact. APM BIO-11, which requires a qualified biologist to carefully inspect vegetation within salt marsh harvest mouse habitat (e.g., pickleweed habitats) prior to vegetation clearance and ground disturbance to ensure no salt marsh harvest mouse individuals or nests are present; if present, individuals would be encouraged to move into adjacent habitats prior to activities commencing. While APM BIO-11 would reduce impacts on salt marsh harvest mouse, impacts would remain significant as the measure does not define specific requirements for pre-construction surveys in salt marsh harvest mouse habitat or buffers from an active salt mouse harvest mouse nest. As a result, construction could result in injury or mortality of salt marsh harvest mouse, which would be a significant impact. To reduce the impact, MM BIO-15 requires pre-construction surveys, monitoring, and defines specific buffers for avoidance of salt marsh harvest mouse (refer to Section 4.4.14 for the complete text of this MM). The impact on salt marsh harvest mouse would be less than significant with implementation of the mitigation measure. Alternative 6a/6b impacts on special-status mammals would be greater than the Proposed Project components replaced by Alternative 6a/6b due to the increased disturbance of salt marsh harvest mouse habitat and higher potential for salt marsh harvest mouse to occur in the Alternative 6a/6b area.

Indirect impacts on special-status mammals would be the same as the Proposed Project described in Section 4.4.5.

Operation and Maintenance

Maintenance of Alternative 6a/6b underground segment would be conducted from vaults along the duct bank. No impact on salt marsh harvest mouse habitat would occur during operation or maintenance activities. As a result, Alternative 6a/6b operation and maintenance would have no impact on salt marsh harvest mouse.

Impact BIO-1G: Would Alternative 6a/6b have a substantial adverse effect, either directly or through habitat modifications, on any aquatic mammal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

The impact of Alternative 6a/6b from submarine cable installation on special-status marine mammal species would be the same as the impact of the Proposed Project 230 kV submarine segments addressed in Section 4.4.5 (above). The Alternative 6a/6b construction would involve sheet pile driving at the concrete vault, similar to the sheet pile driving conducted on the southern shoreline for the underground segment. Noise from sheet piling on land was modeled for the Proposed Project installation of a vault within the underground segment, with a vibratory hammer. The impact was calculated at 163 dB for pile driving with a vibratory hammer (WRA Environmental Consultants 2025) which is below the PTS level of 201 dB for sea lion and 219 dB for harbor seal for non-impulsive sounds (Appendix F.3). Since all pile driving would use a vibratory hammer and noise impacts would be below the PTS threshold for California sea lion and Pacific harbor seal. While the Alternative 6a/6b sheet pile driving would occur on the northern shore, the noise generated from pile driving would be equivalent to the underground segment and the impacts from pile driving on marine mammals would be less than significant.

The shift in the location of the submarine segment would shift the location of disturbance, but the types of habitats impacted and potential for marine mammals to occur in the area would remain the same. With the implementation of the APMs BIO-3 and BIO-18 through BIO-22 as well as MM BIO-17 to address impacts on invasive aquatic species, the impact on marine mammals during submarine cable installation would be less than significant.

Alternative 6a/6b impacts on special-status marine mammals would be equivalent to the Proposed Project components replaced by Alternative 6a/6b.

Operation and Maintenance

Operation and maintenance of the underground 6a/6b segment have no impact on marine mammals. Maintenance of the submarine segment could involve replacement of a damaged cable segment. The impact on marine mammals from cable replacement for the submarine segment would be equivalent to the impacts from use the Proposed Project submarine segment maintenance discussed in Section 4.4.5, and would be less than significant.

Impact BIO-1H: Would Alternative 6a/6b have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

Alternative 6a/6b would involve installation of a concrete vault on the northern shoreline of the Delta. Construction of a concrete vault would require vibratory pile driving to install sheet

piles. Similar to construction of the underground segment, vibratory hammer pile driving modeled sound levels would be 163, which would exceed the threshold limits for behavior of 150 dB but would not exceed the threshold for physical impacts of 183 dB for small fish, 187 dB for larger fish at the source of the noise (WRA Environmental Consultants 2025). Because unattenuated pile driving noise would be limited to the duration of pile driving activities at the underground vault and would not cause injury or death to fish, impacts from sheet pile installation would be less than significant. Other direct impacts on fish from installation of the submarine segment cables would be the same as the Proposed Project described in Section 4.4.5. The shift in the location of the submarine segment would shift the location of disturbance to fish habitat, but the impacted species and duration would remain the same as the Proposed Project. With the implementation of the APMs BIO-3 and BIO-18 through BIO-23 as well as MM BIO19 (invasive marine species control), the impact on special-status fish from Alternative 6a/6b would be less than significant. Alternative 6a/6b impacts on special-status fish species would be equivalent to the Proposed Project components replaced by Alternative 6a/6b.

Operation and Maintenance

Operation and maintenance of the underground 6a/6b segment have no impact on special-status fish. Maintenance of the submarine segment could involve replacement of a damaged cable segment. The impact on special-status fish from cable replacement for the submarine segment would be equivalent to the impacts from use the Proposed Project submarine segment maintenance discussed in Section 4.4.5, and would be less than significant.

Impact BIO-2: Would Alternative 6a/6b have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? ***(Less than significant with mitigation)***

Construction

The terrestrial work areas for Alternative 6a/6b would temporarily impact 3.65 acres and permanently impact 0.33 acres of sensitive natural communities as detailed in Table 4.4-20 and shown on the maps in Appendix F.6. The impact on sensitive natural communities would be greater than the Proposed Project 230 kV overhead segment due to the underground vault installation through special-status natural communities as opposed to spanning the communities. The impact on sensitive natural communities would be significant. MM BIO-19 defines requirements for avoidance of sensitive natural communities, restoration of temporary impacts, and compensation for permanent impacts on sensitive natural communities. The impact on sensitive natural communities would be less than significant with implementation of MM BIO-19.

Operation and Maintenance

Operation and maintenance activities would occur from within the developed duct bank and at vaults. No impact on sensitive natural communities would occur during operation and maintenance.

Impact BIO-3: Would Alternative 6a/6b have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(Less than significant with mitigation)***

Construction

The terrestrial work areas for Alternative 6a/6b 230 kV would temporarily impact 0.84 acre of wetlands and would not permanently impact wetlands, as detailed in Table 4.4-21 and shown on the maps in Appendix F.6. The impact on wetlands would be greater than the Proposed Project 230 kV overhead/submarine segment discussed in Section 4.4.5. The Alternative 6a/6b impacts on wetlands would be significant. MM HYD-1 defines protocols for delineation of wetlands, avoidance, minimization, and compensatory mitigation where avoidance is not feasible. With implementation of MM HYD-1, wetland impacts would be avoided and restored or mitigated through compensatory habitat mitigation to avoid loss of wetland habitats. The Alternative 6a/6b impact on wetlands would be less than significant with mitigation.

Operation and Maintenance

Maintenance access for the Alternative 6a/6b segment would occur from vaults. No impact on wetlands would occur during Alternative 6a/6b operation and maintenance as no maintenance activities would be conducted within wetland areas.

Impact BIO-4: Would Alternative 6a/6b interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(Less than significant with mitigation)***

Impacts during Alternative 6a/6b construction on native wildlife use of nursery sites would be the same as the impact of the Proposed Project 230 kV overhead and submarine segments addressed in Section 4.4.5 (above).

Alternative 6a/6b would be located below ground and would not create any impact on movement or migration during operation. Alternative 6a/6b impacts on fish migration during construction would be equivalent to the Proposed Project 230 kV submarine segment construction as described in Section 4.4.5 and impacts on migration would be less than significant.

Impact BIO-5: Would Alternative 6a/6b conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Significant and unavoidable)

The impact of Alternative 6a/6b on local policies or ordinances, particularly contained within the Solano County General Plan would be the same as the impact of the Proposed Project 230 kV submarine and overhead segments addressed in Section 4.4.5 (above). Alternative 6a/6b would locate the 230 kV underground segment within the Suisun Marsh secondary management area, which is subject to the Suisun Marsh Local Protection Plan (Solano County 2018). The following policy in the Suisun Marsh Local Protection Plan would apply to Alternative 6a/6b:

SM.P-25: In the Suisun Marsh, improvements to public utility and transportation facilities should follow these planning guidelines:

a. New electric power transmission utility corridors should be located at least one-half mile from the edge of the Marsh. New transmission lines, whether adjacent to the Marsh or within existing utility corridors, should be constructed so that all wires are at least six feet apart.

Alternative 6a/6b would install a new underground transmission corridor within the Suisun Marsh. The impact from conflict with a policy in the Suisun Marsh Local Protection Plan would be significant and unavoidable. Alternative 6a/6b conflict with local policies or ordinances protecting biological resources would be greater than the Proposed Project components that are replaced by Alternative 6a/6b.

Impact BIO-6: Would Alternative 6a/6b conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? *(Less than significant with mitigation)*

The impact of Alternative 6a/6b on the provisions of adopted HCPs, NCCPs, or other local, regional, or state HCPs, including the Solano County Water Agency Solano Multispecies HCP and the PG&E Bay Area HCP, would be the same as the impact of the Proposed Project 230 kV submarine and overhead segments addressed in Section 4.4.5 (above).

4.4.13 No Project Alternative

Environmental Setting – No Project Alternative

Under the No Project Alternative, the LSPGC Collinsville Substation and associated LSPGC 230 kV transmission line, PG&E 500 kV interconnection lines, and PG&E 12 kV distribution line would not be constructed. The existing biological resources conditions described in Section 4.4.2 would apply to the No Project Alternative.

Impact Analysis – No Project Alternative

Under the No Project Alternative, none of the Proposed Project components would be constructed and the existing conditions in the Proposed Project area would remain. The No Project Alternative would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Impact BIO-1A through 1H). The No Project Alternative would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Impact BIO-2). The No Project Alternative would not have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means (Impact BIO-3). The No Project Alternative would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native

resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (Impact BIO-4). The No Project Alternative would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Impact BIO-5). The No Project Alternative would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional or state HCP (Impact BIO-6). No biological resources impacts would occur under the No Project Alternative.

4.4.14 Mitigation Measures

LSPGC Mitigation Measures

Mitigation measures that apply to LSPGC are the following:

- MM BIO-1: Avoidance and Minimization of Impacts on Special-Status Plants
- MM BIO-2: Habitat Restoration
- MM BIO-3: Invasive Plant Management
- MM BIO-4: Special-Status Amphibians and Vernal Pools
- MM BIO-5: Pre-Construction Surveys and Biological Monitoring
- MM BIO-7: Nesting Bird Management
- MM BIO-8: Burrowing Owl
- MM BIO-9: Golden Eagle
- MM BIO-10: Swainson's Hawk
- MM BIO-11: Minimization of Avian Interactions with Transmission Lines
- MM BIO-12: Crotch's Bumble Bee Avoidance Procedure
- MM BIO-13: Monarch Butterfly
- MM BIO-15: Salt Marsh Harvest Mouse Avoidance
- MM BIO-17: Invasive Marine Species Control Plan
- MM BIO-18: Compensatory Mitigation for Permanent Impacts to Benthic Habitat
- MM BIO-19: Sensitive Natural Plant Communities
- MM HYD-1: Aquatic Resource Delineation, Avoidance, Minimization, and Mitigation

MM BIO-1: Avoidance and Minimization of Impacts on Special-Status Plants

Pre-construction surveys: Where surveys have not been completed within 5 years prior to construction or vegetation disturbance, LSPGC/PG&E shall obtain CPUC approval of a qualified botanist to perform pre-construction surveys for state or federally listed plant species and those with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B that have the potential to occur in the area during operation and maintenance. These surveys shall be performed utilizing CNPS or other accepted botanical survey protocol. Special-status plant surveys shall be conducted during the appropriate blooming period for each species. Surveys shall occur prior to construction and operation and maintenance activities for all work areas occurring off existing access roads in natural areas, including overland travel routes, and areas of existing roads that require modifications. The surveys shall include a floristic inventory and focused search for special-status plants with potential to occur in Project areas where suitable habitat is present.

The survey results shall be summarized in a report and provided to the CPUC no less than 30 days prior to commencement of construction. The survey report shall identify the botanists' names and qualifications, and a description of the survey dates, methods, and a description of the survey efforts, including a list of the species that were searched for, results of the plant inventory evaluation, and suitable habitat that was encountered. The report shall include maps (1: 3,000 scale) that identify final Project work areas and access routes and the extent of focused plant surveys that cover Project areas located in occupied habitat. Maps in the report shall identify point locations for individual plants and boundaries for plant populations. The report shall include specific recommendations for avoiding the plants.

Avoidance measures: LSPGC/PG&E shall mark all populations of special-status plants within the work area and a 25-foot buffer site as *environmentally sensitive areas* (ESAs) on maps that are provided to contractors working near environmentally sensitive areas. All populations within 25 feet of a project work area and 20 feet of an access road shall be staked and flagged or fenced for avoidance by a qualified biologist or botanist prior to construction and shall be monitored by a qualified biologist or botanist during construction to ensure proper avoidance of the species. The project work areas shall be adjusted as needed to avoid any populations of special-status plants that occur within the work area to the extent feasible. All stakes and flagging shall be removed no later than 30 days after construction is complete in the area. Information about special-status plants and avoidance requirements shall be included in the Workers Environmental Awareness Training Program (APM BIO-3 and CM BIO-3). In the event of a discovery of previously undocumented species, the boundary of the occurrence will be flagged, avoided, and monitored as discussed above and the CPUC, CDFW, and/or USFWS will be notified if the species is state or federally listed.

If the special-status plant species cannot be avoided, LSPGC/PG&E shall notify CPUC in writing, and LSPGC/PG&E shall submit a Salvage and Replanting Plan to CPUC and CDFW for approval as described below. No State or federally listed plant species shall be salvaged or relocated without obtaining permit authorization from CDFW and/or USFWS, as required. LSPGC/PG&E shall provide the CPUC with any permits and authorizations obtained from USFWS and CDFW. LSPGC shall relocate the species to areas within the easement that are outside of the long-term maintenance areas. If the species occurs in an area that is subject to temporary impacts, the species shall be included in the restoration of the site.

Salvage and replanting plan: For impacts on state or federally listed or CRPR 1 or 2 plants that cannot be avoided, the qualified botanist shall prepare and implement a Salvage and Replanting Plan. The Salvage and Replanting Plan would specify, at a minimum, the following:

- Location of the mitigation site(s) (extent of the plants within and adjacent to project areas).
- Procedures for procuring plants, such as transplanting or collecting seed from plants to be impacted, including storage locations and methods to preserve the plants.
- Procedures for propagating collected seed, including storage methods.

- Quantity and species of plants to be planted or transplanted.
- Planting procedures, including the use of soil preparation and irrigation.
- Schedule and action plan to maintain and monitor the mitigation site for a minimum 3-year period.
- Reporting procedures, including the contents of annual progress reports.
- List of criteria (e.g., growth, plant cover, survivorship) by which to measure success of the plantings.
- Contingency measures to implement if the plantings are not successful (i.e., weed removal, supplemental plantings, etc.).

LSPGC/PG&E shall submit the Salvage and Replanting Plan to the CPUC for review and approval no less than 30 days prior to impacting or collecting special-status plants. At a minimum, the transplanted/created population(s) shall have approximately the same characteristics as the impacted population (within 10-percent density, total population number, and non-native/invasive). Seasonal population changes may be taken into account by identifying and documenting the characteristics of an appropriate representative reference site prior to impacting a population. Salvage of plants (seed) and replanting shall occur prior to impacts on the impacted plant communities. Reference sites that will be used must be identified and described in the Salvage and Replanting Plan.

If CPUC or CDFW determines that the Salvage and Replanting Plan is not likely to be successful (due to the species' life form, habitat requirements, or other factors), then LSPGC/PG&E shall provide compensation lands consisting of habitat occupied by the impacted CRPR 1, 2, 3, or 4 ranked plant occurrences at a 1:1 ratio of acreage for any occupied habitat affected by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each special-status plant occurrence. If compensation is required 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, which describes the practice of utilizing compensation lands for multiple different mitigation requirements (e.g., special-status plant habitat and special-status wildlife habitat) (Gardner and Fox 2013).

Annual reporting: Annual salvage and replanting monitoring reports shall be submitted to CPUC for a period of 3 years after transplanting to ensure success of the transplanted populations. Where transplantation has not been successful under the criteria set forth in the performance standards below, compensation shall be provided on an acreage basis at a 1:1 ratio to offset the loss of transplanted special-status plant populations. Annual reports shall include, 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. Salvage status and success will be described in the annual report.

Performance Standards:Where impacts on special-status plants are unavoidable, the transplanted/created population(s) must have approximately the same characteristics as the impacted population (within 10-percent density, total population number, and non-native/invasive species).

MM BIO-2: Habitat Restoration
LSPGC/PG&E shall prepare and implement a Revegetation, Restoration, and Monitoring Plan that addresses procedures for revegetation and/or restoration. The plan shall also address the requirements for restoration in MM BIO-1: Special-Status Plant Populations and MM BIO-22: Sensitive Natural Plant Communities.

The plan shall be developed upon completion of final design and submitted to the CPUC for review and approval no less than 60 days before commencement of construction.

All temporarily disturbed areas shall be restored to near pre-construction conditions to ensure permanent impacts do not occur in areas of temporary impacts as a result of the project. Pre-construction conditions, including vegetation cover estimates and percentage of Cal-IPC list invasive weeds (plants rated as "High" and "Moderate"), shall be documented for each project work area as described below in the Pre-Construction Report. The goal of the restoration shall be that habitat functions and values and species composition of the restored vegetation are comparable to those of nearby comparable vegetation within 3 years.

The plan shall identify corrective actions to implement (e.g., removal of invasive weeds, supplemental planting, etc.) if the performance standards defined in this measure are not achieved. Work sites that have been proven to meet the performance standard defined in this measure shall not require further monitoring and reporting.

Monitoring procedures: A qualified biologist or botanist shall monitor vegetation resources that are impacted annually until performance standards have been met. Monitoring shall be conducted once a year during the blooming period to verify species composition and cover within all areas of temporary disturbance.

Pre-construction report(s): Prior to construction, a qualified biologist or botanist shall survey all final work areas and overland access routes to identify the vegetation resources that may be impacted, including their location, composition, condition, and extent of planned project disturbance. Survey efforts may be conducted in conjunction with focused surveys required for special-status species, as described in applicable APMs and mitigation measures. Anticipated impacts on vegetation resources shall be quantified and documented in the report, such as special-status plant individuals or the characteristics of populations (i.e., estimated size and cover estimates), the types and numbers of shrub individuals, and restoration acreages for sensitive natural communities. The baseline conditions for adjacent and comparable vegetation resources shall also be documented in the report. Such areas may be used as a control for post-construction monitoring to determine relative restoration performance and account for seasonal fluctuations in invasive species composition, general growth rates, and overall coverage.

The report shall include maps (1: 3,000 scale) that identify the types and locations of the vegetation resources that may be impacted, the limits of the planned work areas, and project access routes. An initial report shall be submitted to the CPUC no less than 30 days before construction. Separate reports may be submitted for each project segment, if necessary. If new impacts or restoration procedures are identified, the plan shall be updated and submitted in track changes to the CPUC.

Post-construction reports: LSPGC/PG&E shall prepare and submit Post-Construction Reports to the CPUC on an annual basis until construction is complete. Post-Construction Reports shall include table summaries of actual project impacts, and maps of the areas that identify the limits of actual impacts. The summary table shall include the location name/ID for each impact area, anticipated impact acreage from the Pre-Construction Report, and actual impact acreage during construction. The report shall include a brief statement about revegetation, restoration, and monitoring procedures that would be implemented where impacts occurred, as defined in the approved plan.

Annual monitoring reports: Once revegetation and restoration begins, LSPGC/PG&E shall conduct surveys during the growing season and submit Annual Monitoring Reports to the CPUC. The reports shall summarize revegetation and restoration efforts for each applicable impact area, provide data on how the restoration is performing relative to the performance standards, and detail any corrective actions necessary to meet performance standards. Once the performance standards have been achieved for each location, monitoring and reporting would no longer be required for the location.

LSPGC/PG&E shall provide written updates to CPUC upon request regarding seasonally dependent restoration and corrective actions prior to submission of the annual monitoring reports.

Applicable locations: Areas of temporary impact.

Performance standards: Habitat restoration shall match the pre-impact vegetation community composition/cover of the affected sensitive vegetation communities with 10 percent variability. Non-native or other vegetation communities shall have at least 70 percent of the pre-impact total vegetative cover and shall be revegetated with vegetation community composition matching surrounding unaffected areas with an allowed variance of 10 percent. Invasive species cover shall not exceed pre-project coverage.

Timing: Restoration of temporary impact areas shall occur within one year following completion of temporary disturbance. Monitoring to occur during blooming periods and reporting to occur annually and submitted to CPUC within 30 days of monitoring.

MM BIO-3: Invasive Plant Management
Invasive plants 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]). Invasive plants shall be managed throughout project pre-construction, construction, and restoration phases.

Pre-construction invasive plant inventory. LSPGC shall inventory invasive plants of concern in areas subject to project-related vegetation removal/disturbance, overland travel (drive and crush), and ground-disturbing activity. The invasive plants inventory area shall also include vehicle and equipment access routes and all project staging and storage yards. Invasive plants of concern shall be mapped by area of occurrence and percent cover.

Pre-construction invasive plants treatment. Invasive plant infestations identified in the pre-construction invasive plants inventory shall be evaluated to identify potential for 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. Pre-construction treatment shall be conducted under the direction of a licensed pest control advisor.

Prevention. Vehicles and equipment shall be inspected at entry points to the project work area and before leaving work sites where invasive plants must be contained locally. 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 project work areas.

All vehicles shall 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 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.

Monitoring. 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.

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 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 methods shall include removal of invasive plants or their seed heads with hand tools during the appropriate season to prevent spread of the seed; seed heads and plants must be disposed of in accordance with guidelines from the relevant County Agricultural Commissioners, if such guidelines are available.

The focus of weed abatement will be manual control where reasonable to contain weed populations. Chemical control methods shall avoid drift or residual toxicity to native vegetation or special-status plants, consistent with the National Invasive Species Management Plan (National Invasive Species Council 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-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 where they could run off into downstream areas. Herbicides shall not be applied in high wind conditions.

Reporting schedule and contents. An annual monitoring report documenting the invasive plant monitoring results shall be submitted to the CPUC annually for three years following construction.

Performance standards

- Invasive plant populations shall be controlled to pre-construction levels.

MM BIO-4: Special-Status Amphibians and Vernal Pools

Within 7 days prior to ground disturbance in each work area, a qualified biologist shall investigate each work area for the presence of burrows suitable for California tiger salamander and California red-legged frog. If burrows suitable for California tiger salamander or California red-legged frog are present, the burrows shall be investigated by a biologist who holds a valid scientific collection permit for California tiger salamander and California red-legged frog. In the event that there is a burrow within the work area that is occupied by California tiger salamander or California red-legged frog, no activity shall be allowed to commence within 250

feet of the occupied burrow until an incidental take permit has been obtained in compliance with the California Endangered Species Act or federal Endangered Species Act, as applicable.

Construction within 250 feet of Vernal Pools: Where construction activities are proposed within 250 feet of vernal pools or suitable breeding habitat for special-status amphibians (pools with sufficient hydroperiod), the project shall be designed to avoid the pool to the extent feasible. The limits of the pool shall be staked for avoidance where avoidance is feasible. All activities within 250 feet of a vernal pool shall be conducted outside of the rainy season (October 15 to April 15) and within 72 hours following any rain event.

Construction within 0.25 mile of Special-Status Amphibian Habitat: If construction within 0.25 mile of suitable breeding habitat cannot be avoided, a survey for California tiger salamander in accordance with *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (October 2003), and a survey for California red-legged frog in accordance with *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (August 2005) shall be conducted within the season prior to construction. Focused surveys for western spadefoot shall be conducted in accordance with a USFWS approved method. If California tiger salamander, California red-legged frog or western spadefoot are determined to be present based on the results of focused surveys, PG&E shall obtain an incidental take permit from CDFW or USFWS as applicable for construction in proximity to occupied habitat. If the species is determined to be absent, construction may proceed with all other measures implemented including biological monitoring as specified in MM BIO-5.

MM BIO-5: Pre-Construction Surveys and Biological Monitoring
Biologist approval and qualifications: A qualified biologist(s) will be pre-approved by the CPUC prior to conducting biological surveys and monitoring for the project. Qualified biologists are defined as individuals with a bachelor's degree or above in a biological science field and demonstrated field experience. Approved and qualified biologists shall conduct required surveys and monitoring for special-status species and active nests. Qualified avian biologists are defined as individuals with demonstrated field expertise in ornithology, in particular, nesting behavior and nest detection. Monitoring biologists conducting avian nest checks shall have demonstrated experience surveying or monitoring nesting birds. Qualified botanists are defined as individuals with demonstrated field expertise in botany. Qualified herpetologists are defined as individuals with demonstrated experience with California reptile and amphibian species. Biologists qualified for construction monitoring shall hold at minimum 1 to 2 years of construction-related biological monitoring experience. Biologists qualified as a lead biological monitor shall have 5 or more years of related experience.

Pre-construction surveys: A CPUC-approved qualified biologist (i.e., a biologist with the requisite education and experience to address special-status species and biological resources with potential to occur in the project area) shall conduct a pre-construction survey for special-status wildlife species known to occur or with the potential to occur in all work areas located within suitable habitat for special-status species. In those situations where the qualified

biologist cannot make a definitive species identification, the qualified biologist shall make a determination based on the available evidence and professional expertise. The pre-construction survey shall be conducted no earlier than 14 days prior to surface disturbance in each work area. The results of the pre-construction survey will be documented by the qualified biologist in a pre-construction survey report(s). The pre-construction survey report(s) shall be submitted to the CPUC for review and approval and the results shall be submitted to CDFW and USFWS as required by any other regulatory permits or approvals. The pre-construction survey report(s) will include the following:

- Special-status species encountered, including potential breeding sites such as dens, burrows, nests, or aquatic habitat
- Type, location, and size of project impact areas
- Date, time, and weather conditions during survey, and surrounding land uses
- Evaluation of type and quality of habitat
- Map or GIS of *biological study area* and of work area

Monitoring: Where pre-construction surveys indicate the presence of sensitive species within 200 feet of a work area or sensitive habitats within 50 feet of a work area, a CPUC approved biologist(s) shall conduct biological monitoring during construction activities in proximity to the sensitive species or habitats. Extended monitoring buffers for sensitive species may be applied per the conditions of other APMs or mitigation measures. Where special-status species (e.g., amphibians, reptiles, birds, mammals, reptiles), sensitive natural communities, riparian areas, or wetlands may occur, unless otherwise determined absent through pre-construction surveys, a qualified biological monitor shall monitor construction activities to ensure that any unplanned or unpermitted impacts to special-status species, sensitive natural communities, riparian habitat, and wetlands are avoided.

Resource avoidance: Prior to construction or access in any area containing or potentially containing special-status species habitats, sensitive natural communities, riparian areas, or wetlands, the biological monitor shall mark or otherwise delineate the limits of special-status species habitat, sensitive natural communities, riparian areas, and wetlands for avoidance, and where necessary, post signs at access route entrances to inform workers of special access considerations (i.e., seasonal restrictions, biological monitor escort, etc.). Resource markings and signs shall be maintained and repaired as needed and as directed by the biological monitor. All stakes and flagging are removed no later than 30 days after construction is complete.

The biological monitor shall have full authority to halt construction, once safe to do so, if a sensitive resource/species has or may be impacted. The biological monitor may relocate wildlife out of harm's way, if appropriate to protect the species (additional protections or permits would be required prior to relocation of any state or federally listed threatened or endangered species). The biological monitor shall revisit each active work site at least once a week to inspect the work area for the presence of biological resources and verify that all avoidance measures (e.g., flagging or fencing) are in place.

MM BIO-7: Nesting Bird Management
Avoidance of work during nesting/breeding season. Whenever possible, LSPGC/PG&E will avoid vegetation removal, vegetation maintenance (including trimming and mowing), and ground disturbing activities during the migratory bird nesting/breeding season, which is defined as February 1 through September 30 for this area.

Pre-activity nest surveys. Pre-activity nest surveys will be conducted prior to any construction activities activities within suitable habitat scheduled during the breeding period. For this project, the breeding period will be defined as February 1 through September 30. 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 Geupel 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:

Surveys shall cover all potential nesting habitat within the work areas and within 1,000 feet of these areas for California black rail, California Ridgway's rail, and tricolored blackbird, 500 feet of these areas for raptors, and 300 feet for non-raptors.

Pre-activity surveys shall be conducted for each work area, no longer than 14 days prior to the start of the activity. On the first day of construction at any given site, a qualified Avian Biologist will perform a pre-activity "sweep" to identify any bird nests or other resources that may have appeared since the 14-day survey.

LSPGC/PG&E shall provide the CPUC a report describing the findings of the pre-activity 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 pre-activity nest survey throughout the nesting season.

Nest Buffers and Acceptable Activities. Nest buffers shall be delineated 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). Measures to ensure nesting buffers are observed shall include direct communication and decision protocol to stop work within buffer areas. In some cases, active nests may be found while work is underway. Therefore, a protocol shall be implemented for stopping ongoing work within the buffer area, securing the work site, and removing personnel and equipment from the buffer.

Buffer distances from active nests shall be implemented to avoid take or adverse effects to nests. Buffers shall be based on the specific nature of the bird species and conservation status, and other pertinent factors. Buffer distances shall be defined specific to each species relative level of tolerance of human activity. If no information is available to specify a buffer distance for a species, then a 300-foot buffer shall apply as a standard buffer distance for migratory birds, and 500 feet of active nests of raptors and 1,000 feet of active nests of California black rail, California

Ridgway's rail, and tricolored blackbirds. 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.

The qualified biologist shall identify acceptable work activities within nest buffers (e.g., pedestrian access for inspection or BMP repair) including conditions and restrictions. Monitoring shall be conducted during any activities within the buffers.

Nest Buffer Modification or Reduction. At times, LSPGC/PG&E or its contractor may propose buffer distances different from those included in this mitigation measure. Buffer adjustments shall be reviewed and recommended by a qualified avian biologist, who has been approved by CPUC in consultation with the CDFW and USFWS. CPUC shall be notified of any planned adjustments to nest buffers. Separate and distinct procedures will be provided for special-status birds as defined in MM BIO-9, MM BIO-10, and MM BIO-11.

Nest deterrents. Any proposed measures or deterrents to prevent or reduce bird nesting activity on project equipment or facilities, such as buoys, visual or auditory hazing devices, bird repellents, securing of materials, vehicles, and equipment shall be submitted to the CPUC for review and approval at least 30 days prior to use. The proposed 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 shall be part of the nest deterrent request. In the event that an active nest is located on project facilities, materials or equipment, LSPGC/PG&E will avoid disturbance or use of the facilities, materials, or equipment (e.g., by red-tag) until the nest is no longer active.

Communication. Nest information and potential adverse impacts to nesting birds shall be promptly communicated from nest monitors to work activity monitors, so that any needed actions can be taken immediately.

The CPUC and CDFW shall be notified in the event of accidental disturbance of nests. Approaches to address the accidental disturbance shall be recommended by a qualified avian biologist and proposed to the CPUC and CDFW. CPUC shall be notified regarding removal of inactive nests, including steps taken to verify that the nest is inactive.

Monitoring. LSPGC/PG&E shall be responsible for monitoring the implementation, conformance, and efficacy of the avoidance measures (above). Monitoring shall include tracking 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, LSPGC/PG&E 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-activity surveys, daily sweeps of work areas and equipment, and any special monitoring requirements for particular activities (e.g.,

tree trimming, vegetation removal) or particular species (e.g., noise monitoring). Nest monitoring shall continue throughout the breeding season during each year of the project's construction activities; nests monitored during operation and maintenance activities do not require further monitoring once the activities are completed.

Reporting. Throughout the construction phase of the project, nest locations, project activities in the vicinity of nests (including helicopter routes), 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. At the end of each year's nest season, LSPGC/PG&E will submit an annual nesting bird report to the CPUC, CDFW, and USFWS.

MM BIO-8: Burrowing Owl
Burrowing Owl Habitat Assessment and Surveys: A qualified biologist shall conduct a habitat assessment and surveys, if warranted based on the habitat assessment, following the Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012) methodology (https://wildlife.ca.gov/Conservation/Survey-Protocols#377281284-birds) and prepare a report documenting the survey results. The qualified biologist shall have a minimum of two years of experience implementing the above methodology resulting in burrowing owl detections. Based on the habitat assessment, if suitable burrows or burrow surrogates are present, surveys for nesting burrowing owl shall be conducted if project construction starts during the nesting season (February 1 to August 31), and surveys for wintering burrowing owl shall be conducted if the construction starts during the wintering season (September 1 to January 31). The habitat assessment and surveys shall encompass the project site and a sufficient buffer zone to detect owls nearby that may be impacted, which is up to 500 meters (1,640 feet) around the project site pursuant to the above methodology, unless otherwise approved in writing by CDFW. Habitat assessments and surveys shall occur each year of project construction, as conditions may change annually and suitable refugia for burrowing owl, such as small mammal burrows, can be created within a few hours or days.

If the habitat assessment does not identify burrows and additional surveys are not conducted, an additional habitat assessment shall be conducted within 14 days prior to construction. If new burrows are present, surveys shall be conducted as described above.

Burrowing owl avoidance. The buffer for active burrowing owl nesting sites shall be in accordance with CDFW guidelines (CDFG 2012) and shall be as follows:

- From April 1-August 15, buffers shall be 300 feet for low levels of disturbance (i.e., vehicles, worker presence), and 500 feet for moderate to high levels of disturbance (i.e., demolition, grading, tree felling, helicopter use)
- From August 16-October 15, buffers shall be 600 feet for low and moderate levels of disturbance (i.e., vehicles, worker presence, tree felling, grading), and 1,500 feet for high levels of disturbance (i.e., helicopter use)

- From October 16-March 31, buffers shall be 150 feet for low levels of disturbance (i.e., vehicles, worker presence), 300 feet for moderate levels of disturbance (i.e., grading, tree felling), and 1,500 feet for high levels of disturbance (i.e., helicopter use)

If active burrowing owl burrows are located within project work areas, they shall be avoided to the greatest extent possible through work exclusion buffers as described above. Monitoring of active burrowing owl nests shall occur in all buffer areas as defined above, and other methods to reduce disturbance (such as visual or sound barriers) shall be employed depending on the type and level of work being conducted to prevent the need for relocation. Other measures shall include eliminating actions that reduce burrowing surrogates (e.g., ground squirrels).

In any cases where active burrows could not be adequately avoided through exclusion buffers, as determined by a qualified biologist, and project activities could result in substantial indirect disturbance, direct physical disturbance, or destruction of burrows that are located within certain project work areas (e.g., facility footprints, areas that require grading), LSPGC/PG&E would obtain an incidental take permit in order to passively relocate the owls, as described below and per the conditions of any required CESA incidental take permit. Passive relocation shall only be considered if work cannot take place due to an active nest, such as grading over burrows. 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. Any passive burrowing owl relocation shall address:

- **Replacement burrows:** For each burrowing owl that will be passively relocated, if fewer than two suitable unoccupied burrows are available within 600 feet of the affected project work site, then LSPGC/PG&E shall construct at least two replacement burrows within 600 feet of the affected project work site, or in suitable locations within 0.25 mile when suitable locations within 600 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 Burrowing Owl Exclusion Plan shall be prepared that would 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 Burrowing Owl Exclusion 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 the Burrowing Owl Exclusion Plan shall be approved by the CPUC and CDFW.
- **Methods:** 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 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:** LSPGC/PG&E shall monitor the replacement burrow site(s) and provide monitoring reports consistent with CDFW guidance (CDFG 2012). 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 will be conducted after the burrowing owl passive relocation process is complete, up until the onset of ground disturbance due to construction to ensure that owls do not re-establish themselves. The artificial burrows or enhanced replacement burrows will be monitored for a period that will be defined in the site-specific relocation plan to determine if they are being used by owls. Monitoring reports shall be available to the CPUC.

Cap Pipes and Hoses: To prevent burrowing owl from sheltering or nesting in exposed material; all construction pipes, culverts, hoses or similar materials greater than two inches in diameter stored at the project site shall be capped or covered before the end of each work day and shall be inspected thoroughly for wildlife before the pipe or similar structure is buried, capped, used, or moved.

MM BIO-9: Swainson's Hawk

Swainson's hawk nest surveys shall be performed by a CPUC-approved qualified biologist in areas of suitable habitat prior to construction activities scheduled to occur during the Swainson's hawk nesting season (from March 1 through July 31). Surveys shall be conducted within 0.5 miles of work areas in suitable nesting habitat for Swainson's hawk to determine if any Swainson's hawk nests are active within a 0.5-mile radius of the construction area. Suitable habitat for Swainson's hawk is defined as trees within mature riparian forest or corridors, lone oak trees and oak groves, and mature trees near fields.

An active nest shall receive a 0.5-mile buffer between March 1 and July 31. Buffer zones may be adjusted in consultation with CDFW and approved by CPUC and must be protective of the species nesting behavior with continued monitoring of the nest by a qualified biologist per MM BIO-8.

For hawks found injured during project-related activities on the project site, LSPGC/PG&E shall consult with CPUC and CDFW for immediate relocation to an agency-approved raptor recovery center.

MM BIO-10: Golden Eagle

Avoid and minimize impacts. All project activities north of the Delta shall implement the following avoidance and minimization measures.

- Golden eagle nest surveys shall be performed when construction activities are scheduled to occur within 1 mile of golden eagle nesting habitat from January 1-

August 31 to determine if any eagle nests are active within a 1-mile radius. Ground-based or helicopter-based survey methods will be developed in coordination with USFWS and will be consistent with current USFWS survey guidelines, or as recommended by USFWS.

- For construction activity, should an active golden eagle nest be present, the nest shall receive a 1-mile buffer if in line of sight, 0.5-mile buffer if no line of sight—with USFWS concurrence.
- Buffers and buffer modifications for golden eagles shall be consistent with the conditions in MM BIO-8.

MM BIO-11: Minimization of Avian Interactions with Transmission Lines
LSPGC/PG&E shall design, construct, and operate transmission lines and associated structures according to current Avian Power Line Interaction Committee (APLIC) guidelines. These guidelines include, but are not limited to, designing infrastructure to minimize perching and nesting opportunities, utilizing collision reduction devices such as flight diverters or line markers, obtaining a compliance review by an environmental inspector, and implementing monitoring and adaptive management to understand effects of the transmission infrastructure on birds and make adjustments as needed.

MM BIO-12: Crotch's Bumble Bee Avoidance Procedure
Crotch's Bumble Bee Habitat Assessment: A thorough habitat assessment for Crotch's bumble bee shall be conducted within areas that may be impacted by project construction and operations. The assessment shall be conducted by a qualified entomologist knowledgeable with the life history and ecological requirements of Crotch's bumble bee, and include all areas of suitable overwintering, nesting, and foraging habitats.

Suitable habitat includes areas of grasslands and upland scrub that contain requisite habitat elements such as small mammal burrows and forage plants. Potential nest habitat (late February to late October) could contain underground abandoned small mammal burrows, perennial bunch grasses and/or thatched annual grasses, brush piles, old bird nests, dead trees, or hollow logs. Overwintering sites (November through early February) utilized by mated queens in self-excavated hibernacula could be present in soft, disturbed soil, sand, well drained, or loose soils, under leaf litter or other debris with ground cover requisites such as barren areas, tree litter, bare patches within short grass in areas lacking dense vegetation.

Crotch's Bumble Bee Surveys: Pre-construction surveys shall be conducted within suitable habitat that may be impacted by project construction and/or operations. Pre-construction surveys shall follow the guidance outlined in the California Bumble Bee Atlas Habitat Surveys – Cali Bumble Bee Atlas – California Bumble Bee Atlas (https://www.cabumblebeeatlas.org/habitat-surveys.html).

The peak flying time for Crotch's bumblebee is March to August, but bees could be flying any time between February 1 and October 31. Surveys between March and June are expected to have highest detection probability and are therefore the period recommended for

preconstruction surveys. Surveys shall be conducted no more than 30 days prior to the start of project construction activities, assessing all areas of suitable habitat for overwintering, nesting and foraging at, and within 100 feet of the proposed work area. Surveys should include a minimum of three survey efforts, over a three-day period within a temperature range of 15C and 30C although bumblebees and can fly and forage at near freezing temperatures.

Goals of the surveys shall be to identify the bee species through non-take methods (close lens photography), foraging plants, and potential ground nest sites on site. Surveys shall include examining flowering vegetation, any potential preferred nectar plants, small mammal burrows, bunch grasses, thatch, brush piles, old bird nests, dead trees, or hollow logs. Survey results, after the protocol was followed, would be good for one year (until the next flying period season) but a pre-activity survey would still be needed prior to ground-disturbing activities.

Pre-activity survey: Nesting surveys shall be conducted with focus on detecting active nesting colonies within one week and 24-hours immediately prior to ground disturbing activities. If an active Crotch's bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established by a qualified biologist in consultation with CDFW around the nest to reduce the risk of disturbance or accidental take. Nest avoidance buffers may be removed at the completion of the flight season and/or once the qualified biologist deems the nesting colony is no longer active and CDFW has provided concurrence of that determination. If no nests are found but the species is present, a full-time qualified biological monitor shall be present during vegetation removal or ground disturbing activities that are scheduled to occur during the queen flight period (February through March), colony active period (March through September), and/or gyne flight period (September through October). LSPGC/PG&E may relocate Crotch's bumble bees out of the work area only if a CESA incidental take permit has been obtained and any relocation follows the terms of the incidental take permit.

MM BIO-13: Monarch Butterfly
Prior to construction, a CPUC-approved qualified biologist would survey for monarch butterfly larval host plants within suitable habitat. If host plants are found, the project biologist would conduct surveys for adult monarch butterflies during the peak of the flight period to determine presence/absence, or presence may be assumed. Where adult monarch butterflies are present, or assumed to be present, host plants shall be flagged for avoidance and shall not be removed during the flight season.

MM BIO-15: Salt Marsh Harvest Mouse Avoidance
A CPUC-approved biologist, with knowledge and experience with salt marsh harvest mouse habitat requirements, shall conduct pre-activity surveys for salt marsh harvest mouse and identify and mark suitable salt marsh harvest mouse marsh habitat prior to project initiation.

Ground disturbance in occupied salt marsh harvest mouse habitat (including, but not limited to pickleweed, and emergent salt marsh vegetation) shall be avoided to the extent feasible. Where salt marsh harvest mouse habitat cannot be avoided, vegetation will be removed from the

ground disturbance work area plus a 10-foot buffer around the area, as well as any access routes within salt marsh harvest mouse habitat, utilizing mechanized hand tools or by another method approved by the USFWS and CDFW. Vegetation height shall be maintained at or below 5 inches above ground. Vegetation removal in salt marsh harvest mouse habitat will be conducted under the supervision of the CPUC-approved biologist.

Salt marsh harvest mouse marsh habitat that must be accessed to complete project construction will be protected through use of low ground pressure (LGP) equipment, wooden or PVC marsh mats, or other method approved by USFWS and CDFW following vegetation removal (as described above).

All construction equipment and materials shall be staged away from salt marsh harvest mouse habitats when not in use.

A CPUC-approved biologist with previous salt marsh harvest mouse monitoring and/or surveying experience for salt marsh harvest mouse will be on site during construction activities occurring in suitable salt marsh harvest mouse habitat. The approved biologist has the authority to stop project activities if any of the requirements associated with the measure are not being fulfilled. If salt marsh harvest mouse is observed in the work area, construction activities will cease within 200 feet of the salt marsh harvest mouse. The individual shall be allowed to leave the area before work is resumed. If the individual does not move on its own volition, the approved biologist shall contact USFWS (and CDFW if appropriate) for further guidance on how to proceed. An incidental take permit shall be required prior to any relocation of salt marsh harvest mouse.

MM BIO-17: Invasive Marine Species Control Plan
To reduce the risks of introducing or spreading invasive species during in-water work, LSPGC shall develop and implement an Invasive Marine Species Control Plan prior to initiating any in-water work for any vessels or equipment that are being imported from out of the San Francisco Bay. The Invasive Species Control Plan shall include measures designed to effectively limit the introduction and spread of invasive marine species and implement newly developed guidelines from the Marine Invasive Species Program to comply with current regulations to prevent the spread of golden mussel and any other target invasive species. Prevention measure shall include at a minimum removal of hull fouling through regular vessel maintenance, use of antifouling paints, frequent hull inspections, and overall general vessel maintenance. The Invasive Marine Species Control Plan shall include the following:

- Environmental training for all crew members working in marine areas
- Addressing invasive marine species and actions to be taken to prevent release and spread of invasive marine species
- Training procedures for safe removal and disposal of any invasive species found on project equipment

LSPGC shall submit this plan to CPUC for review and approval at least 60 days before the start of marine activities and shall submit the plan to USACE, NMFS, and CDFW for review. Vessels

originating outside San Francisco Bay shall follow existing compliance measures established by the CSLC as part of the Marine Invasive Species Program, relating to hull fouling and ballast water control.

MM BIO-18: Compensatory Mitigation for Permanent Impacts to Benthic Habitat
LSPGC shall implement compensatory mitigation for permanent impacts on benthic habitat at a ratio of 1:1 or greater, subject to approval by the appropriate resource agencies (e.g., U.S. Army Corps of Engineers, CDFW, and SWRCB). Acceptable mitigation options include:

- Habitat Restoration or Enhancement: Restore degraded benthic habitat within the same watershed through actions such as sediment removal, substrate stabilization, invasive species control, or re-establishment of native benthic communities.
- Habitat Creation: Construct or enhance off-site aquatic habitat features designed to support benthic communities, ensuring comparable ecological function and long-term viability.
- In-Lieu Fee or Mitigation Bank Credits: If on-site or off-site restoration is not feasible, the applicant shall purchase credits at a Corps-approved mitigation bank or pay an in-lieu fee to an approved conservation program with a demonstrated record of restoring aquatic habitat.

Prior to installing any structures or conducting activities that would result in permanent impacts on benthic habitat, the applicant shall prepare and submit a Benthic Habitat Mitigation and Monitoring Plan for review and approval by the lead agency and responsible resource agencies. The plan shall identify:

- The selected mitigation approach and location(s);
- Ecological function of the proposed mitigation method (i.e., must demonstrate equivalent or improved ecological functions to the impacted habitat);
- Implementation schedule;
- Long-term management and monitoring commitments (minimum of five years or until success criteria are met); and
- Adaptive management measures to address any deficiencies in achieving performance standards.

The plan shall demonstrate compensation for permanent impacts on benthic habitatt.

Performance standards

- The proposed compensatory mitigation provides restoration or replacement of impacted benthic habitat that has equivalent or improved ecological functions to the impacted habitat.
- Benthic habitat replacement shall support the species impacted by the Proposed Project permanent impacts (e.g., Delta smelt, longfin smelt)

MM BIO-19: Sensitive Natural Plant Communities
Prior to construction, a qualified biologist shall survey all final work areas and identify the extent of sensitive natural plant communities, as described in MM BIO-2 in the Pre-Construction Report. If sensitive natural plant communities are found in work areas and overland access routes, work areas and overland access routes shall be repositioned where possible to avoid adverse impacts to the sensitive natural plant communities.

If sensitive natural plant communities cannot be avoided within permanent impact areas, LSPGC/PG&E shall provide compensation lands containing the sensitive natural community at a 1:1 ratio (acres of restoration per acres of disturbance) for the amount of land containing the sensitive natural community affected by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each sensitive natural community. If compensation is required as a means of mitigating sensitive natural community impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands.

MM HYD-1: Aquatic Resource Delineation, Avoidance, Minimization, and Mitigation
Prior to construction, LSPGC and PG&E shall submit to the CPUC an Aquatic Resources Delineation Report that documents the limits of waters of the State and waters of the U.S. within the limits of the alternative work areas. Drainages shall be delineated in accordance with A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (2008) and wetlands shall be delineated in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (1987) and Arid West Regional Supplement to the Corps of Engineers Wetland Delineation Manual (Version 2.0) (2008).

Where waters of the State or waters of the U.S. are located within the alternative work areas, an Aquatic Resource Avoidance and Minimization Plan shall be prepared. The Aquatic Resource Avoidance and Minimization Plan shall document strategies for avoidance and minimization of impacts on waters of the State and waters of the U.S. wherever feasible. Avoidance strategies would include relocating poles and associated work areas where feasible to provide a minimum buffer of 10 feet from the outer limits of the aquatic resource and installing fencing to avoid project activities from encroaching on the aquatic resource. Where avoidance isn't feasible, minimization strategies could include using matting or alternative construction techniques to minimize damage to the resource and avoiding grading within the resource limits.

Where avoidance of the resource is not feasible, the responsible party (LSPGC or PG&E) shall obtain any permits required under State (Porter Cologne Water Quality Control Act and Fish and Game Code) and federal law (Clean Water Act) from the State Water Resources Control Board, California Department of Fish and Wildlife, and U.S. Army Corps of Engineers for discharge of dredged or fill materials within the waters of the State or U.S. In addition, the responsible party shall provide compensatory mitigation for impacts on the aquatic resource through preservation, enhancement, or creation of aquatic resources in kind (same type of aquatic resource). The mitigation ratio shall be at a minimum ratio of 1:1 and may be greater

depending on the type of mitigation proposed (creation, enhancement/restoration, or preservation), value of the impacted resource, and value of the mitigation resource. For any unavoidable impacts on aquatic resources, the responsible party shall submit an aquatic resource mitigation plan to the CPUC for review and approval no less than 30 days prior to construction within the aquatic resource. The aquatic resource mitigation plan shall meet the standards for compensatory mitigation as defined in the State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (2021). The responsible party shall submit evidence of successful mitigation to the CPUC through either record of purchase of mitigation lands at a mitigation bank or through an in-lieu fee program, or monitoring documenting that the compensatory mitigation has successfully compensated for the functions and values of the impacted resource per the approved mitigation plan.

PG&E Mitigation Measures

Mitigation measures that apply to PG&E are the following:

- MM BIO-1: Avoidance and Minimization of Impacts on Special-Status Plants
- MM BIO-2: Habitat Restoration
- MM BIO-3: Invasive Plant Management
- MM BIO-4: Special-Status Amphibians and Vernal Pools
- MM BIO-5: Pre-Construction Surveys and Biological Monitoring
- MM BIO-6: Alameda Whipsnake Avoidance
- MM BIO-7: Nesting Bird Management
- MM BIO-8: Burrowing Owl
- MM BIO-9: Swainson's Hawk
- MM BIO-10: Golden Eagle
- MM BIO-11: Minimization of Avian Interactions with Transmission Lines
- MM BIO-12: Crotch's Bumble Bee Avoidance Procedure
- MM BIO-13: Monarch Butterfly
- MM BIO-14: San Joaquin Kit Fox Avoidance and Minimization
- MM BIO-16: American Badger
- MM BIO-19: Sensitive Natural Plant Communities
- MM HYD-1: Aquatic Resource Delineation, Avoidance, Minimization, and Mitigation

MM BIO-1: Avoidance and Minimization of Impacts on Special-Status Plants

MM BIO-2: Habitat Restoration

MM BIO-3: Invasive Plant Management

MM BIO-4: Special-Status Amphibians and Vernal Pools

MM BIO-5: Pre-Construction Surveys and Biological Monitoring

MM BIO-6 Alameda Whipsnake Avoidance
All work in Alameda whipsnake suitable habitat will be conducted under the direction of a qualified herpetologist. If an Alameda whipsnake is encountered in the work area, all activities that have the potential to result in the harassment, injury, or death of the individual shall be immediately halted. The CPUC-approved designated biologist will then assess the situation in order to select a course of action that will avoid adverse effects to the animal. Contact with the animal will be avoided. No activities may resume within 100 feet of the Alameda whipsnake until the individual has moved out of the construction area on its own volition.

MM BIO-7: Nesting Bird Management

MM BIO-8: Burrowing Owl

MM BIO-9: Swainson's Hawk

MM BIO-10: Golden Eagle

MM BIO-11: Minimization of Avian Interactions with Transmission Lines

MM BIO-12: Crotch's Bumble Bee Avoidance Procedure

MM BIO-13: Monarch Butterfly

MM BIO-14: San Joaquin Kit Fox Avoidance and Minimization
Preconstruction survey: A focused, non-protocol level preconstruction survey for San Joaquin kit fox shall be conducted by a qualified biologist within 30-days of beginning construction of the Proposed Project. The areas to be surveyed will include project areas that contain suitable habitat for San Joaquin kit fox, plus a 500-foot survey buffer around those areas, where access is feasible and legal.

Any potentially occupied San Joaquin kit fox dens will be monitored for four consecutive nights with motion-sensing cameras and tracking media.

Unoccupied dens: If, after the fourth night of monitoring, a den is determined to be non-natal and has no sign of San Joaquin kit fox activity, then the burrow shall be scoped using a fiber optic-type inspection camera. If the burrow is determined to be empty (and the burrow is not flagged as a potential blunt-nosed leopard lizard burrow), then the entrance shall be closed-off immediately.

Occupied dens: Prior to sealing an active San Joaquin kit fox den, artificial subterranean dens shall be constructed and installed by a qualified biologist at a ratio of 2:1 within the closest

suitable habitat in areas adjacent to the project disturbance area. Artificial den location and design will follow the guidance in *Supplemental Recommendations for Protection of San Joaquin Kit Fox during Road Projects in Urban Environments* (California Department of Transportation [CDOT] 2005). The artificial den shall include two entrance tunnels leading down at no more than a 30-degree angle to the subterranean chamber; entrance tunnels oriented such that water will not flood the chamber; shaping the chamber as a box or dome, and installing a dirt floor that allows it to be enlarged by kit fox over time.

Once artificial dens have been installed, then the known/occupied dens can be closed-off or sealed and San Joaquin kit fox can be relocated outside of the fenced disturbance area. Relocation of San Joaquin kit fox shall only occur outside of the breeding season (approximately October to May).

Avoidance buffers: The avoidance buffers defined below shall be implemented to the extent feasible. If an established road crosses through an avoidance buffer, and the qualified biologist determines that use of the road would not disturb San Joaquin kit fox, then vehicle and pedestrian traffic will be allowed on the road after placement of signs in both directions of travel that call attention to the presence of sensitive San Joaquin kit fox habitat and the need to use caution and maintain speeds of less than 5 miles per hour.

- Natal/Pupping Dens: 500 feet
- Active/Known Dens: 100 feet
- Potential Dens: 50 feet

If a potential den that was determined to be inactive prior to construction becomes active during construction, and that den is located within 100 feet of construction activities, then construction activities may be allowed to continue of the same type, intensity and duration as were occurring when the den became re-occupied. However, a biological monitor will monitor the den closely during construction activities. If the biological monitor observes that construction activities are causing adverse impacts to San Joaquin kit fox, then construction activities within the disturbance buffer shall stop and the disturbance buffers specified above will be implemented.

Occupied dens: Prior to sealing an active San Joaquin kit fox den, an incidental take permit for San Joaquin kit fox must first be obtained from USFWS and CDFW. In addition, artificial subterranean dens shall be constructed and installed by a qualified biologist at a ratio of 2:1 within the closest suitable habitat in areas adjacent to the project disturbance area. Artificial den location and design will follow the guidance in *Supplemental Recommendations for Protection of San Joaquin Kit Fox during Road Projects in Urban Environments* (CDOT 2005). The artificial den shall include two entrance tunnels leading down at no more than a 30-degree angle to the subterranean chamber; entrance tunnels oriented such that water will not flood the chamber; shaping the chamber as a box or dome and installing a dirt floor that allows it to be enlarged by kit fox over time.

Once artificial dens have been installed and in compliance with any conditions in the USFWS and CDFW incidental take permit, then the known/occupied dens can be closed-off or sealed and San Joaquin kit fox can be relocated outside of the fenced disturbance area. Relocation of San Joaquin kit fox shall only occur outside of the breeding season (approximately October to May).

MM BIO-16: American Badger
A qualified biologist shall conduct a pre-construction survey for active American badger dens within 7 days prior to grading or vegetation clearing in work areas, or use of overland access routes. The pre-construction survey shall be required for potentially suitable habitat for American badger (e.g., grasslands and woodlands) located within 250 feet of work areas where grading or land vegetation clearing may occur and within or immediately adjacent to overland access routes. PG&E shall submit the survey results to CPUC prior to construction.

G&E may use cameras to determine if dens are active. If active dens are identified at any time during construction, the dens shall be flagged and avoided to the greatest extent possible through work exclusion buffers. A 250-foot work restriction buffer shall be established around active maternal dens. For non-maternal dens, a 50-foot work restriction buffer shall be established around active dens. Smaller buffers may be established through consultation with CDFW. If any cases where an active den cannot be adequately avoided (i.e., the den is located within the facility footprints or active work area), PG&E will implement passive exclusion techniques by sealing the den after animals have vacated (e.g., one-way doors). PG&E shall obtain any required permits prior to implementing any den exclusions.

A CPUC-approved qualified biologist shall inspect construction activities near active American badger dens on a weekly basis to ensure the work restriction buffers are implemented appropriately and active dens are avoided.

MM BIO-19: Sensitive Natural Plant Communities

MM HYD-1: Aquatic Resource Delineation, Avoidance, Minimization, and Mitigation (Refer to Section 4.10.13: Hydrology and Water Quality)

4.4.15 References

16 U.S.C. Ii – Protection of Bald and Golden Eagles (1940).

AECOM. 2018. "Burrowing Owl Habitat Assessment for the Solano 4 Wind Project." https://ceqanet.opr.ca.gov/2019012016/2.

Andersen, Brett R., and Keith Geluso. 2018. "Roost Characteristics and Clustering Behavior of Western Red Bats (*Lasiurus Blossevillii*) in Southwestern New Mexico." *Western North American Naturalist* 78 (2): 174–83. https://doi.org/10.3398/064.078.0208.

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*.

Avian Power Line Interaction Committee (APLIC). 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Edison Electric Institute, Avian Power Line Interaction Committee, and the California Energy Commission.

BioMaAs. 2025. "Summary of Findings: Habitat Assessment for Crotch's Bumble Bee: Collinsville 500/230 Kilovolt Substation Project." May.

CA Audubon. 2023. "Western Snowy Plovers in California."

California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation*.

California Department of Fish and Wildlife (CDFW). 2025a. "California Department of Fish and Wildlife Home Page." Archived:, May 13. https://wildlife.ca.gov.

California Department of Fish and Wildlife (CDFW). 2025b. "California Natural Diversity Database (CNDDB)." April 15.

California Department of Fish and Wildlife (CDFW). 2025c. "Chinook Salmon." Archived:, June 16. https://wildlife.ca.gov/Conservation/Fishes/Chinook-Salmon.

California Department of Fish and Wildlife (CDFW). 2025d. "Golden Eagles in California." Archived:, May 13.

California Department of Fish and Wildlife (CDFW). 2025e. "Natural Communities." Archived:, April 10. https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#natural%20communities.

California Department of Fish and Wildlife (CDFW). n.d. "Discovery of Invasive Nutria in California." Accessed August 5, 2025. https://wildlife.ca.gov/Conservation/Invasives/Species/Nutria/Infestation.

California Department of Pesticide Regulation. 2023. "California Least Tern." chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.cdpr.ca.gov/wp-content/uploads/2025/01/ca_least_tern.pdf.

California Department of Transportation (CDOT). 2005. *Urban Roads and the Endangered San Joaquin Kit Fox*. Technical Report FHWA/CA/IR-2006/01. California Department of Transportation Sacramento, CA, USA.

California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Plants of California*. 6th ed. https://www.cnps.org/rare-plants/cnps-inventory-of-rare-plants.

California Native Plant Society (CNPS). 2023a. "A Manual of California Vegetation Online." https://vegetation.cnps.org/.

California Native Plant Society (CNPS). 2023b. "Inventory of Rare and Endangered Plants of California." May 1. http://www.rareplants.cnps.org/.

California Native Plant Society (CNPS). 2025a. "A Manual of California Vegetation Online." https://vegetation.cnps.org/.

California Native Plant Society (CNPS). 2025b. "CNPS Rare Plant Inventory." https://rareplants.cnps.org/Home/Index.

Caltrans. 2020. "Technical Guidance for the Assessment of Hydroacoustic Effects of Pile Driving on Fish." October.

CDFW. 2025. "Chinook Salmon." California Department of Fish and Wildlife. https://wildlife.ca.gov/Conservation/Fishes/Chinook-Salmon.

City of Pittsburg. 2024. "City of Pittsburg General Plan 2040." April 25.

Cornell Lab of Ornithology (CLO). 2024. "Wrentit." Archived:, June 15. https://www.allaboutbirds.org/guide/wrentit.
Cornell Lab of Ornithology (CLO). 2025a. "Allen's Hummingbird." Archived:, June 15. https://www.allaboutbirds.org/guide/Allens_Hummingbird/lifehistory#habitat.
Cornell Lab of Ornithology (CLO). 2025b. "Bald Eagle." Archived:, June 15. https://www.allaboutbirds.org/guide/Bald_Eagle.
Cornell Lab of Ornithology (CLO). 2025c. "Black Tern." Archived:, June 15. https://www.allaboutbirds.org/guide/Black_Tern.
Cornell Lab of Ornithology (CLO). 2025d. "Bullock's Oriole." Archived:, June 15. https://www.allaboutbirds.org/guide/Bullocks_Oriole.
Cornell Lab of Ornithology (CLO). 2025e. "California Gull." Archived:, June 15. https://www.allaboutbirds.org/guide/California_Gull.
Cornell Lab of Ornithology (CLO). 2025f. "California Thrasher." Archived:, June 15. https://www.allaboutbirds.org/guide/California_Thrasher.
Cornell Lab of Ornithology (CLO). 2025g. "Clark's Grebe." Archived:, June 15. https://www.allaboutbirds.org/guide/Clarks_Grebe.
Cornell Lab of Ornithology (CLO). 2025h. "Lawrence's Goldfinch." Archived:, June 15. https://www.allaboutbirds.org/guide/Lawrences_Goldfinch.
Cornell Lab of Ornithology (CLO). 2025i. "Long-Eared Owl." Archived:, June 15. https://www.allaboutbirds.org/guide/Long-eared_Owl.
Cornell Lab of Ornithology (CLO). 2025j. "Marbled Godwit." Archived:, June 15. https://www.allaboutbirds.org/guide/Marbled_Godwit.
Cornell Lab of Ornithology (CLO). 2025k. "Nutall's Woodpecker." Archived:, June 15. https://www.allaboutbirds.org/guide/Nuttalls_Woodpecker.
Cornell Lab of Ornithology (CLO). 2025l. "Oak Titmouse." Archived:, June 15. https://www.allaboutbirds.org/guide/Oak_Titmouse.
Cornell Lab of Ornithology (CLO). 2025m. "Olive-Sided Flycatcher." Archived:, June 15. https://www.allaboutbirds.org/guide/Olive-sided_Flycatcher.
Cornell Lab of Ornithology (CLO). 2025n. "Short-Billed Dowitcher." Archived:, June 15. https://www.allaboutbirds.org/guide/Short-billed_Dowitcher.
Cornell Lab of Ornithology (CLO). 2025o. "Western Grebe." Archived:, June 15. https://www.allaboutbirds.org/guide/Western_Grebe.
Cornell Lab of Ornithology (CLO). 2025p. "Western Gull." Archived:, June 15. https://www.allaboutbirds.org/guide/Western_Gull.
Cornell Lab of Ornithology (CLO). 2025q. "Western Screech-Owl." Archived:, June 15. https://www.allaboutbirds.org/guide/Western_Screech-Owl.
Cornell Lab of Ornithology (CLO). 2025r. "Willet." Archived:, June 15. https://www.allaboutbirds.org/guide/Willet/.
Cornell Lab of Ornithology (CLO). 2025s. "Yellow Rail Life History, All About Birds, Cornell Lab of Ornithology." Archived:, June 19. https://www.allaboutbirds.org/guide/Yellow_Rail/lifehistory.
Cornell Lab of Ornithology (CLO). 2025t. "Yellow-Billed Magpie." Archived:, June 15. https://www.allaboutbirds.org/guide/Yellow-billed_Magpie/.

County of Sacramento. 2017. "Sacramento County General Plan Conservation Element." September 26.

Delta Stewardship Council. 2025a. "About the Delta Plan." Archived:, May 9. https://deltacouncil.ca.gov/delta-plan/.

Delta Stewardship Council. 2025b. "Delta Plan Policies." April 1.

East Contra Costa County Habitat Conservancy. 2007. "Final East Contra Costa County Habitat Conservation Plan & Natural Community Conservation Plan (HCP/NCCP)." https://www.cocohcp.org/221/Final-HCP-NCCP.

Faber-Langendoen, D., T. Keeler-Wolf, D. Meidinger, et al. 2016. *Classification and Description of World Formation Types Part II: Description of World Formations (v 2.0)*. RMRS-GTR-346. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. https://doi.org/10.2737/RMRS-GTR-346.

Gardner, Royal C, and Jessica Fox. 2013. "The Legal Status of Environmental Credit Stacking." *Ecology Law Quarterly* 40 (4).

Gustafson, Richard G, Michael Jonathan Ford, David J Teel, and Jonathan Scott Drake. 2010. *Status Review of Eulachon (*Thaleichthys Pacificus*) in Washington, Oregon, and California.* National Marine Fisheries Service.

Hatfield, R., S. Jepsen, R. Thorp, L. Richardson, and S. Colla. 2015. "Bombus Crotchii. The IUCN Red List of Threatened Species 2015: E.T44937582A46440211." https://www.iucnredlist.org/species/44937582/46440211.

ICF. 2017. *Pacific Gas and Electric Company Bay Area Operations & Maintenance Habitat Conservation Plan*. https://ecos.fws.gov/docs/plan_documents/thcp/thcp_2897.pdf.

Insignia Environmental. 2023. *Botanical Survey Report: Collinsville 500/230 Kilovolt Substation Project*.

Insignia Environmental. 2024a. *Botanical Survey Report Addendum: Collinsville 500/230 Kilovolt Substation Project*.

Insignia Environmental. 2024b. *Terrestrial Biological Resources Technical Report: Collinsville 500/230 Kilovolt Substation Project*.

Insignia Environmental. 2025a. *Aquatic Resources Delineation Report: Collinsville 500/230 Kilovolt Substation Project*.

Insignia Environmental. 2025b. "Collinsville 500/230 Kilovolt Substation Project National Oceanic and Atmospheric Administration National Marine Fisheries Service Biological Assessment." June.

Insignia Environmental. 2025c. "Terrestrial Biological Resources Technical Report Addendum #2: Collinsville 500/230 Kilovolt Substation Project." July.

Insignia Environmental. 2025d. *Terrestrial Biological Resources Technical Report Addendum: Collinsville 500/230 Kilovolt Substation Project*.

LSA. 2023. *California Foreer - Natural Resources and Conservation Issues*. https://scwa2.com/wp-content/uploads/2023/11/FINAL-HCP-MEMORANDUM_CF_10.31-ID-334258.pdf#page=11.14.

Martin, Thomas E, and Geoffrey R Geupel. 1993. "Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success." *Journal of Field Ornithology* 64 (4): 507–19.

Morey, S, T Papenfuss, and R Duke. n.d. *Glossy Snake*. California Department of Fish and Wildlife.

Mussen, Timothy D., Dennis Cocherell, Jamilynn B. Poletto, et al. 2014. "UnscreenedWater-DiversionPipesPoseanEntrainment RisktotheThreatenedGreenSturgeon,Acipenser Medirostris." *PLoS ONE* 9 (1): 1–9.

National Audubon Society. 2025. "Western Snowy Plovers in California." Archived:, May 13. https://www.audubon.org/california/get-involved/western-snowy-plovers-california.

National Invasive Species Council (NISC). 2008. *2008-2012 National Invasive Species Management Plan*.

National Marine Fisheries Service (NMFS). 2012. *Recovery Plan for the Evolutionarily Significant Unit of Central California Coast Coho Salmon*. NMFS Southwest Region. West Coast,National. https://www.fisheries.noaa.gov/resource/document/recovery-plan-evolutionarily-significant-unit-central-california-coast-coho.

National Marine Fisheries Service (NMFS). 2018. *2018 Revision to: Technical Guidance for Assessing the Effects of Antrhopogenic Sound on Marine Mammal Hearing (Version 2.0)*. NOAA Technical Memorandum NMFS-OPR-59. U.S. Department of Commerce, NOAA.

National Marine Fisheries Service (NMFS). 2024. "National Marine Fisheries Service: Summary of Endangered Species Act Acoustic Thresholds (Marine Mammals, Fishes, and Sea Turtles)." October.

National Oceanic and Atmospheric Administration (NOAA). n.d. "California Central Valley Steelhead." Archived: Accessed June 16, 2025. https://www.st.nmfs.noaa.gov/data-and-tools/Salmon_CVA/pdf/Salmon_CVA_Name_California_Central_Valley_steelhead.pdf.

NatureServe. 2025. "Blainville's Horned Lizard." Archived:, May 14. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.833104/Phrynosoma_blainvillii.

NMFS, NOAA. 2024. "Marine Mammal Acoustic Technical Guidance & Other Acoustic Tools | NOAA Fisheries." NOAA. National. https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance-other-acoustic-tools.

NMFS, and NOAA. 2025a. "California Sea Lion | NOAA Fisheries." NOAA Fisheries, April 7. West Coast. https://www.fisheries.noaa.gov/species/california-sea-lion.

NMFS, and NOAA. 2025b. "Harbor Seal | NOAA Fisheries." NOAA Fisheries, May 8. Alaska,New England/Mid-Atlantic,Southeast,West Coast. https://www.fisheries.noaa.gov/species/harbor-seal.

Oates, Mark. 2024a. *Collinsville 500/230 Kilovolt Substation Project Burrowing Owl Habitat Assessment Memo*. Insignia Environmental.

Oates, Mark. 2024b. *Collinsville 500/230 Kilovolt Substation Project California Tiger Salamander Site Assessment Memo*. Inisignia Environmental.

Pierson, Elizabeth D, William E Rainey, and Chris Corben. 2004. *Distribution and Status of Western Red Bats (*Lasiurus Blossevillii*) in California*. Prepared for Species Conservation and Recovery Program, Habitat Conservation Planning Branch, California Department of Fish and Game.

PlaceWorks. 2024. "Contra Costa 2045 General Plan - Conservation, Open Space, and Working Lands Element." November 5.

Sacramento Municipal Utility District (SMUD). 2021. *Eighth Annual Report for Sacramento Municipal Utility District's Special Purpose Utility Permit for Migratory Bird Mortality Monitoring, Solana Wind Project (Permit # MB189818-0)*.

Sacramento Municipal Utility District (SMUD). 2022. *Ninth Annual Report for Sacramento Municipal Utility District's Special Purpose Utility Permit for Migratory Bird Mortality Monitoring, Solana Wind Project (Permit # MB189818-0)*.

Sacramento Municipal Utility District (SMUD). 2023. *Annual Report for Sacramento Municipal Utility District's Special Utility Permit for Migratory Bird Mortality Monitoring (Permit # MB189818-0)*.

Sacramento Municipal Utility District (SMUD). 2024. *Eleventh Annual Report for Sacramento Municipal Utility District's Special Purpose Utility Permit for Migratory Bird Mortality Monitoring, Solana Wind Project (Permit # MB189818-0)*.

Sacramento Municipal Utility District (SMUD). 2025. *Twelfth Annual Report for Sacramento Municipal Utility District's Special Purpose Utility Permit for Migratory Bird Mortality Monitoring, Solana Wind Project (Permit # MB189818-0)*.

Solano County. 2008. "Solano County General Plan - Chapter 4 Resources."

Solano County. 2018. *Solano County Component of the Suisun Marsh Local Protection Program*. Available: https://bcdc.ca.gov/resources/laws-and-regulations/solano-county-component-of/.

Solano County Water Agency. 2012. *Solano Multispecies Habitat Conservation Plan*. https://scwa2.com/solano-multispecies-habitat-conservation-plan/.

Steenhof, Karen, Michael N. Kochert, and Jerry A. Roppe. 1993. "Nesting by Raptors and Common Ravens on Electrical Transmission Line Towers." *The Journal of Wildlife Management* 57 (2): 271. https://doi.org/10.2307/3809424.

U.S. Fish and Wildlife Service. 2012. *Land-Based Wind Energy Guidelines*. U.S. Fish and Wildlife Service. https://www.fws.gov/sites/default/files/documents/WEG_final.pdf.

U.S. Fish and Wildlife Service (USFWS). 2002. *Recovery Plan for the California Red-Legged Frog (*Rana Aurora Draytonii. U.S. Fish and Wildlife Service Region 1, Portland, Oregon. https://ecos.fws.gov/docs/recovery_plan/020528.pdf.

U.S. Fish and Wildlife Service (USFWS). 2017. *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma Californiense. U.S. Fish and Wildlife service Region 8, Sacramento, California. https://ecos.fws.gov/docs/recovery_plan/Signed%20Central%20CTS%20Recovery%20Plan.pdf.

U.S. Fish and Wildlife Service (USFWS). 2020. "Migratory Bird Treaty Act of 1918." April 26. https://www.fws.gov/law/migratory-bird-treaty-act-1918.

U.S. Fish and Wildlife Service (USFWS). 2021. *Birds of Conservation Concern 2021*. Birds of Conservation Concern 2021. https://www.fws.gov/sites/default/files/documents/birds-of-conservation-concern-2021.pdf.

U.S. Fish and Wildlife Service (USFWS). 2023. "Information for Planning and Consultation (IPaC)."

U.S. Fish and Wildlife Service (USFWS). 2024. "National Wetlands Inventory." March 22. https://www.fws.gov/program/national-wetlands-inventory.

U.S. Fish and Wildlife Service (USFWS). 2025a. "Colusa Grass." Archived:, May 11.
U.S. Fish and Wildlife Service (USFWS). 2025b. "Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the San Francisco Bay-Delta Distinct Population Segment of the Longfin Smelt." Federal Register, January 15. https://www.federalregister.gov/documents/2025/01/15/2024-29641/endangered-and-threatened-wildlife-and-plants-designation-of-critical-habitat-for-the-san-francisco.
U.S. Fish and Wildlife Service (USFWS). 2025c. "Environmental Conservation Online System." Archived:, May 13. https://ecos.fws.gov/ecp/.
U.S. Fish and Wildlife Service (USFWS). 2025d. "Information for Planning and Consultation (IPaC)." https://ipac.ecosphere.fws.gov/location/index.
U.S. Fish and Wildlife Service (USFWS). 2025e. "Monarch." Archived:, May 13. https://www.fws.gov/species/monarch-danaus-plexippus.
U.S. Fish and Wildlife Service (USFWS). 2025f. "National Wetlands Inventory." https://www.fws.gov/wetlands/.
U.S. Fish and Wildlife Service (USFWS). n.d. "Species Profile for Delta Smelt(Hypomesus Transpacificus)." Accessed August 8, 2025. https://ecos.fws.gov/ecp/species/321.
U.S. Geological Survey (USGS). 2025. "National Hydrography Dataset." Archived:, April 10. https://www.usgs.gov/national-hydrography/national-hydrography-dataset.
Washington Department of Fish and Wildlife. 2025. "American Badger (*Taxidea Taxus*)." Archived:, June 19. https://wdfw.wa.gov/species-habitats/species/taxidea-taxus.
Western Bat Working Group (WBWG). 1998. "Priority Matrices – WBWG." (Reno, NV). https://wbwg.org/matrices/.
WRA Environmental Consultants. 2024. *DRAFT Collinsville 500/230 Kilovolt Substation Project Aquatic Resources Technical Report*.
WRA Environmental Consultants. 2025. *Aquatic Resources Technical Report: Collinsville 500/230 Kilovolt Substation Project*.
Xerces Society for Invertebrate Conservation. 2025a. "Bumble Bee Atlas to Date." Archived:, June 19. https://www.arcgis.com/apps/dashboards/183b95b3ecbc42858ca3786749802e96.
Xerces Society for Invertebrate Conservation. 2025b. "Western Bumble Bee." Archived:, May 14. https://xerces.org/endangered-species/species-profiles/at-risk-bumble-bees/western-bumble-bee.